

STANVAL

FORGED STEEL VALVES

Catalog Number FSV-1004

***Pressure Class:
ASME 150# - 4500#***

***Size Range:
1/4" - 2"***

API 602

ASME B16.34



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* Not shown in this catalog. Please contact for more information.

ORDERING GUIDE

Example: 2" Figure #5411-A-8

5
4
1
1
-
A
-
8

1. 2. 3. 4. 5. 6.

2" Gate Valve, API 602 Class 800, Screwed End, Bolted Bonnet, Conventional Port, A105 Body, 13Cr 1/2 HF Trim

1. MODEL

- 5 - API-602 Gate Valve
- 7 - API-602/ASME B16.34 Globe Valve
- 8 - API-602/ASME B16.34 Piston Check Valve
- 9 - API-602/ASME B16.34 Swing Check Valve
- 10 - API-602/ASME B16.34 Ball Check Valve

2. RATING

- 1 - ASME Class 150
- 2 - ASME Class 300
- 3 - ASME Class 600
- 4 - API 602 Class 800
- 5 - ASME Class 1500
- 6 - ASME Class 2500
- 7 - ASME Class 4500
- 9 - ASME Class 900

3. END CONNECTION

- 0 - RF Flanged
- 1 - Screwed
- 2 - Socket Weld
- 3 - Screwed X Socket Weld
- 6 - FF Flanged
- 7 - Buttweld
- 9 - Ring Joint

4. BASIC CONSTRUCTION

- 1 - Bolted Bonnet - Conventional Port
- 2 - Welded Bonnet - Conventional Port
- 3 - Bolted Bonnet - Full Port
- 4 - Welded Bonnet - Full Port

5. MATERIAL (BODY AND BONNET)

- A - A105
- D - LF2
- G - LF3
- I - F11
- J - F22
- K - F5

5. MATERIAL (BODY AND BONNET) - Cont.

- L - F9
- M - F304
- N - F316
- O - F304L
- P - F316L
- Q - F347
- R - B462
- X - Other

6. MATERIAL (TRIM)

- 1 - 13CR
- 2 - 304SS
- 2S - 304SS 1/2 HF
- 5 - 13CR Full HF
- 8 - 13CR 1/2 HF
- 9 - Monel
- 10 - 316SS
- 11 - Monel 1/2 HF
- 12 - 316SS 1/2 HF
- 13 - Alloy 20
- 14 - Alloy 20 1/2 HF
- 15 - 304SS Full HF
- 16 - 316SS Full HF
- 17 - 347SS Full HF
- 23 - 347SS
- 23S - 347SS 1/2 HF
- 26 - Hastelloy C
- 26H - Hastelloy C Full HF
- 26S - Hastelloy C 1/2 HF
- 27 - Inconel 600
- O - Other

7. SPECIAL REQUIREMENTS

- N - NACE MR-01-75
- EB - Extended Bonnet for Cryogenic Service
- Y - "Y" Pattern
- S - Supply Complete Information

MATERIALS

STANVAL Forged Steel valves are available in a wide range of body, bonnet, and trim materials. Listed below are the standard body, bonnet, and trim combinations.

BODY AND BONNET

Number	Material	ASTM Designation	Standard Trim
A	Carbon Steel	A105	8
D	Low Temp Carbon Steel	A350 LF2	8
I	1-1/4% Chrome, 1/2% Moly	A182 F11	8
J	2-1/4% Chrome, 1% Moly	A182 F22	8
K	5% Chrome, 1/2% Moly	A182 F5	8
L	9% Chrome, 1% Moly	A182 F9	8
M	18% Chrome, 8% Nickel	A182 F304	2
N	18% Chrome, 8% Nickel, 2% Moly	A182 F316	16
P	18% Chrome, 8% Nickel, 2% Moly (0.035 max carbon)	A182 F316L	16

TRIM MATERIALS

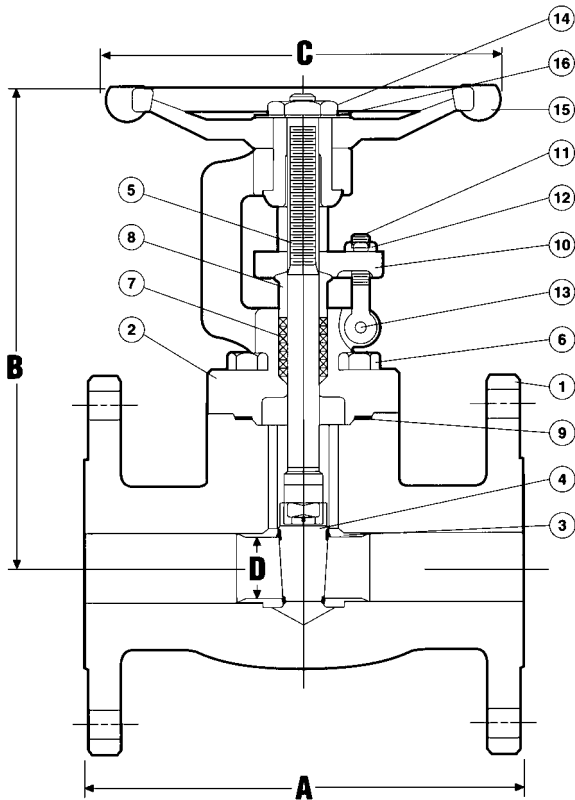
STANVAL& API 602 Trim Number	Seat Ring Facing	Wedge or Disc Facing	Stem
1	410	420	410
2	304	304	304
5	410HF	420HF	410
8	410HF	420	410
9	Monel	Monel	Monel
10	316	316	316
12	316HF	316	316
16	316HF	316HF	316

CLASS 150/300/600 GATE VALVES

MODEL 5101/5201/5301

- 5101 – Class 150, Integral Flanged Ends
- 5201 – Class 300, Integral Flanged Ends
- 5301 – Class 600, Integral Flanged Ends

