

Seeking a Great Name in Valve Technology

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Forged Steel Valves

Gate / Globe / Check



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Introduction

Quality is our commitment, while competitive price and timely delivery is our promise. **From** the beginning, the DHV name has become associated with quality in every step of our manufacturing process. For the past decades our customers worldwide have trusted us to provide them with consistent and reliable valve products in their most severe and critical service. **We** at DHV are proud of our ability to meet the stringent requirements of Refining, Gas/Oil, Pipeline, Petrochemical and Power Plant.

DHV Gate / Globe / Check valves are designed, manufactured and tested to the latest manufacturing specifications of the American & International Standards Organizations. We welcome your challenges and look forward to serving your critical project needs.

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DHV Figure Numbers

Forged Steel Valves

Type

- 1 = Gate
- 2 = Globe
- 3 = Y Pattern Globe
- 4 = Cryogenic Check
- 5 = Lift Check with Spring
- 6 = Swing Check
- 7 = Y Pattern Check
- 8 = Needle Globe
- 9 = Cryogenic Gate
- 0 = Cryogenic Globe
- A = Ball Check with Spring
- B = Bellows Seal Gate
- C = Bellows Seal Globe
- X = Special

Pressure Class

- 15 = Class 150
- 30 = Class 300
- 40 = Class 400
- 60 = Class 600
- 80 = Class 800
- 90 = Class 900
- 150 = Class 1500
- 250 = Class 2500

Body Material

- 0 = ASTM A105N
- 1 = ASTM A350 LF2
- 2 = ASTM A182 F5
- 3 = ASTM A350 LF3
- 4 = ASTM A182 F11
- 5 = ASTM A182 F22
- 6 = ASTM A182 F304
- 7 = ASTM A182 F316
- 8 = ASTM A182 F304L
- 9 = ASTM A182 F316L
- A = ASTM A182 F51
- B = ASTM A182 F53
- C = ASTM A182 F55
- D = Inconel 625
- E = Inconel 825
- X = Special

Code

- C = Cast Steel Valves
- F = Forged Steel Valves
- I = Cast Iron Valves
- B = Ball Valves
- W = Wellhead Valves
- WB = Wafer Butterfly Valves

2" Forged Steel Gate Valve, Class 800, A105 body & bonnet, Socket welding End, with HF/HF Trim, Bolted Bonnet, Full Bore

Example: 2"-F 1 80 0 S 2 1

End Connection

- F = Raised Face Flanged End
- P = Plain Flat Face Flanged End
- R = Ring Type Joint End
- B = Buttwelding End
- T = Threaded End
- S = Socket welding End
- X = Extended Body
- U = Pup End

Trim Material

	Seat Seal Face	Disc Seal Face	Stem
1 =	13CR	13CR	F6
2 =	HF	HF	F6
3 =	HF	13CR	F6
4 =	MONEL	MONEL	MONEL
5 =	316 SS	316 SS	F316
6 =	HF	MONEL	MONEL
7 =	HF	316 SS	F316
8 =	304 SS	304 SS	F304
9 =	304L	304L	304L
0 =	316L	316L	316L
A =	F51	F51	F51
B =	Inconel 625		
C =	HF	HF	F316
D =	F53	F53	F53
E =	F55	F55	F55
F =	Inconel 825		
X =	Special		

Bonnet Connection

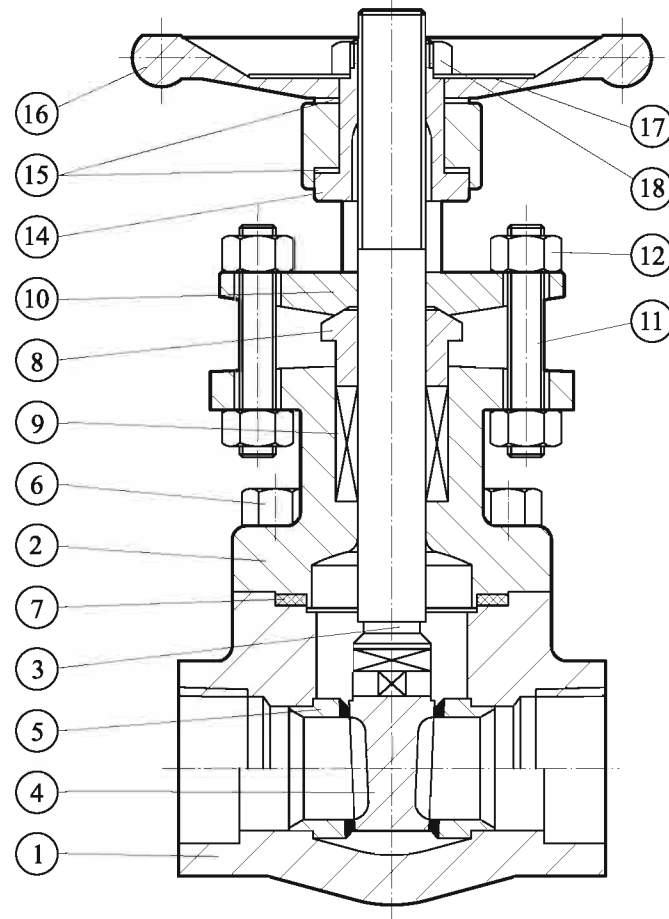
- 1 = Bolted Bonnet-Full Bore
- 2 = Welded Bonnet-Full Bore
- 3 = Bolted Bonnet-Reduced Bore
- 4 = Welded Bonnet-Reduced Bore
- 5 = Pressure Seal Bonnet-Reduced Bore
- 6 = Pressure Seal Bonnet-Full Bore



Forged Steel Gate Valve

Material List

Trim Material				
DHV Trim Code	API Trim No.	Wedge Surface Part No.4	Seat Ring Surface Part No.5	Stem Part No.3
1	-	13CR	13CR	F6A
2	5	HF	HF	F6A
3	8	13CR	HF	F6A
4	9	Monel	Monel	Monel
5	10	316	316	F316
6	11	Monel	HF	Monel
7	12	316	HF	F316
8	-	304	304	F304
9	-	304L	304L	304L
0	-	316L	316L	316L
A	-	F51	F51	F51
B	19	INCONEL 625	INCONEL 625	INCONEL 625
C	16	HF	HF	F316
D	-	F53	F53	F53
E	-	F55	F55	F55
F	19	INCONEL 825	INCONEL 825	INCONEL 825



Standard Material Specifications

No.	Part Name	Carbon Steel to ASTM		Alloy Steel to ASTM		Stainless Steel to ASTM		
1	Body	A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)	A182 F51	
2	Bonnet	A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)	A182 F51	
3	Stem	A182 F6a	A182 F316	A182 F6a	A182 F304(L)	A182 F316(L)	A182 F51	
4	Wedge	A182 F6a	A182 F6a/HF	A182 F316	A182 F6a/HF	A182 F304(L)/HF	A182 F316(L)/HF	A182 F51/HF
5	Seat Ring	A276 410/HF	A182 F316/HF	A276 410/HF	A182 F304(L)/HF	A182 F316(L)/HF	A182 F51/HF	
6	Bonnet Bolt (1)	A193 B7	A320 L7	A193 B16	A193 B8	A193 B8MA	A193 B8MA	
7	Gasket (1) (2)	SPW 304 +Graphite	SPW 316 +Graphite	SPW 304 +Graphite	SPW 304(L) +Graphite	SPW 316(L) +Graphite	SPW 31803 +Graphite	
8	Gland	A276 410	A182 F316	A276 410	A182 F304(L)	A182 F316(L)	A182 F51	
9	Packing	Flexible Graphite						
10	Gland Flange	A105N	A350 LF2	A105N	A182 F304	A182 F316		
11	Gland Bolt	A193 B8	A193 B8	A193 B8	A193 B8	A193 B8MA		
12	Gland Nut	A194 2H	A194 7	A194 4	A194 8	A194 8MA		
14	Yoke Nut	A276 410						
15	Sleeve Washer	Stainless Steel						
16	Handwheel	A197						
17	Nameplate	AL						
18	Handwheel Nut	A194 2H						

NOTES: (1) Not available with welded bonnet type (2) For class ≥ 900LB, use oval ring type joint (RTJ) gasket



Forged Steel Gate Valve-Full Port or Standard Port

Feature & Dimension

Features

- Standard Port
- Full Port is optional
- Outside Screw and Yoke (OS & Y) , Rising Stem
- Two Piece Self-aligning Packing Gland
- Bolted Bonnet or Welded Bonnet
- Integral Backseat
- Threaded Ends or Socket Welding Ends
- Extended Body or Pup Ends available

Specifications

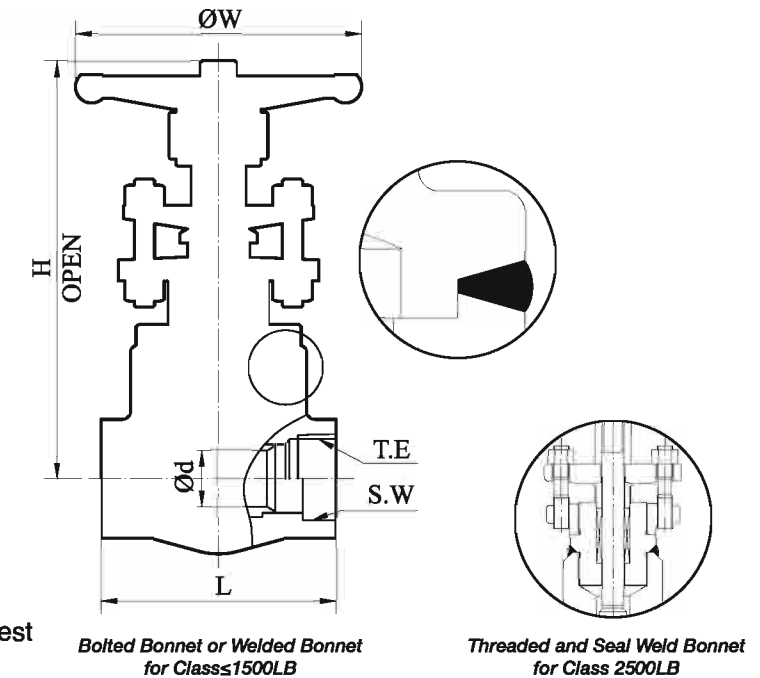
Basic Design: **API 602**
ISO 15761 ASME B16.34

Socket Welding End (S.W): **ASME B16.11**

Threaded End (T.E): **ASME B1.20.1**

Test and Inspection: **API 598**

API 622 Packing, API 624 certified available upon request
ISO 15848-1 certified



800LB								2500LB							
Description	Valve Size							Description	Valve Size						
	Standard Port	-	1/2	3/4	1	1 1/4	1 1/2		2	Standard Port	1/2	3/4	1	1 1/2	2
Flow Port d	in	0.24	0.39	0.53	0.69	0.91	1.13	1.44	Flow Port d	in	0.39	0.53	0.69	1.12	1.42
	mm	6	10	13.5	17.5	23	28.6	36.5		mm	10	13.5	17.5	28.5	36
Face to Face L	in	3.11	3.11	3.62	4.37	4.65	4.65	5.20	Face to Face L	in	6.10	6.10	7.32	9.13	11.18
	mm	79	79	92	111	118	118	132		mm	155	155	186	232	284
Height to Open H	in	6.22	6.22	6.42	7.76	8.86	9.72	10.51	Height to Open H	in	11.57	11.81	12.64	20.51	22.64
	mm	158	158	163	197	225	247	267		mm	294	300	321	521	575
Handwheel Dia W	in	3.94	3.94	3.94	4.72	5.91	5.91	5.91	Handwheel Dia W	in	8.66	8.66	9.84	11.81	13.78
	mm	100	100	100	120	150	150	150		mm	220	220	250	300	350
Weight	Kg	2	2	2.1	3.6	4.8	5.5	7.3							

1500LB								2500LB						
Description	Valve Size							Description	Valve Size					
	Standard Port	-	1/2	3/4	1	1 1/4	1 1/2		2	Full Port	1/2	3/4	1	1 1/2
Flow Port d	in	0.31	0.37	0.50	0.69	0.91	1.12	1.44	Flow Port d	in	0.50	0.69	0.91	1.44
	mm	8	9.5	12.7	17.5	23	28.5	36.5		mm	12.7	17.5	23	36.5
Face to Face L	in	3.62	3.62	4.37	4.65	4.65	5.20	5.91	Face to Face L	in	6.10	7.32	9.13	11.18
	mm	92	92	111	118	118	132	150		mm	155	186	232	284
Height to Open H	in	6.42	6.42	6.42	7.76	8.86	9.72	10.51	Height to Open H	in	11.73	12.60	19.57	22.68
	mm	163	163	163	197	225	247	267		mm	298	320	497	576
Handwheel Dia W	in	3.94	3.94	4.72	5.91	5.91	5.91	7.87	Handwheel Dia W	in	8.66	8.66	11.81	13.78
	mm	100	100	120	150	150	150	200		mm	220	220	300	350
Weight	Kg	2.25	2.25	3.75	5.4	5.9	8.5	13.65						



Forged Steel Gate Valve-Standard Port

Feature & Dimension

Features

- Standard Port
- Full Port is optional
- Outside Screw and Yoke (OS & Y) , Rising Stem
- Two Piece Self-aligning Packing Gland
- Bolted Bonnet or Welded Bonnet
- Integral Backseat
- Flanged Ends or Buttwelding Ends

Specifications

Basic Design: **API 602 ISO 15761**

ASME B16.34

Face to Face: **ASME B16.10**

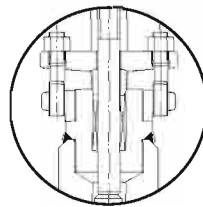
End Flange: **ASME B16.5**

B.W End: **ASME B16.25**

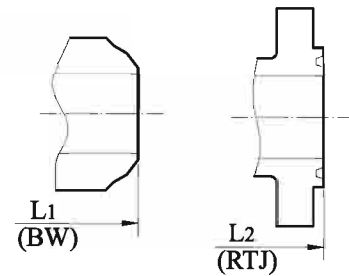
Test and Inspection: **API 598**

API 622 Packing, API 624 certified available upon request

ISO 15848-1 certified

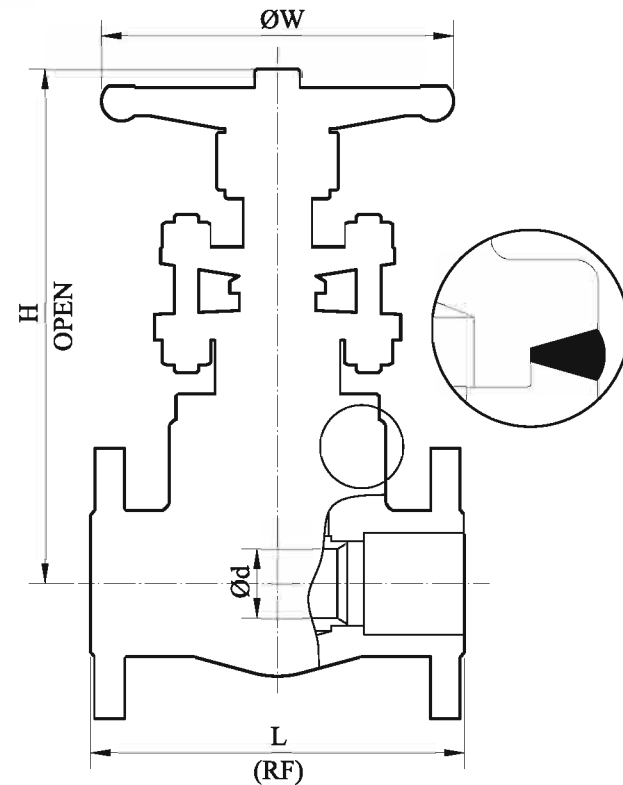


Threaded and Seal Weld Bonnet for Class 2500LB



L1 (BW)

