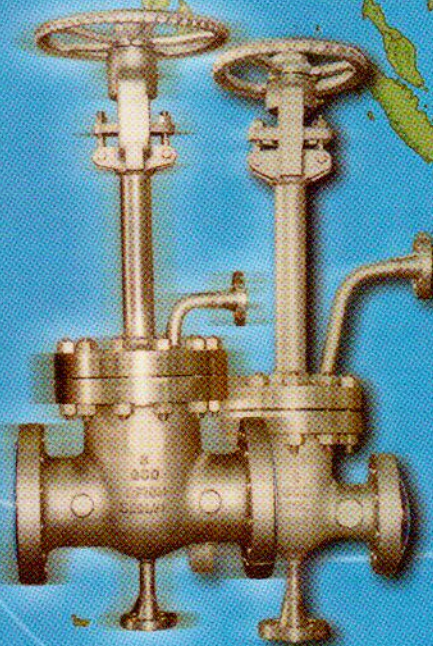


AUTHORIZED COMPANY



CASTING VALVE

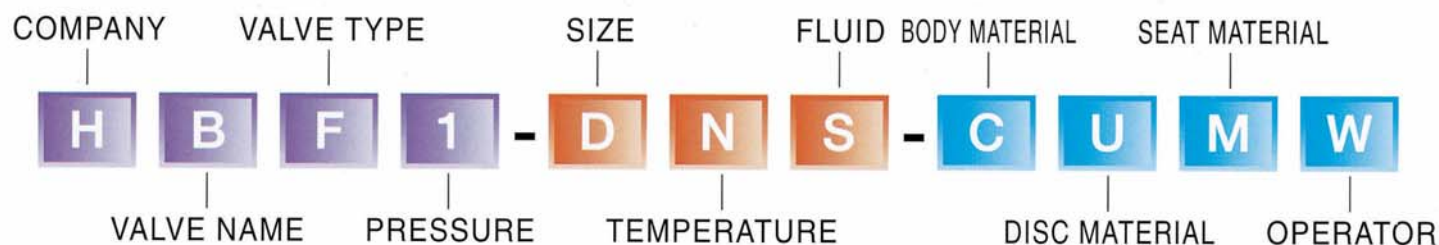
GATE VALVE • GLOBE VALVE • SWITCH • BALL • PLUG • VALVE
CARBON & ALLOY STEEL STAINLESS STEEL VALVE



Hawks Eng'g Co., Ltd.



Hawks Eng'r Co., Ltd.



H-COMPANY

HAWKS Co., Ltd.

B-VALVE NAME

B/Butterfly, GA/Gate,
GL/Globe, BA/Ball,
CH/Check.

F-VALVE TYPE

F/Flange, L/Lugged,
W/Wafer, B/Butt
Weld, S/Special

1-PRESSURE

1/10k(150#), 2/20k(300#),
3/30k(450#), 4/40k(600#),
6/60k(900#), 9/90k(1500#), etc...

D-SIZE

Standard -- 2"~24"
A/2", B/2.5", C/3", D/4", E/5", F/6",
G/8", H/10", J/12", K/14", L/16", M/18",
N/20", O/24", P/28", Q/32", R/36", S/40",
T/44", U/48". etc ... Others is a
marking of additionally
dependable by the buyer.

N-TEMPERATURE

1/100°C, 2/200°C, 3/300°C,
5/500°C, 7/700°C, 9/900°C
N/20 (normal temp')
Low temp is a marking of
additionally dependable by
the buyer.

S-FLUID

S/Steam, W/Water,
O/Oil, G/Gas,
B/Brine, C/Chemical

C-BODY MATERIAL

D : CARBON STEEL
E : HIGH TEMP ALLOY STEEL
F : LOW TEMP ALLOY STEEL
S : STAINLEN STEEL
Others is a marking of
additionally dependable
by the buyer.

DISC MATERIAL

S : 304, 316SS
F : A217-CA15
W : A216-WCB
Others is a marking of
additionally dependable
by the buyer.

SEAT MATERIAL

M : 304SS, 316SS
H : HF STELLITE
F : FULL STELLITE
Others is a marking of
additionally dependable
by the buyer.

W-OPERATOR

L/Hand wheel
W/Worm gear
P/Pneumatic actuator
H/Hydraulic actuator
E/Electric actuator

Forged steel gate valves

Hawks valves are available in three bonnet designs. The first design is the Bolted Bonnet, with male–female joint, spiral wound gasket, made in F304L/graphite. Ring joint gasket are also available on request. The second design is the welded bonnet, with a threaded and seal welded joint. On request a full penetration strength welded joint is available, The third design is the pressure seal bonnet, with a threaded and pressure seal bonnet joint.

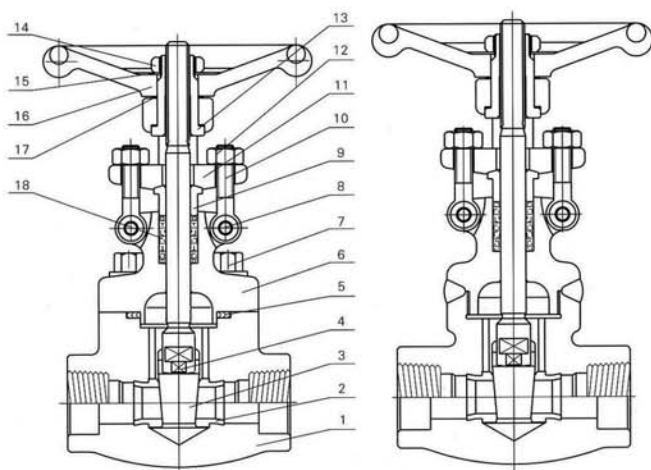


Construction is as follows

- ※ Full port or conventional port;
- ※ Outside screw and yoke (OS & Y);
- ※ Two piece self-aligning packing gland;
- ※ Bolted bonnet & spiral wound gasket seal bonnet;
- ※ Bolted bonnet with spiral-wound gasket, threaded and seal welded bonnet or threaded and pressure seal bonnet;
- ※ Integral backseat;
- ※ Socket weld ends to ASME B16.11;
- ※ Screwed ends (NPT) to ANSI/ASME B1.20.1.



Female threaded and socket welded gate valves



Application standards

- Design and manufacture conform to API 602, BS5352, ANSI B16.34;
- Connection ends conform to:
 - Socket welded dimension conform to ANSI B16.11
 - Screw ends dimension conform to ANSI B1.20.1
 - Butt-welded conform to ANSI B16.25
 - Flanged ends conform to ANSI B16.5
- Test and inspection conform to: API 598
- Structure features:
 - Bolted bonnet, outside screw and yoke
 - Welded bonnet, outside screw and yoke
- Materials conform to ANIS/ASTM.
- Main materials: A105; LF2; F5; F11; F22; 304(L); 316(L); F347; F321; F51; Monel; 20 Alloy.

Carbon steel temperature-pressure rate

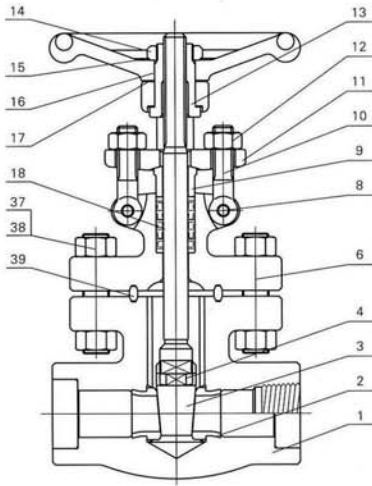
CL150-285 P.S.I @ 100° F
CL300-740 P.S.I @ 100° F
CL600-1480 P.S.I @ 100° F
CL800-1975 P.S.I @ 100° F
CL1500-3705 P.S.I @ 100° F

Main part materials list

NO.	Part name	A105/F6a	A105/F6aHFS	LF2/304	F11/F6aHF	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	A105	A105	LF2	F11	F304(L)	F316(L)	F51
2	Seat	410	410HF	304	410HF	304(L)	316(L)	F51
3	Wedge	F6a	F6a	F304	F6aHF	F304(L)	F316(L)	F51
4	Stem	410	410	304	410	304(L)	316(L)	F51
5	Gasket	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	316+ Flexible graphite	316+ Flexible graphite
6	Bonnet	A105	A105	LF2	F11	F304(L)	F316(L)	F51
7	Bolt	B7	B7	L7	B16	B8(M)	B8(M)	B8M
8	Pin	410	410	410	410	304	304	304
9	Gland	410	410	304	410	304	316	F51
10	Gland eyebolt	B7	B7	L7	B16	B8(M)	B8(M)	B8M
11	Gland flange	A105	A105	LF2	F11	F304	F304	F304
12	Hex nut	2H	2H	2H	2H	8(M)	8(M)	8M
13	Stem nut	410	410	410	410	410	410	410
14	Locking nut	35	35	35	35	35	35	35
15	Nameplate	AL	AL	AL	AL	AL	AL	AL
16	Handwheel	A197	A197	A197	A197	A197	A197	A197
17	Lubricating gasket	410	410	410	410	410	410	410
18	Packing	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite



Female threaded and socket welded gate valves



Application standards

- 1、 Design and manufacture conform to
API 602、 BS5352、 ANSI B16.34;
- 2、 Connection ends conform to:
1)Socket welded ends conform to ANSI B16.11
2)Screw ends conform to ANSI B1.20.1
3)Butt-welded ends conform to ANSI B16.25
4)Flanged ends conform to ANSI B16.5
- 3、 Test and inspection conform to:
API 598
- 4、 Structure features:
Bolted bonnet, outside screw and yoke
Welded bonnet, outside screw and yoke
- 5、 Materials conform to ANSI/ASTM.
- 6、 Main materials:
A105; LF2; F5; F11; F22; 304(L); 316(L); F347;
F321; F51; Monel; 20 Alloy.

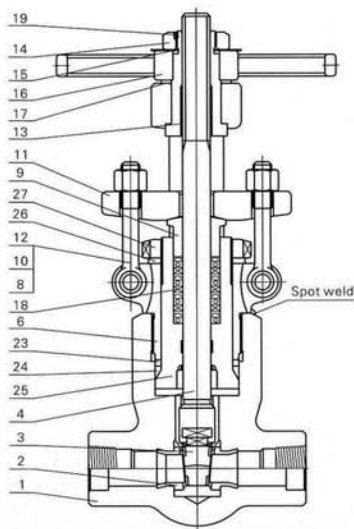
Carbon steel temperature–pressure rate

CL150–285 P.S.I @ 100° F
CL300–740 P.S.I @ 100° F
CL600–1480 P.S.I @ 100° F
CL800–1975 P.S.I @ 100° F
CL1500–3705 P.S.I @ 100° F

Main part materials list

NO.	Part name	A105/F6a	A105/F6aHFS	LF2/304	F11/F6aHF	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	A105	A105	LF2	F11	F304(L)	F316(L)	F51
2	Seat	410	410HF	304	410HF	304(L)	316(L)	F51
3	Wedge	F6a	F6a	F304	F6aHF	F304(L)	F316(L)	F51
4	Stem	410	410	304	410	304(L)	316(L)	F51
6	Bonnet	A105	A105	LF2	F11	F304(L)	F316(L)	F51
8	Pin	410	410	410	410	304	304	304
9	Gland	410	410	304	410	304	316	F51
10	Gland eyebolt	B7	B7	L7	B16	B8(M)	B8(M)	B8M
11	Gland flange	A105	A105	LF2	F11	F304	F304	F304
12	Hex nut	2H	2H	2H	2H	8(M)	8(M)	8M
13	Stem nut	410	410	410	410	410	410	410
14	Locking nut	35	35	35	35	35	35	35
15	Nameplate	AL	AL	AL	AL	AL	AL	AL
16	Handwheel	A197	A197	A197	A197	A197	A197	A197
17	Lubricating gasket	410	410	410	410	410	410	410
18	Packing	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
37	Screwed stud	B7	B7	L7	B16	B8(M)	B8(M)	B8(M)
38	Nut	2H	2H	8	8	8(M)	8(M)	8(M)
39	Metal ring	304	304	304	304	304(L)	316(L)	F51

Pressure sealing gate valves



Application standards

- 1、Design and manufacture conform to
API 602、BS5352、ANSI B16.34
- 2、Connection ends conform to:
 - 1)Socket welded dimension conform to ANSI B16.11
 - 2)Screw ends dimension conform to ANSI B1.20.1
 - 3)Butt-welded conform to ANSI B16.25
 - 4)Flanged ends conform to ANSI B16.5
- 3、Test and inspection conform to:
API 598
- 4、Structure features:
A threaded and pressure seal bonnet
- 5、Materials conform to ANIS/ASTM.
- 6、Main materials:
A105; LF2; F5; F11; F22; 304(L); 316(L); F347; F321; F91;
Monel; 20 Alloy.

Carbon steel temperature-pressure rate

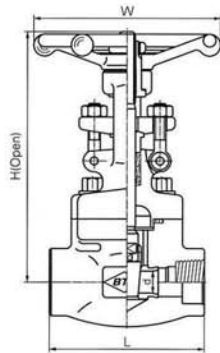
CL1500-3705 P.S.I @ 100° F
CL2500-6170 P.S.I @ 100° F

Main part materials list

NO.	Part name	A105/F6a	A105/F6aHFS	LF2/304	F11/F6aHF	F304(L)/304(L)	F316(L)/316(L)	F91/410 HF
1	Body	A105	A105	LF2	F11	F304(L)	F316(L)	F91
2	Seat	410	410HF	304	410HF	304(L)	316(L)	410HF
3	Wedge	F6a	F6a	F304	F6aHF	F304(L)	F316(L)	F6aHF
4	Stem	410	410	304	410	304(L)	316(L)	410
6	Bonnet	A105	A105	LF2	F11	F304(L)	F316(L)	F91
8	Pin	410	410	410	410	304	304	410
9	Gland	410	410	304	410	304	316	410
10	Gland eyebolt	B7	B7	L7	B16	B8(M)	B8(M)	B8
11	Gland flange	A105	A105	LF2	F11	F304	F304	F91
12	Hex nut	2H	2H	2H	2H	8(M)	8(M)	8
13	Stem nut	410	410	410	410	410	410	410
14	Locking nut	35	35	35	35	35	35	35
15	Nameplate	AL	AL	AL	AL	AL	AL	AL
16	Handwheel	A197	A197	A197	A197	A197	A197	A190
17	Lubricating gasket	410	410	410	410	410	410	410
18	Packing	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
19	Stop nut	35	35	35	35	35	35	35
23	Seal gasket	420	420	304	304	304(L)	316(L)	420
24	P.S.ring	304	304	304	304	304	316	316
25	P.S.seat	420	420	304	304	304(L)	316(L)	F91
26	Nut pad	410	410	410	410	410	410	410
27	Packing nut	Cast steel	Cast steel	Cast steel	Cast steel	Stainless steel	Stainless steel	Cast steel

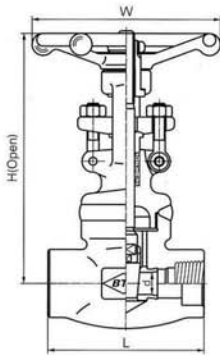


Female threaded and socket welded gate valves



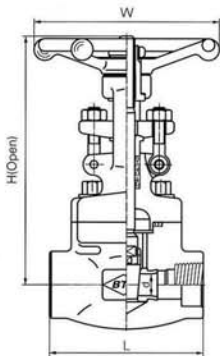
CL800 Bolted bonnet, full port reducing port outside screw and yoke(OS & Y) Threaded, butt-welded or socket welded ends; design to API 602

Specification (NPS)	R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	79	79	92	111	120	120	140	178	180
Handwheel diameter	W	100	100	100	125	160	160	180	200	220
Height	H	161	161	163	196	223	251	290	333	370
Flow port dimension	d	8	10.5	13.5	18	24	29	36.5	45	51
Weight(Kg)		2.3	2.22	2.39	4.24	5.7	7.05	10.9	16.8	24



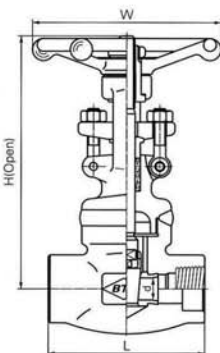
CL800 Welded bonnet, full port reducing port outside screw and yoke(OS & Y) Threaded, butt-welded or socket welded ends; design to API 602

Specification (NPS)	R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	79	79	92	111	120	120	140	178	180
Handwheel diameter	W	100	100	100	125	160	160	180	200	220
Height	H	161	161	163	196	223	251	290	333	370
Flow port dimension	d	8	10.5	13.5	18	24	29	36.5	45	51
Weight(Kg)		1.9	1.9	2.1	3.2	5.2	6.9	10.4	15.8	22



CL900-CL1500 Bolted bonnet, full port reducing port outside screw and yoke(OS&Y) Threaded, butt-welded or socket welded ends; design to API 602

Specification (NPS)	R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	92	111	111	120	120	140	178	180	-
Handwheel diameter	W	100	125	125	160	160	180	200	220	-
Height	H	191	191	192	219	243	296	316	370	-
Flow port dimension	d	8	10.5	13.5	18	24	29	36.5	45	-
Weight(Kg)		2.4	4.4	4.3	6	7.2	11.4	16	23	-

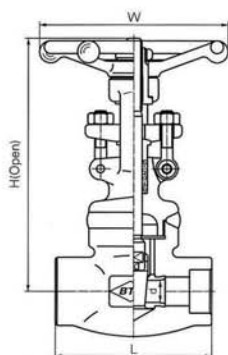


CL900-CL1500 Welded bonnet, full port reducing port outside screw and yoke(OS&Y) Threaded, butt-welded or socket welded ends; design to API 602

Specification (NPS)	R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	92	111	111	120	120	140	178	180	-
Handwheel diameter	W	100	125	125	160	160	160	200	220	-
Height	H	171	207	207	240	258	330	355	370	-
Flow port dimension	d	8	10.5	13.5	18	24	29	36.5	45	-
Weight(Kg)		2.3	4	4	4.8	7.1	11	16	22.8	-



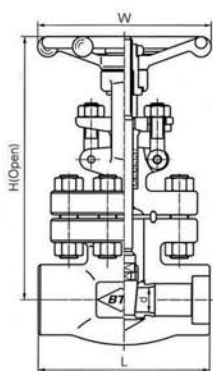
Female threaded and socket welded gate valves



CL2500

Welded bonnet, full port outside screw and yoke (OS & Y)
Socket welded ends, design conform to ASME B16.34

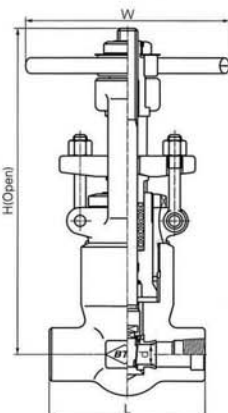
Specification(NPS)		1/4	3/8	1/2	3/4	1	1 1/4	2
Face to face	L	111	120	120	120	140		
Handwheel diameter	W	125	160	160	180	220		
Height	H	215	218	220	238	281		
Flow port dimension	d	14	14	14	19	25		
Weight(Kg)		7	8.7	8.5	11.7	17		



CL1500-CL2500

Bolted bonnet, full port outside screw and yoke (OS & Y)
Socket welded ends, design conform to ASME B16.34

Specification(NPS)	F.P		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	CL1500	110	150	150		210	235	
		CL2500	150	150	210		235	235	
Handwheel diameter	W	CL1500	110	130	130		180	250	
		CL2500	130	130	250		300	300	
Height	H	CL1500	277	300	390		400	435	
		CL2500	293	300	390		435	435	
Flow port dimension	d	CL1500	14	17	22		35	37	
		CL2500	14	14	14		25	30	
Weight(Kg)		CL1500	5.1	11	12.1		22	37	
		CL2500	11	11.3	22.4		38	38	



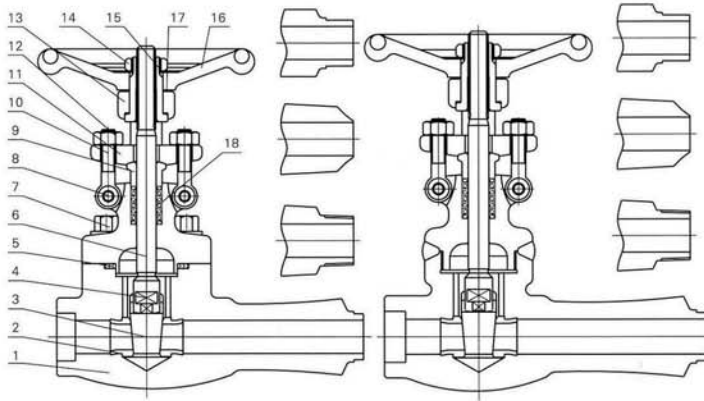
CL1500-CL2500

Pressure seal bonnet, full port outside screw and yoke(OS & Y)
Socket welded ends, design conform to ASME B16.34

Specification(NPS)	F.P		3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	CL900~1500	140	140	140	140	178	178	216
		CL2500	186	186	186	186	232	232	279
Handwheel diameter	W	CL900~1500	200	200	200	200	280	280	300
		CL2500	200	200	200	200	280	280	300
Height	H	CL900~1500	318	318	318	322	467	468	540
		CL2500	325	325	325	327	467	468	540
Flow port dimension	d	CL900~1500	14	14	14	19	25	30	36.5
		CL2500	14	14	14	19	25	30	36.5
Weight(Kg)		CL900~1500	11.5	11.5	10.8	10.5	19.6	21.0	55.4
		CL2500	12.3	12.3	11.6	10.8	26.0	28.4	60.0



Extended body gate valves



Application standards

- 1、 Design and manufacture conform to
API 602、 BS5352、 ANSI B16.34;
- 2、 Connection ends conform to:
1)Socket welded ends conform to ANSI B16.11
2)Screw ends conform to ANSI B1.20.1
3)Butt-welded ends conform to ANSI B16.25
4)Flanged ends conform to ANSI B16.5
- 3、 Test and inspection conform to:
API 598;
- 4、 Structure features:
Bolted bonnet, outside screw and yoke
Welded bonnet, outside screw and yoke
- 5、 Materials conform to ANSI/ASTM.
- 6、 Main materials:
A105; LF2; F5; F11; F22; 304(L); 316(L); F347;
F321; F51; Monel; 20 Alloy.

Carbon steel temperature-pressure rate

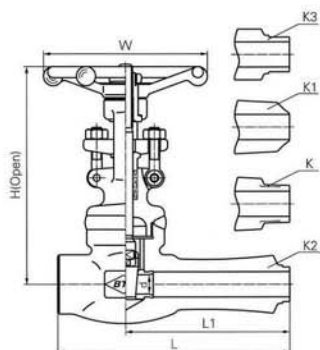
CL150-285 P.S.I @ 100° F
CL300-740 P.S.I @ 100° F
CL600-1480 P.S.I @ 100° F
CL800-1975 P.S.I @ 100° F
CL1500-3705 P.S.I @ 100° F

Main part materials list

NO.	Part name	A105/F6a	A105/F6aHFS	LF2/304	F11/F6aHF	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	A105	A105	LF2	F11	F304(L)	F316(L)	F51
2	Seat	410	410HF	304	410HF	304(L)	316(L)	F51
3	Wedge	F6a	F6a	F304	F6aHF	F304(L)	F316(L)	F51
4	Stem	410	410	304	410	304(L)	316(L)	F51
5	Gasket	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	316+ Flexible graphite	316+ Flexible graphite
6	Bonnet	A105	A105	LF2	F11	F304(L)	F316(L)	F51
7	Bolt	B7	B7	L7	B16	B8(M)	B8(M)	B8M
8	Pin	410	410	410	410	304	304	304
9	Gland	410	410	304	410	304	316	F51
10	Gland eyebolt	B7	B7	L7	B16	B8(M)	B8(M)	B8M
11	Gland flange	A105	A105	LF2	F11	F304	F304	F304
12	Hex nut	2H	2H	2H	2H	8(M)	8(M)	8M
13	Stem nut	410	410	410	410	410	410	410
14	Locking nut	35	35	35	35	35	35	35
15	Nameplate	AL	AL	AL	AL	AL	AL	AL
16	Handwheel	A197	A197	A197	A197	A197	A197	A197
17	Lubricating gasket	410	410	410	410	410	410	410
18	Packing	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite

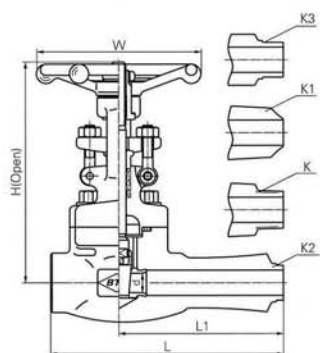


Extended body gate valves



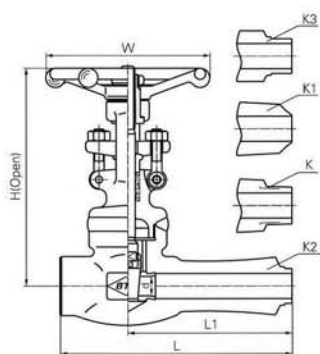
CL800 Welded bonnet, reducing port outside screw and yoke(OS & Y)
Threaded, butt-welded or socket welded ends; design to API 602, API 606

Specification(NPS)		1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	192	215	239	239	258	262
		153	153	182	182	216	216
Extended length	L1	152	170	184	184	193	197
		108	108	127	127	152	152
Handwheel diameter	W	100	100	125	160	160	180
Height	H	161	163	196	223	251	290
Flow port dimension	d	10.5	13.5	18	24	29	36.5
Weight(Kg)	K2	2.5	2.7	4.5	6.3	8.5	11.6
	K, K1, K3	2.2	2.4	3.4	6	8.0	11.4



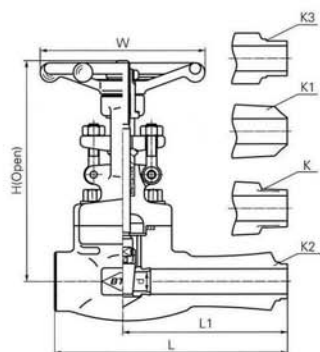
CL800 Bolted bonnet, reducing port outside screw and yoke(OS & Y)
Threaded, butt-welded or socket welded ends; design to API 602, API 606

Specification(NPS)		1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	192	215	239	239	258	262
		153	153	182	182	216	216
Extended length	L1	152	170	184	184	193	197
		108	108	127	127	152	152
Handwheel diameter	W	100	100	125	160	160	180
Height	H	161	163	196	223	251	290
Flow port dimension	d	10.5	13.5	18	24	29	36.5
Weight(Kg)	K2	2.8	2.0	5.5	7	8.5	12.1
	K, K1, K3	2.4	2.5	5	6.1	7.8	11.5



CL1500 Welded bonnet, reducing port outside screw and yoke(OS & Y)
Threaded, butt-welded or socket welded ends; design to API 602, API 606

Specification(NPS)		1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	239	239	239	258	262	264
		182	182	182	216	216	264
Extended length	L1	184	184	184	193	197	189
		127	127	127	152	152	189
Handwheel diameter	W	125	125	160	160	180	200
Height	H	207	207	240	258	330	370
Flow port dimension	d	10.5	13.5	18	24	29	36.5
Weight(Kg)	K2	5.6	5.6	7.1	8.7	12.5	16.3
	K, K1, K3	5.1	5.1	6.2	8	11.7	15.7

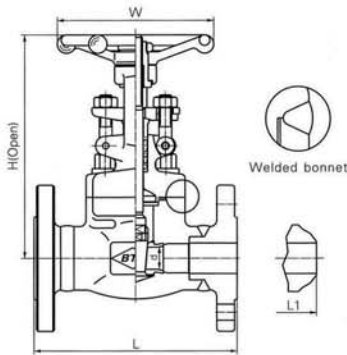


CL1500 Bolted bonnet, reducing port outside screw and yoke(OS & Y)
Threaded, butt-welded or socket welded ends; design to API 602, API 606

Specification(NPS)		1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	239	239	239	258	262	264
		182	182	182	216	216	264
Extended length	L1	184	184	184	193	197	189
		127	127	127	152	152	189
Handwheel diameter	W	125	125	160	160	180	200
Height	H	207	207	240	258	330	370
Flow port dimension	d	10.5	13.5	18	24	29	36.5
Weight(Kg)	K2	6	6	7.7	9.2	13.2	16.7
	K, K1, K3	5.7	5.7	6.5	8.2	12.3	15.9