- Forged Steel Gate Valve
- Outside Screw and Yoke
- Bolted Bonnet
- API Standard 602



Standard Parts and Materials

No.	Description	Material	ASTM Specs.
1	Body	Forged Carbon Steel	A105
2	Bonnet	Forged Carbon Steel	A105
3	Seat Ring	13/CR SS + (HF)	A276-410
4	Wedge	13/CR Stainless Steel	A276-420
5	Stem	13/CR Stainless Steel	A276-410
6	Bonnet Bolt	Alloy Steel	A193 Gr. B7
7	Packing	Braided Graphite/Graphoil/Braided Graphite	
8	Packing Gland	Forged Carbon Steel	A105
9	Gasket	Spiral-wound Stainless Steel/Graphoil	
10	Gland Flange	Forged Carbon Steel	A105
11	Eye Bolt	Stainless Steel	A276-410
12	Eye Bolt Nut	Carbon Steel	A194 Gr. 2H
13	Eye Bolt Pin	Stainless Steel	A276-304
14	Stem Nut	Stainless Steel	A420
15	Handwheel	Malleable Iron	Commercial
16	Nameplate	Aluminum	Commercial

CONVENTIONAL PORT (Dimensions in Inches)								
Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
Face to Face (A) - 150#	-	-	4.25	4.62	5.00	5.50	6.50	7.00
Face to Face (A) - 300#	-	-	5.50	6.00	6.50	7.00	7.50	8.50
Face to Face (A) - 600#	-	-	6.50	7.50	8.50	9.00	9.50	11.50
Valve Open Height (B)	-	-	5.95	6.23	7.29	9.42	9.57	10.99
Handwheel Diameter (C)	-	-	3.94	3.94	4.93	6.30	6.30	7.09
Seal Port Diameter (D)	-	-	0.39	0.51	0.71	0.94	1.14	1.44
Weight (lbs.) - 150#	-	-	5.72	8.30	12.32	15.60	22.00	35.20
Weight (lbs.) - 300#	-	-	6.82	9.90	14.30	20.46	27.50	36.30
Weight (lbs.) - 600#	-	-	7.70	11.00	16.50	23.54	31.24	40.92

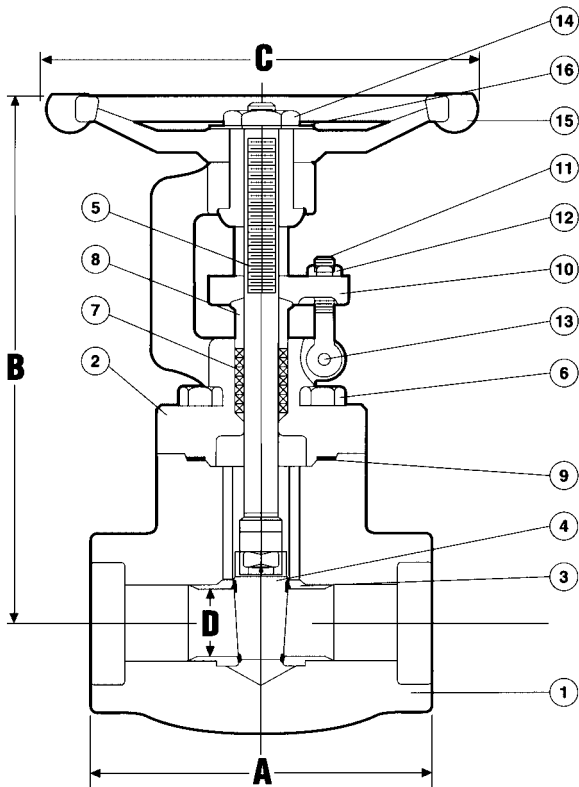
Valves come standard in ASTM carbon steel. Other body, bonnet, and trim materials are available. See material selections on page 5.

CLASS 800 GATE VALVES

MODEL 5411/5421/5413/5423

- 5411 – Screwed Ends, Conventional Port
- 5421 – Socketweld Ends, Conventional Port
- 5413 – Screwed Ends, Full Port
- 5423 – Socketweld Ends, Full Port

- Forged Steel Gate Valve
- Outside Screw and Yoke
- Bolted Bonnet
- API Standard 602



Standard Parts and Materials

No.	Description	Material	ASTM Specs.
1	Body	Forged Carbon Steel	A105
2	Bonnet	Forged Carbon Steel	A105
3	Seat Ring	13/CR SS + (HF)	A276-410
4	Wedge	13/CR Stainless Steel	A276-420
5	Stem	13/CR Stainless Steel	A276-410
6	Bonnet Bolt	Alloy Steel	A193 Gr. B7
7	Packing	Braided Graphite/Graphoil/Braided Graphite	
8	Packing Gland	Forged Carbon Steel	A105
9	Gasket	Spiral-wound Stainless Steel/Graphoil	
10	Gland Flange	Forged Carbon Steel	A105
11	Eye Bolt	Stainless Steel	A276-410
12	Eye Bolt Nut	Carbon Steel	A194 Gr.2H
13	Eye Bolt Pin	Stainless Steel	A276-304
14	Stem Nut	Stainless Steel	A420
15	Handwheel	Malleable Iron	Commercial
16	Nameplate	Aluminum	Commercial

CONVENTIONAL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	-	-	3.12	3.62	4.37	4.75	4.75	5.50
Valve Open Height (B)	-	-	5.95	6.23	7.29	9.42	9.57	10.99
Handwheel Diameter (C)	-	-	3.94	3.94	4.93	6.30	6.30	7.09
Seat Port Diameter (D)	-	-	0.39	0.51	0.71	0.94	1.14	1.44
Weight (lbs.)	-	-	4.18	4.62	7.04	15.18	15.18	22.88