L2 (RTJ)



Bolted Bonnet or Welded Bonnet for Class ≤1500LB

150LB / 300LB / 600LB

Description		Valve Size							
Standard Port		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	
Flow Port d	in	0.37	0.51	0.69	0.91	1.14	1.44	1.73	
	mm	9.5	13	17.5	23	29	36.5	44	
Flanged End L Weld End L1	150LB	in	4.25	4.61	5.00	5.51	6.50	7.01	7.48
		mm	108	117	127	140	165	178	190
	300LB	in	5.51	5.98	6.50	7.01	7.48	8.50	9.49
		mm	140	152	165	178	190	216	241
	600LB	in	6.50	7.48	8.50	9.02	9.49	11.50	12.99
		mm	165	190	216	229	241	292	330
Height to Open H	150LB	in	5.67	5.91	7.17	8.50	9.25	10.63	11.81
		mm	144	150	182	216	235	270	300
	300LB	in	5.83	6.14	7.09	8.98	10.79	10.63	11.81
		mm	148	156	180	228	274	270	300
	600LB	in	3.94	3.94	4.72	5.91	5.91	5.91	5.91
		mm	100	100	120	150	150	150	150
Weight	150LB	RF Kg	2.6	3.3	4.9	8.4	9	12.1	24
		BW Kg	2	3.8	4.2	7.8	8	12	19.2
	300LB	RF Kg	3.2	4.7	6.3	9.6	11.4	15.4	26.2
		BW Kg	2.8	4.1	5.7	8.1	9.2	13.1	23
	600LB	RF Kg	3.5	4.8	6.3	9.6	10.1	13.9	32
		BW Kg	2.9	4	5.7	8.1	8.9	11.8	28

1500LB

Description		Valve Size					
Standard Port		1/2	3/4	1	1 1/4	1 1/2	2
Flow Port d	in	0.51	0.51	0.69	0.94	1.14	1.42
	mm	13	13	17.5	24	29	36
Flanged End L Weld End L1	in	8.50	9.02	10.00	10.98	12.01	14.49
	mm	216	229	254	279	305	368
RTJ L2	in	8.50	9.02	10.00	10.98	12.01	14.61
	mm	216	229	254	279	305	371
Height to Open H	in	6.42	7.76	8.86	9.72	10.51	10.63
	mm	163	197	225	247	267	270
Handwheel Dia W	in	3.94	4.72	5.91	5.91	7.09	7.87
	mm	100	120	150	150	180	200

2500LB

Description		Valve Size				
Standard Port		1/2	3/4	1	1 1/2	2
Flow Port d	in	0.39	0.53	0.69	1.12	1.42
	mm	10	13.5	17.5	28.5	36
Flanged End L Weld End L1	in	10.39	10.75	12.13	15.12	17.76
	mm	264	273	308	384	451
Height to Open H	in	11.02	11.02	11.81	19.13	20.94
	mm	280	280	300	486	532
Handwheel Dia W	in	8.66	8.66	9.84	9.84	13.78
	mm	220	220	250	250	350



Forged Steel Gate Valve-Full Port

Dimension

150LB / 300LB / 600LB

Description		Valve Size						
Full Port		1/2	3/4	1	1 1/4	1 1/2	2	
Flow Port d	in	0.50	0.69	0.91	1.13	1.44	1.91	
	mm	12.7	17.5	23	28.6	36.5	48.5	
Flanged End L Weld End L1	150LB	in	4.25	4.61	5.00	5.51	6.50	7.01
		mm	108	117	127	140	165	178
	300LB	in	5.51	5.98	6.50	7.01	7.48	8.50
		mm	140	152	165	178	190	216
	600LB	in	6.50	7.48	8.50	9.02	9.49	11.50
		mm	165	190	216	229	241	292
Height to Open H	in	6.10	7.17	8.86	9.72	10.51	13.15	
	mm	155	182	225	247	267	334	
Handwheel Dia W	in	3.94	4.72	5.91	5.91	5.91	7.87	
	mm	100	120	150	150	150	200	

1500LB

Description		Valve Size					
Full Port		1/2	3/4	1	1 1/4	1 1/2	2
Flow Port d	in	0.50	0.69	0.91	1.13	1.44	1.91
	mm	12.7	17.5	23	28.6	36.5	48.5
Flanged End L Weld End L1	in	8.50	9.02	10.00	10.98	12.01	14.49
	mm	216	229	254	279	305	368
Height to Open H	in	7.60	8.50	9.49	10.20	12.48	13.19
	mm	193	216	241	259	317	335
Handwheel Dia W	in	4.72	5.91	5.91	7.09	7.87	7.87
	mm	120	150	150	180	200	200

2500LB

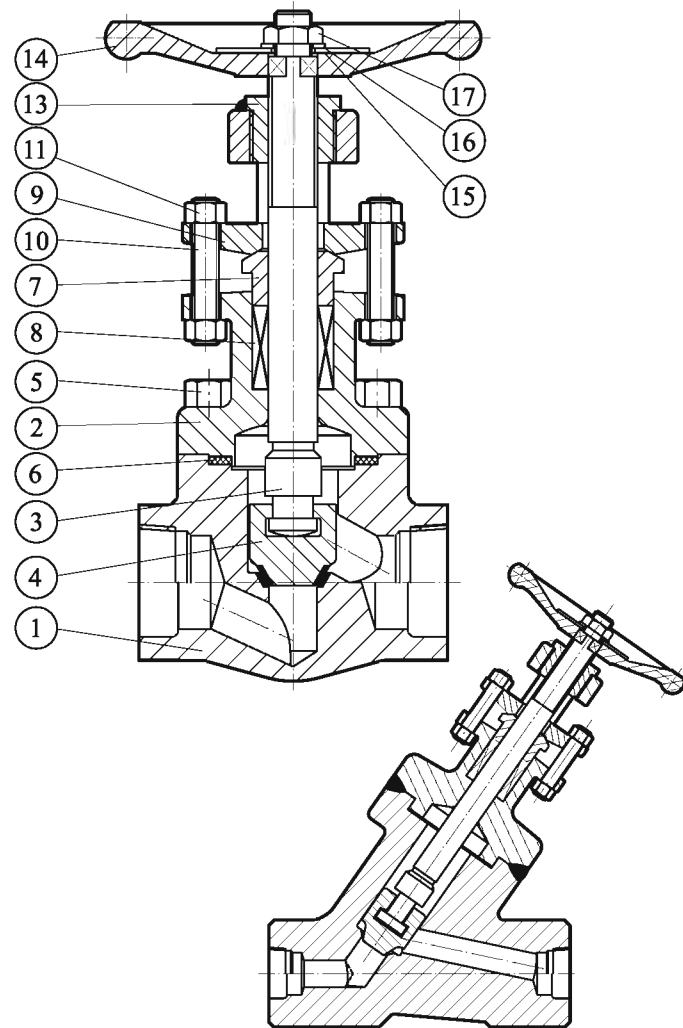
Description		Valve Size			
Full Port		1/2	3/4	1	1 1/2
Flow Port d	in	0.50	0.69	0.91	1.44
	mm	12.7	17.5	23	36.5
Flanged End L Weld End L1	in	10.39	10.75	12.13	15.12
	mm	264	273	308	384
Height to Open H	in	11.73	12.60	19.57	22.68
	mm	298	320	497	576
Handwheel Dia W	in	8.66	8.66	11.81	13.78
	mm	220	220	300	350



Forged Steel Globe Valve

Material List

Trim Material				
DHV Trim Code	API Trim No.	Disc Surface Part No.4	Body Seal Surface Part No.1	Stem Part No.3
1	-	13CR	13CR	F6A
2	5	HF	HF	F6A
3	8	13CR	HF	F6A
4	9	Monel	Monel	Monel
5	10	316	316	F316
6	11	Monel	HF	Monel
7	12	316	HF	F316
8	-	304	304	F304
9	-	304L	304L	304L
0	-	316L	316L	316L
A	-	F51	F51	F51
B	19	INCONEL 625	INCONEL 625	INCONEL 625
C	16	HF	HF	F316
D	-	F53	F53	F53
E	-	F55	F55	F55
F	19	INCONEL 825	INCONEL 825	INCONEL 825



Y Pattern Globe Valve

Standard Material Specifications

No.	Part Name	Carbon Steel to ASTM		Alloy Steel to ASTM	Stainless Steel to ASTM		
1	Body	A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)	A182 F51
2	Bonnet	A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)	A182 F51
3	Stem	A182 F6a		316	A182 F6a	A182 F304(L)	A182 F51
4	Disc	A182 F6a	A182 F6a / HF	316	A182 F6a / HF	A182 F304(L) / HF	A182 F316(L) / HF
-	Seat	Overlay HF					
5	Bonnet Bolt (1)	A193 B7	A320 L7	A193 B16	A193 B8	A193 B8MA	
6	Gasket (1) (2)	SPW 304 +Graphite	SPW 316 +Graphite	SPW 304 +Graphite	SPW 304(L) +Graphite	SPW 316(L) +Graphite	SPW 31803 +Graphite
7	Gland	A276 410	316	A276 410	A182 F304(L)	A182 F316(L)	A182 F51
8	Packing	Flexible Graphite					
9	Gland Flange	A105N	A350 LF2	A182 F11	A182 F304	A182 F316	
10	Gland Bolt	A193 B8					A193 B8MA
11	Gland Nut	A194 2H	A194 7	A194 4	A194 8	A194 8MA	
13	Yoke Nut	A276 410					
14	Handwheel	A197					
15	Nameplate	AL					
16	Washer	Stainless Steel					
17	Handwheel Nut	A194 2H		A194 8	A194 8MA		

NOTES: (1)Not available with welded bonnet type (2)For class≥900LB, use oval ring type joint(RTJ) gasket



Forged Steel Globe Valve-Full Port or Standard Port

Feature & Dimension

Features

- Standard Port
- Full Port is optional
- Outside Screw and Yoke (OS & Y), Rotating Rising Stem
- Bolted Bonnet or Welded Bonnet
- Two Piece Self-aligning Packing Gland
- Integral Backseat
- Loose Solid Disc
- Threaded Ends or Socket Welding Ends
- Needle Plug Type available
- Extended Body or Pup Ends available

Specifications

Basic Design: **API 602 ISO 15761**

ASME B16.34

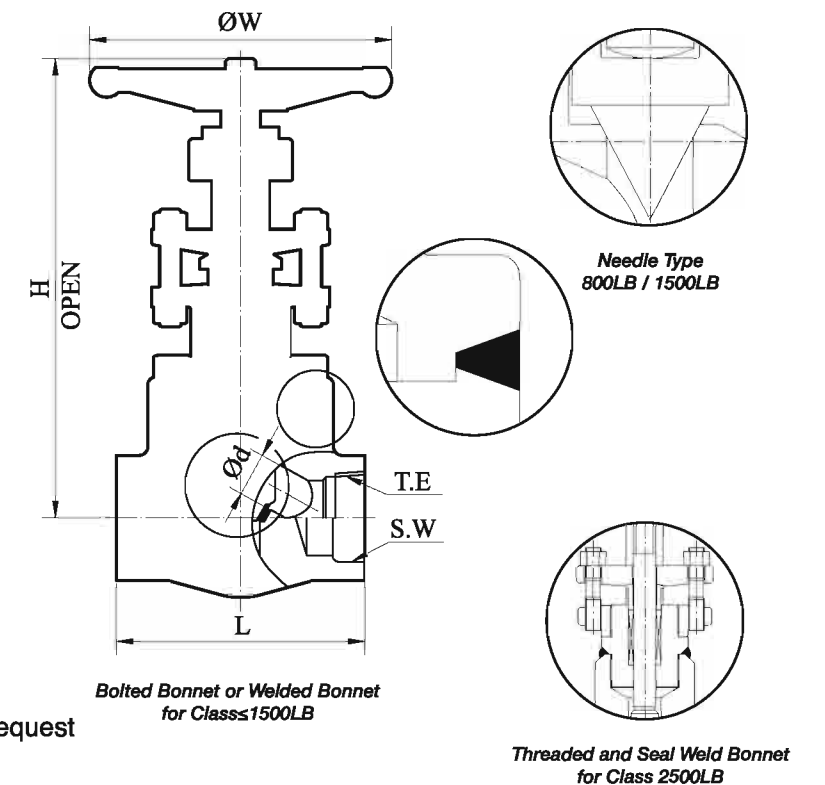
Socket Welding End(S.W): **ASME B16.11**

Threaded End(T.E): **ASME B1.20.1**

Test and Inspection: **API 598**

API 622 Packing, API 624 certified available upon request

ISO 15848-1 certified



Bolted Bonnet or Welded Bonnet for Class1500LB

Threaded and Seal Weld Bonnet for Class 2500LB

800LB

Description	Valve Size						
	-	1/2	3/4	1	1 1/4	1 1/2	2
Standard Port	-	1/2	3/4	1	1 1/4	1 1/2	2
Full Port	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2
Flow Port d	in	0.24	0.37	0.50	0.69	0.91	1.13
	mm	6	9.5	12.7	17.5	23	28.6
End to End L	in	3.11	3.11	3.62	4.37	4.65	5.51
	mm	79	79	92	111	118	140
Height to Open H	in	6.65	6.65	6.65	8.23	9.13	9.41
	mm	169	169	169	209	232	239
Handwheel Dia W	in	3.94	3.94	3.94	4.72	5.91	5.91
	mm	100	100	100	120	150	150
Weight	Kg	2	2	2.2	3.7	5.2	5.95