Forged steel flange gate valves

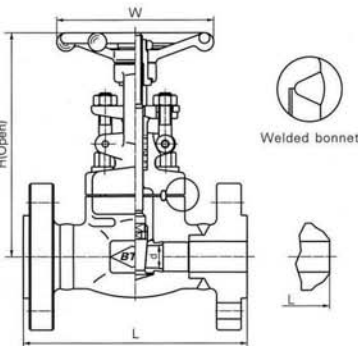


CL150-300-600

Bolted bonnet, reducing port outside screw and yoke(OS & Y)
Flange-welded or butt-welded ends; design to API602;BS5352

Specification(NPS)				1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	CL150	L(RF) L1(BW)		–	–	108	117	127	140	165	178	190
	CL300			–	–	140	152	165	178	190	216	241
	CL600			–	–	165	190	216	229	241	292	330
Handwheel diameter		W		–	–	100	100	125	160	160	180	200
Height	CL150	H		–	–	176	184	217	226	250	290	357
	CL300,CL600			–	–	161	163	196	226	250	290	357
Height (angle dinmension)		d		–	–	10	13.5	18	24	29	36.5	45
Weight (Kg)	CL150	RF		–	–	3.4	3.98	6.12	7.2	10.4	15.5	24.5
		BW		–	–	2.8	3.3	5.4	7.1	8.2	12.5	20
	CL300	RF		–	–	3.77	4.89	7.23	9.6	12.64	18	26.2
		BW		–	–	3.5	4.4	6.8	8.1	9.2	15.4	22
	CL600	RF		–	–	4.2	5.8	8.8	12.1	15.6	19.5	32
		BW		–	–	4.5	5.1	8.2	10.5	12.4	20.1	28

If you want to order one piece body, please contract with sale department

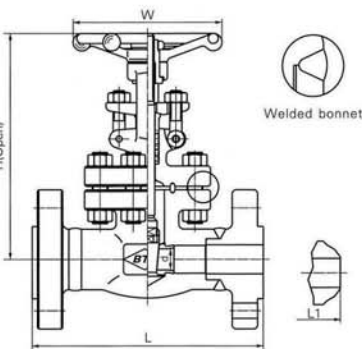


CL900-CL1500

Welded bonnet, full port outside screw and yoke(OS & Y)
Flange-welded or butt-welded ends; design to BS 5352

Specification(NPS)		1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L(RF),L1(BW)	–	–	216	229	254	279	305	368
	L(RTJ)	–	–	216	229	254	279	305	371
Handwheel diameter	W	–	–	125	125	160	180	200	220
Height	H	–	–	191	192	219	257	296	316
Height(angle dinmension)	d	–	–	13.5	18	24	29	36.5	45
Weight(Kg)		–	–	7.2	11.5	15.6	16.2	22.6	28.2

If you want to order one piece body, please contract with sale department



CL2500

Bolted bonnet, full port outside screw and yoke(OS & Y)
Flange-welded or butt-welded ends; design to ASME B16.34

Specification(NPS)		1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face (mm)	L(RF),L1(BW)	-	-	264	273	308	-	384	451
	L(RTJ)	-	-	264	273	308	-	387	454
Handwheel diameter		W	-	-	125	160	160	200	240
Height		H	-	-	207	240	258	355	370
Height(angle dinmension)		d	-	-	13.5	13.5	19	30	36.5
Weight(Kg)		-	-	19.5	21.5	42	-	65	95

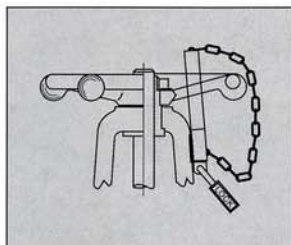
CL2500

Pressure seal gate valves, full port outside screw and yoke(OS & Y)
Flange-welded or butt-welded ends; design to ASME B16.34

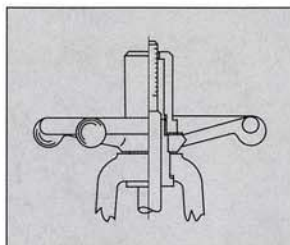
Specification(NPS)		1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L(RF),L1(BW)	-	-	264	273	308	-	384	451
	L(RTJ)	-	-	264	273	308	-	387	454
Handwheel diameter		W	-	-	200	200	200	280	300
Height		H	-	-	325	325	327	478	540
Height(angle dinmension)		d	-	-	13.5	13.5	19	30	36.5
Weight(Kg)		-	-	4.6	6.8	7.6	-	15	21.9



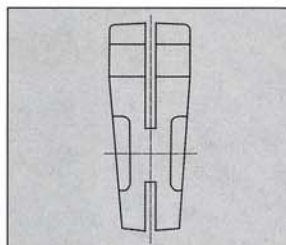
Chosen devices and varieties of gate valves



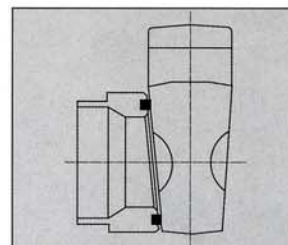
Locking device



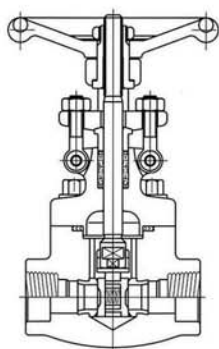
Position indicator



Flexible wedge

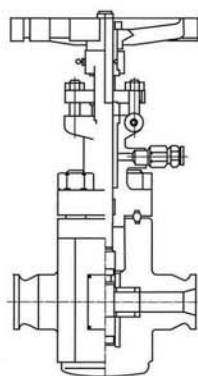


Insert PTFE seat



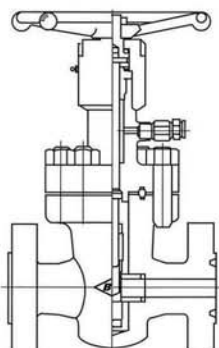
Dynamic double-wedge gate valves

API 6D Outside screw and yoke	CLASS	Materials
	600	Carbon Steel, Cryogenic Carbon Steel/ Alloy Steel, Stainless steel
	900/1500	
	2500	



Flat gate valves

API 6D Outside screw and yoke	CLASS	Materials
	600	Carbon Steel, Cryogenic Carbon Steel/ Alloy Steel, Stainless steel
	900/1500	
	2500	

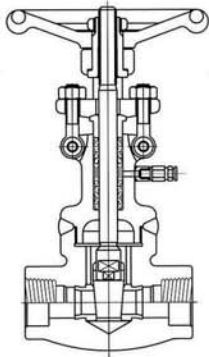


Flat gate valves

API 6A Outside screw and yoke	CLASS	Materials
	3000	Carbon Steel, Cryogenic Carbon Steel/ Alloy Steel, Stainless steel
	5000	
	10000	



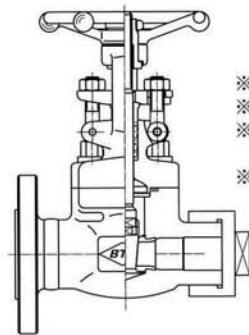
Special purposes gate valves



- ※Welded bonnet
- ※OS & Y
- ※Packing
- ※Distance ring
- ※Injector sealing gum valves
- ※Solid wedge

Vacuum gate valves

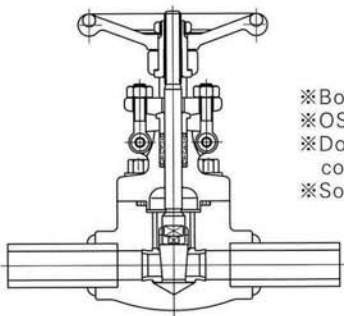
CLASS 800 API 602-BS 5352 Reduced port & full port	Temperature-pressure rate	Materials		
		Body/bonnet	Trim	Bolt
	1975 psi @ 100° F	Cast steel	13Cr	B7



- ※Bolted
- ※OS & Y
- ※Cap fitting connection
- ※Solid wedge

For venting and/or releasing media

CLASS 800 API 602-BS 5352 Reduced port & full port	Temperature-pressure rate	Materials		
		Body/bonnet	Trim	Bolt
	1975 psi @ 100° F	Cast steel	13Cr	B7

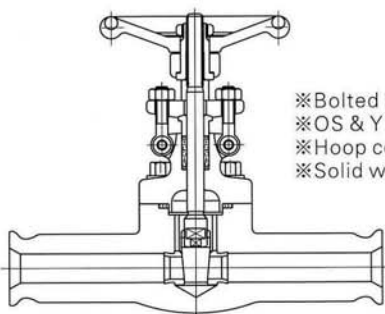


- ※Bolted bonnet
- ※OS & Y
- ※Double end pipe connection
- ※Solid wedge

Coupling pipe valves

CLASS 800 API 602-BS 5352 Reduced port & full port	Temperature-pressure rate	Materials		
		Body/bonnet	Trim	Bolt
	1975 psi @ 100° F	Cast steel	13Cr	B7

Please explain pipe length to sale person when you order.



- ※Bolted bonnet
- ※OS & Y
- ※Hoop connection
- ※Solid wedge

Hoop gate valves

CLASS 800 API 602-BS 5352 Reduced port & full port	Temperature-pressure rate	Materials		
		Body/bonnet	Trim	Bolt
	1975 psi @ 100° F	Cast steel	13Cr	B7



Forged steel globe valves

Hawks valves are available in Three bonnet designs. The first design is the Bolted Bonnet, with male-Female joint, spiral wound gasket, made in F304L/graphite, Ring joint gasket are also available on request. The second design is the welded bonnet, with a threaded and seal welded joint. On request a full penetration strength welded joint is available. The third design is the pressure seal bonnet, with a threaded and pressure seal bonnet joint.

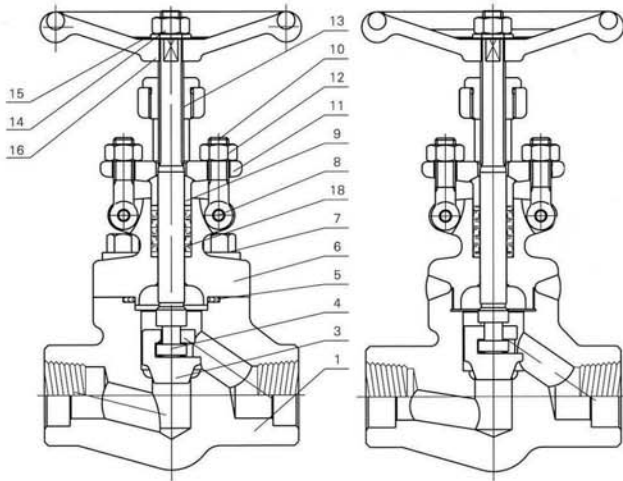


Construction is as follows

- ※ Full port or conventional port;
- ※ Outside screw and yoke (OS&Y);
- ※ Two piece self-aligning packing gland;
- ※ Bolted bonnet with spiral-wound gasket, threaded and seal welded bonnet or threaded and pressure seal bonnet;
- ※ Integral backseat;
- ※ Socket weld ends to ASME B16.11;
- ※ Screwed ends(NPT) to ANSI/ASME B1.20.1;
- ※ Disc can change for throttle type, needle type, ball type and check type.



Female threaded and socket welded globe valves



Application standards

- 1、Design and manufacture conform to BS5352 MSS SP-118;
- 2、Connection ends conform to:
 - 1)Socket welded ends conform to ANSI B16.11
 - 2)Screw ends conform to ANSI B1.20.1
 - 3)Butt-welded ends conform to ANSI B16.25
 - 4)Flanged ends conform to ANSI B16.5
- 3、Test and inspection conform to: API 598
- 4、Structure features:
 - Bolted bonnet, outside screw and yoke
 - Welded bonnet, outside screw and yoke
- 5、Materials conform to ANSI/ASTM.
- 6、Main materials:
 - A105; LF2; F5; F11; F22; 304(L); 316(L); F347;
 - F321; F51; Monel; 20 Alloy.

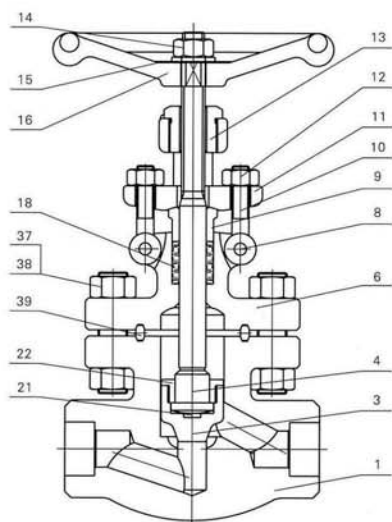
Carbon steel temperature-pressure rate

CL150-285 P.S.I @ 100° F
 CL300-740 P.S.I @ 100° F
 CL600-1480 P.S.I @ 100° F
 CL800-1975 P.S.I @ 100° F
 CL1500-3705 P.S.I @ 100° F

Main part materials list

NO.	Part name	A105/F6a	A105/F6aHFS	LF2/304	F11/F6aHF	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	A105	A105+HF	LF2	F11+HF	F304(L)	F316(L)	F51
3	Disc	F6a	F6a	F304	F6aHF	F304(L)	F316(L)	F51
4	Stem	410	410	304	410	304(L)	316(L)	F51
5	Gasket	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	316+ Flexible graphite	316+ Flexible graphite
6	Bonnet	A105	A105	LF2	F11	F304(L)	F316(L)	F51
7	Bolt	B7	B7	L7	B16	B8(M)	B8(M)	B8M
8	Pin	410	410	410	410	304	304	304
9	Gland	410	410	304	410	304	316	F51
10	Gland eyebolt	B7	B7	L7	B16	B8(M)	B8(M)	B8M
11	Gland flange	A105	A105	LF2	F11	F304	F304	F304
12	Hex nut	2H	2H	2H	2H	8(M)	8(M)	8M
13	Stem nut	410	410	410	410	410	410	410
14	Locking nut	35	35	35	35	35	35	35
15	Nameplate	AL	AL	AL	AL	AL	AL	AL
16	Handwheel	A197	A197	A197	A197	A197	A197	A197
18	Packing	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite

Female threaded and socket welded globe valves



Application standards

- 1、Design and manufacture conform to BS5352 MSS SP-118;
- 2、Connection ends conform to:
 - 1)Socket welded ends conform to ANSI B16.11
 - 2)Screw ends conform to ANSI B1.20.1
 - 3)Butt-welded ends conform to ANSI B16.25
 - 4)Flanged ends conform to ANSI B16.5
- 3、Test and inspection conform to:
 - API 598
- 4、Structure features:
 - Bolted bonnet, outside screw and yoke
 - Welded bonnet, outside screw and yoke
- 5、Materials conform to ANSI/ASTM.
- 6、Main materials:
 - A105; LF2; F5; F11; F22; 304(L); 316(L); F347;
 - F321; F51; Monel; 20 Alloy.

Carbon steel temperature–pressure rate

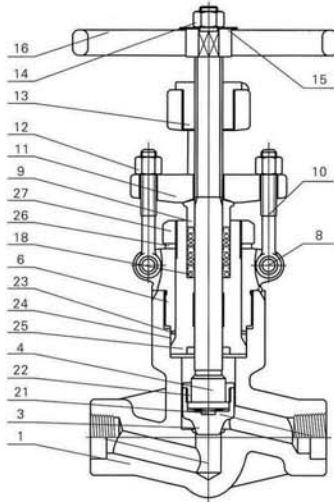
CL150–285 P.S.I @ 100° F
CL300–740 P.S.I @ 100° F
CL600–1480 P.S.I @ 100° F
CL800–1975 P.S.I @ 100° F
CL1500–3705 P.S.I @ 100° F

Main part materials list

NO.	Part name	A105/F6a	A105/F6aHFS	LF2/304	F11/F6aHF	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	A105	A105+HF	LF2	F11+HF	F304(L)	F316(L)	F51
3	Disc	F6a	F6a	F304	F6aHF	F304(L)	F316(L)	F51
4	Stem	410	410	304	410	304(L)	316(L)	F51
6	Bonnet	A105	A105	LF2	F11	F304(L)	F316(L)	F51
8	Pin	410	410	410	410	304	304	304
9	Gland	410	410	304	410	304	316	F51
10	Gland eyebolt	B7	B7	L7	B16	B8(M)	B8(M)	B8M
11	Gland flange	A105	A105	LF2	F11	F304	F304	F304
12	Hex nut	2H	2H	2H	2H	8(M)	8(M)	8M
13	Stem nut	410	410	410	410	410	410	410
14	Locking nut	35	35	35	35	35	35	35
15	Nameplate	AL	AL	AL	AL	AL	AL	AL
16	Handwheel	A197	A197	A197	A197	A197	A197	A197
18	Packing	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
21	Stem pad	420	420	420	420	316SH	316SH	316SH
22	Disc nut	410	410	410	410	410	410	410
37	Screwed stud	B7	B7	L7	B16	B8(M)	B8(M)	B8(M)
38	Nut	2H	2H	8	8	8(M)	8(M)	8(M)
39	Metal ring	304	304	304	304	304(L)	316(L)	F51



Pressure sealing globe valves



Application standards

- 1、 Design and manufacture conform to BS5352 MSS SP-118;
- 2、 Connection ends conform to:
 - 1)Socket welded ends conform to ANSI B16.11
 - 2)Screw ends conform to ANSI B1.20.1
 - 3)Butt-welded ends conform to ANSI B16.25
 - 4)Flanged ends conform to ANSI B16.5
- 3、 Test and inspection conform to: API 598
- 4、 Structure features:
A threaded and pressure seal bonnet; Y type and T type
- 5、 Materials conform to ANSI/ASTM.
- 6、 Main materials:
A105; LF2; F5; F11; F22; 304(L); 316(L); F347; F321; F91; Monel; 20 Alloy.

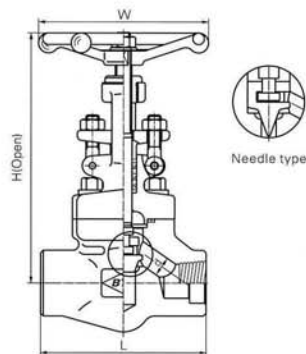
Carbon steel temperature–pressure rate

CL1500–3705 P.S.I @ 100° F
CL2500–6170 P.S.I @ 100° F

Main part materials list

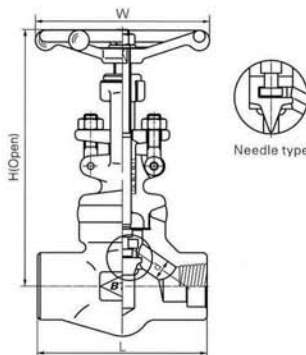
NO.	Part name	A105/F6a	A105/F6aHFS	LF2/304	F11/F6aHF	F304(L)/304(L)	F316(L)/316(L)	F91/410HF
1	Body	A105	A105+HF	LF2	F11+HF	F304(L)	F316(L)	F91+HF
3	Disc	410	410	304	410	304(L)	316(L)	410+HF
4	Stem	410	410	304	410	304(L)	316(L)	410
6	Bonnet	A105	A105	LF2	F11	F304(L)	F316(L)	F91
8	Pin	410	410	410	410	304	304	410
9	Gland	410	410	304	410	304	316	410
10	Gland eyebolt	B7	B7	L7	B16	B8(M)	B8(M)	B8
11	Gland flange	A105	A105	LF2	F11	F304	F304	F91
12	Hex nut	2H	2H	2H	2H	8(M)	8(M)	8
13	Stem nut	410	410	410	410	410	410	410
14	Locking nut	35	35	35	35	35	35	35
15	Nameplate	AL	AL	AL	AL	AL	AL	AL
16	Handwheel	A197	A197	A197	A197	A197	A197	A197
18	Packing	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
21	Stem pad	420	420	420	420	316SH	316SH	420
22	Disc nut	410	410	410	410	304(L)	316(L)	410
23	Seal ring gasket	420	420	304	304	304(L)	316(L)	316(L)
24	P.S.ring	304	304	304	304	304	316	304
25	P.S.seat	420	420	304	304	304(L)	316(L)	F91
26	Nut pad	410	410	410	410	410	410	410
27	Draw-in stud	Cart steel	Cart steel	Cart steel	Cart steel	Stainless steel	Stainless steel	Cart steel

Female threaded and socket welded globe valves



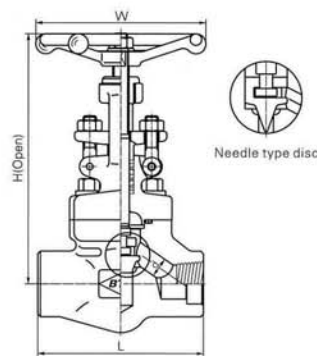
CL800 Bolted bonnet, full port & reducing port outside screw and yoke(OS & Y)
Threaded, butt-welded or socket welded ends; design to BS 5352.

Specification (NPS)	R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	79	79	92	111	120	152	172	200	
Handwheel diameter	W	100	100	100	125	160	160	180	200	
Height	H	164	164	164	203	224	260	300	355	
Height (angle dimension)	d	7	9	13	17.5	23	30	35	46	
Weight(Kg)		1.9	2.28	2.37	4.3	5.75	7.8	12.5	17.5	



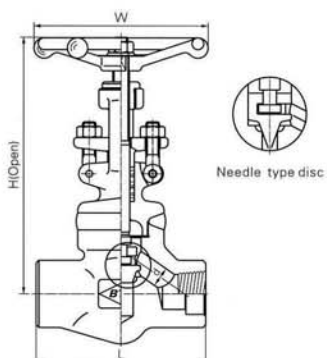
CL800 Welded bonnet, full port & reducing port outside screw and yoke(OS & Y)
Threaded, butt-welded or socket welded ends; design to BS5352

Specification (NPS)	R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	79	79	92	111	120	152	172	200	
Handwheel diameter	W	100	100	100	125	160	160	180	200	
Height	H	164	164	164	203	224	260	300	355	
Height (angle dimension)	d	7	9	13	17.5	23	30	35	46	
Weight(Kg)		1.7	1.7	1.9	3.3	5.2	6.8	10.6	13.8	



CL900-CL1500 Bolted bonnet, full port&reducing port outside screw and yoke(OS&Y)
Threaded, butt-welded or socket welded ends; design to BS 5352

Specification (NPS)	R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	92	111	111	120	152	172	200	220	-
Handwheel diameter	W	100	125	125	160	160	180	200	240	-
Height	H	171	207	207	240	258	330	355	370	-
Height (angle dimension)	d	7	12	15	20	28	32	40	45	-
Weight(Kg)		2.3	3.7	3.6	6.8	7.6	11.6	15	21.9	-

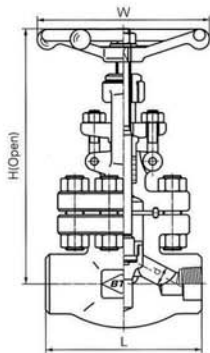


CL900-CL1500 Welded bonnet, full port&reducing port outside screw and yoke(OS&Y)
Threaded, butt-welded or socket welded ends; design to BS5352

Specification (NPS)	R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	92	111	111	120	152	172	200	220	-
Handwheel diameter	W	100	125	125	160	160	180	200	240	-
Height	H	171	207	207	240	258	330	355	370	-
Height (angle dimension)	d		12	15	20	28	32	40	45	-
Weight(Kg)		270	3.4	3.3	6.0	5.6	10.3	14.2	18.0	-



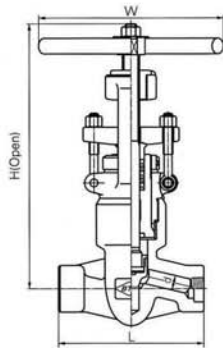
Female threaded and socket welded globe valves



CL900-CL1500

Bolted bonnet, full port outside screw and yoke (OS & Y)
Threaded, butt-welded or socket welded ends; design to BS5352

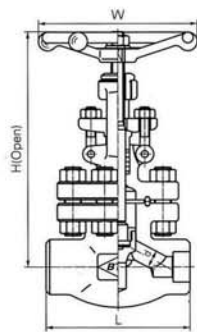
Specification(NPS)	F.P	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	110	110	150	150		210	235
Handwheel diameter	W	110	110	130	210		180	250
Height	H	227	227	300	307		40	448
Height(angle dinmension)	d	9	12	15	20		32	40
Weight(Kg)		5	5	10	11.5		22	37



CL900-CL1500

Pressure seal bonnet, full port outside screw and yoke(OS & Y)
Threaded, butt-welded or socket welded ends; design to BS5352

Specification(NPS)	F.P	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	140	140	140	178	178	216	
Handwheel diameter	W	200	200	200	280	280	300	
Height	H	320	320	320	440	440	490	
Height(angle dinmension)	d	12	15	20	28	32	40	
Weight(Kg)		11.5	10.8	10.5	19.6	21.1	55.4	

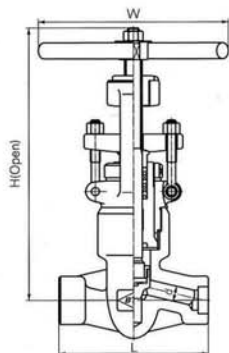


Welded bonnet

CL2500

Bolted bonnet, full port outside screw and yoke (OS & Y)
Socket welded ends, design conform to ASME B16.34

Specification(NPS)	F.P	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	150	150	210		235	235	
Handwheel diameter	W	130	130	250		300	300	
Height	H	293	300	390		435	435	
Height(angle dinmension)	d	11	14	19		28	35	
Weight(Kg)		10	10.3	22.4		38	38	

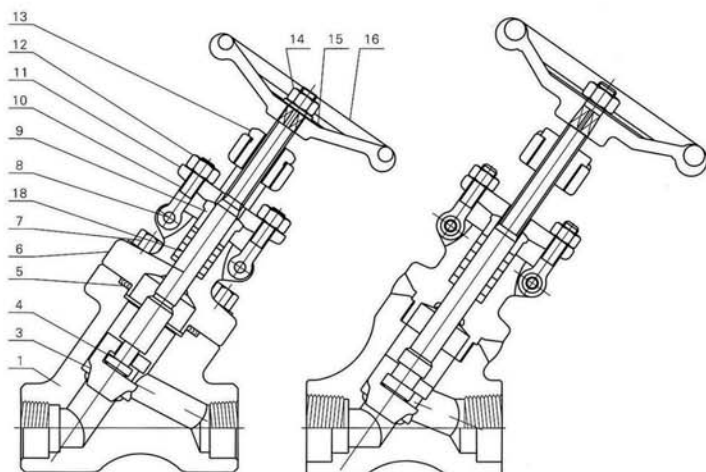


CL2500

Pressure seal bonnet, full port outside screw and yoke(OS & Y)
Socket welded ends, design conform to ASME B16.34

Specification(NPS)	F.P	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	186	186	186	232	232	279	
Handwheel diameter	W	200	200	200	280	280	300	
Height	H	375	378	380	490	490	540	
Height(angle dinmension)	d	11	14	19	25	28	35	
Weight(Kg)		12.3	11.6	10.8	26.0	28.4	60	

Female threaded and socket welded Y type globe valves



Application standards

- Design and manufacture conform to BS5352 MSS SP-118;
- Connection ends conform to:
 - Socket welded ends conform to ANSI B16.11
 - Screw ends conform to ANSI B1.20.1
 - Butt-welded ends conform to ANSI B16.25
 - Flanged ends conform to ANSI B16.5
- Test and inspection conform to: API 598
- Structure features:
 - Bolted bonnet, outside screw and yoke
 - Welded bonnet, outside screw and yoke
- Materials conform to ANSI/ASTM.
- Main materials:
 - A105; LF2; F5; F11; F22; 304(L); 316(L); F347; F321; F51; Monel; 20 Alloy; Hastelloy.