FULL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	3.12	3.12	3.62	4.37	4.75	4.75	5.50	7.01
Valve Open Height (B)	5.95	5.95	6.23	7.29	9.42	9.57	10.99	12.92
Handwheel Diameter (C)	3.94	3.94	3.94	4.93	6.30	6.30	7.09	7.88
Seat Port Diameter (D)	0.27	0.39	0.51	0.71	0.94	1.14	1.44	1.90
Weight (lbs.)	4.18	4.18	4.62	7.04	15.18	15.18	22.88	37.76

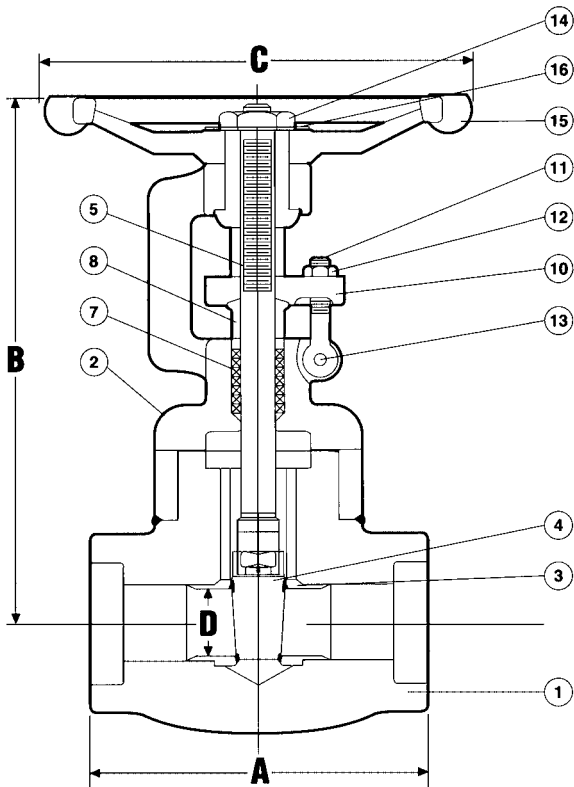
Valves come standard in ASTM carbon steel. Other body, bonnet, and trim materials are available. See material selections on page 5.

CLASS 800 GATE VALVES

MODEL 5412/5422/5414/5424

- 5412 – Screwed Ends, Conventional Port
- 5422 – Socketweld Ends, Conventional Port
- 5414 – Screwed Ends, Full Port
- 5424 – Socketweld Ends, Full Port

- Forged Steel Gate Valve
- Outside Screw and Yoke
- Seal Welded Bonnet
- API Standard 602



Standard Parts and Materials

No.	Description	Material	ASTM Specs.
1	Body	Forged Carbon Steel	A105
2	Bonnet	Forged Carbon Steel	A105
3	Seat Ring	13/CR SS + (HF)	A276-410
4	Wedge	13/CR Stainless Steel	A276-420
5	Stem	13/CR Stainless Steel	A276-410
7	Packing	Braided Graphite/Graphoil/Braided Graphite	
8	Packing Gland	Forged Carbon Steel	A105
10	Gland Flange	Forged Carbon Steel	A105
11	Eye Bolt	Stainless Steel	A276-410
12	Eye Bolt Nut	Carbon Steel	A194 Gr. 2H
13	Eye Bolt Pin	Stainless Steel	A276-304
14	Stem Nut	Stainless Steel	A420
15	Handwheel	Malleable Iron	Commercial
16	Nameplate	Aluminum	Commercial

CONVENTIONAL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	-	-	3.12	3.62	4.37	4.75	4.75	5.50
Valve Open Height (B)	-	-	5.95	6.23	7.29	9.42	9.57	70.99
Handwheel Diameter (C)	-	-	3.94	3.94	4.93	6.30	6.30	7.09
Seat Port Diameter (D)	-	-	0.39	0.51	0.71	0.94	1.14	1.44
Weight (lbs.)	-	-	3.91	4.21	6.85	14.76	14.76	20.09

FULL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	3.12	3.12	3.62	4.37	4.75	4.75	5.50	7.01
Valve Open Height (B)	5.95	5.95	6.23	7.29	9.42	9.57	10.99	12.92
Handwheel Diameter (C)	3.94	3.94	3.94	4.93	6.30	6.30	7.09	7.88
Seat Port Diameter (D)	0.27	0.39	0.51	0.71	0.94	1.14	1.44	1.83
Weight (lbs.)	3.91	3.91	4.21	6.85	14.76	14.76	20.09	31.66

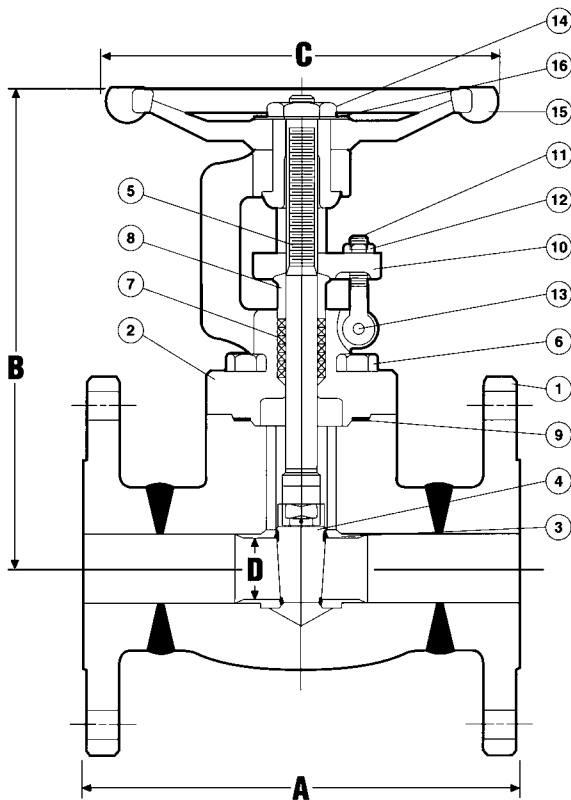
Valves come standard in ASTM carbon steel. Other body, bonnet, and trim materials are available. See material selections on page 5.