2500LB

Description	Valve Size					
	1/2	3/4	1	1 1/4	1 1/2	2
Standard Port	1/2	3/4	1	1 1/4	1 1/2	2
Full Port	1/2	3/4	1	1 1/4	1 1/2	2
Flow Port d	in	0.35	0.47	0.69	0.91	1.12
	mm	9	12	17.5	23	28.5
End to End L	in	6.10	6.10	7.32	9.13	9.13
	mm	155	155	186	232	232
Height to Open H	in	11.61	11.61	12.60	18.90	19.33
	mm	295	295	320	480	491
Handwheel Dia W	in	7.87	8.66	8.66	9.84	9.84
	mm	200	220	220	250	250
Weight	Kg	17.5	17.8	26.2	26.2	43.6

1500LB

Description	Valve Size					
	1/2	3/4	1	1 1/4	1 1/2	2
Standard Port	1/2	3/4	1	1 1/4	1 1/2	2
Full Port	3/8	1/2	3/4	1	1 1/4	1 1/2
Flow Port d	in	0.37	0.49	0.69	0.91	1.12
	mm	9.5	12.5	17.5	23	28.5
End to End L	in	3.62	4.37	4.65	5.51	6.77
	mm	92	111	118	140	172
Height to Open H	in	7.05	8.23	9.17	9.41	11.22
	mm	179	209	233	239	285
Handwheel Dia W	in	3.94	4.72	5.91	5.91	7.09
	mm	100	120	150	150	180
Weight	Kg	4	4	5.5	8.3	12.5

2500LB

Description	Valve Size			
	1/2	3/4	1	1 1/2
Standard Port	1/2	3/4	1	1 1/2
Full Port	1/2	3/4	1	1 1/2
Flow Port d	in	0.47	0.69	0.89
	mm	12	17.5	22.5
End to End L	in	6.10	7.32	9.13
	mm	155	186	232
Height to Open H	in	12.28	12.91	19.33
	mm	312	328	491
Handwheel Dia W	in	7.87	9.84	11.81
	mm	200	250	300



Forged Steel Globe Valve-Standard Port

Feature & Dimension

Features

- Standard Port
- Full Port is optional
- Outside Screw and Yoke (OS & Y) ,Rotating Rising Stem
- Loose Solid Disc
- Two Piece Self-aligning Packing Gland
- Bolted Bonnet or Welded Bonnet
- Integral Backseat
- Integral Body Flanges
- Flanged Ends or Buttwelding Ends

Specifications

Basic Design: **API 602 ISO 15761**
ASME B16.34

Face to Face: **ASME B16.10**

End to End: **ASME B16.10**

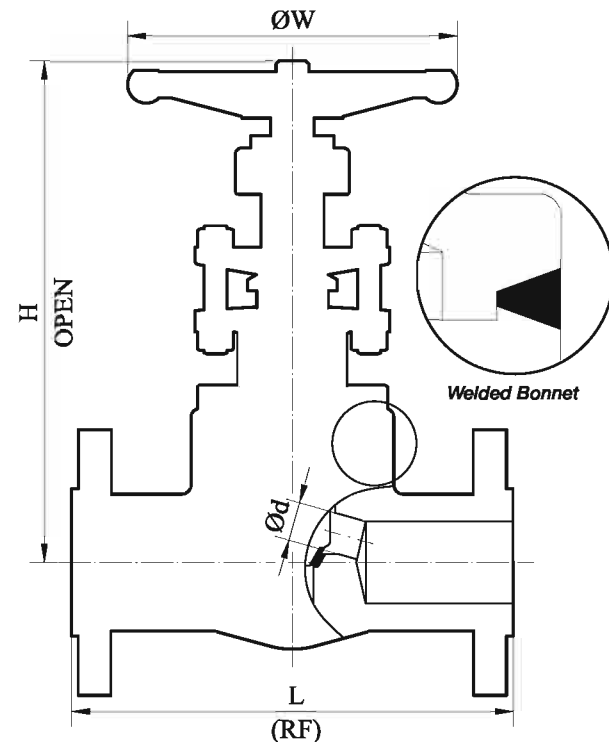
End Flange: **ASME B16.5**

B.W End: **ASME B16.25**

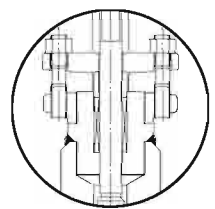
Test and Inspection: **API 598**

API 622 Packing,API 624 certified available upon request

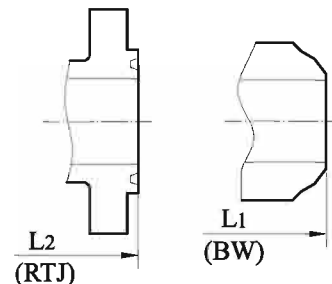
ISO 15848-1 certified



Bolted Bonnet or Welded Bonnet for Class 1500LB



Threaded and Seal Weld Bonnet for Class 2500LB



150LB / 300LB / 600LB

Description		Valve Size						
Standard Port		1/2	3/4	1	1 1/4	1 1/2	2	
Flow Port d	in	0.37	0.49	0.69	0.91	1.12	1.44	
	mm	9.5	12.5	17.5	23	28.5	36.5	
Flanged End L Weld End L1	150LB	in	4.25	4.61	5.00	5.51	6.50	7.99
		mm	108	117	127	140	165	203
	300LB	in	5.98	7.01	7.99	8.50	9.02	10.51
		mm	152	178	203	216	229	267
	600LB	in	6.50	7.48	8.50	9.02	9.49	11.50
		mm	165	190	216	229	241	292
Height to Open H	in	6.18	6.30	7.60	9.13	9.41	11.34	
	mm	157	160	193	232	239	288	
Handwheel Dia W	in	3.94	3.94	4.92	6.30	6.30	7.09	
	mm	100	100	125	160	160	180	
Weight	150LB	RF Kg	2.6	3.3	5	8.4	8.9	14.5
		BW Kg	2	2.8	4.2	7.8	8.8	13
	300LB	RF Kg	3.3	5	6.7	9.6	12.55	17
		BW Kg	2.8	4	5.7	8.2	9.8	14.7
	600LB	RF Kg	3.5	4.8	7.2	9.6	13.5	18.5
		BW Kg	2.9	4	6.2	8.1	11.7	15.1

1500LB

Description		Valve Size					
Standard Port		1/2	3/4	1	1 1/4	1 1/2	2
Flow Port d	in	0.37	0.49	0.69	0.91	1.12	1.38
	mm	9.5	12.5	17.5	23	28.5	35
Flanged End L Weld End L1	in	8.50	9.02	10.00	10.98	12.01	14.49
	mm	216	229	254	279	305	368
RTJ L2	in	8.50	9.02	10.00	10.98	12.01	14.61
	mm	216	229	254	279	305	371
Height to Open H	in	7.05	8.23	9.17	9.41	11.22	12.28
	mm	179	209	233	239	285	312
Handwheel Dia W	in	3.94	4.72	5.91	5.91	7.09	10.47
	mm	100	120	150	150	180	266

2500LB

Description		Valve Size					
Standard Port		1/2	3/4	1	1 1/4	1 1/2	2
Flow Port d	in	0.35	0.47	0.69	0.89	1.14	1.38
	mm	9	12	17.5	22.5	29	35
Flanged End L Weld End L1	in	10.39	10.75	12.13	13.74	15.12	17.76
	mm	264	273	308	349	384	451
Height to Open H	in	11.61	11.61	12.60	16.34	19.33	21.42
	mm	295	295	320	415	491	544
Handwheel Dia W	in	7.87	8.66	8.66	11.81	11.81	13.78
	mm	200	220	220	300	300	350



Forged Steel Globe Valve-Full Port

Dimension

150LB / 300LB / 600LB

Description		Valve Size						
Full Port		1/2	3/4	1	1 1/4	1 1/2	2	
Flow Port d	in	0.50	0.69	0.91	1.12	1.44	1.81	
	mm	12.7	17.5	23	28.5	36.5	46	
Flanged End L Weld End L1	150LB	in	4.25	4.61	5.00	5.51	6.50	7.99
		mm	108	117	127	140	165	203
	300LB	in	5.98	7.01	7.99	8.50	9.02	10.51
		mm	152	178	203	216	229	267
	600LB	in	6.50	7.48	8.50	9.02	9.49	11.50
		mm	165	190	216	229	241	292
Height to Open H	in	6.30	7.60	8.31	9.25	11.10	12.28	
	mm	160	193	211	235	282	312	
Handwheel Dia W	in	3.94	4.72	5.91	5.91	7.09	7.87	
	mm	100	120	150	150	180	200	

1500LB

Description		Valve Size					
Full Port		1/2	3/4	1	1 1/4	1 1/2	2
Flow Port d	in	0.51	0.69	0.91	1.12	1.38	1.77
	mm	13	17.5	23	28.5	35	45
Flanged End L Weld End L1	in	8.50	9.02	10.00	10.98	12.01	14.49
	mm	216	229	254	279	305	368
RTJ L2	in	8.50	9.02	10.00	10.98	12.01	14.61
	mm	216	229	254	279	305	371
Height to Open H	in	7.72	8.62	9.84	10.43	12.99	14.25
	mm	196	219	250	265	330	362
Handwheel Dia W	in	4.72	5.91	5.91	5.91	7.87	9.84
	mm	120	150	150	150	200	250

2500LB

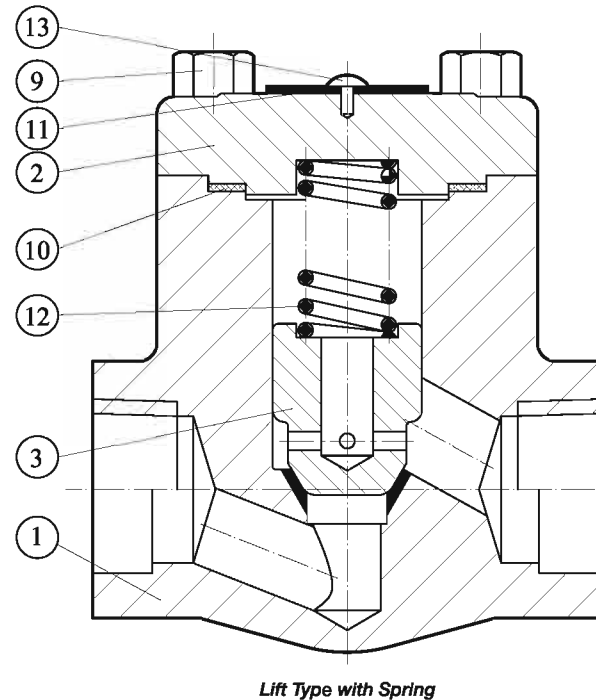
Description		Valve Size			
Full Port		1/2	3/4	1	1 1/2
Flow Port d	in	0.47	0.69	0.89	1.38
	mm	12	17.5	22.5	35
Flanged End L Weld End L1	in	10.39	10.75	12.13	15.12
	mm	264	273	308	384
Height to Open H	in	12.28	12.91	19.33	21.42
	mm	312	328	491	544
Handwheel Dia W	in	7.87	9.84	11.81	11.81
	mm	200	250	300	300



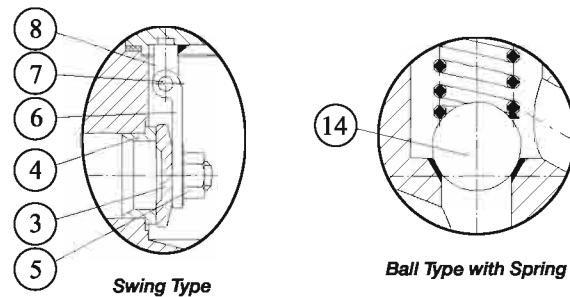
Forged Steel Check Valve

Material List

Trim Material			
DHV Trim Code	API Trim No.	Disc Surface Part No.3	Seat Ring Surface Part No.4 or Body Seal Surface Part No.1
1	-	13CR	13CR
2	5	HF	HF
3	8	13CR	HF
4	9	Monel	Monel
5	10	316	316
6	11	Monel	HF
7	12	316	HF
8	-	304	304
9	-	304L	304L
0	-	316L	316L
A	-	F51	F51
B	19	INCONEL 625	INCONEL 625
C	16	HF	HF
D	-	F53	F53
E	-	F55	F55
F	19	INCONEL 825	INCONEL 825



Disc Type



Standard Material Specifications

No.	Part Name	Carbon Steel to ASTM		Alloy Steel to ASTM	Stainless Steel to ASTM	
		A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)
1	Body	A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)
2	Cap	A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)
3	Disc	A182 F6a	A182 F6a / HF	316	A182 F304(L) / HF	A182 F316(L) / HF
4	Seat Ring	A276 410/HF	316/HF	A276 410/HF	A182 F304(L) / HF	A182 F316(L) / HF
5	Disc Nut	A194 8				A194 8MA
6	Hinge	304SS	316SS	304SS	316SS	316SS
7	Pin	304SS	316SS	304SS	316SS	316SS
8	Supporter	304SS	316SS	304SS	316SS	316SS
9	Bolt (1)	A193 B7	A320 L7	A193 B16	A193 B8	A193 B8MA
10	Gasket (1) (2)	SPW 304+Graphite	SPW 316+Graphite	SPW 304+Graphite	SPW 304(L)+Graphite	SPW 316(L)+Graphite
11	Nameplate	AL				
12	Spring	Stainless Steel				
13	Rivet	CU				
14	Steel Ball	316SS				

NOTES: (1)Not available with welded bonnet type (2)For class≥900LB, use oval ring type joint(RTJ) gasket



Forged Steel Check Valve-Full Port or Standard Port

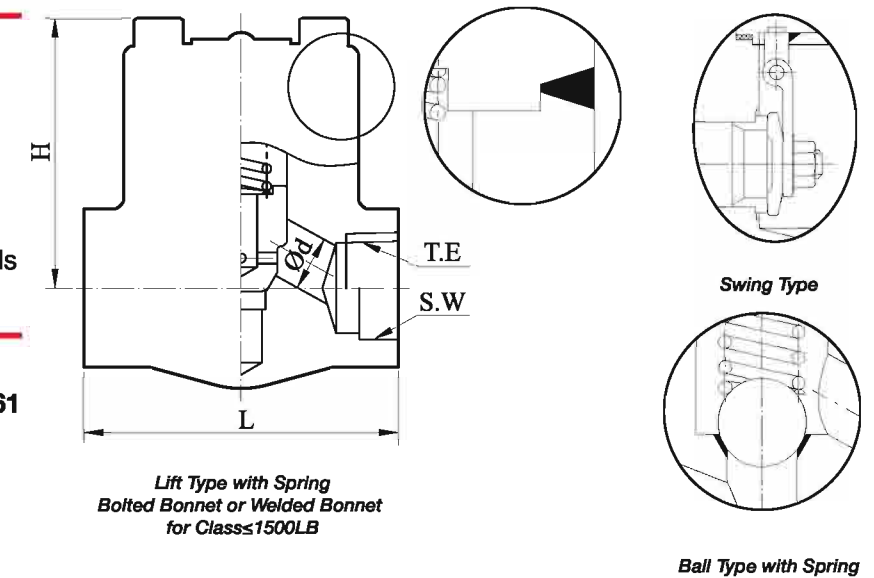
Feature & Dimension

Features

- Standard Port
- Full Port is optional
- Lift Type- Swing Type or Ball Type Check Valve
- Bolted Bonnet or Welded Bonnet
- Threaded Ends or Socket Welding Ends