Carbon steel temperature-pressure rate

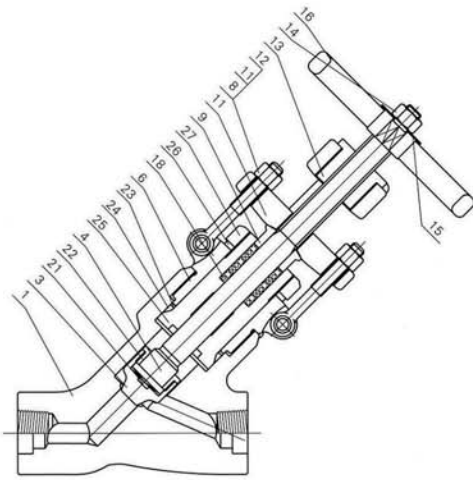
CL150-285 P.S.I @ 100° F
CL300-740 P.S.I @ 100° F
CL600-1480 P.S.I @ 100° F
CL800-1975 P.S.I @ 100° F
CL1500-3705 P.S.I @ 100° F

Main part materials list

NO.	Part name	A105/F6a	A105/F6aHFS	LF2/304	F11/F6aHF	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	A105	A105+HF	LF2	F11+HF	F304(L)	F316(L)	F51
3	Disc	F6a	F6a	F304	F6aHF	F304(L)	F316(L)	F51
4	Stem	410	410	304	410	304(L)	316(L)	F51
5	Gasket	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	316+ Flexible graphite	316+ Flexible graphite
6	Bonnet	A105	A105	LF2	F11	F304(L)	F316(L)	F51
7	Bolt	B7	B7	L7	B16	B8(M)	B8(M)	B8M
8	Pin	410	410	410	410	304	304	304
9	Gland	410	410	304	410	304	316	F51
10	Gland eyebolt	B7	B7	L7	B16	B8(M)	B8(M)	B8M
11	Gland flange	A105	A105	LF2	F11	F304	F304	F304
12	Hex nut	2H	2H	2H	2H	8(M)	8(M)	8M
13	Stem nut	410	410	410	410	410	410	410
14	Locking nut	35	35	35	35	35	35	35
15	Nameplate	AL	AL	AL	AL	AL	AL	AL
16	Handwheel	A197	A197	A197	A197	A197	A197	A197
18	Packing	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite



Pressure seal Y type globe valves



Application standards

- 1、 Design and manufacture conform to BS5352 MSS SP-118;
- 2、 Connection ends conform to:
 - 1)Socket welded ends conform to ANSI B16.11
 - 2)Screw ends conform to ANSI B1.20.1
 - 3)Butt-welded ends conform to ANSI B16.25
 - 4)Flanged ends conform to ANSI B16.5
- 3、 Test and inspection conform to: API 598
- 4、 Structure features:
A threaded and pressure seal bonnet; Y type and T type
- 5、 Materials conform to ANSI/ASTM.
- 6、 Main materials:
A105; LF2; F5; F11; F22; 304(L); 316(L); F347;
F321; F51; Monel; 20 Alloy; Hastelloy.

Carbon steel temperature–pressure rate

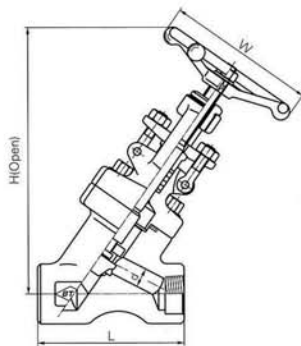
CL1500–3705 P.S.I @ 100° F

CL2500–6170 P.S.I @ 100° F

Main part materials list

NO.	Part name	A105/F6a	A105/F6aHFS	LF2/304	F11/F6aHF	F304(L)/304(L)	F316(L)/316(L)	F91/410HF
1	Body	A105	A105+HF	LF2	F11+HF	F304(L)	F316(L)	F91+HF
3	Disc	410	410	304	410	304(L)	316(L)	410+HF
4	Stem	410	410	304	410	304(L)	316(L)	410
6	Bonnet	A105	A105	LF2	F11	F304(L)	F316(L)	F91
8	Pin	410	410	410	410	304	304	410
9	Gland	410	410	304	410	304	316	410
10	Gland eyebolt	B7	B7	L7	B16	B8(M)	B8(M)	B8
11	Gland flange	A105	A105	LF2	F11	F304	F304	F91
12	Hex nut	2H	2H	2H	2H	8(M)	8(M)	8
13	Stem nut	410	410	410	410	410	410	410
14	Locking nut	35	35	35	35	35	35	35
15	Nameplate	AL	AL	AL	AL	AL	AL	AL
16	Handwheel	A197	A197	A197	A197	A197	A197	A197
18	Packing	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
21	Stem pad	420	420	420	420	316SH	316SH	420
22	Disc nut	410	410	410	410	304(L)	316(L)	410
23	Seal ring gasket	420	420	304	304	304(L)	316(L)	316(L)
24	P.S.ring	304	304	304	304	304	316	304
25	P.S.seat	420	420	304	304	304(L)	316(L)	F91
26	Nut pad	410	410	410	410	410	410	410
27	Draw-in stud	Cart steel	Cart steel	Cart steel	Cart steel	Stainless steel	Stainless steel	Cart steel

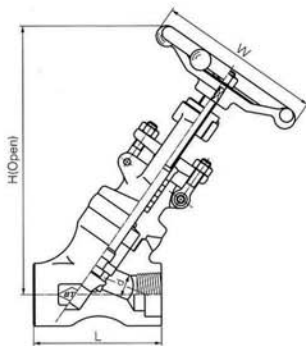
Y type globe valves



CL800

Welded bonnet, full port & reducing port outside screw and yoke(OS & Y)
Threaded, butt-welded or socket welded ends; design to BS5352

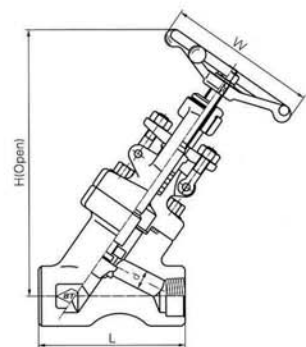
Specification (NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	98	98	98	111	140	140	155	170	
Handwheel diameter	W	100	100	100	125	160	160	180	200	
Height	H	180	180	180	188	280	280	295	350	
Height(angle dimension)	d	7	9	13	17.5	23	30	35	46	
Weight(Kg)		2.6	2.6	3.8	4.6	9.3	9.3	14	19.6	



CL800

Welded bonnet, full port & reducing port outside screw and yoke(OS & Y)
Threaded, butt-welded or socket welded ends; design to BS5352

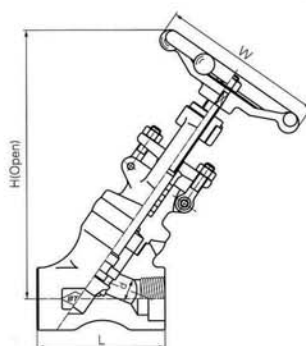
Specification (NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	79	79	92	100	140	140	155	170	
Handwheel diameter	W	100	100	100	125	160	160	180	200	
Height	H	198	198	198	207	280	280	295	350	
Height(angle dimension)	d	7	9	13	17.5	23	30	35	46	
Weight(Kg)		1.8	1.8	2.0	3.5	8.0	8.0	12	16	



CL900-CL1500

Bolted bonnet, full port & outside screw and yoke (OS & Y)
Threaded, butt-welded or socket welded ends; design to BS5352

Specification(NPS)	F.P	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	98	111	111	140	140	155	170	
Handwheel diameter	W	100	125	125	160	160	180	200	
Height	H	175	175	215	215	254	305	305	
Height(angle dimension)	d	9	12	15	20	28	32	40	
Weight(Kg)		2.6	4.6	4.6	9.3	9.3	14	19.6	



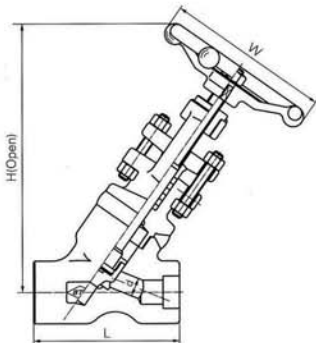
CL900-CL1500

Welded bonnet, full port & outside screw and yoke (OS & Y)
Threaded, butt-welded or socket welded ends; design to BS5352

Specification(NPS)	F.P	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	92	100	100	140	140	155	170	
Handwheel diameter	W	100	125	125	160	160	180	200	
Height	H	175	207	207	280	280	295	350	
Height(angle dimension)	d	9	12	15	20	28	32	40	
Weight(Kg)		1.8	3.5	3.5	8.0	8.0	12	16	



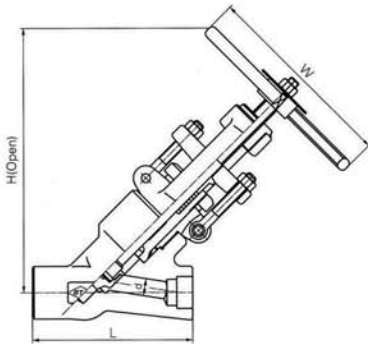
Y type globe valves



CL2500

Welded bonnet, full port outside screw and yoke(OS & Y)
Socket welded, design conform to ASME16.34

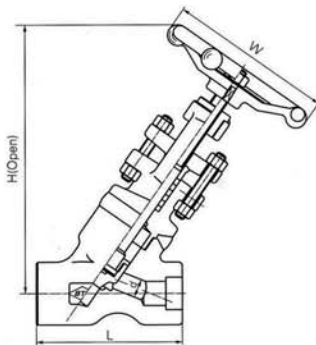
Specification(NPS)	F.P	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	186	186	186	186	232	232	310
Handwheel diameter	W	200	200	20	200	280	280	300
Height	H	329	329	329	329	350	350	383
Height (angle dinmension)	d	9	11	14	19	25	28	35
Weight(Kg)		12.3	12.3	11.6	10.8	28.0	26.4	43.8



CL2500

Pressure seal bonnet, full port outside screw and yoke(OS & Y)
Socket welded, design conform to ASME16.34

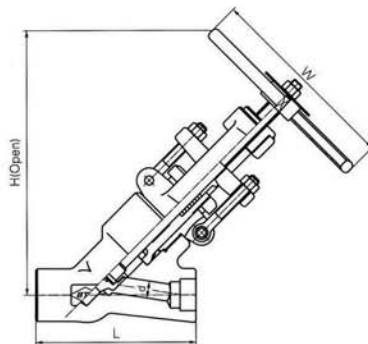
Specification(NPS)	F.P	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	186	186	186	186	232	232	310
Handwheel diameter	W	200	200	20	200	280	280	300
Height	H	333	333	333	333	406	406	524
Height (angle dinmension)	d	9	11	14	19	25	28	35
Weight(Kg)		12.3	12.3	11.6	10.8	28.0	26.4	43.8



CL4500

Welded seal bonnet, full port outside screw and yoke(OS & Y)
Socket welded, design conform to ASME16.34

Specification(NPS)	F.P	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	155	155	155	155		225	225
Handwheel diameter	W	180	180	180	180		400	400
Height	H	350	350	350	380		453	453
Height (angle dinmension)	d	9	11	11	15		26	28
Weight(Kg)		9.6	9.6	9.4	10.5		34	36



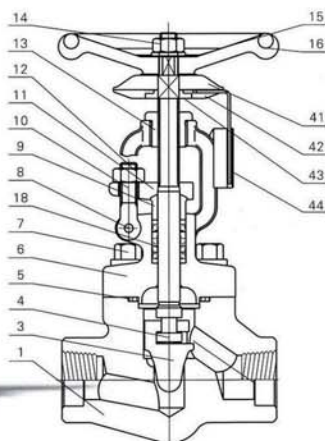
CL4500

Pressure seal bonnet, full port outside screw and yoke(OS & Y)
Socket welded, design conform to ASME16.34

Specification(NPS)	F.P	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	200	200	200	200	250	250	330
Handwheel diameter	W	280	280	280	280	300	300	320
Height	H	400	400	400	400	460	460	540
Height (angle dinmension)	d	9	11	11	15	20	26	28
Weight(Kg)		30	30	30	30	30	36	58



Linear regulating valves



Application standards

- 1、Design and manufacture conform to BS5352 MSS SP-118;
- 2、Connection ends conform to:
 - 1)Socket welded ends conform to ANSI B16.11
 - 2)Screw ends conform to ANSI B1.20.1
 - 3)Butt-welded ends conform to ANSI B16.25
 - 4)Flanged ends conform to ANSI B16.5
- 3、Test and inspection conform to:
 - API 598
- 4、Structure features:
 - Bolted bonnet, outside screw and yoke
 - Welded bonnet, outside screw and yoke
 - Disc is one piece or "V" type double or four pieces.
- 5、Materials conform to ANSI/ASTM.
- 6、Main materials:
 - A105; LF2; F5; 304(L); 316(L); F347; F321;
 - F51; Monel; 20 Alloy.

Hawks regulating valves is compose of combination valves and flow control staff gauge. because equip with micrometer graduation and finger, when operator turn hand wheel around, finger would move ten percent.

Hawks regulating valves equip with regulating disc to ensure flow, so it can accuracy control.

Seal facing of Hawks regulating valves is stellite deposit, so seal facing is more corrosion resistant, anti-abrasive and abrasion resistance.

Hawks regulating valves is manual operate, liner fow regulating function, abrasion resistance.

If you want to equip with locking device , please note you Hawks requirement.

Carbon steel temperature–pressure rate

CL150–285 P.S.I @ 100° F
 CL300–740 P.S.I @ 100° F
 CL600–1480 P.S.I @ 100° F
 CL800–1975 P.S.I @ 100° F
 CL1500–3705 P.S.I @ 100° F

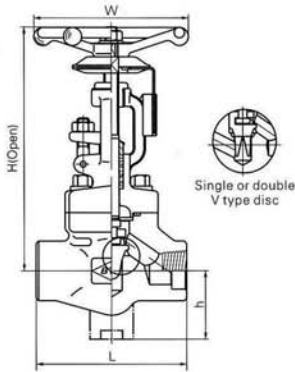
Main part materials list

NO.	Part name	A105/F6a	A105/Fa6HFS	LF2/304	F11/F6aHF	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	A105	A105	LF2	F11	F304(L)	F316(L)	F51
3	Disc	F6a	F6a	F304	F6aHF	F304(L)	F316(L)	F51
4	Stem	410	410	304	410	304(L)	316(L)	F51
5	gasket	304+ flexible graphite	304+ flexible graphite	304+ flexible graphite	304+ flexible graphite	304+ flexible graphite	316+ flexible graphite	316+ flexible graphite
6	Bonnet	A105	A105	LF2	F11	F304(L)	F316(L)	F51
7	Bolt	B7	B7	L7	B16	B8(M)	B8(M)	B8M
8	Pin	410	410	410	410	304	304	304
9	Gland	410	410	304	410	304	316	F51
10	Gland eyebolt	B7	B7	L7	B16	B8(M)	B8(M)	B8M
11	Gland flange	A105	A105	LF2	F11	F304	F304	F304
12	Hex nut	2H	2H	2H	2H	8(M)	8(M)	8M
13	Stem nut	410	410	410	410	410	410	410
14	Locking nut	35	35	35	35	35	35	35
15	Nameplate	AL	AL	AL	AL	AL	AL	AL
16	Handwheel	A197	A197	A197	A197	A197	A197	A197
18	Packing	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
41	Index plate	Cast steel	Cast steel	Cast steel	Cast steel	Cast steel	Cast steel	Cast steel
42	Lower plate	Cast steel	Cast steel	Cast steel	Cast steel	Cast steel	Cast steel	Cast steel
43	Back block	Cast steel	Cast steel	Cast steel	Cast steel	Cast steel	Cast steel	Cast steel
44	Indicative stem	Cast steel	Cast steel	Cast steel	Cast steel	Cast steel	Cast steel	Cast steel



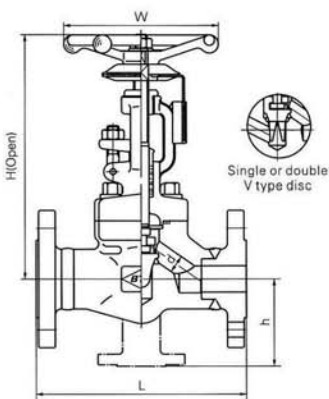
Linear regulating valves

CL800 Bolted bonnet, full port outside screw and yoke (OS & Y) Threaded, butt-welded or socket welded ends; design to BS5352



Specification(NPS)	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	79	79	92	111	120	152	172	200
Handwheel diameter	W	100	100	100	125	160	160	180	200
Height	H	166	166	171	207	240	258	330	355
Height (angle dimension)	SW & NPT(Rc)	40	40	40	45	50	55	60	70
Flow port dimension	d	7.0	9.0	13	17.5	23	30	35	46
Weight(Kg)		1.9	2.3	2.4	4.35	5.25	7.8	12.5	14.6
Flow coefficient Cv	Single disc	0.2	0.5	0.5	1.0	2.0	5.2	5.2	7.0
	Four part disc	0.4	1.0	1.0	2.0	4.0	10.4	10.4	14

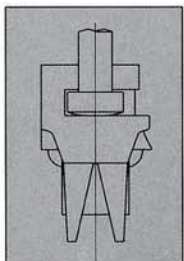
CL150-300-600 Bolted bonnet, reducing port outside screw and yoke (OS & Y) Threaded, butt-welded or socket welded ends; design to BS5352



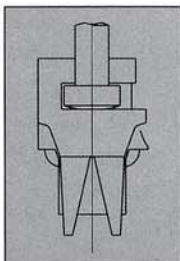
Specification(NPS)		R.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L(RF) L1(BW)	CL150	–	–	108	118	127	–	165	203
		CL300	–	–	153	178	203	–	229	267
		CL600	–	–	165	191	216	–	241	292
Handwheel diameter		W	–	–	100	100	125	–	160	180
Height		H	–	–	164	200	220	–	295	350
Height (angle dinmension)	SW & NPT(Rc)		–	–	40	45	50	–	60	70
Flow port dimension		d	–	–	9.0	13	17.5	–	30	35
Weight(Kg)	CL150		–	–	3.45	4.0	6.19	–	10.5	17
	CL300		–	–	3.8	5.1	7.2	–	13.5	19.7
	CL600		–	–	5.6	7.8	12.5	–	23.5	38.8
Flow coefficient Cv	Single disc		–	–	0.5	1.0	2.0	–	5.2	7.0
	Four part disc		–	–	1.0	2.0	4.0	–	10.4	14

If you want to order one piece body, please contract with our sale department

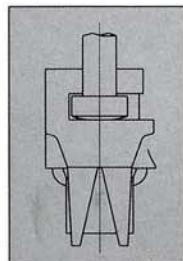
Regulating valves operation



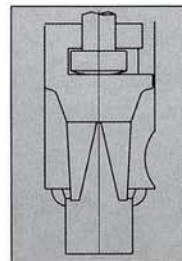
When valves full closed, disc and seat could be shut tightly.



When the disc is opened a little it allows media to flow acc. to a known quota.

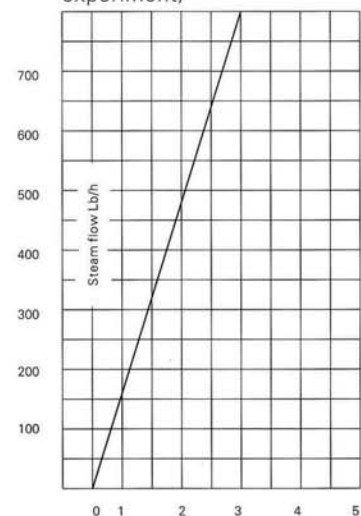


When the disc in the middle of the full lifting height, medium flow can be reduced or increased according to control scale.

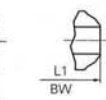
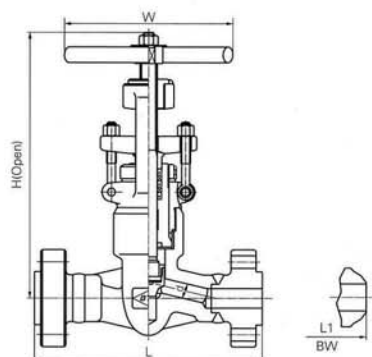
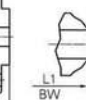
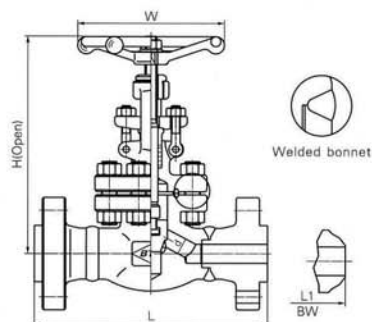
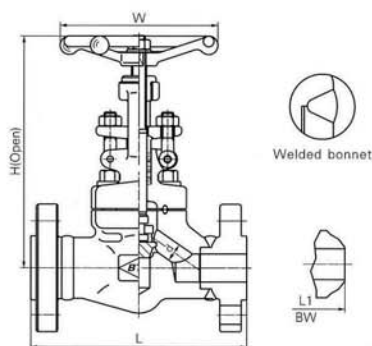
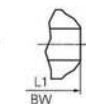
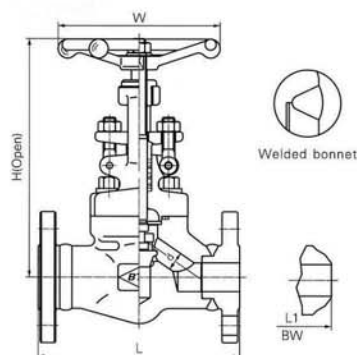


When disc in full open position, valves permit max flow to go through its port, medium flow can be reduced or acc. to control scale.

Typical stream flow chart(from experiment)



Flange and butt-welded globe valves



CL150-300-600

Welded bonnet, reducing port outside screw and yoke(OS & Y)
Flange or butt-welding design to BS5352

Specification(NPS)			R.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	CL150	L(RF) L1(BW)	—	—	108	117	127	140	165	203	
	CL300		—	—	152	178	203	216	229	267	
	CL600		—	—	165	190	216	229	241	292	
Handwheel diameter		W	—	—	100	100	125	160	160	180	
Height	CL150/CL300	H	—	—	180	184	217	224	260	300	
	CL600		—	—	164	164	203	224	260	300	
Height(angle dinmension)		d	—	—	9	13	17.5	23	30	35	
Weight (Kg)	CL150	R F	—	—	3.45	4.00	6.19	9.6	10.5	17	
		BW	—	—	2.3	3.6	7.8	8.2	12.0	15.0	
	CL300	R F	—	—	3.8	5.1	7.2	12	13.5	19.7	
		BW	—	—	2.8	4.0	8.5	9.2	12.6	16.8	
	CL600	R F	—	—	5.6	7.8	12.5	17	23.5	38.8	
		BW	—	—	3.4	4.7	9.2	10.5	13.3	18.9	

If you want to order one piece body, please contract with sale department

CL900-CL1500

Welded bonnet, full port outside screw and yoke(OS & Y)
Flange or butt-welding design to BS5352

Specification(NPS)	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L(RF), L1(BW) L(RTJ)	—	—	216	229	254	279	305	368
		—	—	216	229	254	279	305	371
Handwheel diameter	W	—	—	125	125	160	160	180	200
Height	H	—	—	207	207	230	160	300	355
Height(angle dimension)	d	—	—	12	15	20	28	32	40
Weight (Kg)		—	—	11	13.2	17.4	19	24.5	31

If you want to order one piece body, please contract with sale department

CL2500

Welded bonnet, full port outside screw and yoke(OS & Y)
Welding flange or butt-welded design conform to ASME B16.34

Specification(NPS)	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L(RF), L1(BW) L(RTJ)	—	—	264	273	308	—	384	451
		—	—	264	273	308	—	387	454
Handwheel diameter	W	—	—	125	160	200	—	250	240
Height	H	—	—	207	240	258	—	355	300
Height(angle dimension)	d	—	—	11	14	19	—	28	35
Weight (Kg)		—	—	19.5	21.5	42	—	65	95

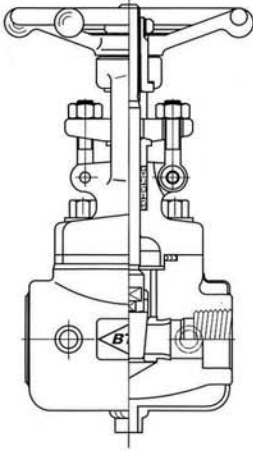
CL2500

Pressure seal bonnet, full port outside screw and yoke(OS & Y)
Welding flange or butt-welded design conform to ASME B16.34

Specification(NPS)	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L(RF), L1(BW) L(RTJ)	—	—	264	273	308	349	384	451
		—	—	264	273	308	349	387	454
Handwheel diameter	W	—	—	200	200	280	280	280	300
Height	H	—	—	320	320	320	440	440	490
Height(angle dimension)	d	—	—	11	14	19	25	28	35
Weight(Kg)		—	—	21.5	24.7	30.4	48.1	58.1	130

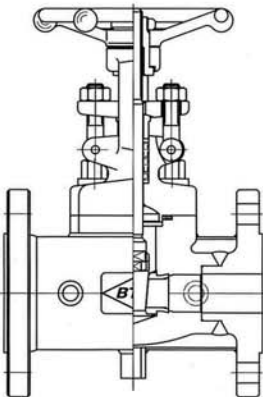


Jacketed globe valves



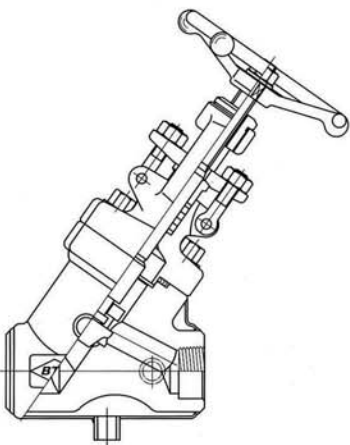
Jacketed valves
(socket welding/screw/butt-welding)

CLASS	Material
150~2500	Cart steel, Stainless steel



Jacketed valves (flange)

CLASS	Material
150~2500	Cart steel, Stainless steel



Y Type jacketed valves
(socket welding/screw/butt-welding/flange)

CLASS	Material
150~2500	Cart steel, Stainless steel



Forged steel check valves

Hawks valves are available in Three bonnet designs. The first design is the Bolted Bonnet, with male–female joint, spiral wound gasket, made in F304L/graphite. Ring joint gasket are also available on request. The second design is the welded bonnet, with a threaded and seal welded joint. On request a full penetration strength welded joint is available. The third design is the pressure seal bonnet, with a threaded and pressure seal bonnet joint. The check valves are also available in three different design configurations. These are piston check, ball check, or swing check designs.

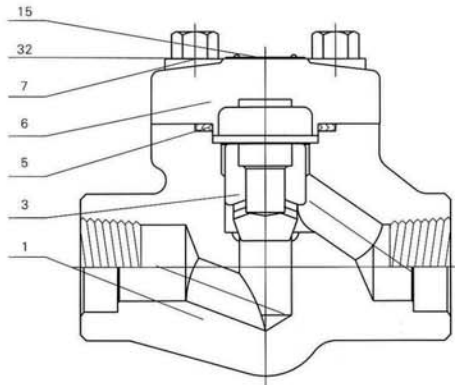


Construction is as follows

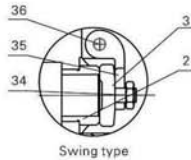
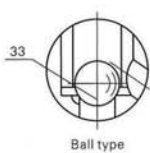
- ※ Full port or conventional port;
- ※ Lift type check valves;
- ※ Ball type check valves;
- ※ Swing type check valves;
- ※ According to requirement equip inside spring;
- ※ Bolted bonnet with spiral–wound gasket, threaded and seal welded bonnet or threaded and pressure seal bonnet;
- ※ Socket weld ends to ASME B16.11;
- ※ Screwed ends (NPT) to ANSI/ASME B1.20.1;
- ※ Disc can change for soft seal disc and ball disc.



Female threaded and socket welded check valves



Please mark in you offer if you need load spring



Application standards

- 1、 Design and manufacture conform to BS5352 MSS SP-118;
- 2、 Connection ends conform to:
 - 1)Socket welded ends conform to ANSI B16.11
 - 2)Screw ends conform to ANSI B1.20.1
 - 3)Butt-welded ends conform to ANSI B16.25
 - 4)Flanged ends conform to ANSI B16.5
- 3、 Test and inspection conform to: API 598
- 4、 Structure features: Bolted bonnet
- 5、 Materials conform to ANSI/ASTM.
- 6、 Main materials: A105; LF2; F5; F11; F22; 304(L); 316(L); F347; F321; F51; Monel; 20 Alloy.