CLASS 1500 GATE VALVES

MODEL 5501

5501 – Class 1500, Welded Flanged Ends

- Forged Steel Gate Valve
- Outside Screw and Yoke
- Bolted Bonnet
- API Standard 602



Standard Parts and Materials

No.	Description	Material	ASTM Specs.
1	Body	Forged Carbon Steel	A105
2	Bonnet	Forged Carbon Steel	A105
3	Seat Ring	13/CR SS + (HF)	A276-410
4	Wedge	13/CR Stainless Steel	A276-420
5	Stem	13/CR Stainless Steel	A276-410
6	Bonnet Bolt	Alloy Steel	A193 Gr. B7
7	Packing	Braided Graphite/Graphoil/Braided Graphite	
8	Packing Gland	Forged Carbon Steel	A105
9	Gasket	Spiral-wound Stainless Steel/Graphoil	
10	Gland Flange	Forged Carbon Steel	A105
11	Eye Bolt	Stainless Steel	A276-410
12	Eye Bolt Nut	Carbon Steel	A194 Gr. 2H
13	Eye Bolt Pin	Stainless Steel	A276-304
14	Stem Nut	Stainless Steel	A420
15	Handwheel	Malleable Iron	Commercial
16	Name Plate	Aluminum	Commercial

CONVENTIONAL PORT (Dimensions in Inches)								
Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	–	–	8.50	9.00	10.00	11.00	12.00	14.50
Valve Open Height (B)	–	–	8.43	8.59	9.42	10.84	11.43	12.33
Handwheel Diameter (C)	–	–	3.94	3.94	4.93	6.30	6.30	7.09
Seat Port Diameter (D)	–	–	0.53	0.53	0.78	0.94	1.22	1.44
Weight (lbs.)	–	–	18.60	22.91	32.82	49.80	65.61	110.80

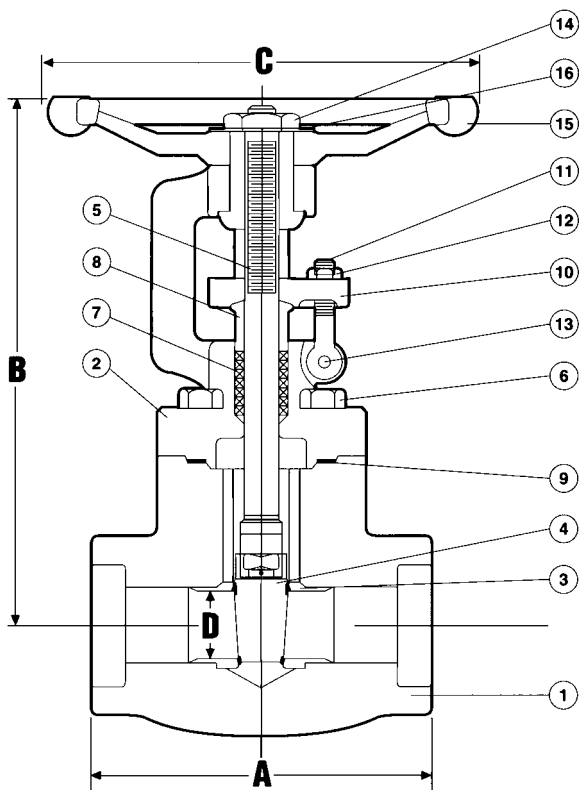
Valves come standard in ASTM carbon steel. Other body, bonnet, and trim materials are available. See material selections on page 5.

CLASS 1500 GATE VALVE

MODEL 5511/5521/5513/5523

- 5511 – Screwed Ends, Conventional Port
- 5521 – Socketweld Ends, Conventional Port
- 5513 – Screwed Ends, Full Port
- 5523 – Socketweld Ends, Full Port

- Forged Steel Gate Valve
- Outside Screw and Yoke
- Bolted Bonnet
- API Standard 602



Standard Parts and Materials

No.	Description	Material	ASTM Specs.
1	Body	Forged Carbon Steel	A105
2	Bonnet	Forged Carbon Steel	A105
3	Seat Ring	13/CR SS + (HF)	A276-410
4	Wedge	13/CR Stainless Steel	A276-420
5	Stem	13/CR Stainless Steel	A276-410
6	Bonnet Bolt	Alloy Steel	A193 Gr. B7
7	Packing	Braided Graphite/Graphoil/Braided Graphite	
8	Packing Gland	Forged Carbon Steel	A105
9	Gasket	Spiral-wound Stainless Steel/Graphoil	
10	Gland Flange	Forged Carbon Steel	A105
11	Eye Bolt	Stainless Steel	A276-410
12	Eye Bolt Nut	Carbon Steel	A194 Gr. 2H
13	Eye Bolt Pin	Stainless Steel	A276-304
14	Stem Nut	Stainless Steel	A420
15	Handwheel	Malleable Iron	Commercial
16	Nameplate	Aluminum	Commercial

CONVENTIONAL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	-	-	3.11	3.62	4.37	5.00	5.99	6.74
Valve Open Height (B)	-	-	8.43	8.59	9.42	10.84	11.43	12.33
Handwheel Diameter (C)	-	-	3.94	3.94	4.93	6.30	6.30	7.09
Seat Port Diameter (D)	-	-	0.53	0.53	0.78	0.94	1.22	1.44
Weight (lbs.)	-	-	8.80	9.46	14.52	20.90	24.20	31.90