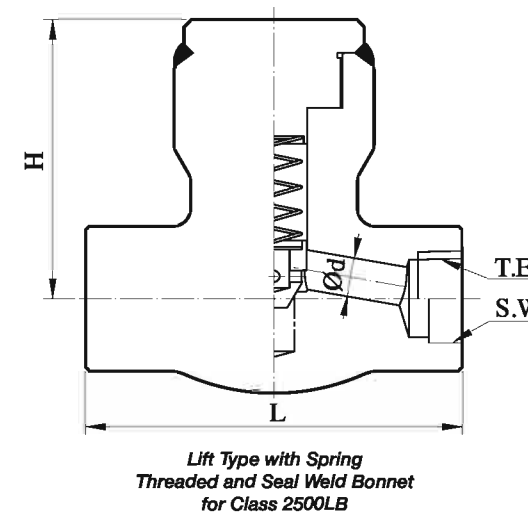
Specifications

Basic Design: **API 602 ISO 15761**
ASME B16.34
 Socket Welding End(S.W): **ASME B16.11**
 Threaded End(T.E): **ASME B1.20.1**
 Test and Inspection: **API 598**



800LB		Valve Size						
Description		-	1/2	3/4	1	1 1/4	1 1/2	2
Standard Port		-	1/2	3/4	1	1 1/4	1 1/2	2
Full Port		1/4	3/8	1/2	3/4	1	1 1/4	1 1/2
Face to Face L	Lift	in	3.11	3.11	3.62	4.37	4.65	5.51
	mm		79	79	92	111	118	140
Swing	Lift	in	3.11	3.11	3.62	4.37	4.65	5.20
	mm		79	79	92	111	118	132
Height H	Lift	in	2.40	2.40	2.40	3.11	3.19	3.23
	mm		61	61	61	79	81	82
Swing	Lift	in	2.28	2.28	2.32	2.99	3.07	3.58
	mm		58	58	59	76	78	91
Flow port d	Lift	in	0.24	0.37	0.50	0.69	0.91	1.13
	mm		6	9.5	12.7	17.5	23	28.6
Swing	Lift	in	0.24	0.37	0.50	0.69	0.91	1.13
	mm		6	9.5	12.7	17.5	23	28.6
Weight	Lift	Kg	1.35	1.35	1.5	2.5	3.2	4.1
	Swing	Kg	1.25	1.25	1.45	2.45	3.05	3.3

1500LB		Valve Size						
Description		1/2	3/4	1	1 1/4	1 1/2	2	
Standard Port		1/2	3/4	1	1 1/4	1 1/2	2	
Full Port		3/8	1/2	3/4	1	1 1/4	1 1/2	
Face to Face L	Lift	in	3.62	4.37	4.65	5.51	6.77	7.09
	mm		92	111	118	140	172	180
Swing	Lift	in	3.62	4.37	4.65	4.65	5.20	5.91
	mm		92	111	118	118	132	150
Height H	Lift	in	2.40	3.11	3.19	3.23	3.90	4.33
	mm		61	79	81	82	99	110
Swing	Lift	in	2.32	2.99	3.11	3.58	4.57	5.08
	mm		59	76	79	91	116	129
Flow port d	Lift	in	0.37	0.50	0.69	0.91	1.13	1.44
	mm		9.5	12.7	17.5	23	28.6	36.5
Swing	Lift	in	0.37	0.50	0.69	0.91	1.13	1.44
	mm		9.5	12.7	17.5	23	28.6	36.5
Weight	Lift	Kg	1.5	3.4	3.3	4.2	6.3	10.5
	Swing	Kg	1.6	2.5	3.5	4	5	8.5



2500LB		Valve Size				
Description		1/2	3/4	1	1 1/2	2
Standard Port		1/2	3/4	1	1 1/2	2
Face to Face L	in	6.10	6.10	7.32	9.13	10.98
	mm	155	155	186	232	279
Height H	in	4.33	4.33	5.20	7.80	8.27
	mm	110	110	132	198	210
Flow port d	in	0.39	0.47	0.69	1.12	1.32
	mm	10	12	17.5	28.5	33.5



Forged Steel Check Valve -Full Port or Standard Port

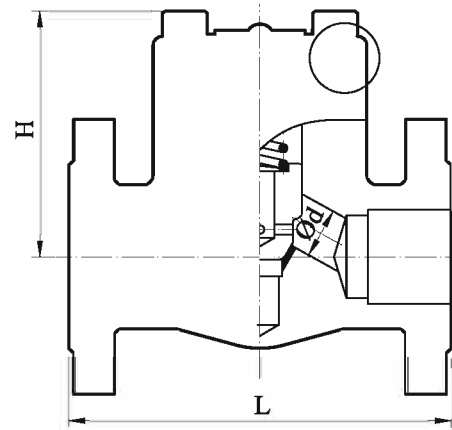
Feature & Dimension

Features

- Standard Port
- Full Port is optional
- Lift Type, Swing Type or Ball Type Check Valve
- Bolted Bonnet or Welded Bonnet
- Integral Body Flanges
- Flanged Ends or Buttwelding Ends

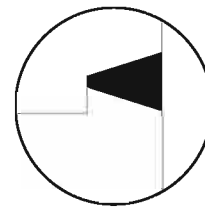
Specifications

Basic Design: **API 602 ISO 15761**
ASME B16.34
 Face to Face: **ASME B16.10**
 End Flange: **ASME B16.5**
 B.W End: **ASME B16.25**
 Test and Inspection: **API 598**

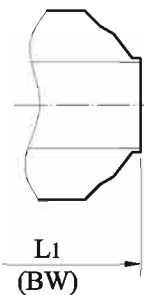


Lift Type with Spring for class ≤1500LB

Optional Configurations



Welded Bonnet



Ball Type with Spring

150LB / 300LB / 600LB

Description		Valve Size							
Standard Port		1/2	3/4	1	1 1/4	1 1/2	2		
Flow Port d	in	0.37	0.49	0.69	0.89	1.13	1.44		
	mm	9.5	12.5	17.5	22.5	28.6	36.5		
Flanged End L	150LB	in	4.25	4.61	5.00	5.51	6.50	7.99	
	mm	108	117	127	140	165	203		
Weld End L1	300LB	in	5.98	7.01	7.99	8.50	9.02	10.51	
	mm	152	178	203	216	229	267		
600LB	in	6.50	7.48	8.50	9.02	9.49	11.50		
	mm	165	190	216	229	241	292		
Height H	in	1.97	2.24	2.60	2.95	3.23	3.90		
	mm	50	57	66	75	82	99		
Weight	150LB	RF	Kg	3.3	3.4	3.9	8.2	10.5	12
		BW	Kg	2.9	3	3.6	7.8	10.2	11.6
	300LB	RF	Kg	3.4	3.5	5.6	8.6	11.7	13.8
		BW	Kg	3.0	3.0	4.8	8	10.3	12
	600LB	RF	Kg	3.5	3.6	6.1	10.4	15.6	24.5
		BW	Kg	3.0	3.1	5.5	9.2	13.8	21.5

150LB / 300LB / 600LB

Description		Valve Size							
Full Port		1/2	3/4	1	1 1/4	1 1/2	2		
Flow Port d	in	0.49	0.69	0.91	1.13	1.44	1.81		
	mm	12.5	17.5	23	28.6	36.5	46		
Flanged End L	150LB	in	4.25	4.61	5.00	5.51	6.50	7.99	
	mm	108	117	127	140	165	203		
Weld End L1	300LB	in	5.98	7.01	7.99	8.50	9.02	10.51	
	mm	152	178	203	216	229	267		
600LB	in	6.50	7.48	8.50	9.02	9.49	11.50		
	mm	165	190	216	229	241	292		
Height H	in	2.24	2.60	2.95	3.23	3.90	4.53		
	mm	57	66	75	82	99	115		
Weight	150LB	RF	Kg	3.1	3.9	4.8	9.5	11	16
		BW	Kg	2.8	3.5	4.5	9.1	10.7	15
	300LB	RF	Kg	3.3	4.5	6.1	10.7	11.8	21
		BW	Kg	2.9	4	5.3	9.7	11	20
	600LB	RF	Kg	3.8	4.6	6.6	11.4	17	23
		BW	Kg	3.3	4.1	6	10.2	14	21

1500LB

Description		Valve Size					
Standard Port		1/2	3/4	1	1 1/4	1 1/2	2
Flow Port d	in	0.37	0.50	0.69	0.91	1.13	1.44
	mm	9.5	12.7	17.5	23	28.6	36.5
Flanged End L	in	8.50	9.02	10.00	10.98	12.01	14.49
	mm	216	229	254	279	305	368
Weld End L1	in	2.40	3.11	3.19	3.23	3.90	4.33
	mm	61	79	81	82	99	110

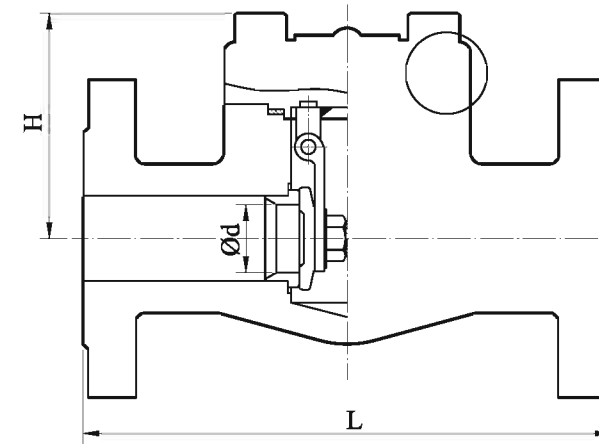
1500LB

Description		Valve Size						
Full Port		1/2	3/4	1	1 1/4	1 1/2	2	
Flow Port d	in	0.49	0.69	0.91	1.12	1.44	1.81	
	mm	12.5	17.5	23	28.5	36.5	46	
Flanged End L	in	8.50	9.02	10.00	10.98	12.01	14.49	
	mm	216	229	254	279	305	368	
Weld End L1	in	3.11	3.19	3.19	3.90	4.33	4.92	
	mm	79	81	81	99	110	125	



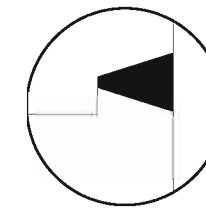
Forged Steel Check Valve -Full Port or Standard Port

Dimension

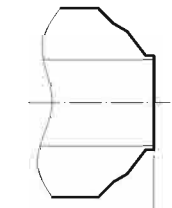


Swing Type

Optional Configurations



Welded Bonnet



L1 (BW)

150LB / 300LB / 600LB

Description		Valve Size							
Standard Port		1/2	3/4	1	1 1/4	1 1/2	2		
Flow Port d	in	0.37	0.49	0.69	0.91	1.13	1.44		
	mm	9.5	12.5	17.5	23	28.6	36.5		
Flanged End L	150LB	in	4.25	4.61	5.00	5.51	6.50	7.99	
	mm	108	117	127	140	165	203		
Weld End L1	300LB	in	5.98	7.01	8.50	9.02	9.49	10.51	
	mm	152	178	216	229	241	267		
600LB	in	6.50	7.48	8.50	9.02	9.49	11.50		
	mm	165	190	216	229	241	292		
Height H	in	1.97	2.17	2.76	2.95	3.62	4.09		
	mm	50	55	70	75	92	104		
Weight	150LB	RF	Kg	3.2	3.3	3.8	8.1	10.4	11
		BW	Kg	2.9	3	3.5	7.7	10	10.6
	300LB	RF	Kg	3.3	3.4	5.5	8.3	11.2	12.8
		BW	Kg	2.9	3.1	4.7	8	10.2	11
	600LB	RF	Kg	3.5	3.6	6.1	10.4	15.6	24.5
		BW	Kg	3.0	3.1	5.5	9.2	13.8	21.5

150LB / 300LB / 600LB

Description		Valve Size							
Full Port		1/2	3/4	1	1 1/4	1 1/2	2		
Flow Port d	in	0.49	0.69	0.91	1.13	1.44	1.91		
	mm	12.5	17.5	23	28.6	36.5	48.5		
Flanged End L	150LB	in	4.25	4.61	5.00	5.51	6.50	7.99	
	mm	108	117	127	140	165	203		
Weld End L1	300LB	in	5.98	7.01	8.50	9.02	9.49	10.51	
	mm	152	178	216	229	241	267		
600LB	in	6.50	7.48	8.50	9.02	9.49	11.50		
	mm	165	190	216	229	241	292		
Height H	in	2.17	2.76	2.95	3.62	4.09	5.12		
	mm	55	70	75	92	104	130		
Weight	150LB	RF	Kg	3.1	3.9	4.8	9.5	11	16
		BW	Kg	2.8	3.5	4.5	9.1	10.7	15
	300LB	RF	Kg	3.3	4.5	6.1	10.7	11.8	21
		BW	Kg	2.9	4	5.3	9.7	11	20
	600LB	RF	Kg	3.8	4.6	6.6	11.4	17	23
		BW	Kg	3.3	4.1	6	10.2	14	21

1500LB

Description		Valve Size					
Standard Port		1/2	3/4	1	1 1/4	1 1/2	2
Flow Port d	in	0.37	0.50	0.69	0.91	1.13	1.44
	mm	9.5	12.7	17.5	23	28.6	36.5
Flanged End L	in	8.50	9.02	10.00	10.98	12.01	14.49
	mm	216	229	254	279	305	368
Weld End L1	in	2.32	2.99	3.11	3.58	4.17	5.08
	mm	59	76	79	91	106	129

1500LB

Description		Valve Size						
Full Port		1/2	3/4	1	1 1/4	1 1/2	2	
Flow Port d	in	0.49	0.69	0.91	1.13	1.44	1.91	
	mm	12.5	17.5	23	28.6	36.5	48.5	
Flanged End L	in	8.50	9.02	10.00	10.98	12.01	14.49	
	mm	216	229	254	279	305	368	
Weld End L1	in	2.99	3.11	3.58	4.17	5.08	5.67	
	mm	76	79	91	106	129	144	

2500LB (Welded Bonnet)