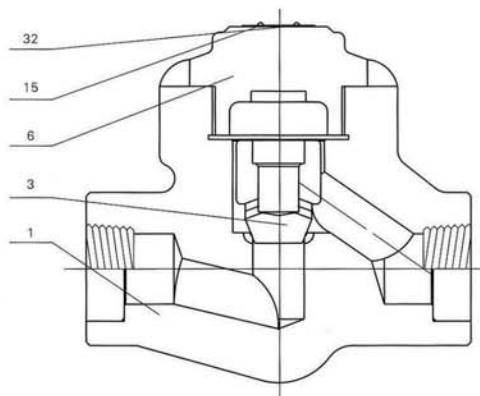
Carbon steel temperature-pressure rate

CL150-285 P.S.I @ 100° F
CL300-740 P.S.I @ 100° F
CL600-1480 P.S.I @ 100° F
CL800-1975 P.S.I @ 100° F
CL1500-3705 P.S.I @ 100° F

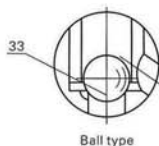
Main part materials list

NO.	Part name	A105/F6a	A105/F6aHFS	LF2/304	F11/F6aHF	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	A105	A105	LF2	F11	F304(L)	F316(L)	F51
2	Seat ring	410	410HF	304	410HF	304(L)	316(L)	F51
3	Disc	F6a	F6a	F304	F6aHF	F304(L)	F316(L)	F51
5	Gasket	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	316+ Flexible graphite	316+ Flexible graphite
6	Bonnet	A105	A105	LF2	F11	F304(L)	F316(L)	F51
7	Bolt	B7	B7	L7	B16	B8(M)	B8(M)	B8M
15	Nameplate	AL	AL	AL	AL	AL	AL	AL
32	Revit	AL	AL	AL	AL	AL	AL	AL
33	Steel ball	430	430	304	STL	316(L)	316(L)	STL
34	Disc nut	2H	2H	8	8	8(M)	8(M)	8M
35	Hinge	410	410	304	410	316(L)	316(L)	F51
36	Pin	410	410	304	410	304(L)	316(L)	F51

Female threaded and socket welded check valves



Please mark in you offer if you need load spring



Ball type

Application standards

- 1、Design and manufacture conform to BS5352 MSS SP-118;
- 2、Connection ends conform to:
 - 1)Socket welded ends conform to ANSI B16.11
 - 2)Screw ends conform to ANSI B1.20.1
 - 3)Butt-welded ends conform to ANSI B16.25
 - 4)Flanged ends conform to ANSI B16.5
- 3、Test and inspection conform to:
 - API 598
- 4、Structure features:
 - Welded bonnet
- 5、Materials conform to ANSI/ASTM.
- 6、Main materials:
 - A105; LF2; F5; F11; F22; 304(L); 316(L); F347; F321; F51; Monel; 20 Alloy.

Carbon steel temperature-pressure rate

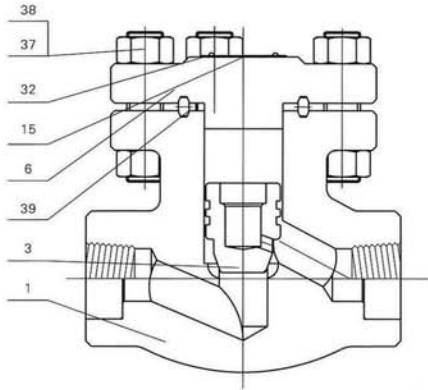
CL150-285 P.S.I @ 100° F
CL300-740 P.S.I @ 100° F
CL600-1480 P.S.I @ 100° F
CL800-1975 P.S.I @ 100° F
CL1500-3705 P.S.I @ 100° F
CL2500-6170 P.S.I @ 100° F

Main part materials list

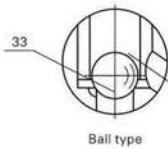
NO.	Part name	A105/F6a	A105/F6aHFS	LF2/304	F11/F6aHF	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	A105	A105+HF	LF2	F11+HF	F304(L)	F316(L)	F51
3	Disc	F6a	F6a	F304	F6aHF	F304(L)	F316(L)	F51
6	Bonnet	A105	A105	LF2	F11	F304(L)	F316(L)	F51
15	Nameplate	AL	AL	AL	AL	AL	AL	AL
32	Revit	AL	AL	AL	AL	AL	AL	AL
33	Steel ball	304	304	304	304	304(L)	316(L)	F51



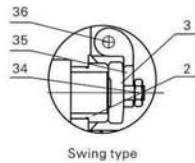
Female threaded and socket welded check valves



Please mark in you offer if you need load spring



Ball type



Swing type

Application standards

- Design and manufacture conform to BS5352 MSS SP-118;
- Connection ends conform to:
 - Socket welded ends conform to ANSI B16.11
 - Screw ends conform to ANSI B1.20.1
 - Butt-welded ends conform to ANSI B16.25
 - Flanged ends conform to ANSI B16.5
- Test and inspection conform to: API 598
- Structure features:
 - Gasket for bonnet connect adopt metal ring,
 - Bolted bonnet, Welded bonnet
- Materials conform to ANSI/ASTM.
- Main materials:
 - A105; LF2; F5; F11; F22; 304(L); 316(L); F347;
 - F321; F51; Monel; 20 Alloy.

Carbon steel temperature-pressure rate

CL150-285 P.S.I @ 100° F
CL300-740 P.S.I @ 100° F
CL600-1480 P.S.I @ 100° F
CL800-1975 P.S.I @ 100° F
CL1500-3705 P.S.I @ 100° F
CL2500-6170 P.S.I @ 100° F

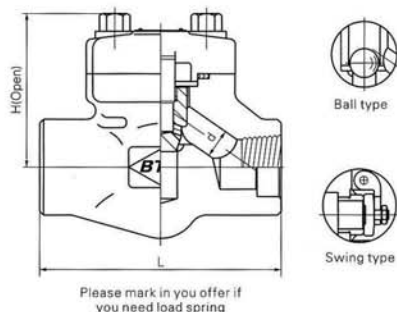
Main part materials list

NO.	Part name	A105/F6a	A105/F6aHFS	LF2/304	F11/F6aHF	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	A105	A105	LF2	F11	F304(L)	F316(L)	F51
2	Seat ring	410	410HF	304	410HF	304(L)	316(L)	F51
3	Disc	F6a	F6a	F304	F6aHF	F304(L)	F316(L)	F51
6	Bonnet	A105	A105	LF2	F11	F304(L)	F316(L)	F51
15	Nameplate	AL	AL	AL	AL	AL	AL	AL
32	Revit	AL	AL	AL	AL	AL	AL	AL
33	Steel ball	430	430	304	STL	316(L)	316(L)	STL
34	Disc nut	2H	2H	8	8	8(M)	8(M)	8M
35	Hinge	410	410	304	410	316(L)	316(L)	F51
36	Pin	410	410	304	410	304(L)	316(L)	F51
37	Screwed stud	B7	B7	L7	B16	B8(M)	B8(M)	B8(M)
38	Nut	2H	2H	8	8	8(M)	8(M)	8(M)
39	Metal ring	304	304	304	304	304(L)	316(L)	F51



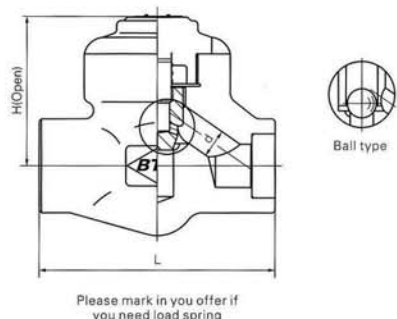
Female threaded and socket welded check valves

CL800 Bolted bonnet, full port and reducing port Threaded, butt-welded or socket welded ends; design to BS5352



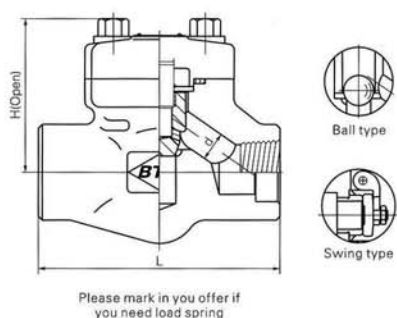
Specification (NPS)	R.P			1/2	3/4	1	1 1/4	1 1/2	2	
	F.P		1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	Lift	79	79	92	111	120	152	172	200
		Swing	79	79	92	111	120	120	140	178
Height	H	Lift	61	61	61	78	84	84	118	132
		Swing	61	61	61	78	84	84	120	133
Height (angle dimension)	d	Lift	7	9	13	17.5	23	30	35	46
		Swing	8	10.5	13.5	18	24	29	36.5	45
Weight(Kg)		Lift	1.2	1.5	1.7	3.3	4.2	4.2	10.5	12.5
		Swing	1.4	1.5	1.7	3.3	4.2	4.2	8.5	10.9

CL800 Welded bonnet, full port and reducing port Threaded, butt-welded or socket welded ends; design to BS5352



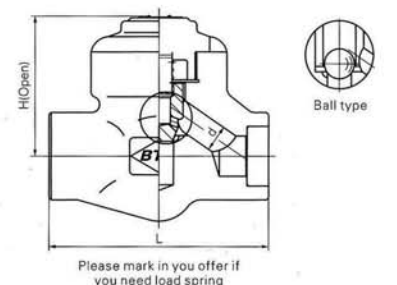
Specification (NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	79	79	92	111	120	152	172	200
Height	H	61	61	61	78	84	103	118	132
Height (angle dimension)	d	7	9	13	17.5	23	30	35	46
Weight(Kg)		1.2	1.3	1.5	3.0	3.9	6.0	10	12

CL900-CL1500 Bolted bonnet, full port and reducing port Threaded, butt-welded or socket welded ends; design to BS5352



Specification (NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2	
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	Lift	92	111	111	120	152	172	200
		Swing	92	111	111	120	120	140	178
Height	H	Lift	61	78	78	84	103	118	132
		Swing	61	78	78	84	101	120	133
Height (angle dimension)	d	Lift	7	12	15	20	28	32	40
		Swing	8	10.5	13.5	18	24	29	45
Weight(Kg)		Lift	1.5	3.4	3.3	4.2	6.3	10.5	12.5
		Swing	1.5	3.4	3.3	4.2	5.0	8.5	10.9

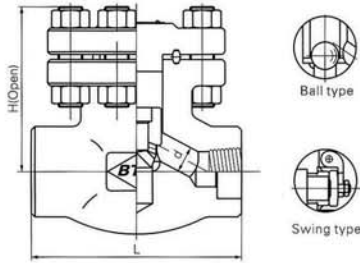
CL900-CL1500 Welded bonnet, full port and reducing port Threaded, butt-welded or socket welded ends; design to BS5352



Specification (NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2	
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	92	111	111	120	152	172	200	
Height	H	61	78	78	84	103	118	132	
Height (angle dimension)	d	7	12	15	20	28	32	40	
Weight(Kg)		1.3	3.1	3.1	3.9	5.8	10.0	11.5	



Female threaded and socket welded check valves



CL900-CL1500

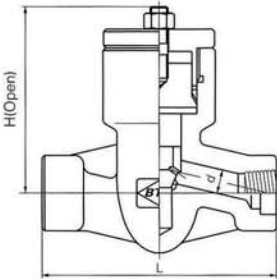
Bolted bonnet, full port and reducing port
Threaded, butt-welded or socket welded ends; design to BS5352

Specification (NPS)	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	110	110	110	110	150	150	210	235
Height	H	166	166	171	207	240	258	330	355
Height (angle dimension)	Lift	9	10	12	15	20	28	32	40
	Swing	8	10.5	13.5	18	24	29	36.5	45
Weight(Kg)	Lift	2	2.1	1.9	4	5.1	7.2	12.1	14
	Swing	1.9	2.3	2.3	4.35	5.25	7.8	12.5	14.6

CL900-CL1500

Pressure seal bonnet, full port and reducing port
Threaded, butt-welded or socket welded ends; design to BS5352

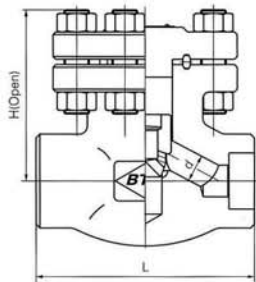
Specification (NPS)	R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	140	140	140	178	216	216			
Height	H	117	117	117	152	195	195			
Height (angle dimension)	d	12	15	20	28	32	40			
Weight(Kg)		7.5	7.0	6.8	18.5	20.3	22			



CL2500

Bolted bonnet, full port
Threaded, butt-welded or socket welded ends; design to ASME B16.34

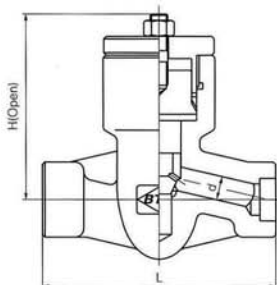
Specification (NPS)	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	150	150	150	150	210	235	235	235
Height	H	166	166	171	207	240	258	330	355
Height (angle dimension)	d	7.5	10.5	11	14	19	25	28	35
Weight(Kg)		1.9	2.3	17	46	62	73	58	85



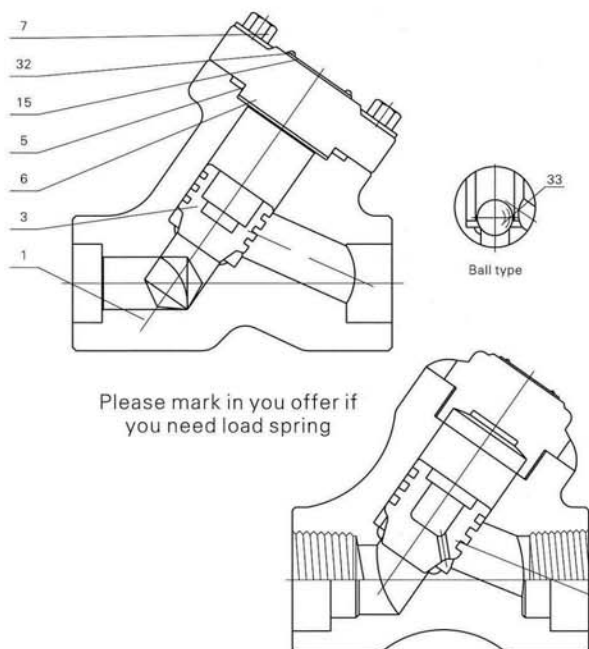
CL2500

Pressure seal bonnet, full port
Threaded, butt-welded or socket welded ends; design to ASME B16.34

Specification (NPS)	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L			186	186	186	232	232	279
Height	H			117	117	117	152	152	195
Height (angle dimension)	d			11	14	19	25	28	35
Weight(Kg)				11.8	11	10.5	23	26.4	39



Y type check valves



Application standards

- 1、Design and manufacture conform to BS5352 MSS SP-118;
- 2、Connection ends conform to:
 - 1)Socket welded ends conform to ANSI B16.11
 - 2)Screw ends conform to ANSI B1.20.1
 - 3)Butt-welded ends conform to ANSI B16.25
 - 4)Flanged ends conform to ANSI B16.5
- 3、Test and inspection conform to: API 598
- 4、Structure features:
Bolted bonnet, Welded bonnet
- 5、Materials conform to ANSI/ASTM.
- 6、Main materials:
A105; LF2; F5; F11; F22; 304(L); 316(L); F347;
F321; F51; Monel; 20 Alloy.

Carbon steel temperature-pressure rate

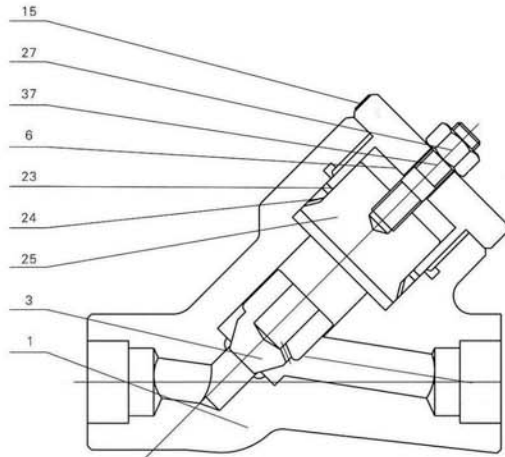
CL1500-3705 P.S.I @ 100° F
CL2500-6170 P.S.I @ 100° F
CL4500-1111P.S.I @ 100° F

Main part materials list

NO.	Part name	A105/F6a	A105/F6aHFS	LF2/304	F11/F6aHF	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	A105	A105	LF2	F11	F304(L)	F316(L)	F51
3	Disc	410	410HF	304	410HF	304(L)	316(L)	F51
5	Gasket	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	316+ Flexible graphite	316+ Flexible graphite
6	Bonnet	A105	A105	LF2	F11	F304(L)	F316(L)	F51
7	Bolt	B7	B7	L7	B16	B8(M)	B8(M)	B8M
15	Nameplate	AL	AL	AL	AL	AL	AL	AL
32	Revit	AL	AL	AL	AL	AL	AL	AL
33	Steel ball	430	430	304	STL	316(L)	316(L)	STL



Y type pressure sealed check valves



Application standards

- 1、 Design and manufacture conform to ASME B16.34 MSS SP-118;
- 2、 Connection ends conform to:
 - 1)Socket welded ends conform to ANSI B16.11
 - 2)Screw ends conform to ANSI B1.20.1
 - 3)Butt-welded ends conform to ANSI B16.25
 - 4)Flanged ends conform to ANSI B16.5
- 3、 Test and inspection conform to: API 598
- 4、 Structure features:
A threaded and pressure seal bonnet; Y type and T type.
- 5、 Materials conform to ANSI/ASTM.
- 6、 Main materials:
A105; LF2; F5; F11; F22; 304(L); 316(L); F347; F321; F51; Monel; 20 Alloy.

Carbon steel temperature-pressure rate

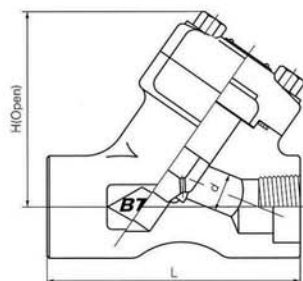
CL1500-3705 P.S.I @ 100° F
CL2500-6170 P.S.I @ 100° F
CL4500-1111 P.S.I @ 100° F

Main part materials list

NO.	Part name	A105/F6a	A105/F6aHFS	LF2/304	F11/F6aHF	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	A105	A105+HF	LF2	F11+HF	F304(L)	F316(L)	F51
3	Disc	F6a	F6a	F304	F6aHF	F304(L)	F316(L)	F51
6	Bonnet	A105	A105	LF2	F11	F304(L)	F316(L)	F51
15	Nameplate	AL	AL	AL	AL	AL	AL	AL
23	Seal ring gasket	420	420	304	304	304(L)	316(L)	410
24	P.S.ring	304	304	304	304	316L	316L	316L
25	P.S.seat	F410	F410	F304	F410	F304	F316	F51
27	Lift nut	2H	2H	8	8	8(M)	8(M)	8M
37	Lift stud	B7	B7	L7	B16	B8(M)	B8(M)	B8M

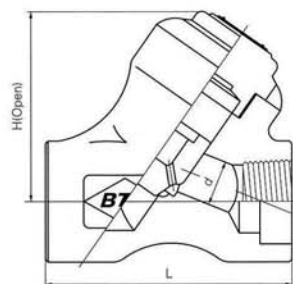


Y type check valves



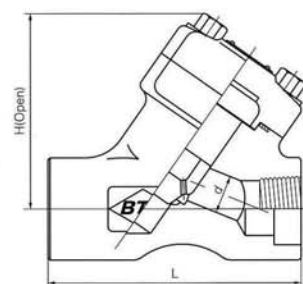
CL800 Bolted bonnet, full port and reducing port
Threaded, butt-welded or socket welded ends; design to BS5352

Specification (NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	98	98	98	111	140	140	155	170	
Height	H	70	70	70	100	110	120	120	150	
Height(angle dimension)	d	7	10	13	17.5	23	30	35	46	
Weight(Kg)		2.2	2.2	2.1	4.2	9	8.9	10	18.6	



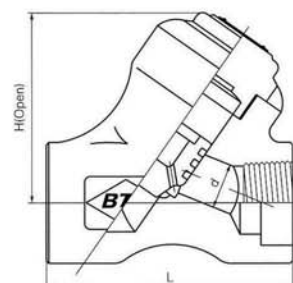
CL800 Welded bonnet, full port and reducing port
Threaded, butt-welded or socket welded ends; design to BS5352

Specification (NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	79	79	92	100	140	140	155	170	
Height	H	65	65	65	95	105	110	110	140	
Height(angle dimension)	d	7	10	13	17.5	23	30	35	46	
Weight(Kg)		1.8	1.8	2.0	3.5	8.0	8.0	12	16	



CL900-CL1500 Bolted bonnet, full port
Threaded, butt-welded or socket welded ends; design to BS5352

Specification (NPS)	F.P	3/8	1/2	3/4	1	1 1/4	1 1/2	2	
Face to face	L	98	111	111	140	140	155	170	
Height	H	70	70	100	110	110	120	150	
Height(angle dimension)	d	9	12	15	20	28	32	40	
Weight(Kg)		2.1	4.2	9	8.9	10	18.6	20	



CL900-CL1500 Welded bonnet, full port
Threaded, butt-welded or socket welded ends; design to BS5352

Specification (NPS)	F.P	3/8	1/2	3/4	1	1 1/4	1 1/2	2	
Face to face	L	92	100	100	140	140	155	170	
Height	H	65	65	65	105	110	110	140	
Height(angle dimension)	d	9	12	15	20	32	28	40	
Weight(Kg)		2.0	3.5	3.5	8.0	12	12	18	

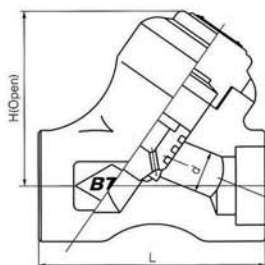


Y type check valves

CL2500

Welded bonnet, full port

Threaded, butt-welded or socket welded ends; design to ASME B16.34

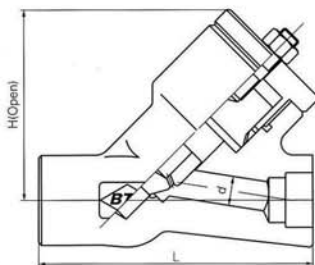


Specification (NPS)	F.P	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	186	186	186	186	232	232	310
Height	H	115	115	120	150	150	150	160
Height(angle dimension)	d	9	11	14	19	25	28	35
Weight(Kg)		11.2	11.5	10.6	10.8	25	22	39

CL2500

Pressure seal, bolted bonnet, full port

Threaded, butt-welded or socket welded ends; design to ASME B16.34

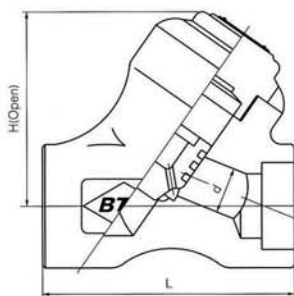


Specification (NPS)	F.P	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	186	186	186	186	232	232	310
Height	H	233	233	233	233	256	256	330
Height(angle dimension)	d	9	11	14	19	25	28	35
Weight(Kg)		11.2	11.5	10.6	10.8	25	22	39

CL4500

Welded bonnet, full port

Threaded, butt-welded or socket welded ends; design to ASME B16.34

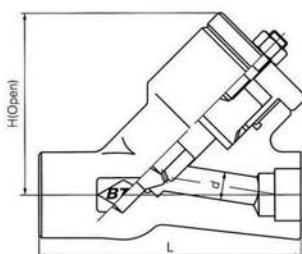


Specification (NPS)	F.P	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	155	155	155	155		225	225
Height	H	120	120	120	145		160	160
Height(angle dimension)	d	9	11	11	15		26	28
Weight(Kg)		8.7	8.7	8.7	8		16.5	16

CL4500

Pressure seal, bolted bonnet, full port

Threaded, butt-welded or socket welded ends; design to ASME B16.34



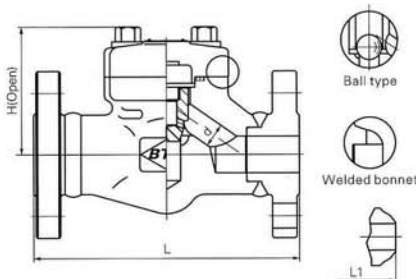
Specification (NPS)	F.P	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	200	200	200	200	250	250	330
Height	H	140	140	140	140	160	160	180
Height(angle dimension)	d	9	11	11	15	20	26	28
Weight(Kg)		20	20	20	20	28	28	45

Flange and butt-welded check valves



CL150-300-600

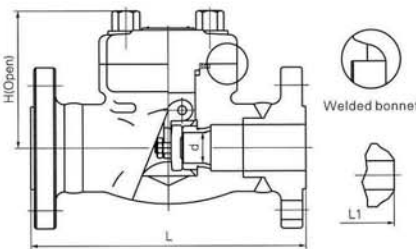
Bolted bonnet, full port
Flange-welded or butt-welded ends; design to BS5352



Specification(NPS)	R.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	CL150 L(RF) CL300 L1(BW) CL600	—	—	108	118	127	140	165	203
Height	CL150 H CL300/600	—	—	77	81	93	95	103	118
Height(angle dimension)	d	—	—	10	13	17.5	23	30	35
Weight (Kg)	CL150 RF CL300 RF CL600 RF	—	—	3.6	4.6	8.5	9.2	12.5	14.8
	CL150 BW CL300 BW CL600 BW	—	—	3.0	3.6	7.6	8.5	11.3	13.6
	CL150 RF CL300 RF CL600 RF	—	—	3.7	4.8	8.8	9.6	13.7	17.8
	CL150 BW CL300 BW CL600 BW	—	—	3.2	4.3	8.0	8.6	12.7	16.2
	CL150 RF CL300 RF CL600 RF	—	—	4.0	5.8	9.5	10.4	15.6	24.5
	CL150 BW CL300 BW CL600 BW	—	—	3.4	5.1	8.8	9.2	14.8	22.5

CL150-300-600

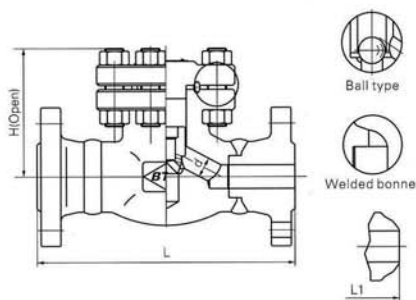
Bolted bonnet, full port
Flange-welded or butt-welded ends; design to BS5352



Specification(NPS)	R.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	CL150 L(RF) CL300 L1(BW) CL600	—	—	108	118	127	140	165	203
Height	CL150 H CL300/600	—	—	77	81	93	95	103	118
Height(angle dimension)	d	—	—	10.5	13.5	18	24	29	36.5
Weight (Kg)	CL150 RF CL300 RF CL600 RF	—	—	3.6	4.6	8.5	9.2	12.5	14.8
	CL150 BW CL300 BW CL600 BW	—	—	3.0	3.6	7.6	8.5	11.3	13.6
	CL150 RF CL300 RF CL600 RF	—	—	3.7	4.8	8.8	9.6	13.7	17.8
	CL150 BW CL300 BW CL600 BW	—	—	3.2	4.3	8.0	8.6	12.7	16.2
	CL150 RF CL300 RF CL600 RF	—	—	4.0	5.8	9.5	10.4	15.6	24.5
	CL150 BW CL300 BW CL600 BW	—	—	3.4	5.1	8.8	9.2	14.8	22.5

CL150-300-600

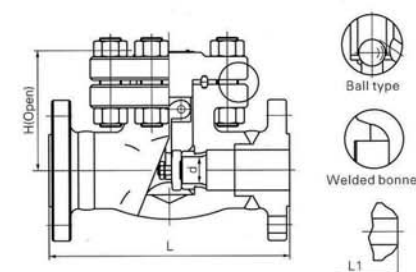
Bolted bonnet, reducing port
Flange-welded or butt-welded ends; design to BS5352



Specification(NPS)	R.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	CL150 L(RF) CL300 L1(BW) CL600	—	—	108	118	127	140	165	203
Height	CL150 H CL300/600	—	—	77	81	93	95	103	118
Height(angle dimension)	d	—	—	10	13	17.5	23	30	35
Weight (Kg)	CL150 RF CL300 RF CL600 RF	—	—	3.2	3.5	4.6	5.2	7.0	16
	CL150 BW CL300 BW CL600 BW	—	—	2.8	3.0	4.0	4.6	6.3	15
	CL150 RF CL300 RF CL600 RF	—	—	4.6	6.1	9.1	12	16	21
	CL150 BW CL300 BW CL600 BW	—	—	4.1	5.7	8.4	11.2	14.5	19.5
	CL150 RF CL300 RF CL600 RF	—	—	4.8	6.3	9.3	13	16.5	22
	CL150 BW CL300 BW CL600 BW	—	—	4.4	5.9	8.7	12.1	15.8	20.8