FULL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	3.11	3.11	3.62	4.37	5.00	5.99	6.74	8.27
Valve Open Height (B)	8.43	8.43	8.59	9.42	10.84	11.43	12.33	14.34
Handwheel Diameter (C)	3.94	3.94	3.94	4.93	6.30	6.30	7.09	9.85
Seat Port Diameter (D)	0.27	0.39	0.53	0.78	0.94	1.22	1.44	1.69
Weight (lbs.)	8.80	8.80	9.46	14.52	20.90	24.20	31.90	39.60

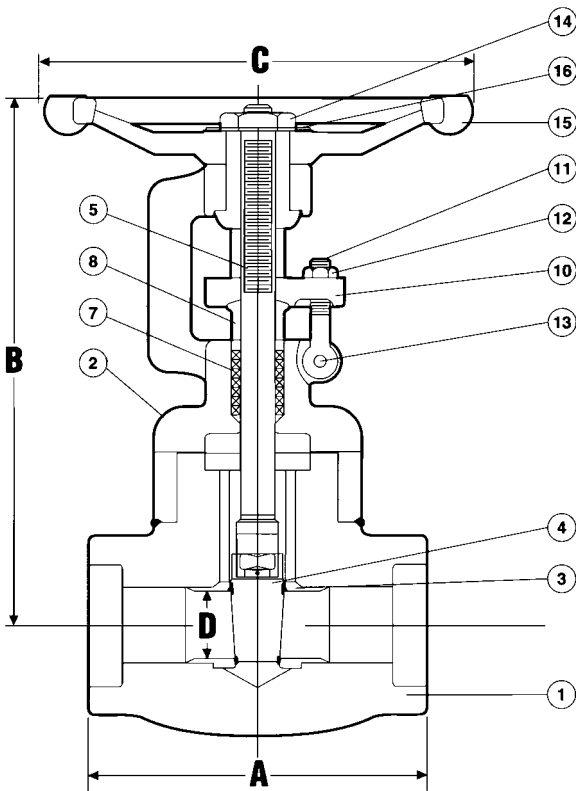
Valves come standard in ASTM carbon steel. Other body, bonnet, and trim materials are available. See material selections on page 5.

CLASS 1500 GATE VALVES

MODEL 5512/5522/5514/5524

- 5512 – Screwed Ends, Conventional Port
- 5522 – Socketweld Ends, Conventional Port
- 5514 – Screwed Ends, Full Port
- 5524 – Socketweld Ends, Full Port

- Forged Steel Gate Valve
- Outside Screw and Yoke
- Seal Welded Bonnet
- API Standard 602



Standard Parts and Materials

No.	Description	Material	ASTM Specs.
1	Body	Forged Carbon Steel	A105
2	Bonnet	Forged Carbon Steel	A105
3	Seat Ring	13/CR SS + (HF)	A276-410
4	Wedge	13/CR Stainless Steel	A276-420
5	Stem	13/CR Stainless Steel	A276-410
7	Packing	Braided Graphite/Graphoil/Braided Graphite	
8	Packing Gland	Forged Carbon Steel	A105
10	Gland Flange	Forged Carbon Steel	A105
11	Eye Bolt	Stainless Steel	A276-410
12	Eye Bolt Nut	Carbon Steel	A194 Gr. 2H
13	Eye Bolt Pin	Stainless Steel	A276-304
14	Stem Nut	Stainless Steel	A420
15	Handwheel	Malleable Iron	Commercial
16	Nameplate	Aluminum	Commercial

CONVENTIONAL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	-	-	3.11	3.62	4.37	5.00	5.99	6.74
Valve Open Height (B)	-	-	8.43	8.59	9.42	10.84	11.43	12.33
Handwheel Diameter (C)	-	-	3.94	3.94	4.93	6.30	6.30	7.09
Seat Port Diameter (D)	-	-	0.53	0.53	0.78	0.94	1.22	1.44
Weight (lbs.)	-	-	8.44	8.99	13.77	19.83	22.68	30.00

FULL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	3.11	3.11	3.62	4.37	5.00	5.99	6.74	8.27
Valve Open Height (B)	8.43	8.43	8.59	9.42	10.84	11.43	12.33	14.34
Handwheel Diameter (C)	3.94	3.94	3.94	4.93	6.30	6.30	7.09	9.85
Seat Port Diameter (D)	0.27	0.39	0.53	0.78	0.94	1.22	1.44	1.69
Weight (lbs.)	8.44	8.44	8.99	13.77	19.83	22.68	30.00	37.71

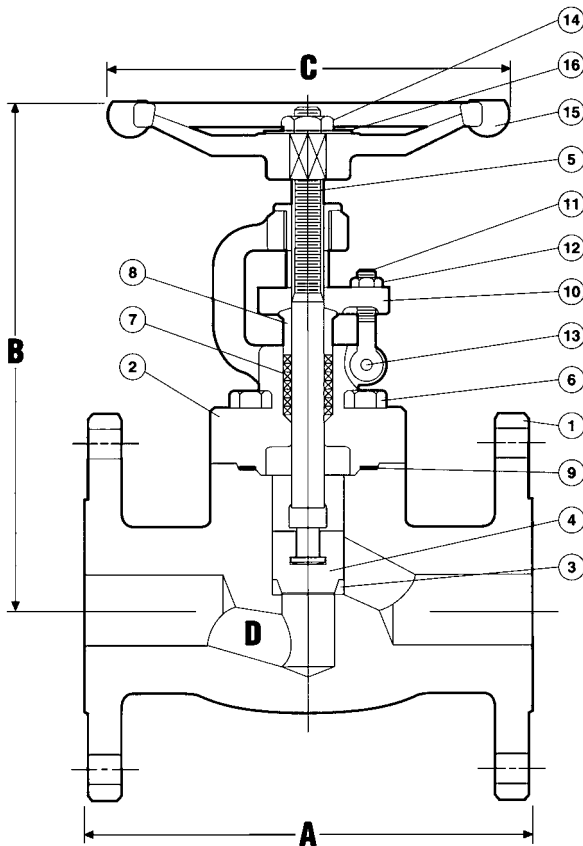
Valves come standard in ASTM carbon steel. Other body, bonnet, and trim materials are available. See material selections on page 5.