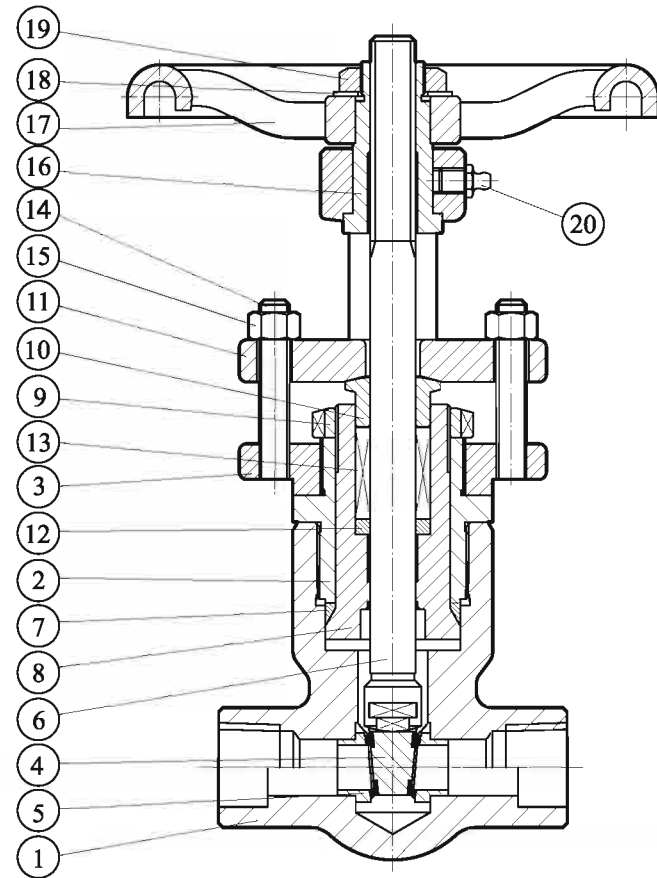
Description		Valve Size				
Standard Port		1/2	3/4	1	1 1/2	2
Flow Port d	in	0.39	0.53	0.69	1.13	1.44
	mm	10	13.5	17.5	28.6	36.5
Flanged End L	in	10.39	10.75	12.13	15.12	17.76
	mm	264	273	308	384	451
Height H	in	3.43	3.43	4.80	5.91	7.20
	mm	87	87	122	150	183



Pressure Seal Gate Valve

Material List

Trim Material				
DHV Trim Code	API Trim No.	Wedge Surface Part No.4	Seat Ring Surface Part No.5	Stem Part No.6
1	-	13CR	13CR	F6A
2	5	HF	HF	F6A
3	8	13CR	HF	F6A
4	9	Monel	Monel	Monel
5	10	316	316	F316
6	11	Monel	HF	Monel
7	12	316	HF	F316
8	-	304	304	F304
9	-	304L	304L	304L
0	-	316L	316L	316L
A	-	F51	F51	F51
B	19	INCONEL 625	INCONEL 625	INCONEL 625
C	16	HF	HF	F316
D	-	F53	F53	F53
E	-	F55	F55	F55
F	19	INCONEL 825	INCONEL 825	INCONEL 825



Standard Material Specifications

No.	Part Name	Carbon Steel to ASTM		Alloy Steel to ASTM	Stainless Steel to ASTM			
1	Body	A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)	A182 F51	
2	Bonnet	A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)	A182 F51	
3	Bracket	A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)	A182 F51	
4	Wedge	A182 F6a	A182 F6a/HF	A182 F316	A182 F6a / HF	A182 F304(L) / HF	A182 F316(L)/HF	A182 F51/HF
5	Seat Ring	A276 410 / HF	A182 F316/HF	A276 410 / HF	A182 F304(L) / HF	A182 F316(L)/HF	A182 F51/HF	
6	Stem	A182 F6a	A182 F316	A182 F6a	A182 F304(L)	A182 F316(L)	A182 F51	
7	P.S.Ring			316SS			A182 F51	
8	P.S.Seat	A182 F6a	316	A182 F6a	A182 F304(L)	A182 F316(L)	A182 F51	
9	P.S.Lock Nut	A276 410	316	A276 410	304	316	A182 F51	
10	Gland	A276 410	316	A276 410	304	A182 F316(L)	A182 F51	
11	Gland Flange	A105N	316	A105N	A182 F304	A182 F316	A182 F316	
12	Packing Spacer	A276 410	316	A276 410	304	316	A182 F51	
13	Stem Packing	Flexible Graphite						
14	Gland Bolt	A193 B8		A193 B8	A193 B8	A193 B8MA		
15	Nut	A194 2H		A194 8	A194 8	A194 8		
16	Stem Nut	A276 410						
17	Handwheel	A197						
18	H/W Washer	Stainless Steel						
19	H/W Lock Nut	A194 2H	A194 8	A194 2H	A194 8	A194 8MA		
20	Grease Fitting	Assembly						

NOTES: Part No.20 is optional

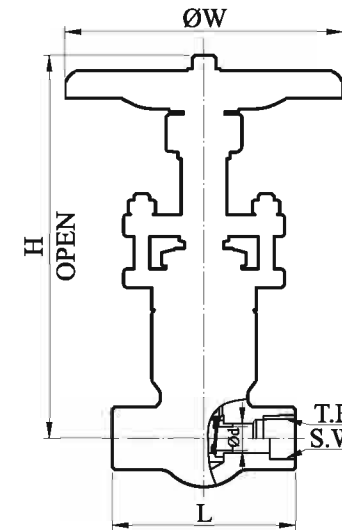


Pressure Seal Gate Valve-Standard Port

Feature & Dimension

Features

- Standard Port
- Outside Screw and Yoke (OS & Y), Rising Stem
- Two Piece Self-aligning Packing Gland
- Threaded and Pressure Seal Bonnet
- Threaded Ends or Socket Welding Ends



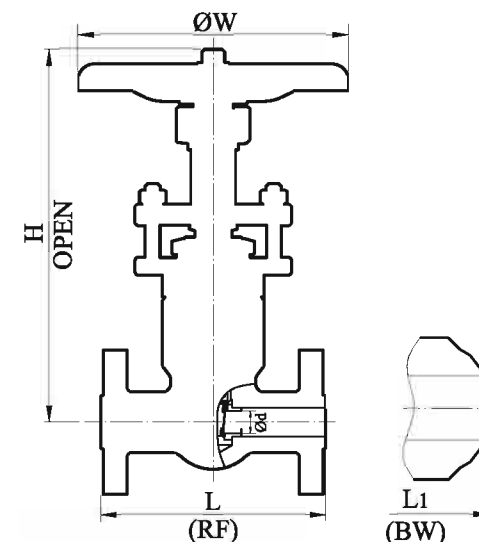
Specifications

Basic Design: **ASME B16.34**
 Socket Welding End(S.W): **ASME B16.11**
 Threaded End(T.E): **ASME B1.20.1**
 Test and Inspection: **API 598**
 API 622 Packing, API 624 certified available upon request
 ISO 15848-1 certified

2500LB							
Description	Valve Size						
Standard Port	3/8	1/2	3/4	1	1 1/2	2	
Flow Port d	in	0.31	0.39	0.53	0.69	1.12	1.42
	mm	8	10	13.5	17.5	28.5	36
End to End L	in	6.10	6.10	6.10	7.32	9.13	11.18
	mm	155	155	155	186	232	284
Height H	in	8.03	11.57	11.81	12.64	20.51	22.64
	mm	204	294	300	321	521	575
Handwheel Dia W	in	7.87	8.66	8.66	9.84	11.81	13.78
	mm	200	220	220	250	300	350
Weight	Kg	8	10.5	10.5	15	40	50

Features

- Standard Port
- Outside Screw and Yoke (OS & Y), Rising Stem
- Two Piece Self-aligning Packing Gland
- Threaded and Pressure Seal Bonnet
- Integral Body Flanges
- Flanged Ends or Buttwelding Ends



Specifications

Basic Design: **ASME B16.34**
 Face to Face: **ASME B16.10**
 End Flange: **ASME B16.5**
 B.W End: **ASME B16.25**
 Test and Inspection: **API 598**
 API 622 Packing, API 624 certified available upon request
 ISO 15848-1 certified

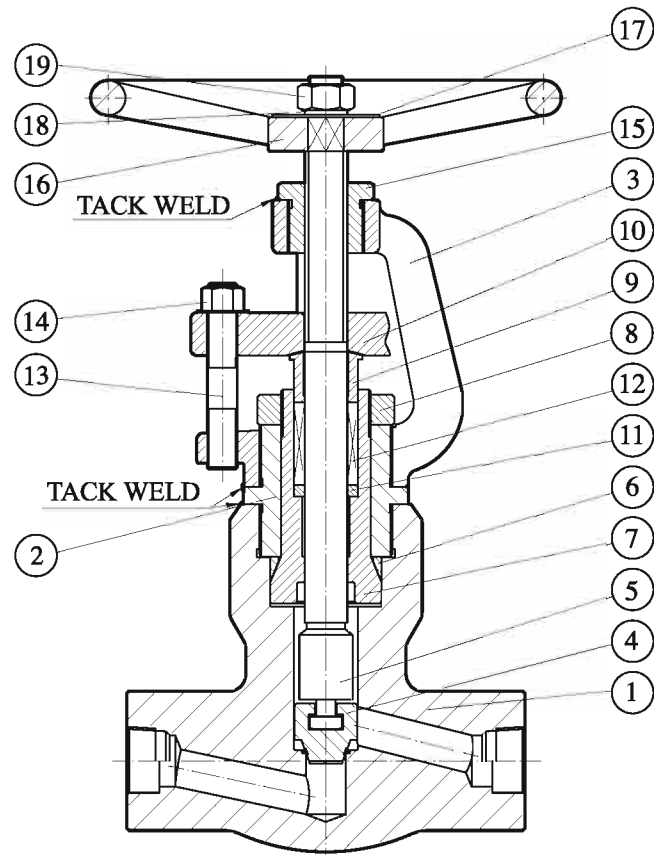
2500LB						
Description	Valve Size					
Standard Port	1/2	3/4	1	1 1/2	2	
Flow Port d	in	0.39	0.53	0.69	1.12	1.42
	mm	10	13.5	17.5	28.5	36
Flanged End L	in	10.39	10.75	12.13	15.12	17.76
	mm	264	273	308	384	451
Height H	in	11.57	11.81	12.64	20.51	22.64
	mm	294	300	321	521	575
Handwheel Dia W	in	8.66	8.66	9.84	11.81	13.78
	mm	220	220	250	300	350
Weight	Kg	10.5	10.5	15	40	50



Pressure Seal Globe Valve

Material List

Trim Material				
DHV Trim Code	API Trim No.	Body Seal Surface Part No.1	Disc Surface Part No.4	Stem Part No.5
1	-	13CR	13CR	F6A
2	5	HF	HF	F6A
3	8	HF	13CR	F6A
4	9	Monel	Monel	Monel
5	10	316	316	F316
6	11	HF	Monel	Monel
7	12	HF	316	F316
8	-	304	304	F304
9	-	304L	304L	304L
0	-	316L	316L	316L
A	-	F51	F51	F51
B	19	INCONEL 625	INCONEL 625	INCONEL 625
C	16	HF	HF	F316
D	-	F53	F53	F53
E	-	F55	F55	F55
F	19	INCONEL 825	INCONEL 825	INCONEL 825



Standard Material Specifications

No.	Part Name	Carbon Steel to ASTM		Alloy Steel to ASTM	Stainless Steel to ASTM		
1	Body	A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)	A182 F51
2	Bonnet	A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)	A182 F51
3	Bracket	A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)	A182 F51
4	Disc	A276 410	A276 410/HF	316	A276 410/HF	A182 F304(L) / HF	A182 F316(L)/HF
-	Seat	Overlay HF					
5	Stem	A182 F6a	316	A182 F6a	A182 F304(L)	A182 F316(L)	A182 F51
6	P.S.Ring	316SS					
7	P.S.Seat	A182 F6a	316	A182 F6a	A182 F304(L)	A182 F316(L)	A182 F51
8	P.S.Lock Nut	A276 410	316	A276 410	A182 F304(L)	A182 F316(L)	A182 F51
9	Gland	A276 410	316	A276 410	304	A182 F316(L)	A182 F51
10	Gland Flange	A105N	A350 LF2	A182 F11	A182 F304	A182 F316	A182 F316
11	Packing Spacer	A276 410	316	A276 410	304	316	A182 F51
12	Stem Packing	Flexible Graphite					
13	Gland Bolt	A193 B8				A193 B8MA	
14	Gland Nut	A194 2H	A194 7	A194 4	A194 8	A194 8MA	
15	Stem Nut	A276 410					
16	Handwheel	A197					
17	Nameplate	AL					
18	Handwheel Washer	Stainless Steel					
19	Handwheel Nut	A194 2H		A194 8		A194 8MA	



Pressure Seal Globe Valve-Standard Port

Feature & Dimension

Features

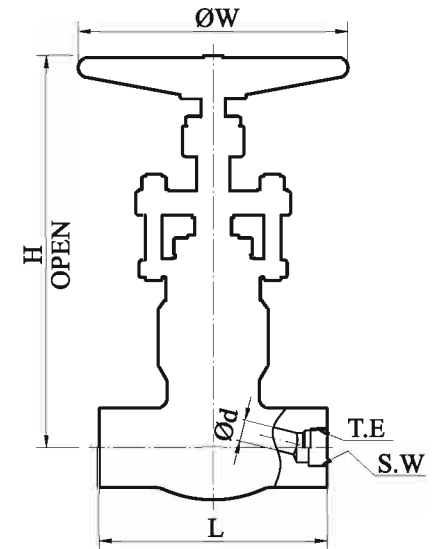
- Standard Port
- Outside Screw and Yoke (OS & Y), Rotating Rising Stem
- Two Piece Self-aligning Packing Gland
- Threaded and Pressure Seal Bonnet
- Loose Solid Disc
- Threaded Ends or Socket Welding Ends

Specifications

Basic Design: **ASME B16.34**
 Socket Welding End(S.W): **ASME B16.11**
 Threaded End(T.E): **ASME B1.20.1**
 Test and Inspection: **API 598**
 API 622 Packing,API 624 certified available upon request
 ISO 15848-1 certified

2500LB

Description	Valve Size						
	Standard Port	1/2	3/4	1	1 1/4	1 1/2	2
Flow Port d	in	0.35	0.47	0.69	0.91	1.12	1.38
	mm	9	12	17.5	23	28.5	35
End to End L	in	6.10	6.10	7.32	9.13	9.13	10.98
	mm	155	155	186	232	232	279
Height to Open H	in	11.61	11.61	12.60	18.90	19.33	21.42
	mm	295	295	320	480	491	544
Handwheel Dia W	in	7.87	8.66	8.66	9.84	9.84	13.78
	mm	200	220	220	250	250	350
Weight	Kg	17.5	17.8	26.2	26.2	43.6	59.1