CL150-300-600

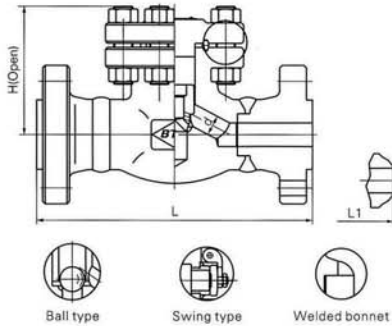
Bolted bonnet, reducing port
Flange-welded or butt-welded ends; design to BS5352



Specification(NPS)	R.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	CL150 L(RF) CL300 L1(BW) CL600	—	—	108	118	127	140	165	203
Height	CL150 H CL300/600	—	—	77	81	93	95	103	118
Height(angle dimension)	d	—	—	10.5	13.5	18	24	29	36.5
Weight (Kg)	CL150 RF CL300 RF CL600 RF	—	—	3.6	4.6	8.5	9.2	12.5	14.8
	CL150 BW CL300 BW CL600 BW	—	—	3.0	3.6	7.6	8.5	11.3	13.6
	CL150 RF CL300 RF CL600 RF	—	—	3.7	4.8	8.8	9.6	13.7	17.8
	CL150 BW CL300 BW CL600 BW	—	—	3.2	4.3	8.0	8.6	12.7	16.2
	CL150 RF CL300 RF CL600 RF	—	—	4.0	5.8	9.5	10.4	15.6	24.5
	CL150 BW CL300 BW CL600 BW	—	—	3.4	5.1	8.8	9.2	14.8	22.5



Flange and butt-welded check valves



CL900-CL1500

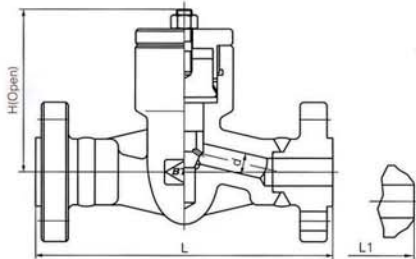
Bolted bonnet, full port
Flange-welded or butt-welded ends; design to BS5352

Specification(NPS)	F.P	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L(RJ) L1(BW)	216	229	254	280	305	371
Height	H	81	93	95	101	118	130
Height (angle dimension)	d Lift	12	15	20	28	32	40
	Swing	13.5	18	24	29	36.5	45
Weight(Kg)	Lift	5.2	6.8	10.5	28	18	24
	Swing	5.0	6.1	10.8	29	17.6	27

CL900-CL1500

Pressure seal, bolted bonnet, full port and reducing port
Flange-welded or butt-welded ends; design to BS5352

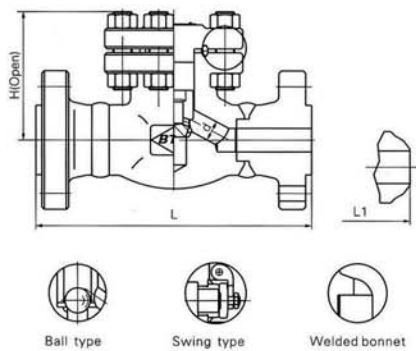
Specification(NPS)	F.P	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L(RF), L1(BW)	216	229	254	280	305	268	
	L(RTJ)	216	229	254	280	305	371	
Height	H	117	117	117	152	152	195	
Height (angle dimension)	d	12	15	20	28	32	40	
		10.5	11.9	13.9	19.9	26.9	32.5	



CL2500

Bolted bonnet, full port
Flange-welded or butt-welded ends; design to ASME B16.34

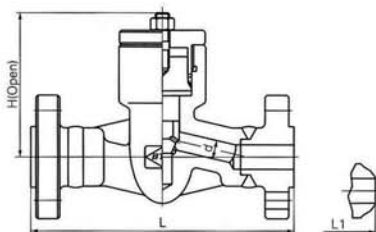
Specification(NPS)	F.P	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L(RF), L1(BW)	264	273	308	349	384	450
	L(RTJ)	264	273	308	352	387	454
Height	H	81	93	95	101	118	130
Height (angle dimension)	d Lift	12	15	20	28	32	40
	Swing	10.5	13.5	18	24	29	36.5
Weight(Kg)	Lift	17	21	28	14.5	58	85
	Swing	5.0	6.1	10.8	11.2	17.6	27



CL2500

pressure seal, bolted bonnet, full port
Flange-welded or butt-welded ends; design to ASME B16.34

Specification(NPS)	F.P	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L(RF), L1(BW)	264	273	308	349	384	450	
	L(RTJ)	264	273	308	352	387	454	
Height	H	117	117	117	152	152	195	
Height (angle dimension)	d	12	15	20	32	28	40	
		12.6	14.9	16.5	24.8	30	35	





Forged steel strainers

Hawks Forged steel Y type strainer, bolted bonnet, gasket adopt spiral wound (304+flexible graphite) or metal ring seal.

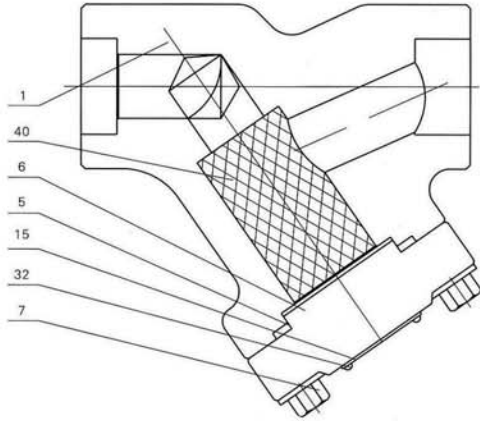
Construction is as follows

- ※ Full port or conventional port;
- ※ Bolted bonnet spiral wound gasket seal bonnet;
- ※ Socket weld ends to ASME B16.11;
- ※ Screwed ends (NPT) to ANSI/ASME B1.20.1;
- ※ Equip blow down tap and renewable strainer.





Y-type strainers



Please offer the mesh of strainer
If you want to equip with, you contract with our sale department

Application standards

- 1、 Design and manufacture conform to BS5352 MSS SP-118;
- 2、 Connection ends conform to:
 - 1)Socket welded ends conform to ANSI B16.11
 - 2)Screw ends conform to ANSI B1.20.1
 - 3)Butt-welded conform to ANSI B16.25
 - 4)Flanged ends conform to ANSI B16.5
- 3、 Test and inspection conform to:
API 598
- 4、 Structure features:
Bolted bonnet or welding bonnet
- 5、 Materials conform to ANSI/ASTM.
- 6、 Main materials:
A105; LF2; F5; F11; F22; 304(L); 316(L); F347;
F321; F51; Monel; 20 Alloy.

Carbon steel temperature-pressure rate

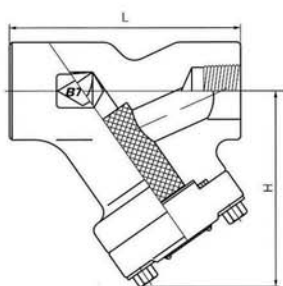
CL150-285 P.S.I @ 100° F
CL300-740 P.S.I @ 100° F
CL600-1480 P.S.I @ 100° F
CL800-1975 P.S.I @ 100° F
CL1500-3705 P.S.I @ 100° F
CL2500-6170 P.S.I @ 100° F

Main part materials list

NO.	Part name	A105/F6a	A105/Fa6HFS	LF2/304	F11/F6aHF	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	A105	A105	LF2	F11	F304(L)	F316(L)	F51
5	Gasket	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	316+ Flexible graphite	316+ Flexible graphite
6	Bonnet	A105	A105	LF2	F11	F304(L)	F316(L)	F51
7	Bolt	B7	B7	L7	B16	B8(M)	B8(M)	B8M
15	Nameplate	AL	AL	AL	AL	AL	AL	AL
32	Rivet	H62	H62	H62	H62	H62	H62	H62
40	Filter screen	304	304	304	304	304(L)	316(L)	316(L)



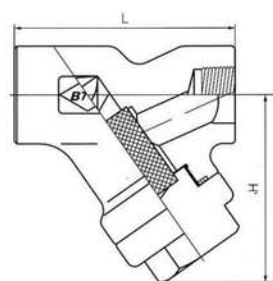
Y-type strainers



CL800

Bolted bonnet, full port and reducing port
Threaded, butt-welded or socket welded ends; design to BS5352

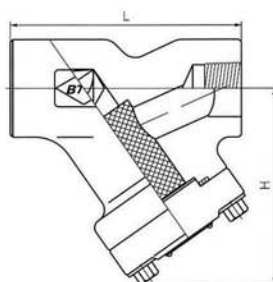
Specification (NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	98	98	98	111	140	140	155	170	
Height	H	70	70	70	100	110	120	120	150	
Height(angle dimension)	d	7	9	13	17.5	30	30	35	46	
Weight(Kg)		2.2	2.2	2.1	4.2	8.9	8.9	10	18.6	



CL800

Bolted bonnet, full port and reducing port
Threaded, butt-welded or socket welded ends; design to BS5352

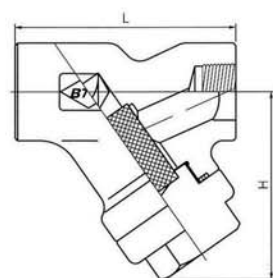
Specification (NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	79	79	92	100	140	140	155	170	
Height	H	65	65	65	95	105	110	110	140	
Height(angle dimension)	d	7	9	13	17.5	23	30	35	46	
Weight(Kg)		1.8	1.8	2.0	3.5	9	8.0	12	16	



CL900-CL1500

Bolted bonnet, full port
Threaded, butt-welded or socket welded ends; design to BS5352

Specification (NPS)	F.P	3/8	1/2	3/4	1	1 1/4	1 1/2	2	
Face to face	L	98	111	111	140	140	155	170	
Height	H	70	70	100	110	120	120	150	
Height(angle dimension)	d	9	12	15	20	28	32	40	
Weight(Kg)		2.1	4.2	9	8.9	10	18.6	20	



CL900-CL1500

Bolted bonnet, full port
Threaded, butt-welded or socket welded ends; design to BS5352

Specification (NPS)	F.P	3/8	1/2	3/4	1	1 1/4	1 1/2	2	
Face to face	L	92	100	100	140	140	155	170	
Height	H	65	65	95	105	110	110	140	
Height(angle dimension)	d	9	12	15	20	28	32	40	
Weight(Kg)		2.0	3.5	8.0	8.0	12	16	18	



Forged steel cryogenic valves

Hawks cryogenic valves are available in two bonnet designs. The first design is the Bolted Bonnet, with male–female joint, spiral wound gasket, made in F304L/graphite. Ring joint gasket are also available on request. The second design is the welded bonnet, with a threaded and seal welded joint. On request a full penetration strength welded joint is available.

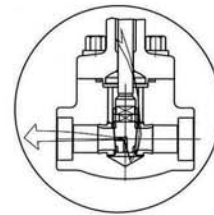
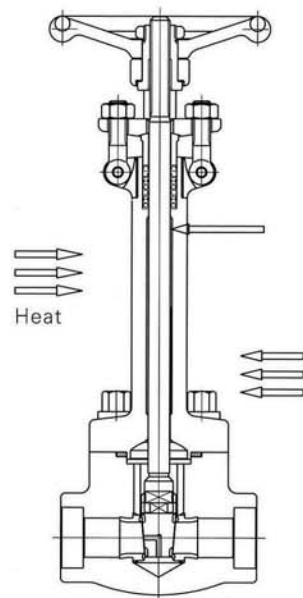
The cryogenic valves are available in gate and globe design configurations. Valves are designed with an extended bonnet for use in cold services to 196 degrees C (–320 degrees F).



Construction is as follows

- ※ Full port or conventional port;
- ※ Outsied screw and yoke (OS&Y);
- ※ Extended bonnet;
- ※ Self–centering gland and flange;
- ※ Bolted bonnet with spiral–wound gasket sealing bonnet;
- ※ Threaded with full welding seal bonnet;
- ※ Integral backseat;
- ※ Socket welded ends to ASME B16.11;
- ※ Screwed ends(NPT) to ANSI/ASME B1.20.1.

Cryogenic gate valves



Pressure relief illustration

Product application

Hawks has many users in cryogenic valves. through more than 20-year continuous efforts, Hawks forged cryogenic gate, globe and check valves are specially designed to handle the technical problems that arise in the production, transport and storage of liquified gases such as oxygen, nitrogen, argon, natural gas, hydrogen or helium (down to $-425\text{ F}/-254\text{ C}$). BOTELI specially adapted extended bonnet forged valves offer safe and efficient service.

Design features

All basic design features of Hawks forged steel valves outlined in this catalog are adapted to special service conditions at cryogenic temperatures.

Extended bonnets with sufficient gas column length, usually specified by customer, are supplied for all valves to keep stem packing at sufficient distance away from the cold fluid to remain functional.

Pressure releasing Hole, designed in the wedge, warrants the pressure in body chamber to be balance, even if the pressure inside the body chamber is suddenly up.

High-hard-surfaced stem hardened with nitriding remains its perfect bruise and corrosion resistance at the extreme low temperature, so as to prevent the packing from being damaged.

Overlaid Stellite 6 closure members on 1/2~2" (150 mm) valves operate with no galling in cryogenic service.



Cryogenic test

Purpose: Demonstrating the perfect operating performances in model cryogenic conditions.

Environment: Inside a device full of liquefied Nitrogen, temperature smaller than 196°C .

Procedures: After being verified at room temperature, the valve is cleaned and dried, when the temperature reached the required one, it can begin to test.

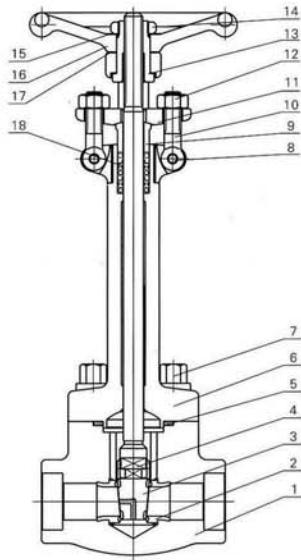
Operating performance test in cryogenic conditions.

Sealing performance tests for packing and gasket

Sealing performance test for backseat



Cryogenic gate valves



Application specifications

- 1、 Design and manufacture conform to API 602 BS5352 B16.34;
- 2、 Connection ends conform to:
 - 1)Socket welded ends conform to ANSI B16.11
 - 2)Screw ends conform to ANSI B1.20.1
 - 3)Butt-welded ends conform to ANSI B16.25
 - 4)Flanged ends conform to ANSI B16.5
- 3、 Test and inspection conform to: API 598
- 4、 Structure features:
 - Bolted bonnet, outside screw and yoke
 - Welded bonnet, outside screw and yoke
- 5、 Materials conform to ANSI/ASTM.
- 6、 Main materials:
 - LF2; LF3; 304(L); 316(L); F347; F321; F51.

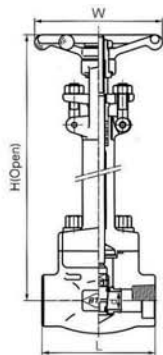
Carbon steel temperature–pressure rate

CL150–285 P.S.I @ 100° F
CL300–740 P.S.I @ 100° F
CL600–1480 P.S.I @ 100° F
CL800–1975 P.S.I @ 100° F
CL1500–3705 P.S.I @ 100° F

Main part materials list

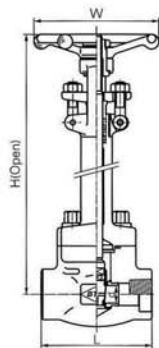
NO.	Part name	A105/F6a	A105/F6aHFS	LF2/304	LF3/304	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	–	–	LF2	LF3	F304(L)	F316(L)	F51
2	Seat ring	–	–	304	304	304(L)	316(L)	F51
3	Wedge disc	–	–	F304	F304	F304(L)	F316(L)	F51
4	Stem	–	–	304	F304	304(L)	316(L)	F51
5	Gasket	–	–	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	316+ Flexible graphite	316+ Flexible graphite
6	Bonnet	–	–	LF2	LF3	F304(L)	F316(L)	F51
7	Bolt	–	–	L7	L7	B8	B8	B8
8	Pin	–	–	410	410	304	304	304
9	Gland	–	–	304	304	304	316	F51
10	Gland eyebolt	–	–	L7	L7	B8(M)	B8(M)	B8M
11	Gland flange	–	–	LF2	LF3	F304	F304	F304
12	Hex nut	–	–	2H	2H	8(M)	8(M)	8M
13	Stem nut	–	–	410	410	410	410	410
14	Locking nut	–	–	35	35	35	35	35
15	Nameplate	–	–	AL	AL	AL	AL	AL
16	Handwheel	–	–	A197	A197	A197	A197	A197
17	Lubricating gasket	–	–	410	410	410	410	410
18	Packing	–	–	Graphite	Graphite	Graphite	Graphite	Graphite

Cryogenic gate valves



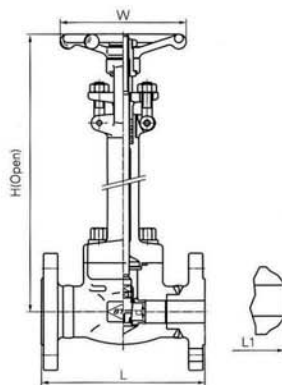
CL800 Bolted bonnet cryogenic extended bonnet full port & reduced port, OS&Y Threaded, butt-welded or socket welded ends; design to API 602

Specification (NPS)	R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	79	79	92	111	120	120	140	178	180
Handwheel diameter	W	100	100	100	125	160	160	180	200	220
Height	H -196	291	291	293	340	375	400	450	490	560
	-46	255	255	258	290	325	265	395	440	485
Height(angle dinmension)	d	7.5	10.5	13.5	18	24	29	36.5	45	51
Weight(Kg)		3.5	3.5	4.3	6.7	10.9	12	14.8	28	36



CL1500 Bolted bonnet cryogenic extended bonnet full port & reduced port, OS&Y Threaded, butt-welded or socket welded ends; design to API 602

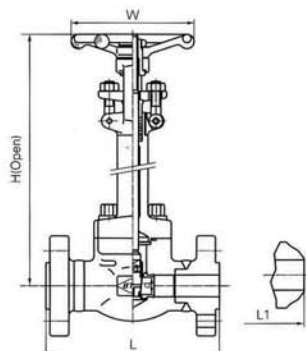
Specification (NPS)	R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	79	111	111	120	120	140	178	180
Handwheel diameter	W	100	125	125	160	160	180	200	220
Height	H -196	321	321	322	359	399	446	480	550
	-46	285	285	287	309	343	396	420	480
Height(angle dinmension)	d	7.5	10.5	13.5	18	24	29	36.5	45
Weight(Kg)		3.5	6.7	6.7	11	12.3	15.8	28	45



CL150-300-600 Bolted bonnet cryogenic extended bonnet, reduced port, OS&Y Flanged or butt welded ends; design to API 602

Specification(NPS)		1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	CL150	-	-	108	118	127		165	178
	CL300 L(RF), L1(BW)	-	-	140	153	165		191	216
	CL600	-	-	165	191	216		241	292
Handwheel diameter	W	-	-	100	100	125	160	160	180
Height	-196	-	-	321	322	359	399	446	480
	-46	-	-	285	287	309	343	396	420
Height(angle dinmension)	d	-	-	10.5	13.5	18	24	29	36.5
Weight (Kg)	CL R F	-	-	5.0	5.5	8.8	13.5	15	20.3
	150 BW	-	-						
	CL R F	-	-	5.8	7.3	9.7	12.5	19.5	22.3
	300 BW	-	-						
	CL R F	-	-	6.0	8	11.2	13.5	21.5	24.8
	600 BW	-	-						

If you want to order one piece body, please contract with sale department



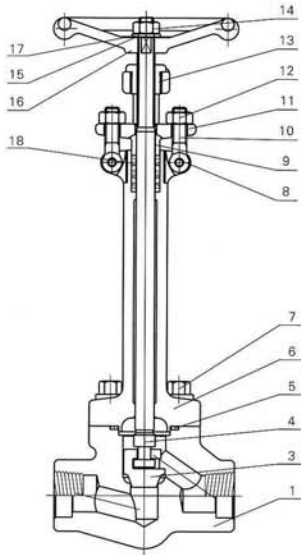
CL1500 Bolted bonnet cryogenic extended bonnet, full port, OS&Y Flanged or butt welded ends; design to API 602

Specification(NPS)	R.P	-	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	216	229	254	279	325	368	
Handwheel diameter	W	125	125	160	160	180	200	
Height	H -196	321	322	359	399	446	480	
	-46	285	287	309	343	396	420	
Height(angle dinmension)	d	10.5	13.5	18	24	29	36.5	
Weight (Kg)		14	23	25.3	5.7	47	72	

If you want to order one piece body, please contract with sale department



Cryogenic globe valves



Application specifications

- Design and manufacture conform to API 602 BS5352 B16.34;
- Connection ends conform to:
 - 1)Socket welded ends conform to ANSI B16.11
 - 2)Screw ends conform to ANSI B1.20.1
 - 3)Butt-welded ends conform to ANSI B16.25
 - 4)Flanged ends conform to ANSI B16.5
- Valve test and inspection conform to: API 598
- Structure features:
 - Bolted bonnet, outside screw and yoke
 - Welded bonnet, outside screw and yoke
- Materials conform to ANSI/ASTM.
- Main materials:
 - LF2; LF3; 304(L); 316(L); F347; F321; F51; Monel; 20 Alloy.

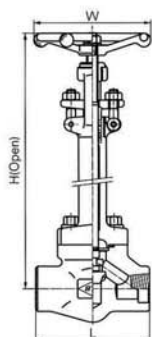
Carbon steel temperature–pressure rate

CL150–285 P.S.I @ 100° F
CL300–740 P.S.I @ 100° F
CL600–1480 P.S.I @ 100° F
CL800–1975 P.S.I @ 100° F
CL1500–3705 P.S.I @ 100° F

Main part materials list

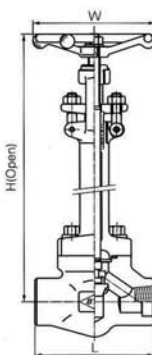
NO.	Part name	A105/F6a	A105/F6aHFS	LF2/304	LF3/304	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	–	–	LF2	LF3	F304(L)	F316(L)	F51
2	Seat ring	–	–	304	304	304(L)	316(L)	F51
3	Wedge disc	–	–	F304	F304	F304(L)	F316(L)	F51
4	Stem	–	–	304	304	304(L)	316(L)	F51
5	Gasket	–	–	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	316+ Flexible graphite	316+ Flexible graphite
6	Bonnet	–	–	LF2	LF3	F304(L)	F316(L)	F51
7	Bolt	–	–	L7	L7	B8	B8	B8
8	Pin	–	–	410	410	304	304	304
9	Gland	–	–	304	304	304	316	F51
10	Gland eyebolt	–	–	L7	L7	B8(M)	B8(M)	B8M
11	Gland flange	–	–	LF2	LF3	F304	F304	F304
12	Hex nut	–	–	2H	2H	8(M)	8(M)	8M
13	Stem nut	–	–	410	410	410	410	410
14	Locking nut	–	–	35	35	35	35	35
15	Nameplate	–	–	AL	AL	AL	AL	AL
16	Handwheel	–	–	A197	A197	A197	A197	A197
17	Lubricating gasket	–	–	410	410	410	410	410
18	Packing	–	–	Graphite	Graphite	Graphite	Graphite	Graphite

Cryogenic globe valves



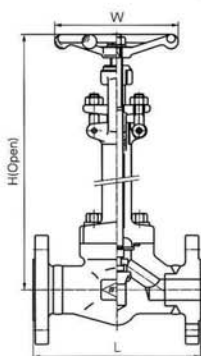
CL800 Bolted bonnet cryogenic extended bonnet full port & reduced port, OS&Y Threaded or socket welded ends; design to BS5352

Specification (NPS)	R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	79	79	92	111	120	152	172	200
Handwheel diameter	W	100	100	100	125	160	160	180	200
Height(open)	H	-196°C	390	390	415	430	460	490	570
		-101°C	350	350	400	410	425	450	540
Flow port dimension	d	-46°C	7.0	9.0	13	17.5	23	30	35
			7.2	7.2	7.2	9.5	10.8	13.5	19.8
Weight (Kg)									29



CL1500 Bolted bonnet cryogenic extended bonnet full port & reduced port, OS&Y Threaded or socket welded ends; design to BS5352

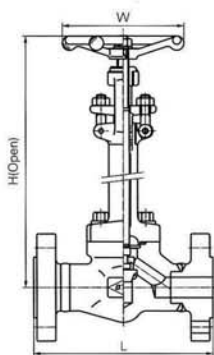
Specification (NPS)	R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	92	111	111	120	152	172	200	-
Handwheel diameter	W	100	125	125	160	160	180	200	-
Height(open)	H	-196°C	370	370	370	410	410	474	546
		-101°C	350	350	400	410	425	450	480
Flow port dimension	d	-46°C	9	12	15	20	28	32	40
			7.2	9.5	9.5	10.8	13.5	19.8	29
Weight (Kg)									-



CL150-300-600 Bolted bonnet cryogenic extended bonnet, reduced port, OS&Y Flanged or butt welded ends; design to BS5352

Specification(NPS)	R.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L(RF)	-	-	108	118	127	-	165	203
	L1(BW)	-	-	153	178	203	-	229	267
	CL600	-	-	165	191	216	-	241	292
Handwheel diameter	W	-	-	100	100	125	-	160	180
Height (open)	H	-196°C	-	390	415	430	-	490	505
		-101°C	-	350	400	410	-	450	480
Flow port dimension	d	-46°C	-	9.0	13	17.5	-	30	35
			-	5	5.8	8.6	-	13.8	24.3
Weight (Kg)	CL150	-	-	5	5.8	8.6	-	13.8	24.3
	CL300	-	-	5.8	6.8	10.3	-	19.3	25.8
	CL600	-	-	6.3	7.3	10.6	-	20.3	26.8

If you want to order one piece body, please contract with our sale department



CL1500 Bolted bonnet cryogenic extended bonnet, full port, OS&Y Flanged or butt welded ends; design to BS5352

Specification(NPS)	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L(RF)	-	-	216	229	254	280	305	368
Handwheel diameter	W	-	-	125	125	160	160	180	200
Height (open)	H	-196°C	-	370	370	410	410	474	546
		-101°C	-	350	400	410	425	450	480
Flow port dimension	d	-46°C	-	12	15	20	28	32	40
			-						

If you want to order one piece body, please contract with our sale department



Forged steel bellow sealed valves

Hawks Bellow Sealed valves are available in two bonnet designs. The first design is the Bolted Bonnet, with male–female joint, spiral wound gasket, made in F304L/graphite. Ring joint gasket are also available on request. The second design is the welded bonnet. with a threaded and seal welded joint. On request a full penetration strength welded joint is available.



Construction is as follows

- ※ Full port or conventional port;
- ※ Outsied screw and yoke (OS&Y);
- ※ Self–centering gland and plate;
- ※ Bolted bonnet with spiral–wound gasket or threaded and seal welded bonnet;
- ※ Integral backseat;
- ※ Socket welded end to ASME B16.11;
- ※ Screwed ends(NPT) to ANSI/ASME B1.20.1.

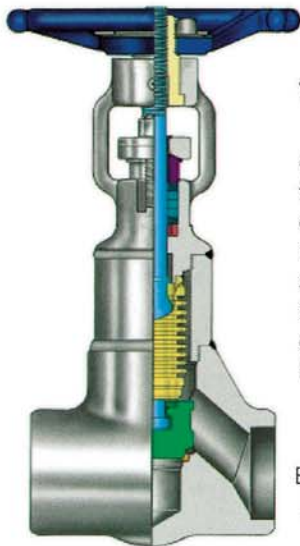
Bellow sealed valves



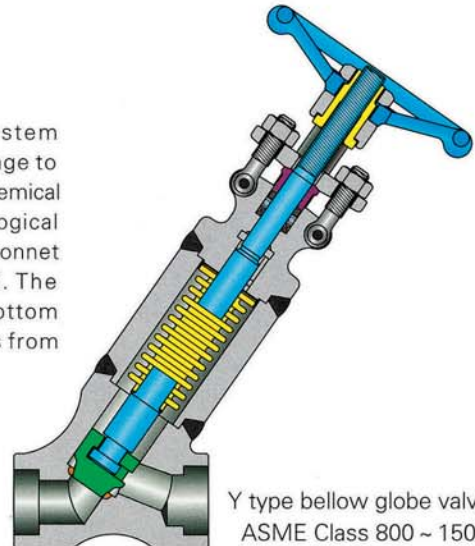
Zero leakages

Valves design parameters

A valve with a bellows to seal off the stem enclosure is an ideal choice whenever leakage to the atmosphere is intolerable due to toxicity, chemical corrosion, radioactivity, other health or ecological reasons. In addition, seal welding the body-bonnet seal makes the valve hermetically sealed. The bellows is welded to the stem and to the bottom of the bonnet. This kind of design originates from Hawks more than 20-year experiences.