CLASS 150/300/600 GLOBE VALVES

MODEL 7101/7201/7301

- 7101 – Class 150, Integral Flanged Ends
- 7201 – Class 300, Integral Flanged Ends
- 7301 – Class 600, Integral Flanged Ends

- Forged Steel Globe Valve
- Outside Screw and Yoke
- Bolted Bonnet
- API Standard 602



Standard Parts and Materials

No.	Description	Material	ASTM Specs.
1	Body	Forged Carbon Steel	A105
2	Bonnet	Forged Carbon Steel	A105
3	Seat (Integral)	Hard Faced	
4	Disc	13/CR Stainless Steel	A276-420
5	Stem	13/CR Stainless Steel	A276-410
6	Bonnet Bolt	Alloy Steel	A193 Gr. B7
7	Packing	Braided Graphite/Graphoil/Braided Graphite	
8	Packing Gland	Forged Carbon Steel	A105
9	Gasket	Spiral-wound Stainless Steel/Graphoil	
10	Gland Flange	Forged Carbon Steel	A105
11	Eye Bolt	Stainless Steel	A276-410
12	Eye Bolt Nut	Carbon Steel	A194 Gr. 2H
13	Eye Bolt Pin	Stainless Steel	A276-304
14	Stem Nut	Stainless Steel	A420
15	Handwheel	Malleable Iron	Commercial
16	Nameplate	Aluminum	Commercial

CONVENTIONAL PORT (Dimensions in Inches)								
Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
Face to Face (A) - 150#	-	-	4.25	4.62	5.00	5.50	6.30	8.00
Face to Face (A) - 300#	-	-	6.00	7.00	8.00	8.50	9.00	10.50
Face to Face (A) - 600#	-	-	6.50	7.50	8.50	9.00	9.50	11.50
Valve Open Height (B)	-	-	6.23	6.42	7.60	9.85	9.85	11.47
Handwheel Diameter (C)	-	-	3.94	3.94	4.93	6.30	6.30	7.09
Seat Port Diameter (D)	-	-	0.39	0.51	0.69	0.91	1.18	1.38
Weight (lbs.) - 150#	-	-	5.72	9.46	12.98	19.36	26.62	38.72
Weight (lbs.) - 300#	-	-	7.62	11.00	14.96	21.36	30.36	40.04
Weight (lbs.) - 600#	-	-	17.42	26.00	36.30	58.61	79.86	99.22

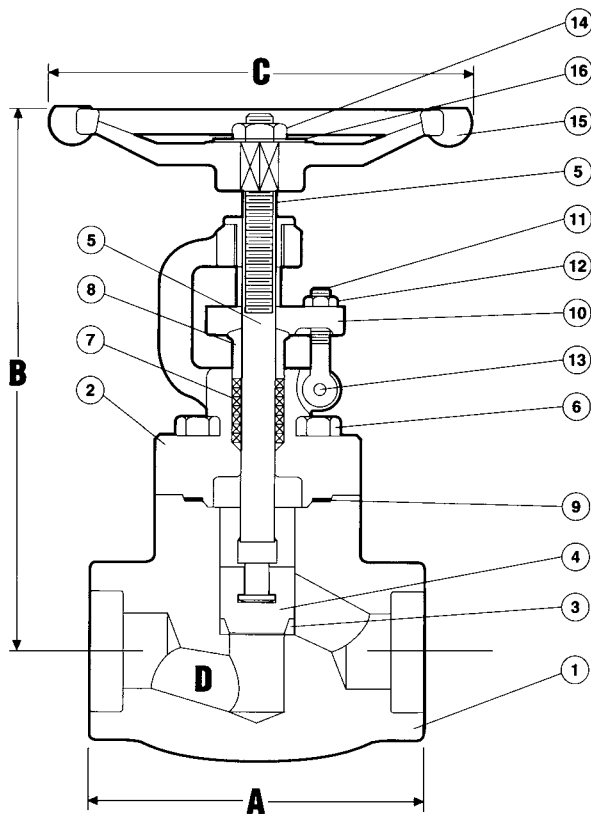
Valves come standard in ASTM carbon steel. Other body, bonnet, and trim materials are available. See material selections on page 5.

CLASS 800 GLOBE VALVES

MODEL 7411/7421/7413/7423

- 7411 – Screwed Ends, Conventional Port
- 7421 – Socketweld Ends, Conventional Port
- 7413 – Screwed Ends, Full Port
- 7423 – Socketweld Ends, Full Port

- Forged Steel Globe Valve
- Outside Screw and Yoke
- Bolted Bonnet
- API Standard 602



Standard Parts and Materials

No.	Description	Material	ASTM Specs.
1	Body	Forged Carbon Steel	A105
2	Bonnet	Forged Carbon Steel	A105
3	Seat (Integral)	Hard Faced	
4	Disc	13/CR Stainless Steel	A276-420
5	Stem	13/CR Stainless Steel	A276-410
6	Bonnet Bolt	Alloy Steel	A193 Gr. B7
7	Packing	Braided Graphite/Graphoil/Braided Graphite	
8	Packing Gland	Forged Carbon Steel	A105
9	Gasket	Spiral-wound Stainless Steel/Graphoil	
10	Gland Flange	Forged Carbon Steel	A105
11	Eye Bolt	Stainless Steel	A276-410
12	Eye Bolt Nut	Carbon Steel	A194 Gr. 2H
13	Eye Bolt Pin	Stainless Steel	A276-304
14	Stem Nut	Stainless Steel	A420
15	Handwheel	Malleable Iron	Commercial
16	Nameplate	Aluminum	Commercial