Features

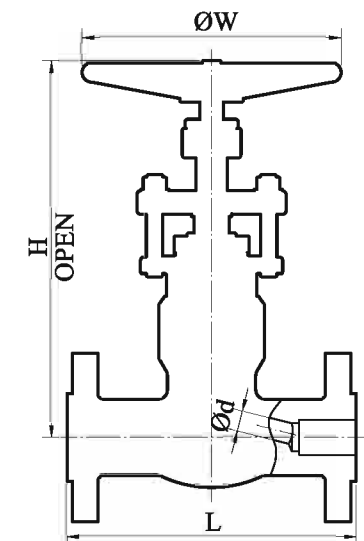
- Standard Port
- Outside Screw and Yoke (OS & Y), Rotating Rising Stem
- Loose Solid Disc
- Two Piece Self-aligning Packing Gland
- Threaded and Pressure Seal Bonnet
- Integral Body Flanges
- Flanged Ends

Specifications

Basic Design: **ASME B16.34**
 Face to Face: **ASME B16.10**
 End Flange: **ASME B16.5**
 Test and Inspection: **API 598**
 API 622 Packing,API 624 certified available upon request
 ISO 15848-1 certified

2500LB

Description	Valve Size						
	Standard Port	1/2	3/4	1	1 1/4	1 1/2	2
Flow Port d	in	0.35	0.47	0.69	0.89	1.14	1.38
	mm	9	12	17.5	22.5	29	35
Flanged End L	in	10.39	10.75	12.13	13.74	15.12	17.76
	mm	264	273	308	349	384	451
Height to Open H	in	11.61	11.61	12.60	18.90	19.33	21.42
	mm	295	295	320	480	491	544
Handwheel Dia W	in	7.87	8.66	8.66	11.81	11.81	13.78
	mm	200	220	220	300	300	350

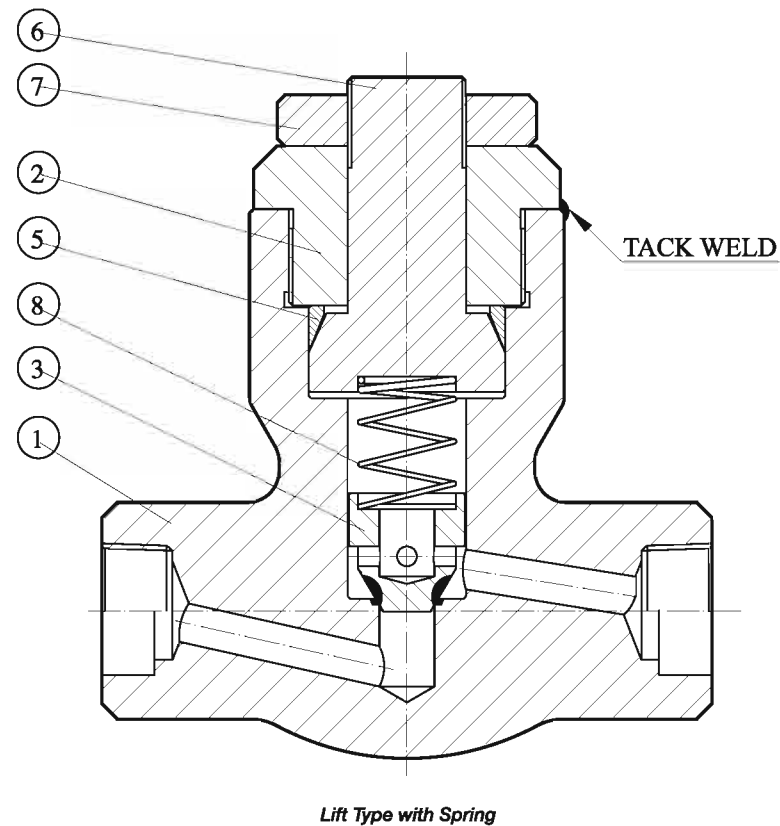




Pressure Seal Check Valve

Material List

Trim Material			
DHV Trim Code	API Trim No.	Disc Surface Part No.3	Body Seal Surface Part No.1
1	-	13CR	13CR
2	5	HF	HF
3	8	13CR	HF
4	9	Monel	Monel
5	10	316	316
6	11	Monel	HF
7	12	316	HF
8	-	304	304
9	-	304L	304L
0	-	316L	316L
A	-	F51	F51
B	19	INCONEL 625	INCONEL 625
C	16	HF	HF
D	-	F53	F53
E	-	F55	F55
F	19	INCONEL 825	INCONEL 825



Standard Material Specifications

No.	Part Name	Carbon Steel to ASTM		Alloy Steel to ASTM	Stainless Steel to ASTM			
		A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)	A182 F51	
1	Body	A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)	A182 F51	
2	Bonnet	A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)	A182 F51	
3	Disc	A182 F6a	A182 F6a / HF	316	A182 F6a / HF	A182 F304(L) / HF	A182 F316(L) / HF	
-	Seat	Overlay HF						
5	P.S. Ring	316SS					A182 F51	
6	P.S. Seat	A182 F6a	316	A182 F6a	A182 F304(L)	A182 F316(L)	A182 F51	
7	P.S. Lock Nut	A276 410	316	A276 410	A182 F304(L)	A182 F316(L)	A182 F51	
8	Spring	Stainless Steel						



Pressure Seal Check Valve-Standard Port

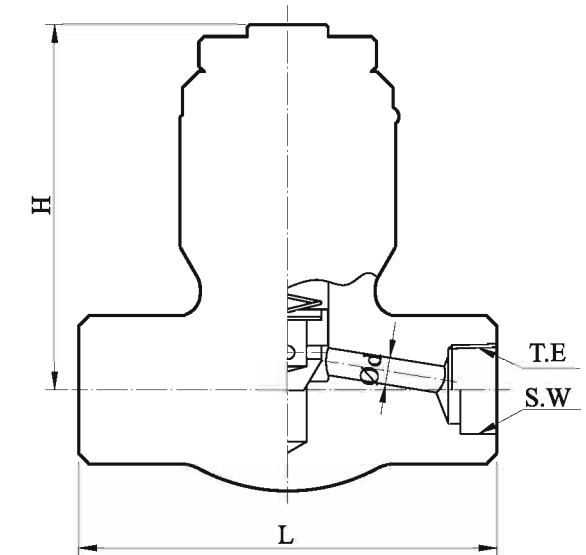
Feature & Dimension

Features

- Standard Port
- Lift Type Check Valve
- Threaded and Pressure Seal Bonnet
- Threaded Ends or Socket Welding Ends
- Integral Body Flanges
- Flanged Ends or Buttwelding Ends

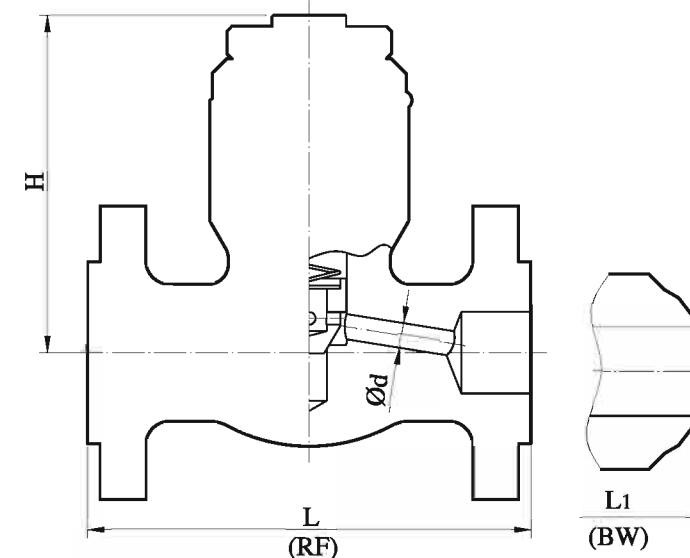
Specifications

- Basic Design: **ASME B16.34**
- Socket Welding End(S.W): **ASME B16.11**
- Threaded End(T.E): **ASME B1.20.1**
- End Flange: **ASME B16.5**
- B.W End: **ASME B16.25**
- Test and Inspection: **API 598**



2500LB

Description	Valve Size	Valve Size					
		1/2	3/4	1	1 1/4	1 1/2	2
Standard Port	in	6.10	6.10	7.32	9.13	9.13	11.18
	mm	155	155	186	232	232	284
Face to Face L	in	5.43	5.43	6.06	8.58	8.58	9.53
	mm	138	138	154	218	218	242
Height H	in	0.39	0.53	0.69	0.91	1.14	1.42
	mm	10	13.5	17.5	23	29	36
Flow Port d	in	6	6.2	11.5	25.6	25.6	32.3
	mm						
Weight	Kg						



2500LB

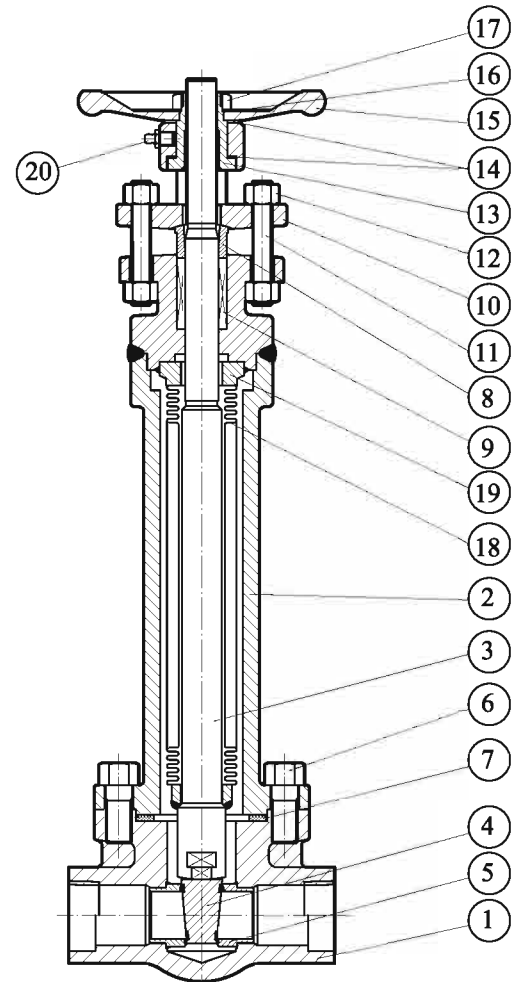
Description	Valve Size	Valve Size					
		1/2	3/4	1	1 1/4	1 1/2	2
Standard Port	in	10.39	10.75	12.13	13.74	15.12	17.76
	mm	264	273	308	349	384	451
Flanged End L Weld End L1	in	5.43	5.43	6.06	8.58	8.58	9.53
	mm	138	138	154	218	218	242
Height H	in	0.39	0.53	0.69	0.91	1.14	1.42
	mm	10	13.5	17.5	23	29	36
Flow Port d	in						
	mm						



Bellows Seal Gate Valve

Material List

Trim Material				
DHV Trim Code	API Trim No.	Wedge Surface Part No.4	Seat Ring Surface Part No.5	Stem Part No.3
1	-	13CR	13CR	F6A
2	5	HF	HF	F6A
3	8	13CR	HF	F6A
4	9	Monel	Monel	Monel
5	10	316	316	F316
6	11	Monel	HF	Monel
7	12	316	HF	F316
8	-	304	304	F304
9	-	304L	304L	304L
0	-	316L	316L	316L
A	-	F51	F51	F51
B	19	INCONEL 625	INCONEL 625	INCONEL 625
C	16	HF	HF	F316
D	-	F53	F53	F53
E	-	F55	F55	F55
F	19	INCONEL 825	INCONEL 825	INCONEL 825



Standard Material Specifications

No.	Part Name	Carbon Steel to ASTM		Alloy Steel to ASTM	Stainless Steel to ASTM			
1	Body	A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)	A182 F51	
2	Bonnet	A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)	A182 F51	
3	Stem	A182 F6a	A182 F316	A182 F6a	A182 F304(L)	A182 F316(L)	A182 F51	
4	Wedge	A182 F6a	A182 F6a/HF	A182 F316	A182 F6a / HF	A182 F304(L)/HF	A182 F316(L)/HF	A182 F51/HF
5	Seat Ring	A276 410/HF	A182 F316 / HF	A276 410 / HF	A182 F304(L)/HF	A182 F316(L)/HF	A182 F51/HF	
6	Bonnet Bolt (1)	A193 B7	A320 L7	A193 B16	A193 B8	A193 B8MA	A193 B8MA	
7	Gasket (1) (2)	SPW 304 +Graphite	SPW 316 +Graphite	SPW 304 +Graphite	SPW 304(L) +Graphite	SPW 316(L) +Graphite	SPW 31803 +Graphite	
8	Gland	A276 410	A182 F316	A276 410	A182 F304(L)	A182 F316(L)	A182 F51	
9	Packing	Flexible Graphite						
10	Gland Flange	A105N	A350 LF2	A105N	A182 F304	A182 F316		
11	Gland Bolt	A193 B8						
12	Gland Nut	A194 2H	A194 7	A194 4	A194 8	A194 8MA		
13	Yoke Nut	A276 410						
14	Sleeve Washer	Stainless Steel						
15	Handwheel	A197						
16	Nameplate	AL						
17	Handwheel Nut	A194 2H						
18	Bellows	SS316Ti / SS321 / Inconel						
19	Connection End	A182 F6a	A182 F316	A182 F6a	A182 F304(L)	A182 F316(L)	A182 F51	
20	Grease Fitting (3)	Assembly						

NOTES: (1)Not available with welded bonnet type (2)For class=900LB use oval ring type joint(RTJ) gasket (3)This part is optional



Bellows Seal Gate Valve-Full Port or Standard Port

Feature & Dimension

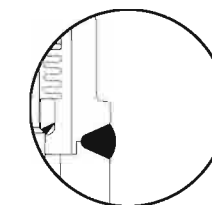
Features

- Standard Port
- Full Port is optional
- Outside Screw and Yoke (OS & Y), Rising Stem
- Two Piece Self-aligning Packing Gland
- Bolted Bonnet or Welded Bonnet
- Integral Backseat
- Threaded Ends or Socket Welding Ends
- Non Rotating Stem Results in Low Torque
- Designed for Long Cycle Life,min 3000 cycles
- Provides a Hermetically Sealed Process Envelope