Bellow seal globe valves
ASME Class 150 ~ 800



Y type bellow globe valves
ASME Class 800 ~ 1500

Cycle life

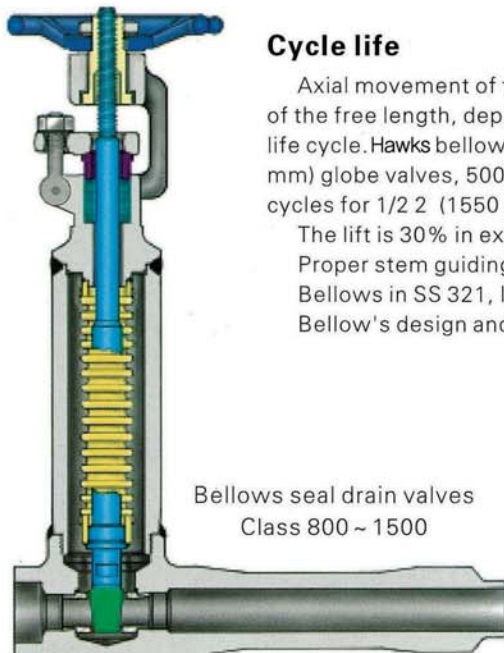
Axial movement of the bellows is limited to a maximum of 2025% of the free length, depending on pressure-temperature and desired life cycle. Hawks bellows are designed for 10,000 cycles for 1/2" (1550 mm) globe valves, 5000 cycles for bonnetless globe valves and 3000 cycles for 1/2" (1550 mm) gate valves.

The lift is 30% in extension and 70% in compression.

Proper stem guiding eliminates torsion of bellows.

Bellows in SS 321, Inconel or Hastelloy.

Bellow's design and manufacture as per MSS SP-117



Bellows seal drain valves
Class 800 ~ 1500

Bellows seal gate
Class 800 ~ 1500
Flange ASME Class 150 ~ 1500



The stem of Hawks bellow seal valves has 3-level seals

- SS Bellow sealing;
- Packing emergency sealing;
- Backseat sealing.



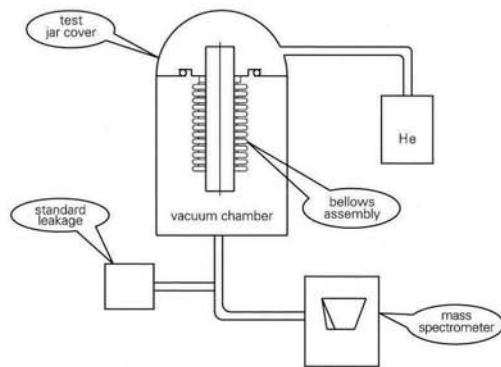
Bellow sealed valves

Quality insurance.

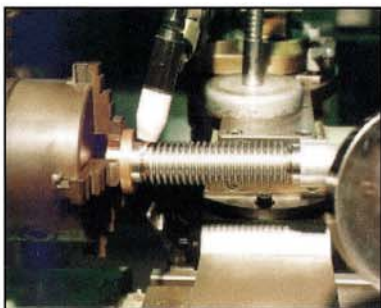
Hawks has a set of procedures to severely inspect and test every released bellow seal valve acc. to requirements of ISO 9001 and AZ state safety register quality system in which include 100% air seal test, no bubble test and PT exam to every bellow, available to do vacuum air seal test with Helium mass spectrograph if a vacuum degree is required.



The bellow inspection device R&D by Hawks ,



Vacuum seal test with Helium mass spectrograph

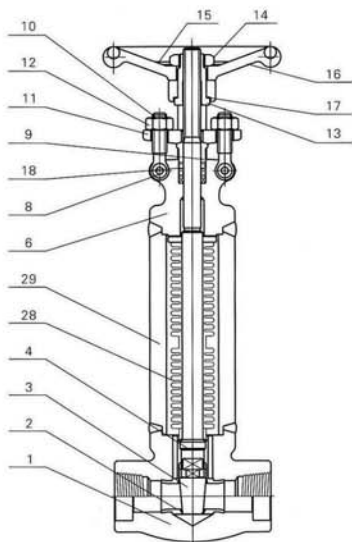


Micro bundle plasma bellow welding



Circle life test under a pressure.

Bellow sealed gate valves



Application specifications

- 1、Design and manufacture conform to API 602; MSS-SP-117
- 2、Connection ends conform to:
 - 1)Socket welded ends conform to ANSI B16.11
 - 2)Screw ends conform to ANSI B1.20.1
 - 3)Butt-welded ends conform to ANSI B16.25
 - 4)Flanged ends conform to ANSI B16.5
- 3、Test and inspection conform to: API 598
- 4、Structure features:
 - Bolted bonnet, outside screw and yoke
 - Welded bonnet, outside screw and yoke
- 5、Materials conform to ANSI/ASTM.
- 6、Main materials: A105; 304(L); 316(L); F347; F321.
- 7、Bellow materials: 304、321、316、Inconel 625、Hastelloy C 276、Monel.

Carbon steel temperature–pressure rate

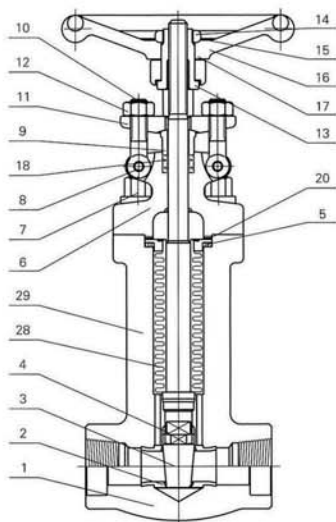
CL150–285 P.S.I @ 100° F
CL300–740 P.S.I @ 100° F
CL600–1480 P.S.I @ 100° F
CL800–1975 P.S.I @ 100° F
CL1500–3705 P.S.I @ 100° F

Main part materials list

NO.	Part name	A105/F6a	A105/F6aHFS	A105/F6aHF	F304(L)/304(L)	F316(L)/316(L)
1	Body	A105	A105	A105	F304(L)	F316(L)
2	Seat ring	410	410HF	410HF	304(L)	316(L)
3	Wedge disc	F6a	F6a	F6aHF	F304(L)	F316(L)
4	Stem	410	410	410	304(L)	316(L)
6	Bonnet	A105	A105	A105	F304(L)	F316(L)
8	Pin	410	410	410	304	304
9	Gland	410	410	410	304	316
10	Gland eyebolt	B7	B7	B7	B8(M)	B8(M)
11	Gland flange	A105	A105	A105	F304	F304
12	Hex nut	2H	2H	2H	8(M)	8(M)
13	Stem nut	410	410	410	410	410
14	Locking nut	35	35	35	35	35
15	Nameplate	AL	AL	AL	AL	AL
16	Handwheel	A197	A197	A197	A197	A197
17	Lubricating gasket	410	410	410	410	410
18	Packing	Graphite	Graphite	Graphite	Graphite	Graphite
28	Bellow	F321	F321	F321	F316	F321
29	Coupling pipe	A105	A105	A105	F304(L)	F316(L)



Bellow sealed gate valves



Application specifications

- 1、Design and manufacture conform to API 602; MSS-SP-117
- 2、Connection ends conform to:
 - 1)Socket welded ends conform to ANSI B16.11
 - 2)Screw ends conform to ANSI B1.20.1
 - 3)Butt-welded ends conform to ANSI B16.25
 - 4)Flanged ends conform to ANSI B16.5
- 3、Test and inspection conform to:
 - API 598
- 4、Structure features:
 - Bolted bonnet, outside screw and yoke
 - Welded bonnet, outside screw and yoke
- 5、Materials conform to ANSI/ASTM.
- 6、Main materials:
 - A105; 304(L); 316(L); F347; F321.
- 7、Bellow materials: 304、321、316、Inconel 625、Hastelloy C 276、Monel.

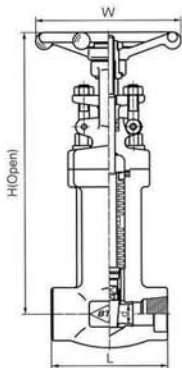
Carbon steel temperature–pressure rate

CL150–285 P.S.I @ 100° F
CL300–740 P.S.I @ 100° F
CL600–1480 P.S.I @ 100° F
CL800–1975 P.S.I @ 100° F
CL1500–3705 P.S.I @ 100° F

Main part materials list

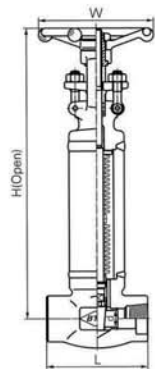
NO.	Part name	A105/F6a	A105/Fa6HFS	A105/F6aHF	F304(L)/304(L)	F316(L)/316(L)
1	Body	A105	A105	A105	F304(L)	F316(L)
2	Seat	410	410HF	410HF	304(L)	316(L)
3	Wedge disc	F6a	F6a	F6aHF	F304(L)	F316(L)
4	Stem	410	410	410	304(L)	316(L)
5	Gasket	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite
6	Bonnet	A105	A105	A105	F304(L)	F316(L)
7	Bolt	B7	B7	B7	B8	B8
8	Pin	410	410	410	304	304
9	Gland	410	410	410	304	316
10	Gland eyebolt	B7	B7	B7	B8(M)	B8(M)
11	Gland flange	A105	A105	A105	F304	F304
12	Hex nut	2H	2H	2H	8(M)	8(M)
13	Stem nut	410	410	410	410	410
14	Locking nut	35	35	35	35	35
15	Nameplate	AL	AL	AL	AL	AL
16	Handwheel	A197	A197	A197	A197	A197
17	Lubricating gasket	410	410	410	410	410
18	Packing	Graphite	Graphite	Graphite	Graphite	Graphite
20	Gasket	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite
28	Bellow	F321	F321	F321	F316L	F316L

Bellow sealed gate valves



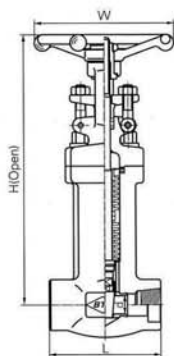
CL800 Bolted bonnet, full port & reducing port outside screw and yoke(OS & Y).
Threaded, butt-welded or socket welded ends; design to API602\MSS-SP-117

Specification (NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2
Face to face	L	79	79	92	111	120	120	140
Handwheel diameter	W	100	100	100	125	160	160	180
Height	H	255	255	285	345	445	545	594
Height(angle dimension)	d	7.5	10.5	13.5	18	24	29	36.5
Weight(Kg)		3.0	3.0	3.3	5.9	8.7	10.2	16.2



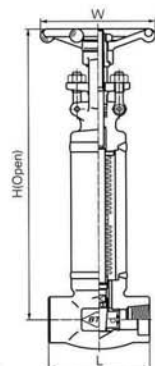
CL800 Welded bonnet, full port & reducing port outside screw and yoke(OS & Y).
Threaded, butt-welded or socket welded ends; design to API 602\MSS-SP-117

Specification (NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2
Face to face	L	79	79	92	111	120	120	140
Handwheel diameter	W	100	100	100	125	160	160	180
Height	H	248	548	777	335	437	537	585
Height(angle dimension)	d	7.5	10.5	13.5	18	24	29	36.5
Weight(Kg)		2.9	2.9	3.2	4.6	7.2	8.9	15.5



CL1500 Bolted bonnet, full port & reducing port outside screw and yoke(OS & Y).
Threaded, butt-welded or socket welded ends; design to API602\MSS-SP-117

Specification (NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2
Face to face	L	79	111	111	120	120	140	178
Handwheel diameter	W	100	125	125	160	160	180	180
Height	H	294	264	320	379	478	607	636
Height(angle dimension)	d	7.5	10.5	13.5	18	24	29	36.5
Weight(Kg)		3.1	5.1	5.1	9.0	10.5	16.7	21



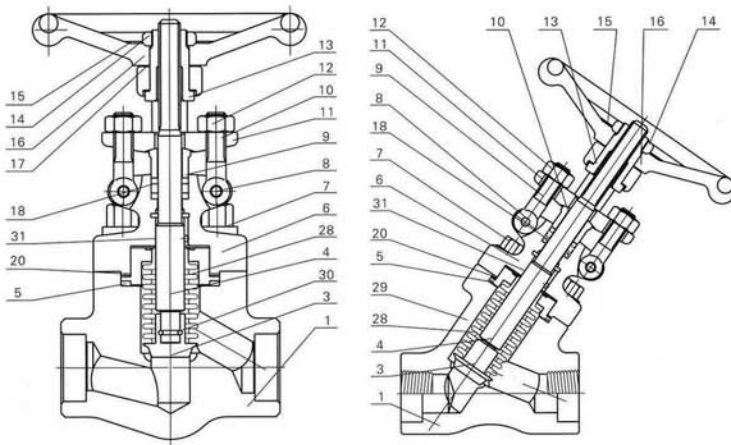
CL1500 Welded bonnet, full port & reducing port outside screw and yoke(OS & Y).
Threaded, butt-welded or socket welded ends; design to API602\MSS-SP-117

Specification (NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2
Face to face	L	79	111	111	120	120	140	178
Handwheel diameter	W	100	125	125	160	160	180	180
Height	H	287	287	312	368	465	595	627
Height(angle dimension)	d	7.5	10.5	13.5	18	24	29	36.5
Weight(Kg)		2.9	4.7	4.7	7.4	5.7	16	19



Short pattern bellow seal globe valves

The short pattern bellow seal globe valve, agglomerating many years experiences of Hawks researcher studying bellows, has been developed out through a series of complicated tests. Not only do this kind of valves own the normal bellow seal valve's functions, also have the features of a compact structure and replaceable bellow. This kind of valve will out of question display its advantages if the pipe system and/or equipment have a severe requirement to the valve's installing height.



Application specifications

- Design and manufacture conform to BS5352; MSS-SP-117
- Connection ends conform to:
 - Socket welded ends conform to ANSI B16.11
 - Screw ends conform to ANSI B1.20.1
 - Butt-welded ends conform to ANSI B16.25
 - Flanged ends conform to ANSI B16.5
- Test and inspection conform to: API 598
- Structure features:
 - Bolted bonnet, outside screw and yoke
 - Welded bonnet, outside screw and yoke
- Materials conform to ANSI/ASTM.
- Main materials:
 - A105; LF2; F5; F11; F22; 304(L); 316(L); F347; F321; F51; Monel; 20 Alloy.
- Bellow materials: 304; 321; 316; Inconel 625; Hastelloy C 276; Monel.

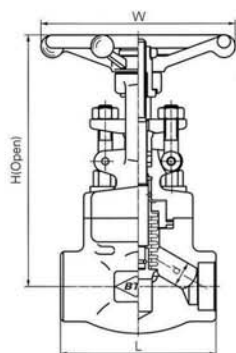
Carbon steel temperature-pressure rate

CL150-285 P.S.I @ 100° F
 CL300-740 P.S.I @ 100° F
 CL600-1480 P.S.I @ 100° F
 CL800-1975 P.S.I @ 100° F
 CL1500-3705 P.S.I @ 100° F

Main part materials list

NO.	Part name	A105/F6a	A105/F6aHFS	A105/F6aHF	F304(L)/304(L)	F316(L)/316(L)
1	Body	A105	A105+HF	A105+HF	F304(L)	F316(L)
3	Disc	F6a	F6a	F6aHF	F304(L)	F316(L)
4	Stem	410	410	410	304(L)	316(L)
5	Gasket	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	316+ Flexible graphite
6	Bonnet	A105	A105	A105	F304(L)	F316(L)
7	Bolt	B7	B7	B7	B8(M)	B8(M)
8	Pin	410	410	410	304	304
9	Packing bushing	410	410	410	304	316
10	Eyelet bolt	B7	B7	B7	B8(M)	B8(M)
11	Packing gland	A105	A105	A105	F304	F304
12	Hex nut	2H	2H	2H	8(M)	8(M)
13	Stem nut	410	410	410	410	410
14	Locking nut	35	35	35	35	35
15	Nameplate	AL	AL	AL	AL	AL
16	Handwheel	A197	A197	A197	A197	A197
17	Lubricating gasket	410	410	410	410	410
18	Packing	Graphite	Graphite	Graphite	Graphite	Graphite
20	Gasket	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite
28	Bellow	F321	F321	F321	F321/304L	F316/316L
30	Steel wire	304	304	304	304	316
31	Pin	304	304	304	304	316

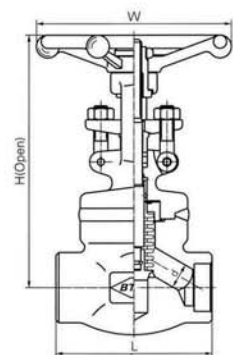
Short pattern bellow seal globe valves



CL800

Bolted bonnet, full port & reducing port outside screw and yoke(OS & Y).
Threaded, butt-welded or socket welded ends; design to BS5352/MSS-SP-117

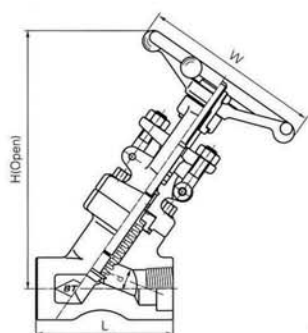
Specification (NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	79	79	92	111	120	152	172	200	
Handwheel diameter	W	100	100	100	125	160	160	180	200	
Height	H	162	162	164	200	220	257	295	350	
Height (angle dimension)	d	7.0	9.0	13	17.5	23	30	35	46	
Weight(Kg)		2.5	2.3	2.4	4.35	5.75	7.8	12.5	17.5	



CL800

Welded bonnet, full port & reducing port outside screw and yoke(OS & Y).
Threaded, butt-welded or socket welded ends; design to BS5352, MSS-SP-117

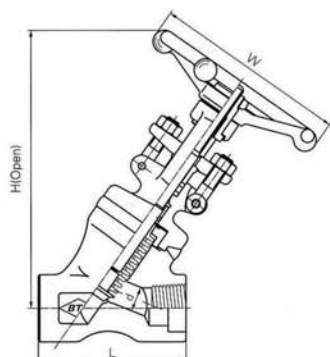
Specification (NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	79	79	92	111	120	152	172	200	
Handwheel diameter	W	100	100	100	125	160	160	180	200	
Height	H	162	162	164	200	220	257	295	350	
Height (angle dimension)	d	7.0	9.0	13	17.5	23	30	35	46	
Weight(Kg)		1.8	1.7	1.9	3.3	5.2	6.8	10.6	13.8	



CL800

Bolted bonnet, full port & reducing port outside screw and yoke(OS & Y).
Threaded, butt-welded or socket welded ends; design to BS5352, MSS-SP-117

Specification (NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	98	98	98	111	140	140	155	170	
Handwheel diameter	W	100	100	100	125	160	160	180	200	
Height	H	180	180	180	188	280	280	295	350	
Height (angle dimension)	d	7	9	13	17.5	23	30	35	46	
Weight(Kg)		2.6	2.6	3.8	4.6	9.3	9.3	14	19.6	



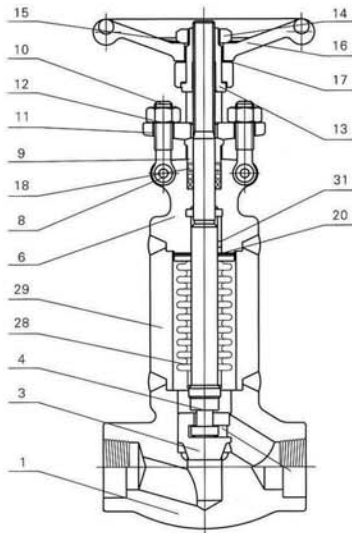
CL800

Welded bonnet, full port & reducing port outside screw and yoke(OS & Y).
Threaded, butt-welded or socket welded ends; design to BS5352, MSS-SP-117

Specification (NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	79	79	92	100	140	140	155	170	
Handwheel diameter	W	100	100	100	125	160	160	180	200	
Height	H	198	198	198	207	280	280	295	350	
Height (angle dimension)	d	7	9	13	17.5	23	30	35	46	
Weight(Kg)		1.8	1.8	2.0	3.5	8.0	8.0	12	16	



Bellow sealed globe valves



Application specifications

- 1、Design and manufacture conform to BS5352; MSS-SP-117
- 2、Connection ends conform to:
 - 1)Socket welded ends conform to ANSI B16.11
 - 2)Screw ends conform to ANSI B1.20.1
 - 3)Butt-welded ends conform to ANSI B16.25
 - 4)Flanged ends conform to ANSI B16.5
- 3、Test and inspection conform to:
 - API 598
- 4、Structure features:
 - Bolted bonnet, outside screw and yoke
 - Welded bonnet, outside screw and yoke
- 5、Materials conform to ANSI/ASTM.
- 6、Main materials:
 - A105; 304(L); 316(L); F347; F321.
- 7、Bellow materials: 304、321、316、Inconel 625、Hastelloy C 276、Monel.

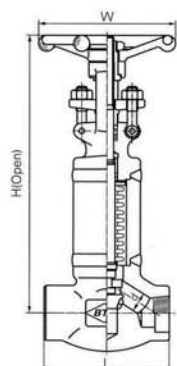
Carbon steel temperature–pressure rate

CL150–285 P.S.I @ 100° F
 CL300–740 P.S.I @ 100° F
 CL600–1480 P.S.I @ 100° F
 CL800–1975 P.S.I @ 100° F
 CL1500–3705 P.S.I @ 100° F

Main part materials list

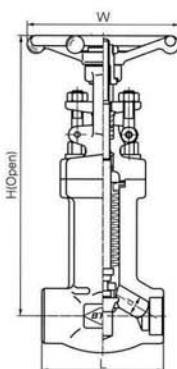
NO.	Part name	A105/F6a	A105/F6aHFS	A105/F6aHF	F304(L)/304(L)	F316(L)/316(L)
1	Body	A105	A105+HF	A105+HF	F304(L)	F316(L)
3	Disc	F6a	F6a	F6aHF	F304(L)	F316(L)
4	Stem	410	410	410	304(L)	316(L)
6	Bonnet	A105	A105	A105	F304(L)	F316(L)
8	Pin	410	410	410	304	304
9	Gland	410	410	410	304	316
10	Gland eyebolt	B7	B7	B7	B8(M)	B8(M)
11	Gland flange	A105	A105	A105	F304	F304
12	Hex nut	2H	2H	2H	8(M)	8(M)
13	Stem nut	410	410	410	410	410
14	Locking nut	35	35	35	35	35
15	Nameplate	AL	AL	AL	AL	AL
16	Handwheel	A197	A197	A197	A197	A197
17	Lubricating gasket	410	410	410	410	410
18	Packing	Graphite	Graphite	Graphite	Graphite	Graphite
28	Bellow	F321	F321	F321	F316	F316L
29	Coupling pipe	A105	A105	A105	A304(L)	A316 (L)
31	Pin	304	304	304	304	316

Bellow sealed globe valves



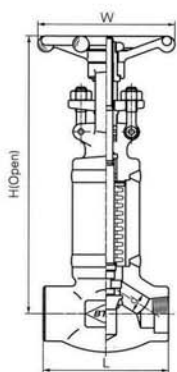
CL800 Welded bonnet, full port & reducing port outside screw and yoke(OS & Y)
Threaded, butt-welded or socket welded ends; design to BS5352 MSS-SP-117

Specification (NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	79	79	92	111	120	152	172	200	
Handwheel diameter	W	100	100	100	125	160	160	180	200	
Height	H	237	237	239	270	298	340	395	470	
Height(angle dimension)	d	7.0	9.0	13	17.5	23	30	35	46	
Weight(Kg)		2.6	2.5	2.7	4.4	6.7	8.8	15	18.8	



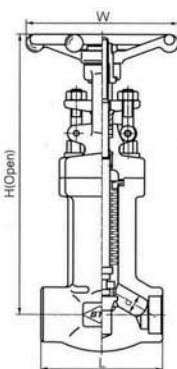
CL800 Bolted bonnet, full port & reducing port outside screw and yoke(OS & Y)
Threaded, butt-welded or socket welded ends; design to BS5352 MSS-SP-117

Specification (NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Face to face	L	79	79	92	111	120	152	172	200	
Handwheel diameter	W	100	100	100	125	160	160	180	200	
Height	H	237	237	239	270	298	340	395	470	
Height(angle dimension)	d	7.0	9.0	13	17.5	23	30	35	46	
Weight(Kg)		3.3	3.1	4.2	5.5	7.25	9.8	16	21	



CL1500 Welded bonnet, full port outside screw and yoke(OS & Y)
Threaded, butt-welded or socket welded ends; design to BS5352 MSS-SP-117

Specification(NPS)	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	92	92	111	111	120	152	172	200
Handwheel diameter	W	100	100	125	125	160	160	180	200
Height	H	290	330	380	380	400	450	520	650
Height(angle dimension)	d	7	9	12	15	20	28	32	40
Weight(Kg)		3.3	3.5	5	7.5	10	16	27	30

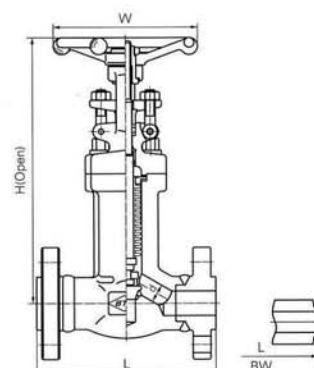
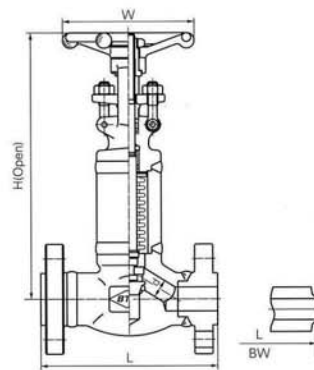
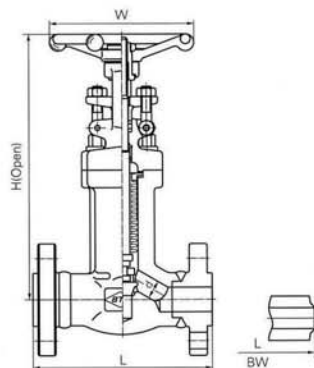
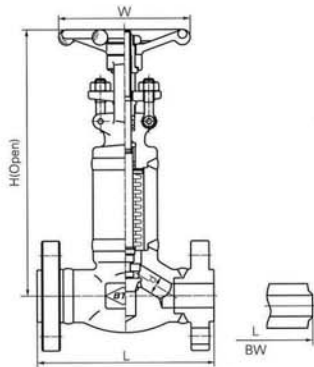


CL1500 Bolted bonnet, full port outside screw and yoke(OS & Y)
Threaded, butt-welded or socket welded ends; design to BS5352 MSS-SP-117

Specification(NPS)	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	92	92	111	111	120	152	172	200
Handwheel diameter	W	100	100	125	125	160	160	180	200
Height	H	290	330	380	380	400	450	520	650
Height(angle dimension)	d	7	9	12	15	20	28	32	40
Weight(Kg)		3.3	3.5	5	7.5	10	16	27	30



Bellow sealed globe valves



CL150-300-600

Welded bonnet, reducing port outside screw and yoke(OS & Y)
Flange-welded or butt-welded ends; design to BS5352\MSS-SP-117

Specification(NPS)	R.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	CL150 L(RF) CL300 L1(BW) CL600	–	–	108	117	127	140	165	203
Handwheel diameter	W	–	–	100	100	125	160	160	180
Height	CL150/CL300 H CL600	–	–	340/350	340/350	360/375	380/400	450/470	540/570
Height(angle dimension)	d	–	–	9	13	17.5	23	30	35
Weight (Kg)	CL150 RF/BW CL300 RF/BW CL600 RF/BW	–	–	3.67/3	4.3/3.6	6.3/5.7	10.5/9.5	11.5/9.8	19.5/16
		–	–	4/3.2	4.8/4	7.3/6.7	13/11	14.5/12	22/18
		–	–	5.8/4.7	8.1/6	12.5/9	18/14	24.5/18	42/36

If you want to order one piece body, please contract with sale department

CL150-300-600

Bolted bonnet, reducing port outside screw and yoke(OS & Y)
Flange-welded or butt-welded ends; design to BS5352\MSS-SP-117

Specification(NPS)	R.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	CL150 L(RF) CL300 L1(BW) CL600	–	–	108	117	127	140	165	203
Handwheel diameter	W	–	–	100	100	125	160	160	180
Height	CL150/CL300 H CL600	–	–	340/350	340/350	360/375	380/400	450/470	540/570
Height(angle dimension)	d	–	–	9	13	17.5	23	30	35
Weight (Kg)	CL150 RF/BW CL300 RF/BW CL600 RF/BW	–	–	4.17/3.5	4.8/4.1	7.7/6.7	12.5/11.5	14/11.5	21.5/18
		–	–	4.5/3.7	5.2/4.5	8.3/7.7	14.5/12.5	16/13.5	24/20
		–	–	6.3/5.2	8.6/6.5	13.5/10	19.5/15.5	26/19.5	44/38

If you want to order one piece body, please contract with sale department

CL1500

Welded bonnet, full port outside screw and yoke(OS & Y)
Flange-welded or butt-welded ends; design to BS5352\MSS-SP-117

Specification(NPS)	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L(RF), L1(BW) L(RTJ)	–	–	216	229	254	280	305	368
Handwheel diameter	W	–	–	125	125	160	160	180	200
Height	H	–	–	380	380	400	450	520	650
Height(angle dimension)	d	–	–	12	15	20	28	32	40
Weight(Kg)		–	–	11.1	11.8	14.1	16.5	23.8	37.5

If you want to order one piece body, please contract with sale department

CL1500

Bolted bonnet, full port outside screw and yoke(OS & Y)
Flange-welded or butt-welded ends; design to BS5352\MSS-SP-117

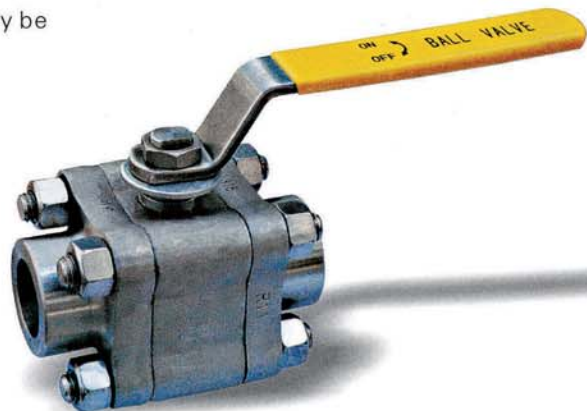
Specification(NPS)	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L(RF), L1(BW) L(RTJ)	–	–	216	229	254	280	305	368
Handwheel diameter	W	–	–	125	125	160	160	180	200
Height	H	–	–	380	380	400	450	520	650
Height(angle dimension)	d	–	–	12	15	20	28	32	40
Weight(Kg)		–	–	11.6	12.3	15	17.5	25	38.3

If you want to order one piece body, please contract with sale department



Forged steel ball valves

Hawks Forged steel ball valves have two structures. one is of 2PCS structure, threaded bonnet, RPTFE or PEEK seal. The other is of 3PCS structure, bolted tailpieces. Different materials for seats, gaskets and packing may be chosen acc. to different using conditions.