CONVENTIONAL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	-	-	3.11	3.62	4.37	5.99	5.99	6.78
Valve Open Height (B)	-	-	6.23	6.42	7.60	9.85	9.85	11.47
Handwheel Diameter (C)	-	-	3.94	3.94	4.93	6.30	6.30	7.09
Seat Port Diameter (D)	-	-	0.39	0.51	0.69	0.91	1.18	1.38
Weight (lbs.)	-	-	4.18	4.62	7.26	16.50	16.50	25.08

FULL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	3.11	3.11	3.62	4.37	5.99	5.99	6.78	8.23
Valve Open Height (B)	6.23	6.23	6.42	7.60	9.85	9.85	11.47	13.40
Handwheel Diameter (C)	3.94	3.94	3.94	4.93	6.30	6.30	7.09	7.88
Seat Port Diameter (D)	0.29	0.39	0.51	0.69	0.91	1.18	1.38	1.79
Weight (lbs.)	4.18	4.18	4.62	7.26	16.50	16.50	25.08	37.62

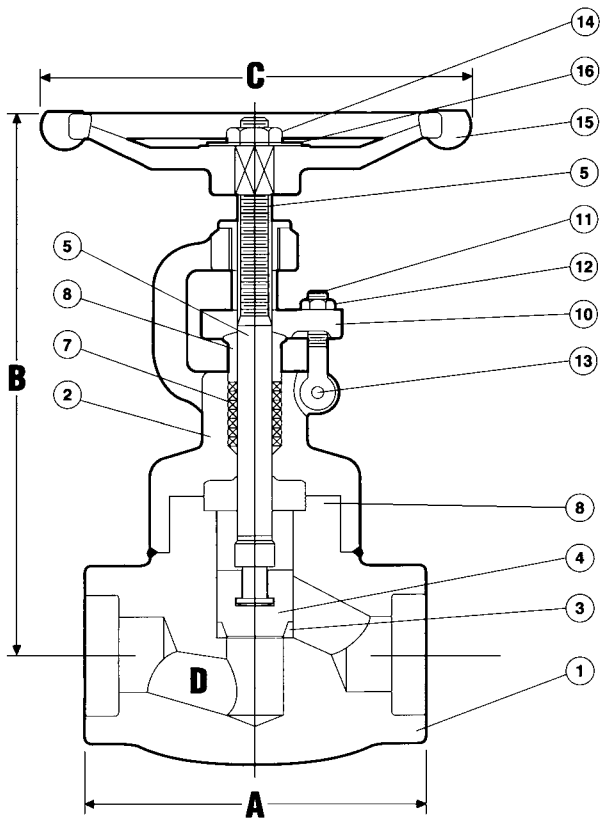
Valves come standard in ASTM carbon steel. Other body, bonnet, and trim materials are available. See material selections on page 5.

CLASS 800 GLOBE VALVES

MODEL 7412/7422/7414/7424

- 7412 – Screwed Ends, Conventional Port
- 7422 – Socketweld Ends, Conventional Port
- 7414 – Screwed Ends, Full Port
- 7424 – Socketweld Ends, Full Port

- Forged Steel Globe Valve
- Outside Screw and Yoke
- Seal Welded Bonnet
- API Standard 602



Standard Parts and Materials

No.	Description	Material	ASTM Specs.
1	Body	Forged Carbon Steel	A105
2	Bonnet	Forged Carbon Steel	A105
3	Seat (Integral)	Hard Faced	
4	Disc	13/CR Stainless Steel	A276-420
5	Stem	13/CR Stainless Steel	A276-410
7	Packing	Braided Graphite/Graphoil/Braided Graphite	
8	Packing Gland	Forged Carbon Steel	A105
10	Gland Flange	Forged Carbon Steel	A105
11	Eye Bolt	Stainless Steel	A276-410
12	Eye Bolt Nut	Carbon Steel	A194 Gr. 2H
13	Eye Bolt Pin	Stainless Steel	A276-304
14	Stem Nut	Stainless Steel	A420
15	Handwheel	Malleable Iron	Commercial
16	Nameplate	Aluminum	Commercial

CONVENTIONAL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	-	-	3.11	3.62	4.37	5.99	5.99	6.78
Valve Open Height (B)	-	-	6.23	6.42	7.60	9.85	9.85	17.47
Handwheel Diameter (C)	-	-	3.94	3.94	4.93	6.30	6.30	7.09
Seat Port Diameter (D)	-	-	0.39	0.51	0.69	0.91	1.18	1.38
Weight (lbs.)	-	-	3.91	4.21	6.94	15.95	15.95	23.09

FULL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	3.11	3.11	3.62	4.37	5.99	5.99	6.78	8.23
Valve Open Height (B)	6.23	6.23	6.42	7.60	9.35	9.85	11.47	13.40
Handwheel Diameter (C)	3.94	3.94	3.94	4.93	6.30	6.30	7.09	7.88
Seat Port Diameter (D)	0.29	0.39	0.51	0.69	0.91	1.18	1.38	1.79
Weight (lbs.)	3.91	3.91	4.21	6.94	15.95	19.95	23.09	35.14