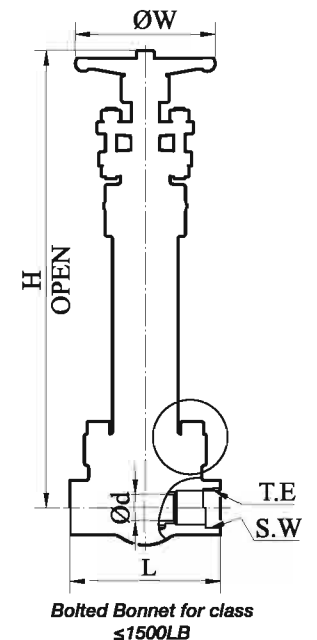
Specifications

- Basic Design: **API 602**
ISO 15761 ASME B16.34
- Socket Welding End(S.W): **ASME B16.11**
 Threaded End(T.E): **ASME B1.20.1**
- Test and Inspection: **API 598**
 API 622 Packing,API 624 certified available upon request
 ISO 15848-1 certified

Option



Welded Bonnet



Bolted Bonnet for class ≤1500LB

800LB						
Description	Valve Size					
Full Port	1/2	3/4	1	1 1/2	2	
Flow Port d	in	0.53	0.69	0.89	1.44	1.91
	mm	13.5	17.5	22.5	36.5	48.5
End to End L	in	3.62	4.37	4.72	5.20	7.01
	mm	92	111	120	132	178
Height to Open H	in	9.65	11.22	13.19	16.42	20.87
	mm	245	285	335	417	530
Handwheel Dia W	in	3.94	4.72	5.91	5.91	8.66
	mm	100	120	150	150	220
Weight	Kg	2.5	3.8	6.2	11.2	20

1500LB						
Description	Valve Size					
Full Port	1/2	3/4	1	1 1/2	2	
Flow Port d	in	0.50	0.69	0.91	1.44	1.91
	mm	12.7	17.5	23	36.5	48.5
End to End L	in	4.37	4.72	4.72	5.91	7.09
	mm	111	120	120	150	180
Height to Open H	in	13.98	14.96	17.72	21.65	23.23
	mm	355	380	450	550	590
Handwheel Dia W	in	4.72	5.91	5.91	7.87	9.84
	mm	120	150	150	200	250
Weight	Kg	4.5	6.5	8.3	22	37

2500LB (Welded Bonnet)						
Description	Valve Size					
Full Port	1/2	3/4	1	1 1/2		
Flow Port d	in	0.50	0.69	0.91	1.44	
	mm	12.7	17.5	23	36.5	
End to End L	in	6.10	7.32	9.13	11.18	
	mm	155	186	232	284	
Height to Open H	in	16.93	17.72	20.08	24.80	
	mm	430	450	510	630	
Handwheel Dia W	in	8.66	9.84	9.84	13.78	
	mm	220	250	250	350	
Weight	Kg	6.5	10.5	16	29	

800LB						
Description	Valve Size					
Standard Port	1/2	3/4	1	1 1/2	2	
Flow Port d	in	0.39	0.53	0.69	1.13	1.44
	mm	10	13.5	17.5	28.6	36.5
End to End L	in	3.11	3.62	4.37	4.72	5.20
	mm	79	92	111	120	132
Height to Open H	in	9.06	9.65	11.22	14.96	16.42
	mm	230	245	285	380	417
Handwheel Dia W	in	3.94	3.94	4.72	5.91	5.91
	mm	100	100	120	150	150
Weight	Kg	2.1	2.4	3.9	8.6	11

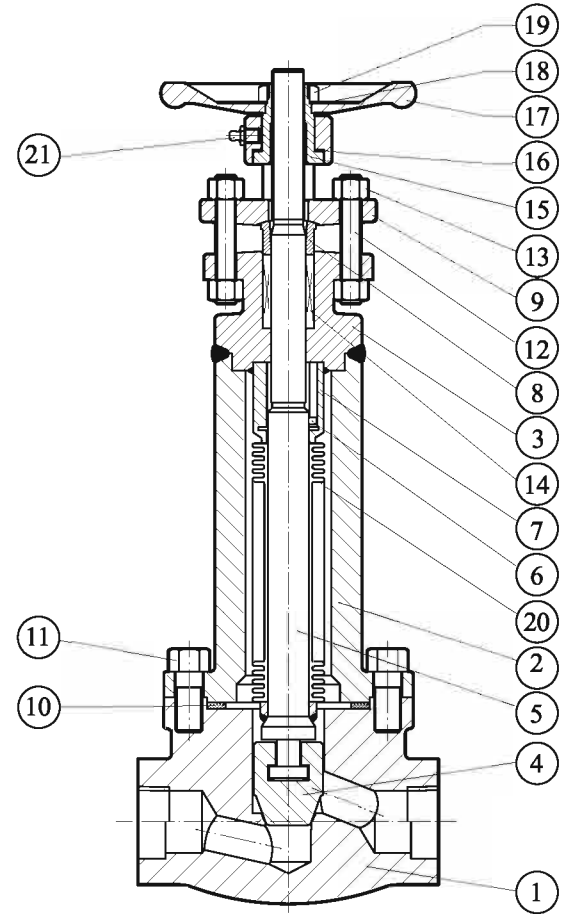
1500LB						
Description	Valve Size					
Standard Port	1/2	3/4	1	1 1/2	2	
Flow Port d	in	0.39	0.50	0.69	1.12	1.44
	mm	10	12.7	17.5	28.5	36.5
End to End L	in	3.62	4.37	4.37	5.20	5.91
	mm	92	111	120	132	150
Height to Open H	in	12.60	13.98	14.96	17.72	21.65
	mm	320	355	380	450	550
Handwheel Dia W	in	3.94	4.72	5.91	5.91	7.87
	mm	100	120	150	150	200
Weight	Kg	2.8	4.6	6.5	9	22



Bellows Seal Globe Valve

Material List

Trim Material				
DHV Trim Code	API Trim No.	Disc Surface Part No.4	Body Seal Surface Part No.1	Stem Part No.5
1	-	13CR	13CR	F6A
2	5	HF	HF	F6A
3	8	13CR	HF	F6A
4	9	Monel	Monel	Monel
5	10	316	316	F316
6	11	Monel	HF	Monel
7	12	316	HF	F316
8	-	304	304	F304
9	-	304L	304L	304L
0	-	316L	316L	316L
A	-	F51	F51	F51
B	19	INCONEL 625	INCONEL 625	INCONEL 625
C	16	HF	HF	F316
D	-	F53	F53	F53
E	-	F55	F55	F55
F	19	INCONEL 825	INCONEL 825	INCONEL 825



Standard Material Specifications

No.	Part Name	Carbon Steel to ASTM		Alloy Steel to ASTM	Stainless Steel to ASTM			
1	Body	A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)	A182 F51	
2	Bonnet	A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)	A182 F51	
3	Yoke	A105N	A350 LF2	A182 F11	A182 F304(L)	A182 F316(L)	A182 F51	
4	Disc	A182 F6a	A182 F6a/HF	316	A182 F6a / HF	A182 F304(L)/HF	A182 F316(L)/HF	
-	Seat	Overlay HF						A182 F51/HF
5	Stem	A182 F6a	316	A182 F6a	A182 F304(L)	A182 F316(L)	A182 F51	
6	Pin	A276 410	316SS	A276 410	304SS	316SS	A276 UNS S31803	
7	Connection End	A182 F6a	A182 F316	A182 F6a	A182 F304(L)	A182 F316(L)	A182 F51	
8	Gland	A276 410	316	A276 410	A182 F304(L)	A182 F316(L)	A182 F51	
9	Gland Flange	A105N	A350 LF2	A182 F11	A182 F304	A182 F316		
10	Gasket (1) (2)	SPW 304 +Graphite	SPW 316 +Graphite	SPW 304 +Graphite	SPW 304(L) +Graphite	SPW 316(L) +Graphite	SPW 31803 +Graphite	
11	Bonnet Bolt (1)	A193 B7	A320 L7	A193 B16	A193 B8	A193 B8MA		
12	Gland Bolt	A193 B8				A193 B8MA		
13	Gland Nut	A194 2H	A194 7	A194 4	A194 8	A194 8MA		
14	Packing	Flexible Graphite						
15	Stem Nut	A276 410						
16	Sleeve Washer	Stainless Steel						
17	Handwheel	A197						
18	Nameplate	AL						
19	Handwheel Nut	A194 2H		A194 8	A194 8MA			
20	Bellows	SS316Ti / SS321 / Inconel						
21	Grease Fitting (3)	Assembly						

NOTES: (1)Not available with welded bonnet type (2)For class≥900LB,use oval ring type joint(RTJ) gasket (3)This part is optional



Bellows Seal Globe Valve-Full Port or Standard Port

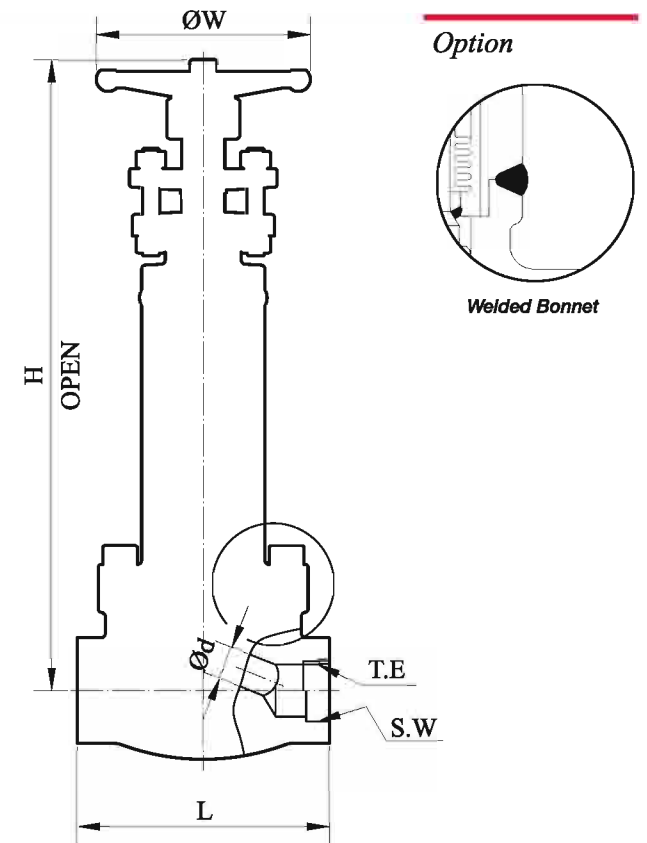
Feature & Dimension

Features

- Standard Port
- Full Port is optional
- Outside Screw and Yoke (OS & Y), Rising Stem
- Two Piece Self-aligning Packing Gland
- Bolted Bonnet or Welded Bonnet
- Integral Backseat
- Loose Solid Disc
- Threaded Ends or Socket Welding Ends
- Non Rotating Stem Results in Low Torque
- Designed for Long Cycle Life,min 3000 cycles
- Provides a Hermetically Sealed Process Envelope

Specifications

Basic Design: **API 602**
ISO 15761 ASME B16.34
 Socket Welding End(S.W): **ASME B16.11**
 Threaded End(T.E): **ASME B1.20.1**
 Test and Inspection: **API 598**
 API 622 Packing,API 624 certified available upon request
 ISO 15848-1 certified



800LB

Description	Valve Size				
	1/2	3/4	1	1 1/2	
Full Port					
Flow Port d	In	0.51	0.69	0.89	1.38
	mm	13	17.5	22.5	35
End to End L	In	3.62	4.37	5.51	6.77
	mm	92	111	140	172
Height to Open H	In	8.27	9.65	11.22	13.58
	mm	210	245	285	345
Handwheel Dia W	In	4.72	5.91	7.09	8.66
	mm	120	150	180	220
Weight	Kg	3.2	5	8	17

1500LB

Description	Valve Size				
	1/2	3/4	1	1 1/2	
Full Port					
Flow Port d	In	0.51	0.69	0.89	1.38
	mm	13	17.5	22.5	35
End to End L	In	4.37	4.65	4.65	7.09
	mm	111	118	172	180
Height to Open H	In	11.02	12.60	14.17	17.52
	mm	280	320	360	445
Handwheel Dia W	In	4.72	5.91	7.09	8.66
	mm	120	150	180	220
Weight	Kg	4	6.5	8.3	22

800LB

Description	Valve Size					
	1/2	3/4	1	1 1/2	2	
Standard Port						
Flow Port d	In	0.39	0.51	0.69	1.13	1.38
	mm	10	13	17.5	28.6	35
End to End L	In	3.11	3.62	4.37	5.51	6.77
	mm	79	92	111	140	172
Height to Open H	In	8.07	8.27	9.65	12.40	13.58
	mm	205	210	245	315	345
Handwheel Dia W	In	3.94	4.72	5.91	7.09	8.66
	mm	100	120	150	180	220
Weight	Kg	2.2	2.4	3.5	8.1	11.8

1500LB

Description	Valve Size					
	1/2	3/4	1	1 1/2	2	
Standard Port						
Flow Port d	In	0.39	0.51	0.69	1.13	1.38
	mm	10	13	17.5	28.6	35
End to End L	In	3.62	4.37	4.37	6.77	7.09
	mm	92	111	118	172	180
Height to Open H	In	9.45	11.02	12.60	14.17	17.52
	mm	240	280	320	360	445
Handwheel Dia W	In	3.94	4.72	5.91	7.09	8.66
	mm	100	120	150	180	220
Weight	Kg	3	4.6	6.5	8.9	21.5



Terms & Conditions

1. DEFINITIONS

(a) "The CONTRACT" - The General Conditions of Orders together with COMPANY'S quote and any exhibits, attachments and other documents incorporated by reference.

(b) "The PRODUCTS" - valves and related products and services as well as their packaging that form the subject-matter of the CONTRACT.

(c) "The COMPANY" - DHV Industries, Inc. or DHV Valve Company, Inc. or alternatively any affiliated company named in COMPANY'S quotation.

(d) "The CUSTOMER" - The individual, firm, partnership, company or other party with whom the Company contracts.

(e) "FORCE MAJEURE" - Any cause or circumstances (including but not limited to, act of God, fire, storm, flood, drought, earthquake, malicious damage, shortage of material, manufacturer's inability to provide the Product, embargo, riot, strike, look-out, trade dispute, civil disturbance, war, compliance with any law or government order, rule or direction or any other event or accident) beyond the reasonable and direct control of COMPANY.

2. SCOPE

(a) These General Conditions set out the standard terms on which the COMPANY supplies PRODUCTS to the CUSTOMER. Accordingly, these General Conditions apply to all quotations and sales unless otherwise agreed in writing.

(b) The legality, validity, and enforceability of other clauses in these General Conditions will not be affected if one of the clauses is, or becomes illegal, invalid, or unenforceable.

(c) We reserve the right to institute changes in material, design and specification without notice.