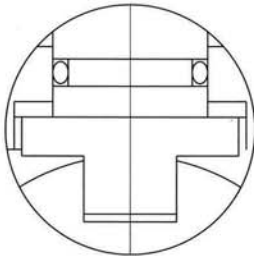


Construction is as follows

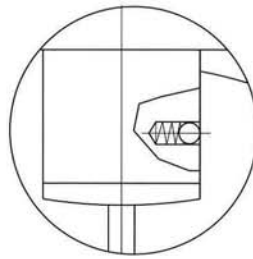
- ※ Full port or conventional port;
- ※ 90° locating and lock structure;
- ※ Special Y type handle;
- ※ Fire proof and anti static;
- ※ Mounted flange as per ISO 5211;
- ※ Blow out Proof stem;
- ※ Double sealing for the stem;
- ※ Bolted bonnet;
- ※ Socket welded ends to ASME B16.11;
- ※ Screwed ends (NPT) to ANSI/ASME B1.20.1.



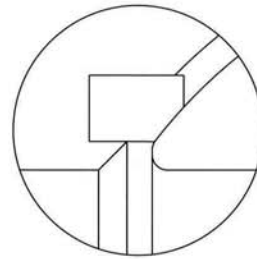
Forged steel ball valves



Blow out proof stem



Anti static



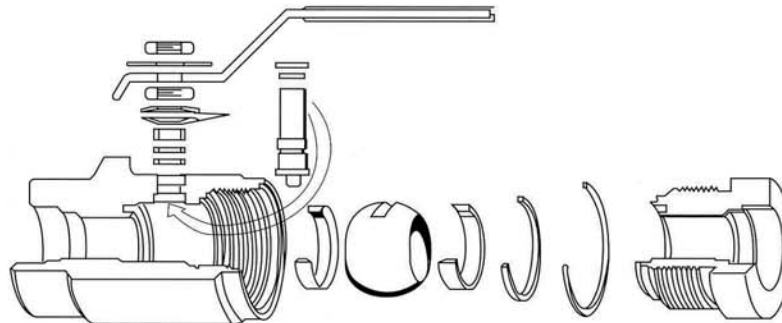
Fire safe

Hawks compact ball valves are trusted by many customers because of its reasonable structures small space-occupation and good sealing performance

Design structure

Seat is made of PTFE reinforced with 25% glass fibre or PEEK. PTFE with 25% glass fibre can gain better performances normally used for class 800 ball valves. PEEK can gain better performances under high pressure and high temperature normally used for class 1500 ball valves.

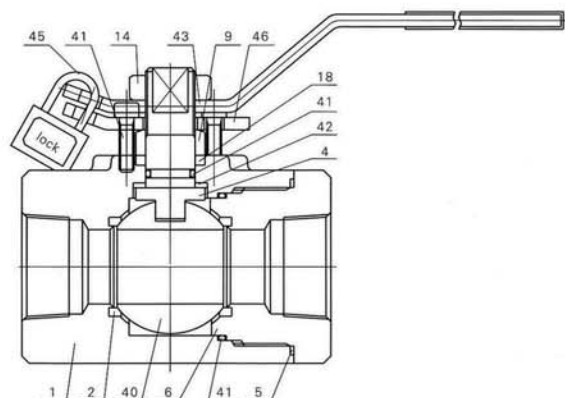
Anti static/ fire safe/ blow out proof stem



Flow coefficient Cv

NPS	Cv value	
	Full port	Reduced port
1/4	8	
3/8	8	
1/2	12	8
3/4	33	12
1	48	33
1 1/4	83	48
1 1/2	120	83
2	250	120

2PCS Forged steel ball valves



Application standards

- 1、Design and manufacture conform to BS5351 MSS SP-118;
- 2、Connection ends conform to:
 - 1)Socket welded ends conform to ANSI B16.11
 - 2)Screw ends conform to ANSI B1.20.1
 - 3)Butt-welded ends conform to ANSI B16.25
 - 4)Flanged ends conform to ANSI B16.5
- 3、Test and inspection conform to:
 - API 598
- 4、Structure features:
 - Bolted bonnet; two-piece;
- 5、Materials conform to ANSI/ASTM.
- 6、Main materials:
 - A105; LF2; 304(L); 316(L); F347; F321; F51; Monel; 20 Alloy.

Carbon steel temperature–pressure rate

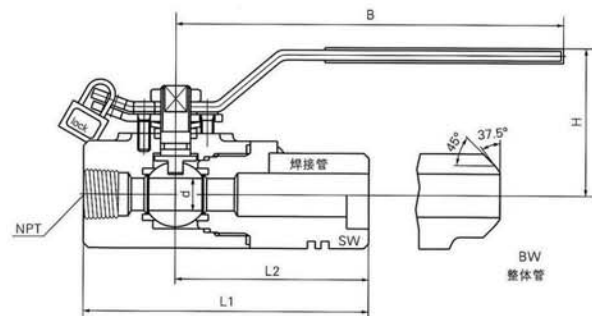
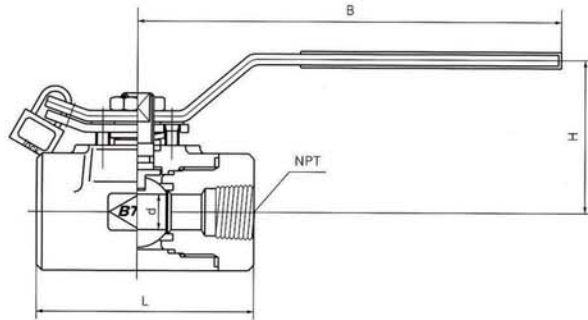
CL150–285 P.S.I @ 100° F
 CL300–740 P.S.I @ 100° F
 CL600–1480 P.S.I @ 100° F
 CL800–1975 P.S.I @ 100° F
 CL1500–3705 P.S.I @ 100° F

Main part materials list

NO.	Part name	A105/F6a	LF2/304	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	A105	LF2	F304(L)	F316(L)	F51
2	Seat	RPTFE & PEEK	RPTFE & PEEK	RPTFE & PEEK	RPTFE & PEEK	RPTFE & PEEK
4	Stem	410	304	304(L)	316(L)	F51
5	Gasket	PTFE	PTFE	PTFE	PTFE	PTFE
6	Bonnet	A105	LF2	F304	F316	F51
9	Gland	410	304	304(L)	316(L)	F51
11	Gland flange	A105	LF2	F304	F316	F51
14	Flat nut	8	8	8	8M	8M
18	Packing	PTFE	PTFE	PTFE	PTFE	PTFE
40	Ball	F6	F304	F304(L)	F316(L)	F51
41	O-ring	VITON	VITON	VITON	VITON	VITON
42	Back seat gasket	RPTFE & PEEK	RPTFE & PEEK	RPTFE & PEEK	RPTFE & PEEK	RPTFE & PEEK
43	Wrench	ANSI 1025	ANSI 1025	ANSI 1025	ANSI 1025	ANSI 1025
44	Screw	B8	B8	B8	B8M	B8M
45	Lock	Finished product	Finished product	Finished product	Finished product	Finished product
46	Locator	ANSI 1025	ANSI 1025	ANSI 1025	ANSI 1025	ANSI 1025



2PCS Forged steel ball valves



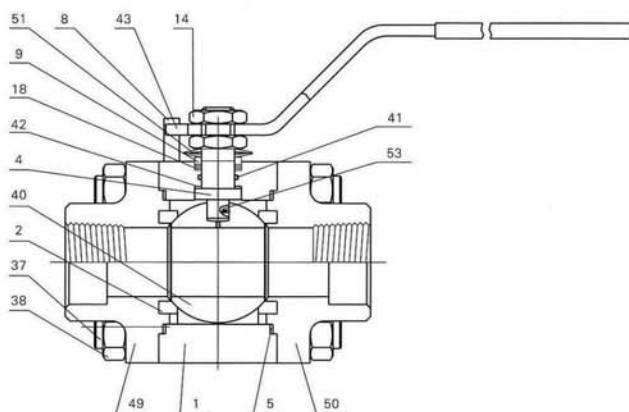
CL800 One end is welded pipe (butt-welding or socket welding) and the other is thread, design conform to BS 5351

Specification(NPS)	R.P		1/2	3/4	1	1 1/4	1 1/2	2	
	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2 1/2
Face to face	L1	70	70	80	95	115	125	135	155
Coupling pipe end to center	L2	121	121	121	130	136	140	148	160
Center to handle end	B	160	160	160	160	170	230	230	280
Height	H	60	60	60	65	85	105	105	125
Height(angle dimension)	d	6	9	12.5	17	24	37	37	49
Weight(Kg)		1.2	0.9	1.3	2.2	3.5	6.5	6.5	11

CL1500-CL2500 One end is welded pipe(butt-welding or socket welding)and the other is thread, design conform to API6D

Specification(NPS)	F.P		1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L1	CL1500	80	80	95	115	125	135	155	155
		CL2500			125	135	155		155	
Coupling pipe end to center	L2	CL1500	121	121	130	136	140	148	160	175
		CL2500			136	140	148		175	
Center to handle end	B	CL1500	160	160	160	170	230	230	280	280
		CL2500			230	230	280		280	130
Height	H	CL1500	60	60	65	85	105	105	125	
		CL2500			90	110	125			
Height(angle dimension)	d	CL1500	6	9	13	19	25	32	38	49
		CL2500	6	9	13	19	25		38	42
Weight(Kg)		CL1500	1.2	1.5	2.5	3.7	5.8		11.5	13.7
		CL2500	1.5	1.9	2.7	4.1	6.3		12	15

3PCS Forged steel ball valves



Application standards

- 1、Design and manufacture conform to BS5351 MSS SP-118;
- 2、Connection ends conform to:
 - 1)Socket welded ends conform to ANSI B16.11
 - 2)Screw ends conform to ANSI B1.20.1
 - 3)Butt-welded ends conform to ANSI B16.25
 - 4)Flanged ends conform to ANSI B16.5
- 3、Test and inspection conform to:
 - API 598
- 4、Structure features:
 - Bolted bonnet; three-piece;
- 5、Materials conform to ANSI/ASTM.
- 6、Main materials:
 - A105; LF2; F5; F11; F22; 304(L); 316(L); F347;
 - F321; F51; Monel; 20 Alloy.

Carbon steel temperature-pressure rate

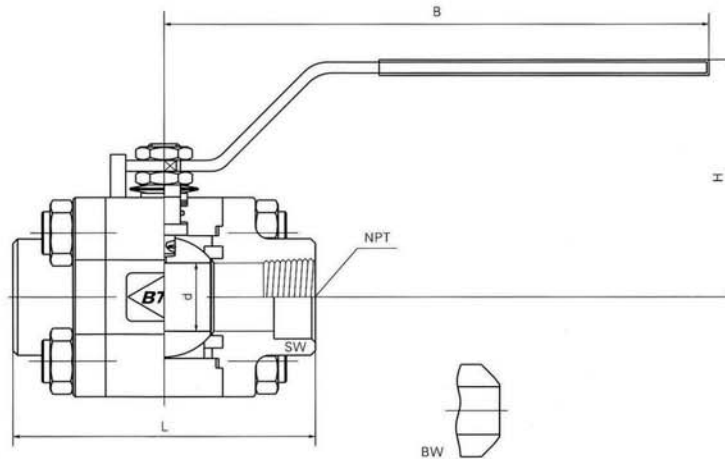
CL150-285 P.S.I @ 100° F
CL300-740 P.S.I @ 100° F
CL600-1480 P.S.I @ 100° F
CL800-1975 P.S.I @ 100° F
CL1500-3705 P.S.I @ 100° F

Main part materials list

NO.	Part name	A105/F6a	LF2/304	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	A105	LF2	F304(L)	F316(L)	F51
2	Seat	RPTFE & PEEK	RPTFE & PEEK	RPTFE & PEEK	RPTFE & PEEK	RPTFE & PEEK
4	Stem	410	304	304(L)	316(L)	F51
5	Gasket	PTFE	PTFE	PTFE	PTFE	PTFE
8	Pin	25	304	304	304	304
9	Gland	410	304	304(L)	316(L)	F51
14	Flat nut	8	8	8	8M	8M
18	Packing	PTFE	PTFE	PTFE	PTFE	PTFE
37	Bolt	B7	B8	B8	B8M	B8M
38	Nut	2H	8	8	8M	8M
40	Ball	F6	F304	F304(L)	F316(L)	F51
41	O-ring	VITON	VITON	VITON	VITON	VITON
42	Back seat gasket	RPTFE & PEEK	RPTFE & PEEK	RPTFE & PEEK	RPTFE & PEEK	RPTFE & PEEK
43	Wrench	ANSI 1025	ANSI 1025	ANSI 1025	ANSI 1025	ANSI 1025
49	Left bonnet	A105	LF2	F304	F316	F51
50	Right bonnet	A105	LF2	F304	F316	F51
51	Butterfly spring	65Mn	65Mn	304	304	304
52	Elastic washer	65Mn	65Mn	304	304	304
53	Anti-static spring	304	304	304	316L	316L



3PCS Forged steel ball valves



CL800-CL1500

Connection ends may be pipe-welded (butt-welding or socket welding) and/or threaded, design to BS5351

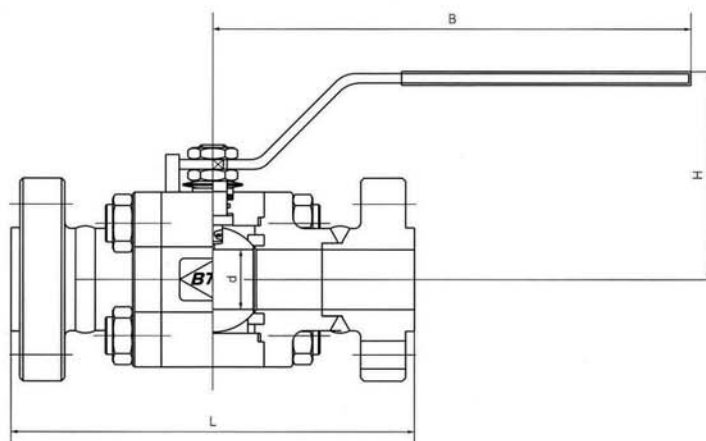
Specification(NPS)	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L1	92	92	92	111	127	140	152	152
Center to handle end	B	108	108	108	146	178	178	200	200
Height	H	51	51	51	108	81	85	105	105
Height(angle dimension)	CL800	6	9	13	18	23	28	35	49
	CL1500	6	9	13	19	25	32	38	49
Weight(Kg)		2.5	2.4	2.3	3.4	5.4	6.4	11	13
		2.5	2.4	2.5	3.7	5.8	6.8	11.5	13.7

CL2500

Connection ends may be pipe-welded (butt-welding or socket welding) and/or threaded, design to BS5351

Specification(NPS)	F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L			110	125	135		160	
Center to handle end	B			170	230	230		310	
Height	H			95	110	125			
Height(angle dimension)	d			13	19	25		38	
Weight(Kg)				2.7	4.1	6.3		12	

3PCS Flange ball valves



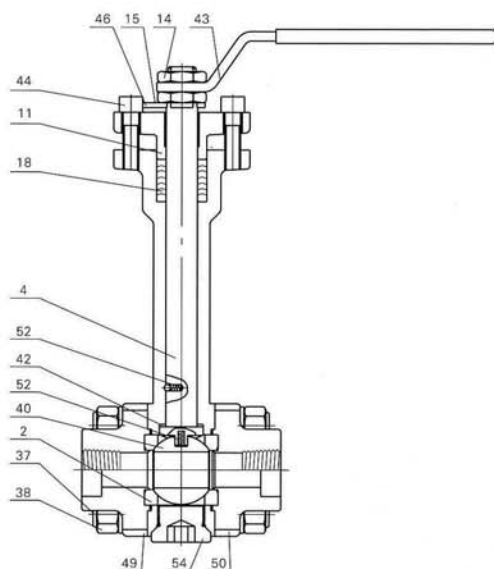
CL1500-CL2500

Flanged or butt-welded ends; design to API 6D
Face to face conforms to manufacture standard

Specification(NPS)	F.P		1/2	3/4	1	1 1/4	1 1/2	2
Face to face	L	CL1500	216	229	2564	279	305	368
		CL2500	264	273	308	349	384	451
Center to handle end	B	CL1500	230	230	350	280	400	400
		CL2500	280	280	95	350	400	400
Height	H	CL1500	75	85	85	105	110	130
		CL2500	75	85	95	105	110	130
Height(angle dinmension)	d	CL1500	13	19	25	32	38	49
		CL2500	13	19	25	32	38	42
Weight(Kg)		CL1500	2.5	5.8	5.8	6.8	11.5	13.7
		CL2500	2.7	6.3	6.3	6.8	12	15



Cryogenic ball valves



Application specifications

- Design and manufacture conform to BS5351;
- Connection ends conform to:
 - Socket welded ends conform to ANSI B16.11
 - Screw ends conform to ANSI B1.20.1
 - Butt-welded ends conform to ANSI B16.25
 - Flanged ends conform to ANSI B16.5
- Test and inspection conform to: API 598
- Structure features: Bolted bonnet; three-piece;
- Materials conform to ANSI/ASTM.
- Main materials: A105; LF2; 304(L); 316(L); F347; F321; F51; Monel; 20 Alloy.

Carbon steel temperature-pressure rate

CL150-285 P.S.I @ 100° F
 CL300-740 P.S.I @ 100° F
 CL600-1480 P.S.I @ 100° F
 CL800-1975 P.S.I @ 100° F
 CL1500-3705 P.S.I @ 100° F

Main part materials list

NO.	Part name	LF2/304	LF3/304	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	LF2	LF3	F304(L)	F316(L)	F51
2	Seat	PTFE	PTFE	RPTFE	RPTFE	RPTFE
4	Stem	304	304	304(L)	316(L)	F51
5	Gasket	PTFE	PTFE	PTFE	PTFE	PTFE
11	Gland flange	LF2	LF2	304	304	304
14	Flat nut	8	8	8(M)	8(M)	8M
15	Nameplate	AL	AL	AL	AL	AL
18	Packing	PTFE & flexible graphite	PTFE & flexible graphite	PTFE & flexible graphite	PTFE & flexible graphite	PTFE & flexible graphite
37	Screwed Stud	L7	L7	B8	B8M	B8M
38	Nut	8	8	8(M)	8(M)	8M
40	Ball	F304	F304	F304(L)	F316(L)	F51
42	Back seat gasket	PTFE	PTFE	PTFE	PTFE	PTFE
43	Wrench	ANSI 1025	ANSI 1025	ANSI 1025	ANSI 1025	ANSI 1025
44	Socket head cap bolt	B8	B8	B8	B8M	B8M
46	Locating piece	ANSI 1025	ANSI 1025	ANSI 1025	ANSI 1025	ANSI 1025
49	Left bonnet	LF2	LF3	F304(L)	F316(L)	F51
50	Right bonnet	LF2	LF3	F304(L)	F316(L)	F51
52	Elastic washer	304	304	304	316	316
54	Screwed plug	LF2	LF3	304(L)	316(L)	F51

ENGINEERING DATA

CONFORMANCE STANDARDS

HAWKS VALVES CONFORM TO THE FOLLOWING STANDARDS AS APPLICABLE TO CUSTOMER REQUIREMENTS.

API Spec 6D Latest Edition API Standard 598 Latest Edition API Standard 600 Latest Edition API Standard 603 Latest Edition API Standard 605 Latest Edition	: API Specification for Pipeline Valves : Valve Inspection and Test : Steel Gate Valves, Flanged and Butt-welding Ends : Class 150, Cast Corrosion-Resistant Flanged-End Gate Valves : Large-Diameter Carbon Steel Flanges
ANSI B16.5 Latest Edition ANSI B16.10 Latest Edition ANSI B16.25 Latest Edition ANSI B16.34 Latest Edition MSS Standard Practice SP-6 Latest Edition MSS Standard Practice SP-25 Latest Edition MSS Standard Practice SP-44 Latest Edition MSS Standard Practice SP-45 Latest Edition	: Steel Pipe Flanges and Flanged Fittings : Face-to-Face and End-to-End Dimensions of Ferrous Valves : Butt-welding Ends : Valves-Flanged, Threaded, And Welding End : Standard Finishes for Contact Faces of Pipe Flanges and Connecting-End Flanges of Valves and Fittings : Standard Marking System for Valves, Fittings, Flanges and Unions : Steel Pipe Line Flanges : By-Pass and Drain Connection Standard
BS 1414 Latest Edition BS 1868 Latest Edition BS 1873 Latest Edition BS 5352 Latest Edition BS 6364 Latest Edition	: Steel wedge gate valves(flange and butt-welding ends) : Steel check valves(flange and butt-welding ends) : Steel globe and globe stop and check valves(flange and butt-welding ends) : Steel wedge gate, globe and check valves(50mm & smaller) : Valve for cryogenic service
JIS B2003 Latest Edition JIS B2201 Latest Edition JIS B2203 Latest Edition JIS B2210 Latest Edition JIS B2071 Latest Edition JIS B2073 Latest Edition JIS B2074 Latest Edition JIS B2081 Latest Edition JIS B2083 Latest Edition JIS B2084 Latest Edition JPI 7S-15 Latest Edition JPI 7S-23 Latest Edition JPI 7S-24 Latest Edition JPI 7S-39 Latest Edition JPI 7S-46 Latest Edition JPI 7S-47 Latest Edition	: General Rules for Inspection of Valves : Pressure Ratings for Ferrous Material Pipe Flanges : Tolerances for Pipe Flanges : Basic Dimensions of Ferrous Material Pipe Flanges : 10kgf/cm ² Cast Steel Flanged Globe Valves : 10kgf/cm ² Cast Steel Flanged Gate Valves(Outside Screw Type) : 10kgf/cm ² Cast Steel Flanged Swing Check Valves : 20kgf/cm ² Cast Steel Flanged Globe Valves : 20kgf/cm ² Cast Steel Flanged Gate Valves(Outside Screw Type) : 20kgf/cm ² Cast Steel Flanged Swing Check Valves : Steel Pipe Flanges for The Petroleum Industry : Ring Joint Gaskets and Grooves for Petroleum Industry : Standard Marking System for valves : Valve Inspection and Test : Cast Steel Flanged Valves for the Petroleum Industry(Class 150,300) : Cast Steel Valves for the Petroleum Industry, Flanged or Butt-welding Ends (Class600 to 2500)
API ANSI ASTM ASME ASS BS JIS JPI NACE AWS	: American Petroleum Institute : American National Standards Institute : American Society for Testing and Materials : American Society of Mechanical Engineers : Manufacturers Standardization society of the Valve and Fitting Industry : British Standards Institution : Japanese Industrial Standards : Japan Petroleum Institute : National Association of corrosion Engineers : American welding Society

ENGINEERING DATA

VALVE WALL THICKNESS

(API 603 ANSI B16.34)

• LIGHT WALL

NOMINAL SIZE		RATINGS											
		150#		300#		600#		900#		1500#		2500#	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
½	15	0.11	3.0	0.12	3.1	0.13	3.4	0.16	4.1	0.19	4.8	0.25	6.3
¾	20	0.12	3.1	0.15	3.8	0.16	4.1	0.18	4.6	0.23	5.8	0.29	7.4
1	25	0.16	4.1	0.19	4.8	0.19	4.8	0.22	5.6	0.26	6.6	0.35	8.9
1¼	32	0.19	4.8	0.19	4.8	0.19	4.8	0.25	6.4	0.31	7.8	0.44	11.2
1½	40	0.19	4.8	0.19	4.8	0.22	5.6	0.28	7.1	0.38	9.6	0.50	12.7
2	50	0.22	5.6	0.25	6.4	0.25	6.4	0.31	7.9	0.44	11.2	0.62	15.8
2½	65	0.22	5.6	0.25	6.4	0.28	7.1	0.34	8.6	0.50	12.7	0.75	19.0
3	80	0.22	5.6	0.28	7.1	0.31	7.9	0.41	10.4	0.62	15.7	0.88	22.4
4	100	0.25	6.4	0.31	7.8	0.38	9.6	0.50	12.7	0.75	19.0	1.09	27.7
5	125	0.28	7.1	0.38	9.6	0.44	11.2	0.59	15.0	0.91	23.1	1.34	34.0
6	150	0.28	7.1	0.38	9.6	0.50	12.7	0.72	18.3	1.09	27.7	1.59	40.4
8	200	0.31	8.1	0.44	11.2	0.62	15.8	0.88	22.4	1.41	35.8	2.06	52.3
10	250	0.34	8.6	0.50	12.7	0.75	19.0	1.06	26.9	1.72	43.7	2.59	65.8
12	300	0.38	9.6	0.56	14.2	0.91	23.1	1.25	31.8	2.00	50.8	3.03	77.0
14	350	0.41	10.4	0.62	15.8	0.97	24.6	1.38	35.0	2.19	55.6	3.34	84.8
16	400	0.44	11.2	0.69	17.5	1.09	27.7	1.56	39.6	2.50	63.5	3.81	96.8
18	450	0.47	11.9	0.75	19.0	1.22	31.0	1.75	44.4	2.81	71.4	4.27	108.5
20	500	0.50	12.7	0.81	20.6	1.34	34.0	1.91	48.5	3.12	79.2	4.69	119.1
24	600	0.57	14.5	0.94	23.9	1.59	40.4	2.28	57.9	3.72	94.5	5.72	145.3