3. QUOTATIONS AND ORDERS

(a) Unless otherwise expressly stipulated, all of the COMPANY'S quotations and prices are subject to change without notice, and to availability. Prices are valid only for the duration indicated in the quotation and are subject to change without notice.

(b) Any written or oral purchase order received from the CUSTOMER by the COMPANY ("Order") shall be interpreted as a written acceptance of the COMPANY'S offer to sell, and shall be filled in accordance with the terms and conditions of the sale set forth herein. The terms and conditions of the Company's proposal (if at all any) shall prevail over any conflicting or different terms in CUSTOMER'S orders unless the CUSTOMER notifies the COMPANY in writing of its objections thereto within the earlier of the date of shipment of the Product or fifteen (15) days from receipt of COMPANY'S General Conditions. CUSTOMER'S standard terms of purchase will not be considered as a counter-offer to COMPANY'S terms and conditions of sale. The COMPANY will not be bound by conflicting purchasing conditions or reservations made by the CUSTOMER even if the COMPANY does not explicitly contradict the conditions or reservations.

(c) No order in pursuance of any quotation or otherwise shall be binding on the COMPANY unless and until such an order is accepted by the COMPANY. The COMPANY may reject any order in whole or part. A contract between the COMPANY and CUSTOMER is finalized once the COMPANY issues a telephonic, electronic, or written order confirmation to the CUSTOMER or ships the Product to the CUSTOMER. Except as otherwise specifically provided herein, the Order is the final and complete expression of the agreement between the parties, setting forth the entire agreement between the parties regarding this transaction and including all promises and representations both express and implied. Any matters not contained herein, or otherwise referenced or incorporated herein, are not part of the Order.

(d) Subject to the specific procedures for changes to the Order, none of the terms and conditions contained herein may be added to, modified, superseded, or otherwise altered except by a written instrument specifically referencing the affected provision of the Order signed by the President or Vice President of the COMPANY.

4. PRICES

(a) All prices shown are in U.S. dollars and are F.O.B. COMPANY'S shipping point, unless otherwise expressly agreed to by COMPANY.

(b) Prices exclude any duties, federal, state or local taxes or other government charges and delivery costs, which the CUSTOMER must pay unless the law specifically provides that the COMPANY must make such payment in which case the CUSTOMER shall reimburse the COMPANY for such payments as part of the purchase price. All prices include the COMPANY'S

standard packing, but not pallets or crating for export goods.

5. PAYMENTS AND LICENSES

(a) Payment must be made in the currency specified in COMPANY'S invoice.

(b) The CUSTOMER must pay the full invoice amount before the shipment from the date of the invoice unless otherwise agreed in writing. The COMPANY is entitled to charge interest on overdue payments at the greater of the following two rates: (a) 1.5% monthly or (b) 2% annually above the current monthly base rate of the COMPANY'S bank. In no event shall the interest rate be higher than the maximum rate permitted by applicable law.

(c) In addition to exercising its rights at common law or under statute, the COMPANY is entitled to terminate the CONTRACT by written notice to the CUSTOMER if the CUSTOMER is in material breach of its obligations under the CONTRACT or any other agreements with the COMPANY. The CUSTOMER is in material breach:

- If it fails to meet its liabilities when they fall due;
- If it seeks a composition with its creditors;
- If all or part of its property is subject to receivership; or
- If a petition for liquidation, winding-up or administration is filed in respect of the CUSTOMER.

(d) The CUSTOMER is not entitled to withhold, set off or deduct claims against the COMPANY from an amount that it owes the COMPANY under the CONTRACT or other agreement with the COMPANY.

(e) The COMPANY is obligated to deliver a PRODUCT only if the CUSTOMER has made due payment of all amounts that it owes to the COMPANY at the date of delivery under the CONTRACT or other agreement with the COMPANY. The COMPANY is entitled to suspend delivery of a PRODUCT if the CUSTOMER is in default without this affecting the COMPANY'S other rights under the CONTRACT or other agreement with the CUSTOMER. The COMPANY is not obligated to resume deliveries until the CUSTOMER has paid all overdue amounts, including all expenses and accrued interest.

(f) It is the CUSTOMER'S exclusive responsibility to obtain all licenses, exchange control documents and other consents needed for the import and use of the PRODUCTS as well as for payment of the PRODUCTS. The CUSTOMER will not be discharged from his obligations under these General Conditions because he fails to obtain a license or other consents.

6. DELIVERY AND FORCE MAJEURE

(a) While the COMPANY will endeavor to deliver the PRODUCTS by any date or within any period agreed upon, such dates and periods are estimates only given in good faith and the COMPANY will not be liable for any failure to deliver by such date or within such a period. Time for delivery shall not be of the essence of the CONTRACT.

(b) Should the COMPANY be delayed in or prevented from making the delivery of the PRODUCTS due to Force Majeure, the COMPANY may terminate the CONTRACT or suspend the Order without incurring any liability for any loss or damage arising there from, but without prejudice in any such case to rights accrued to the COMPANY for deliveries already made.

(c) Unless otherwise agreed to in writing by the COMPANY, the COMPANY shall deliver the PRODUCTS by the means most convenient to the COMPANY to the address or addresses specified by the CUSTOMER at the time of placing the Order or (in the event that the CUSTOMER fails so to specify an address) to an address at which the CUSTOMER resided or carries on business. The PRODUCTS are considered to be delivered when they are physically handed over to 1) the CUSTOMER, 2) the CUSTOMER'S agent or a person that the CUSTOMER has authorized to take delivery, or (3) the carrier, regardless of who pays shipping costs. The COMPANY shall be entitled to add to the contract price a reasonable charge for packaging, delivery and insurance. Off-loading will be at CUSTOMER'S expense.

(d) The CUSTOMER is obligated to pay all costs that the COMPANY incurs because of the CUSTOMER'S failure to take delivery either 1) on the date stated in the invoice or the COMPANY'S confirmation, or 2) when the PRODUCTS are ready, if the COMPANY has notified the CUSTOMER in writing of their readiness and the CUSTOMER has not taken delivery within seven days or any period to which the parties agree.

(e) If the COMPANY is responsible for delivery, the CUSTOMER must thoroughly inspect the PRODUCTS sent at the COMPANY'S risk. The CUSTOMER is to notify the COMPANY in writing immediately of loss, damage or shortage of PRODUCTS. If the CUSTOMER does not receive the PRODUCTS on the agreed date of delivery, it is to notify the COMPANY within 48 hours of the agreed date of delivery. The COMPANY disclaims all liability, and the CUSTOMER waives its rights of recovery, under this provision unless the CUSTOMER'S information is sufficient to



Terms & Conditions

allow the COMPANY to make a valid claim against the carrier of the PRODUCTS for their loss or damage.

(f) If the CUSTOMER is responsible for delivery, the COMPANY will not be responsible for delays or failure to deliver by the carrier set up by the CUSTOMER or due to causes beyond the COMPANY control. Delivery of material to a common carrier shall be considered delivery to the Buyer. Claims for loss or any damage to material in transit shall be filed by the Buyer direct with the carrier. Claims for any shortage, corrections or deductions must be made in writing within 48 hours after receipt of goods.

7. PASSING OF RISK AND TITLE, CANCELLATION AND RETURNS

The COMPANY'S liability for the PRODUCTS passes from the COMPANY to the CUSTOMER on the earlier of the following two dates: 1) the date when the PRODUCTS are delivered to the CUSTOMER, the CUSTOMER'S agent, or a person that the CUSTOMER has authorized to accept delivery, or 2) the agreed date of delivery, if the CUSTOMER fails to take delivery as required.

(a) Under the CONTRACT.

(b) The COMPANY remains the owner of the PRODUCTS until it receives full payment for all PRODUCTS whether or not the PRODUCTS are delivered to the CUSTOMER. If the CUSTOMER sells the PRODUCTS to a third party before the COMPANY receives full payment, the proceeds of the sale shall first apply to pay all amounts due to the COMPANY. The COMPANY or its representative is entitled to recover or resell the PRODUCTS and to enter the CUSTOMER'S premises for that purpose, without this affecting its other rights; if the CUSTOMER has not paid the full purchase price or if insolvency proceedings are commenced against the CUSTOMER.

(c) Purchase Orders once placed by CUSTOMER and accepted by COMPANY can be cancelled only with COMPANY'S written consent and upon terms which will save COMPANY from loss. No PRODUCTS may be returned for credit or adjustment without written permission from COMPANY'S officer authorized to issue such permission.

(d) All sales are final. This means that the CUSTOMER is not entitled to credit for returned PRODUCTS whether or not the CUSTOMER has made a complaint or a claim. If the Company expressly agrees in writing that the COMPANY will credit the CUSTOMER for returned PRODUCTS, the CUSTOMER must return the PRODUCTS promptly, carriage-paid, and in the COMPANY'S opinion in good condition to receive the credit. If the COMPANY expressly agrees in writing that the CUSTOMER can return the PRODUCTS, cancel order or change order, the CUSTOMER will be charged for work performed, based on the following schedule. All freight for return or cancelled/changed goods shall be prepaid by CUSTOMER.

- Twenty Five (25%) percent of price on stock items.
- Fifty (50%) percent of price of stock items ordered in quantities which exceed normal inventory levels.
- Twenty Five (25%) percent of price prior to drawing submittal on made to order items.
- Forty (40%) percent on drawing approval, but prior to start of castings.
- Seventy (70%) percent during casting cycle, dependent on the state of completion.
- One Hundred (100%) percent on castings that are not standard materials used by COMPANY in daily sales; i.e. Stainless Steel, Duplex, Nickel, etc.
- Eighty (80%) during machining and assembly operations, this is dependent on the state of completion.
- One Hundred (100%) percent after final assembly and test.
- Special Product Orders: or non standard products are not subject to any schedule level of cancellation, except on such terms as COMPANY may specify on application only.

8. WARRANTY AND LIMITATIONS OF LIABILITY

(a) As to all PRODUCTS sold hereunder, the COMPANY expresses no warranties whatsoever but only assigns to CUSTOMER all transferable warranties and remedies granted by the manufacturer of such PRODUCTS to which COMPANY is entitled and CUSTOMER agrees to look solely to such manufacturers with regard to claims and remedies relating to such PRODUCTS. THE COMPANY SPECIFICALLY DISCLAIMS ALL WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND SATISFACTORY QUALITY. THE COMPANY MAKES NO WARRANTIES AND REPRESENTATIONS, AS TO QUALITY, CAPABILITIES, OPERATIONS, NON-INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS, PERFORMANCE AND SUITABILITY OF THE PRODUCTS.

(b) LIMITATION OF LIABILITY. CUSTOMER'S EXCLUSIVE REMEDY AGAINST COMPANY FOR DEFECTS IN THE PRODUCTS IS THE MANUFACTURER'S WARRANTY SET FORTH IN SECTION 8 (a). THE PARTIES AGREE THAT UNDER NO CIRCUMSTANCE SHALL THE

COMPANY HAVE ANY LIABILITY WHATSOEVER FOR ANY CLAIM ARISING FROM OR RELATING TO THE ORDERS OR THE PRODUCTS FOR AN AGGREGATE AMOUNT IN EXCESS OF THE INVOICED PRICE FOR THE PRODUCTS.

(c) The COMPANY shall not be liable for any damage resulting from delays, failure of the PRODUCTS, loss of profit or revenues, loss of time or loss of use, cost of capital, diminution of goodwill, or claims of CUSTOMER'S customers.

(d) IN NO CIRCUMSTANCES WILL THE COMPANY BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL, PUNITIVE OR INDIRECT LOSS OR DAMAGE WHATSOEVER.

(e) The COMPANY is not liable if the CUSTOMER'S use of the PRODUCTS infringes on a third party's patent rights.

(f) Any exclusions or limitations of liability in this CONTRACT in favor of the COMPANY are agreed to be extended for the benefit of all COMPANY'S and/or individuals within the COMPANY'S group of COMPANIES. The CUSTOMER agrees in the appointment of the COMPANY as its agent or trustee solely for the extension of the benefit of the exclusions and limitations of liability. All duties, liabilities and obligations that would otherwise result from this agency are expressly excluded.

(g) The COMPANY warrants the PRODUCTS provided to the original CUSTOMER, not any third party, for a period of one year after date of shipment, that PRODUCTS will be free from defects in materials and workmanship under proper and normal installation and use. Any claim for defect goods should be by written notice to the COMPANY immediately upon discovery. NO warranty shall apply to PRODUCTS which has been modified or changed in design or function, misused, or improperly maintained. The COMPANY shall be able to inspect claimed defects at original CUSTOMER'S facility to determine its obligation. Without written authorization of COMPANY, any repair labor or material is not allowed. No PRODUCTS may be returned without written permission from COMPANY.

9. SPECIFICATION, INSTRUCTIONS AND/OR DESIGN

If PRODUCTS are modified to a specification, instruction or design supplied by CUSTOMER or any third party on behalf of CUSTOMER, then:

(a) The suitability and accuracy of that specification, instruction and/or design will be CUSTOMER'S responsibility.

(b) The CUSTOMER will indemnify COMPANY against any infringement or alleged infringement of any third party's intellectual property rights including but not limited to patent, design right, registered design, trademark, trade name or copyright and any loss, damage or expense which it may incur by reason of any such infringement or alleged infringement in any county, and

(c) The CUSTOMER will indemnify COMPANY against any loss, damage or expense in respect of any liability arising in any country by reasons of the PRODUCTS being made to such specification, instruction or design.

10. CHOICE OF LAW AND JURISDICTION

(a) The laws of the State of California, including the Uniform Commercial Code, shall govern this CONTRACT. Jurisdiction and venue shall be the Superior Court of Kern County, Bakersfield, California. However, the CUSTOMER expressly agrees that the COMPANY may take action in another jurisdiction to obtain security for the COMPANY'S claims under the CONTRACT.

(b) The CONTRACT constitutes the entire agreement between the COMPANY and the CUSTOMER concerning the supply of the PRODUCTS. The CUSTOMER agrees that he has no other rights of recourse to the COMPANY other than those expressly stated in these General Conditions. The General Conditions apply whether or not the CUSTOMER has a cause of action because the COMPANY or its representative has acted negligently.

11. ATTORNEY'S FEES

In the event of any litigation or arbitration or any quasi-judicial or administrative proceeding involving the parties hereto to enforce any provision of this Agreement, to enforce any remedy available upon default hereunder, or seeking a declaration of the rights of either party hereunder, the prevailing party shall be entitled to recover from the other such attorney's fees and costs as may be reasonably incurred, including the costs of reasonable investigation, preparation and professional or expert consultation incurred by reason of such litigation, arbitration or proceeding. Sums actually expended in the prosecution or defense of any litigation, arbitration or proceeding within the meaning of the foregoing sentence shall be prima facie evidence of reasonable attorneys' fees, costs and disbursements.