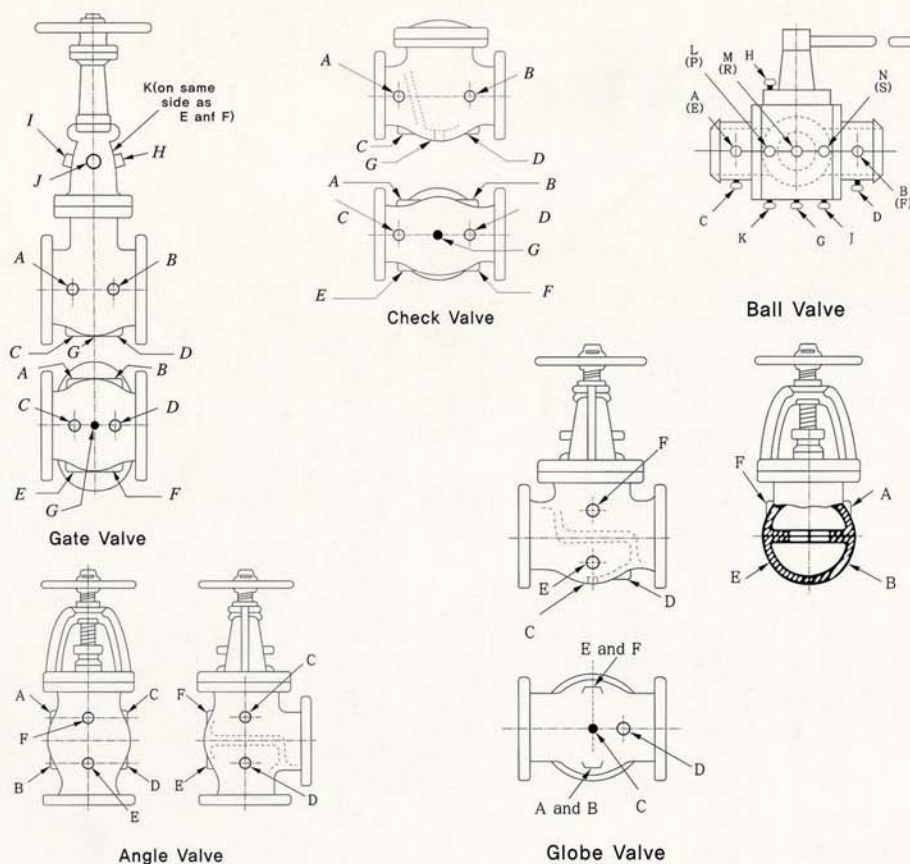
(API 600)

• HEAVY WALL

NOMINAL SIZE		RATINGS											
		150#		300#		600#		900#		1500#		2500#	
		INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
½	15	-	-	-	-	-	-	-	-	-	-	-	-
¾	20	-	-	-	-	-	-	-	-	-	-	-	-
1	25	0.25	6.4	0.25	6.4	0.31	7.9	0.50	12.7	0.50	12.7	0.59	15.0
1¼	32	0.25	6.4	0.25	6.4	0.34	8.6	0.56	14.2	0.56	14.2	0.69	17.5
1½	40	0.25	6.4	0.31	7.9	0.37	9.4	0.59	15.0	0.59	15.0	0.75	19.1
2	50	0.34	8.6	0.38	9.7	0.44	11.2	0.75	19.1	0.75	19.1	0.88	22.4
2½	65	0.38	9.7	0.44	11.2	0.47	11.9	0.88	22.4	0.88	22.4	1.00	25.4
3	80	0.41	10.4	0.47	11.9	0.50	12.7	0.75	19.1	0.94	23.9	1.19	30.2
4	100	0.44	11.2	0.50	12.7	0.63	16.0	0.84	21.3	1.13	28.7	1.41	35.8
5	125	-	-	-	-	-	-	-	-	-	-	-	-
6	150	0.47	11.9	0.63	16.0	0.75	19.1	1.03	26.2	1.50	38.1	1.91	48.5
8	200	0.50	12.7	0.69	17.5	1.00	25.4	1.25	31.8	1.88	47.8	2.44	62.0
10	250	0.56	14.2	0.75	19.1	1.13	28.7	1.44	36.6	2.25	57.2	2.66	67.6
12	300	0.63	16.0	0.81	20.6	1.25	31.8	1.66	42.2	2.63	66.8	3.41	86.6
14	350	0.66	16.8	0.88	22.4	1.38	35.1	1.81	46.0	2.75	69.9	-	-
16	400	0.69	17.5	0.94	23.9	1.50	38.1	2.06	52.3	3.13	79.5	-	-
18	450	0.72	18.3	1.00	25.4	1.63	41.4	2.25	57.2	3.50	88.9	-	-
20	500	0.75	19.1	1.06	26.9	1.75	44.5	2.50	63.5	3.88	98.6	-	-
24	600	0.81	20.6	1.19	30.2	2.00	50.8	2.88	73.2	4.50	114.3	-	-

ENGINEERING DATA

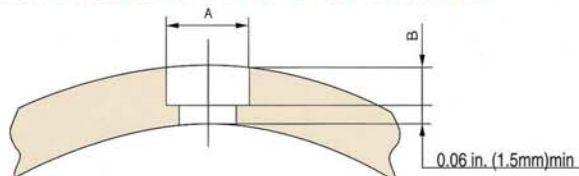
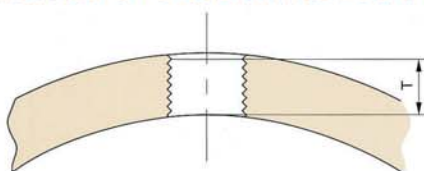
Auxiliary Connection to ANSI B16.34



GENERAL NOTE

The above sketches represent valves with symmetrical shapes. Sketches are illustrative only and do not imply design.

METHOD OF DESIGNATING LOCATION OF AUXILIARY CONNECTIONS WHEN SPECIFIED

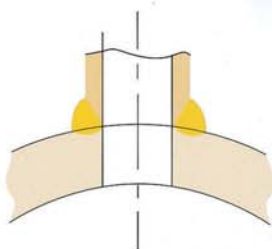


Conn Size NPS	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Length of Thread, T, [Note(1)]							
in	0.41	0.53	0.55	0.68	0.71	0.72	0.76
mm	11	14	14	18	18	19	20

NOTE :

(1) In no case shall the effective length, T, be less than shown in table above. These lengths are equal to the effective thread lengths of American National External Pipe Threads (ANSI B1.21).

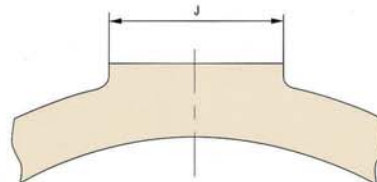
THREAD LENGTH FOR AUXILIARY CONNECTIONS



BUTTWELDING FOR AUXILIARY CONNECTIONS

Conn. Size, NPS	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Min. Dia of Socket, A							
in	0.690	0.855	1.065	1.330	1.675	1.915	2.406
mm	17.5	22	27	34	43	49	61
Min. Dia of Socket, B							
in	0.19	0.19	0.25	0.25	0.25	0.25	0.31
mm	5	5	6.5	6.5	6.5	6.5	8

SOCKET WELDING FOR AUXILIARY CONNECTIONS



Conn Size NPS	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Length of Thread, T, [Note(1)]							
in	0.41	0.53	0.55	0.68	0.71	0.72	0.76
mm	11	14	14	18	18	19	20

BOSSES FOR AUXILIARY CONNECTIONS

ENGINEERING DATA

JIS-ASTM Material Comparison List

UNS DESIGNATION	GRADE	BAR		CASTING		FORGING	
		JIS	ASTM	JIS	ASTM	JIS	ASTM
		G 4303	A276	G 5121	A 351	G 3214	A 182
AUSTENITIC STEELS							
S20910	22Cr-12Ni5Mn-2Mo-Cb-V-N-0.04C		XM-19		CG6MMN		F XM-19
S21800	17Cr-8.5Mo-8Mn-4Si-N-0.08C		—		CF102MnN		
S21904	20Cr-6.5Ni-9Mn-N-0.08C		XM-11				F XM-11
S24000	18Cr-3Ni-13Mn-N-0.06C		XM-29				
S24100	18Cr-1.5Ni-13Mn-N-0.1C		XM-28				
JIS	17Cr-7Ni-0.1C		SUS 301				
S30200	18Cr-8Ni-0.1C	SUS 302	302	SCS 12	(A743 CF-20)		(A473 302)
JIS	18Cr-8Ni-0.06C	SUS 304		SCS 13		SUS F 304	
S30400	18Cr-8Ni-0.06C	SUS 304	304	SCS 13A	CF8, 8A	SUS F 304	F304
JIS	18Cr-9Ni-Lo, C	SUS 304L		SCS 19		SUS F 304L	
S30403	18Cr-9Ni-Lo, C	SUS 304L	304L	SC519A	CF3, 3A	SUS F 304L	F304L
S30409	18Cr-8Ni-0.07C		(A479 304H)		CF10	SUS F 304H	F304H
S30430	18Cr-9Ni-3.5Cu-0.06C	SUS XM7	XM-7				
S30451	18Cr-8Ni-0.15N-0.06C	SUS 304N1	304N				F304N
S30452	18Cr-8Ni-0.25N-0.06C	SUS 304N2	XM-21				
S30453	18Cr-9Ni-0.15N-0Lo, C	SUS 304LN	304LN				F304LN
—	18Cr-13Ni-0.06C	SUS 305J1					
S30600	18Cr-15Ni-4Si-0.009C						F46
S30800	20Cr-11Ni-0.06C		308		(A743 CG12)		(A473 308)
S30815	20Cr-10Ni-1.5Si-N-Ce-0.08C		—				F45
S30880	21Cr-10Ni-2Mn-Si-0.06C		ER308				
S30900	22Cr-12Ni-0.1C		309	SCS 17	CH20		(A473 309)
S30908	22Cr-12Ni-0.06C	SUS 309S	309S		CH8		(A473 309S)
S30909	22Cr-12Ni-0.07C				CH10		(A336 F 309H)
S30940	22Cr-12Ni-Cb-0.06C		309Cb				
S31000	25Cr-20Ni-0.1C		310	SCS 18	CK20	SUS F 310	F310
S31008	25Cr-20Ni-0.06C	SUS 310S	310S				(A473 310S)
S31040	25Cr-20Ni-Cb-0.06C		310Cb				
S31254	20Cr-18Ni-6.5Mo-N-Cu-0.01C		—		CK3MCuN		F44
S31400	25Cr-20Ni-2Si-0.15C		314				(A473 314)
JIS	18Cr-12Ni-2.5Mo-0.06C	SUS 316		SCS 14		SUS F 316	
S31600	18Cr-12Ni-2.5Mo-0.06C	SUS 316	316	SCS 14A	CF8M	SUS F 316	F316
JIS	18Cr-12Ni-2.5Mo-Lo, C	SUS 316L		SCS 16		SUS F 316L	
S31603	18Cr-12Ni-2.5Mo-Lo, C	SUS 316L	316L	SCS 16A	CF3M, 3MA	SUS F 316L	F316L
S31609	18Cr-12Ni-2.5Mo-0.07C		(A479 316H)		CF10M	SUS F 316H	F316H
S31635	18Cr-12Ni-2.5Mo-Ti-0.06C		316Ti				
S31640	18Cr-13Ni-2Mo-Cb-0.06C		316Cb	SCS 22	CF10MC		
S31651	18Cr-12Ni-2.5Mo-0.15N-0.06C	SUS 316N	316N				F316N
S31653	18Cr-12Ni-2.5Mo-0.15N-Lo, C	SUS 316LN	316LN		(A743 CF-3MN)		F316LN
S31654	18Cr-12Ni-2.5Mo-0.2N-Lo, C		—		(A-743 CF-3MN)		
JIS	18Cr-12Ni-2Mo-2Cu-0.06C	SUS 316J1		BCS 15			
JIS	18Cr-12Ni-2Mo-2Cu-Lo, C	SUS 316J1L		SCS 20			
S31700	18Cr-12Ni-3.5Mo-0.06C	SUS 317	317		CG8M		F317
S31703	18Cr-12Ni-3.5Mo-Lo, C	SUS 317L					F317L
S31725	18Cr-16Ni-5Mo-Lo, C	SUS 317L	—				
S32100	18Cr-9Ni-Ti-0.06C	SUS 321	321			SUS F 321	F321
S32109	18Cr-9Ni-Ti-0.07C		(A479 321H)			SUS F 321H	F321H
S33100	8Cr-20Ni-1Si-Mn-0.15C						F10
S34700	18Cr-9Ni-Cb-0.06C	SUS 347	347	SCS 21	CF8C	SUS F 347	F347
S34709	18Cr-9Ni-Cb-0.07C		(A479 347H)			SUS F 347H	F347H
S34800	18Cr-9Ni-Cb-0.06C		318				F348
JIS	18Cr-13Ni-4Si-0.06C	SUS XM15J1					
—	20Cr-24Ni-3Mo-2Cu-3Si-0.05C				(A743 CN-7MS)		
—	20Cr-29Ni-2.5Mo-3.5Cu-0.05C			SCS 23	CN7M		
—	20Cr-33Ni-Mn-Si-Cb-0.01C				CT15C		
—	21Cr-24Ni-5Mo-Lo, C				(A743 CN-3M)		
—	25Cr-20Ni-0.3C				HK30		
—	25Cr-20Ni-0.4C				HK40		
FERRITIC-AUSTENITIC STEELS							
S31100	25Cr-6Ni-0.04C		XM-26				
S31200	25Cr-6Ni-2Mo-N-Lo, C						F50
S31803	23Cr-6Ni-3Mo-N-Lo, C		—	SCS10			F51
—	25Cr-5Ni-2Mo-3Cu-0.02C				CD4MCu		
S32900	25Cr-4.5Ni-2Mo-0.06C	SUS 329J1		SCS11			

ENGINEERING DATA

SPECIAL ALLOY STEEL

TAPE OF STEEL	GRADE	BAR		CASTING		FORGING	
		JIS	ASTM	JIS	ASTM	JIS	ASTM
Carpenter 20	Cr-Ni-Fe-Mo-Cu-Cb						
Alloy 20Cb-3	35Ni-20Cr-2.5Mo-39Fe-35Cu-Cb-0.05C		B 473 NO8020				B 462 NO8020
CN7M, SCS 23	29Ni-20Cr-2.5Mo-45Fe-35Cu-0.05C			G 5121 SCS 23	A 351 CN7N		
CN-7MS	24Ni-19Cr-2.5Mo-49Fe-2Cu-3Si-0.05C				A 743 CM-7MS		
Carpenter 20 Mod	Ni-Fe-Cr-Mo						
Alloy 20 Mod	26Ni-22Cr-5Mo-47Fe-Ti-0.03C		B 621 NO8320				B 621 NO8320
CN-3M	25Ni-21Cr-5Mo-49Fe-Lo, C				A 743 CM-3M		
Nickel	Ni						
Alloy 200	99Ni-0.1C	H 4562 NNCB	B 160 NO2200				B 160 NO2200
Alloy 201	99Ni-0.01C	H 4562 NLCB	B 160 NO2201				B 160 NO2201
CZ-100	97Ni-0.8C				A 494 CZ-100		
Duranickel 301	95Ni-4.5Al-Ti-0.2C	H 4562 NDB					
Monel	Ni-Cu						
Alloy 400	69Ni-31Cu-0.2C(Si<0.5) (S<0.024)	H4553 NCuB	B 164 NO4400				B 164 NO4400
Alloy 405	69Ni-31Cu-0.2C(Si<0.5) (S:0.025-0.06)		B 164 NO4405				B 164 NO4405
M-35-1	70Ni-30Cu-0.25C(Si<1.25)				A 494 M-351		
M-35-2	70Ni-30Cu-0.25C(Si<2.00)				A 494 M-35-2		
N-30H	67Ni-31Cu-3Si-0.2C				A 494 M-30H		
M-25S	66Ni-30Cu-4Si-0.15C				A 494 M-25S		
M-30C	66Ni-30Cu-1.5Si-2Cb-0.2C				A 494 M-30C		
Inconel	Ni-Cr-Fe(Ni-Cr-Mo-Cb)						
Alloy 600	77Ni-15Cr-8Fe-0.1C	G 4901 NCF 600	B 166 NO6600				B 564 NO6600
CY 40	77Ni-15Cr-(8Fe)-0.3C				A 494 CY-40		
Alloy 625	65Ni-22Cr-9Mo-4Cb-0.08C		B 446 NO6625				B 564 NO6625
CW-6MC	65Ni-22Cr-9Mo-4Cb-0.04C				A 494 CW-6MC		
Inconel 601	61Ni-23Cr-14Mo-1.5Al-0.08C	G 4901 NCF 601					
Inconel 690	62Ni-23Cr-9Fe-0.03C	B166 NO6690					
Inconel X-750	73Ni-16Cr-7Fe-1Cb-2.5Ti-A1-0.06C	G 4901 NCF 750	B 637 NO7750				B 637 NO7750
Inconel 751	73Ni-16Cr-7Fe-1Ni-2.5Ti-A1-0.08C	G 4901 NCF 751					
CY5SnBIM	76Ni-19Cr-3Mo-4Bi-4Sn-0.03C				A 494 CY5SnSim		
Incoloy	Ni-Fe-Cr(Ni-Fe-Cr-Mo-Cu)						
Alloy 800	33Ni-21Cr-46Fe-A1-Ti-0.08C	G 4901 NCF 800	B 408 NO8800				B 564 NO8800
Alloy 800H	33Ni-21Cr-46Fe-A1-Ti-0.075C	G 4901 NCF 800H	B 406 NO8810				B 564 NO8810
Alloy 825	42Ni-22Cr-3Mo-30Fe-2Cu-1Ti-0.03C	G 4901 NCF 825	B 425 NO8825				B 425 NO8825
Hastelloy B	Ni-Mo						
Alloy B	67Ni-28Mo-5Fe-V-0.03C		B 335 N10001				B 335 N10001
A-12MV	67Ni-28Mo-5Fe-V-0.1C				A 494 N-12MV		
Alloy B-2	72Ni-28Mo-0.01C		B 335 N10665				B 335 N10665
N-7M	68Ni-32Mo-0.05C				A 494 N-7M		
Hastelloy C	Ni-Mo-Cr						
Alloy C-276	58Ni-16Cr-16Mo-6Fe-4W-0.005C		B 574 N10276				B 335 N10276
CW-12MW	58Ni-16Cr-16Mo-6Fe-4W-V-0.01C				A 494 CW-12MW		
Alloy C-4	68Ni-16Cr-16Mo-0.008C		B 574 NO6455				B 574 NO6455
CW-2M	68Ni-16Cr-16Mo-0.01C				A 494 CW-2M		
Alloy C-22	58Ni-21Cr-14Mo-4Fe-3W-0.008C		B 574 NO6022				B 574 NO6022
CW-6M	62Ni-19Cr-19Mo-0.05C				A 494 CW-6M		
Hastelloy G	Ni-Cr-Fe-Mo-Cu						
Alloy G	46Ni-22Cr-6.5Mo-20Fe-5Mn-2Cu-0.03C		B 581 NO6007				B 581 NO6007
Alloy G-2	50Ni-25Cr-6Mo-17Fe-1Cu-1Ti-Lo, C		B 581 NO6975				B 581 NO6975
Alloy G-30	44Ni-30Cr-5Mo-15Fe-2Cu-1Cb-3W-Lo, C		B 581 NO6030				B 581 NO6030
Alloy G-3	49Ni-22Cr-7Mo-20Fe-2Cu-0.008C		B 581 NO6985				B 581 NO6985
Hastelloy N	Ni-Mo-Cr-Fe						
Alloy N	76Ni-7Cr-17Mo-0.06C		B 573 N10003				B 573 N10003
Hastelloy X	Ni-Cr-Mo-Fe						
Alloy X	48Ni-22Cr-9Mo-19Fe-1.5Co-W-0.1C		B 572 NO6002				B 572 NO6002
Js 700	Ni-Fe-Cr-9Mo-Cb						
Alloy 700	25Ni-21Cr-4.5Mo-49Fe-Cb-0.02C		B 581 NO8700				B 672 NO8700
CN-3M	25Ni-21Cr-5Mo-49Fe-Lo, C				A 743 CN-3M		
904L	Ni-Fe-Cr-Mo-Cu-Lo, C						
Alloy 904L	26Ni-21Cr-4.5Mo-47Fe-1.5Cu-0.01C		B 649 NO8904				B 649 NO8904
RA-330	Ni-Fe-Cr-Si						
Alloy 330	36Ni-19Cr-44Mo-1Si-0.06C		B 511 NO8330				B 511 NO8330
Nimonic 80A	Ni-Cr						
Nimonic 80A	76Ni-20Cr-2Ti-1.5Al-0.08C	G 4901 NCF 80A	B 637 NO7080				B 637 NO7080
IN-102	Ni-Cr-Fe-Cb-Mo-W						
IN-102	68Ni-15Cr-3Mo-7Fe-3Cb-3W-A1-TiMg-B-Zr-0.06C		B 518 NO6102				
Alfcorr	Ni-Cr-Mo-W						
Alfcorr	55Ni-31Cr-10.5Mo-2.5W-Cb-0.1C		B 756 NO6110				B 564 NO6110
RA-333	Ni-Cr-Mo-Co-W-Fa-Si						
Alloy 333	46Ni-26Cr-3Mo-19Fe-3Co-3W-0.08C		B 719 NO6333				
AL-6X	Cr-Ni-Mo-Fe						
AL-6X	25Ni-21Cr-6.5Mo-47Fe-Lo, C		B 691 NO8366				
CN-3M	25Ni-21Cr-5Mo-49Fe-Lo, C						
AL-6XN	25Ni-21Cr-6.5Mo-47Fe-0.2N-o, C		B 691 NO8367				B 462 NO8357

ENGINEERING DATA

Chemical & Physical Properties

CASTING MATERIALS CHEMICAL PROPERTIES

	Carbon Steel	CA-15	High Temp.	High Temp.	HIGH	TEMP	304-S.S.	316-S.S.	HASTEL LOY-B	HASTEL LOY-C	304-L.S.S.	316L-S.S.	Low Temp	NICKEL	INCONEL	MONEL	A-20
ASTM Std	A-216	A-217	A-217	A-217	A-217	A-217	A-351	A-351	A-494	A-494	A-351	A-351	A-352	A-494	A-494	A-494	A-351
Grade	WCB	CA-48	WC6	WC9	C-5	C-12	CF8	CF8M	N-12M-1	CW-12M-1	CF3	CF3M	LCB	CZ-100	CY-40	M-35	CN-7M
C% MaX.	0.30	0.15	0.20	0.18	0.20	0.20	0.08	0.08	0.12	0.12	0.03	0.03	0.30	1.0	0.4	0.35	0.07
Min%	1.00 MAX.	1.00	0.05-0.08	0.40-0.70	0.40-0.70	0.35-0.65	1.50	1.50	1.00	1.0	1.50	1.50	1.00	1.5	1.5	1.5	1.5
P% MAX.	0.04	0.040	0.04	0.04	0.040	0.040	0.04	0.04	0.040	0.040	0.04	0.04	0.05	0.03	0.03	0.03	0.04
S% MAX.	0.045	0.040	0.045	0.045	0.045	0.045	0.04	0.04	0.030	0.030	0.04	0.04	0.06	0.03	0.03	0.03	0.04
Ni%	0.50	1.00	-	-	-	-	8.00	9.00	Balance	Balance	8.00-12.0	9.00-13.0	-	95.0 Min	Balance	Balance	27.5-30.5
Cr%	0.40	11.5-14.0	1.00-1.50	2.00-2.75	4.0-6.50	8.00-10.00	18.0-21.0	18.0-21.0	1.00	15.7-17.5	17.0-21.0	17.0-21.0	-	-	14-17.0	-	19.22
Mo%	0.25	-	0.45-0.65	0.90-1.20	0.45-0.65	0.90-1.20	-	2.00-3.00	26.0-30.0	16-18.0	-	2.00-3.00	-	-	-	-	2-3
Cu	0.0	-	-	-	-	-	-	-	0	-	-	-	-	1.25	-	26-33	3.4
Si	0.30	1.50	0.60	0.60	0.75	1.00	2.00	2.00	1.00	1.0	2.0	1.50	0.60	2.0	3.0	1.25	1.5
Fe	-	-	-	-	-	-	-	-4.0-6.0	4.5-6.0	-	-	-	-	3.0	11.0	3.5	-
V	-	-	-	-	-	-	-	-	0.20-0.60	0.2-0.4	-	-	-	-	-	-	-

PHYSICAL PROPERTIES

Tensile Strength																	
Min, Kis	70	90-115	70	70	90-115	90-115	70	70	76	70	70	65	72	50	70	65	62
Mpa	485	621-493	485	485	621-793	621-793	485	185	525	485	485	450	495	345	485	450	425
Yield point																	
Min, Kis	30	65	40	40	60	60	28	30	40	30	30	35	40	18	28	25	25
Mpa	205	448	275	275	414	414	195	205	275	205	205	240	275	125	195	170	170
Elongation in 2 inch (50mm) %Min	22	18	20	20	18	18	35	30	6	35	30	20	40	10.0	30.0	25.0	35.0
Reduction of Area % min	35	30	35	35	35	35	-	-	-	-	-	35	-	-	-	-	-

WROUGHT MATERIALS CHEMICAL PROPERTIES

	11-13% Cr	Ductile	Carbon Steel	B-8F	321-S.S.	304L-S.S.	316L-S.S.	304-L-S.S.	316L-S.S.	Hard Facing	Bolts	Nuts
ASTM Std	A-182	A-439	ASTM	A-320	A-182	A-182	A-182	A-182	A-182	KLS	A-193	A194
Grade	F6a	D2C	A-105	B-8F	F-321	F-304	F-316	F-304L	F-316L	HF-6R	B7	2H
C% MaX.	0.15	0.29	0.22-0.35	0.15	0.08	0.08	0.08	0.035	0.035	11.05	0.38-0.48	0.40
Si% MAX.	1.00	100.3.00	0.35	1.00	1.00	1.00	1.00	1.00	1.00	1.11	0.15-0.35	-
Min% MAX.	1.00	1.80-2.40	0.60-1.05	2.00	2.00	2.00	2.00	2.00	2.00	-	0.75-1.00	-
P% MAX.	0.04	0.08	0.04	0.20	0.030	0.04	0.04	0.040	0.040	-	0.04	0.04
S% MAX.	0.03	-	0.05	0.150-0.350	0.030	0.03	0.03	0.030	0.030	-	0.04	0.05
NI%	0.05	21.0-24.0	-	8.00-10.00	9.00-12.00	8.0-11.0	10.0-14.0	8.00-13.00	10.00-15.00	-	-	-
Cr%	11.5-14.5	0.05	-	17.00-19.00	17.00Min	18.0-20.0	16.0-18.0	18.00-20.00	16.00-18.00	28.3	0.80-1.10	-
Mo%	-	-	-	-	-	-	2.00-3.00	-	2.00-3.00	-	0.15-0.25	-
Ti%	-	-	-	-	C% X5=0.60	-	-	-	-	-	-	-
Fi%	Bal	-	-	-	-	-	-	-	-	0.30	Bal	Bal
W%	-	-	-	-	-	-	-	-	-	4.20	-	-
Co%	-	-	-	-	-	-	-	-	-	Bal	-	-

PHYSICAL PROPERTIES

Tensile Strength												
Min, Kis	85	58	70	75	75	75	75	70	70	-	125	175
Mpa	586	400	483	517	517	517	517	483	483	-	862	-
Yield point												
Min, Kis	55	28	35	30	30	30	30	25	25	-	105	-
Mpa	379	193	248	207	207	207	207	172	172	-	724	-
Elongation in 2 inch (50mm) %Min	18	20	22	35	45	30	30	30	30	-	16	-
Reduction of Area % min	35	45	30	50	50	50	50	50	50	-	50	-

Memo