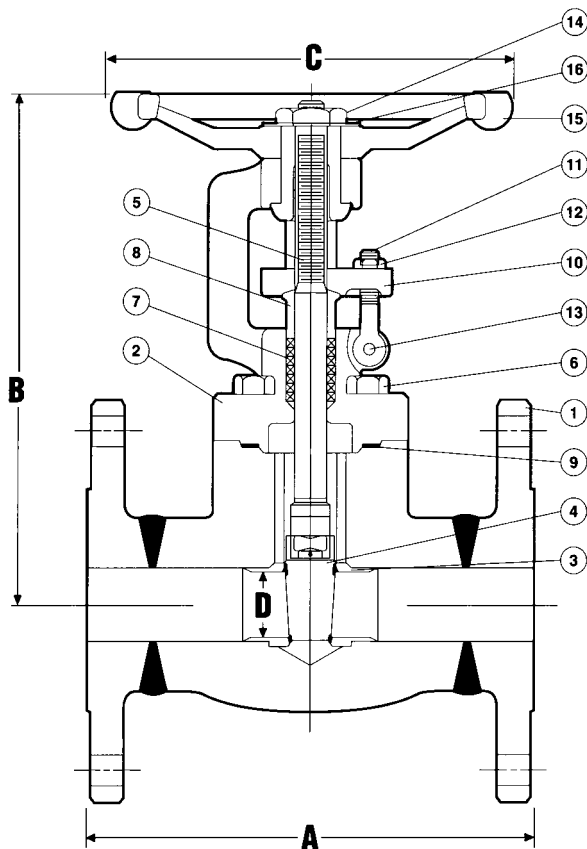
Valves come standard in ASTM carbon steel. Other body, bonnet, and trim materials are available. See material selections on page 5.

CLASS 1500 GLOBE VALVES

MODEL 7501

7501 – Class 1500, Welded Flanged Ends

- Forged Steel Globe Valve
- Outside Screw and Yoke
- Bolted Bonnet
- API Standard 602



Standard Parts and Materials

No.	Description	Material	ASTM Specs.
1	Body	Forged Carbon Steel	A105
2	Bonnet	Forged Carbon Steel	A105
3	Seat (Integral)	Hard Faced	
4	Disc	13/CR Stainless Steel	A276-420
5	Stem	13/CR Stainless Steel	A276-410
6	Bonnet Bolt	Alloy Steel	A193 Gr. B7
7	Packing	Braided Graphite/Graphoil/Braided Graphite	
8	Packing Gland	Forged Carbon Steel	A105
9	Gasket	Spiral-wound Stainless Steel/Graphoil	
10	Gland Flange	Forged Carbon Steel	A105
11	Eye Bolt	Stainless Steel	A276-410
12	Eye Bolt Nut	Carbon Steel	A194 Gr. 2H
13	Eye Bolt Pin	Stainless Steel	A276-304
14	Stem Nut	Stainless Steel	A420
15	Handwheel	Malleable Iron	Commercial
16	Nameplate	Aluminum	Commercial

CONVENTIONAL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	–	–	3.50	9.00	10.00	11.00	12.00	14.50
Valve Open Height (B)	–	–	8.31	8.59	9.57	10.91	11.43	12.45
Handwheel Diameter (C)	–	–	3.94	3.94	4.93	6.30	6.30	7.09
Seat Port Diameter (D)	–	–	0.39	0.52	0.71	0.91	1.19	1.40
Weight (lbs.)	–	–	13.6	22.9	32.82	49.82	65.61	110.80

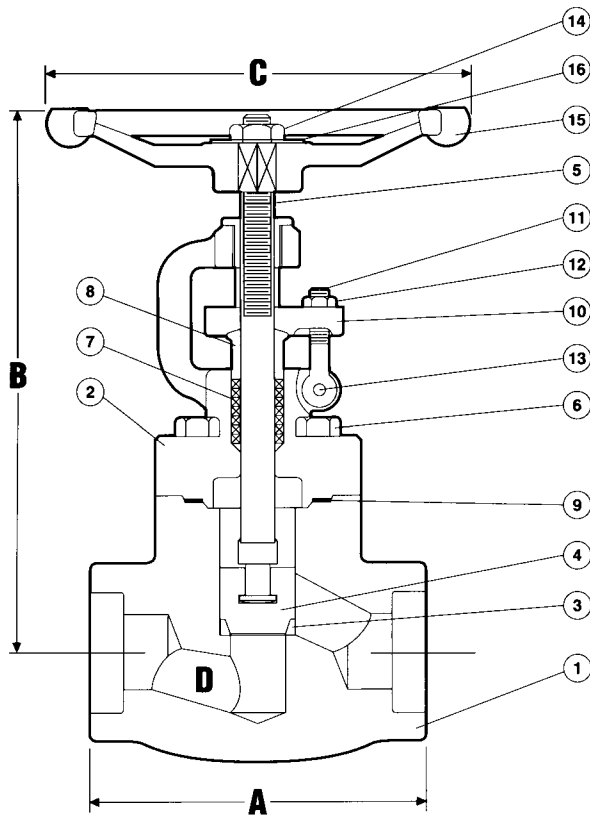
Valves come standard in ASTM carbon steel. Other body, bonnet, and trim materials are available. See material selections on page 5.

CLASS 1500 GLOBE VALVES

MODEL 7511/7521/7513/7523

- 7511 – Screwed Ends, Conventional Port
- 7521 – Socketweld Ends, Conventional Port
- 7513 – Screwed Ends, Full Port
- 7523 – Socketweld Ends, Full Port

- Forged Steel Globe Valve
- Outside Screw and Yoke
- Bolted Bonnet
- API Standard 602



Standard Parts and Materials

No.	Description	Material	ASTM Specs.
1	Body	Forged Carbon Steel	A105
2	Bonnet	Forged Carbon Steel	A105
3	Seat (Integral)	Hard Faced	
4	Disc	13/CR Stainless Steel	A276-420
5	Stem	13/CR Stainless Steel	A276-410
6	Bonnet Bolt	Alloy Steel	A193 Gr. B7
7	Packing	Braided Graphite/Graphoil/Braided Graphite	
8	Packing Gland	Forged Carbon Steel	A105
9	Gasket	Spiral-wound Stainless Steel/Graphoil	
10	Gland Flange	Forged Carbon Steel	A105
11	Eye Bolt	Stainless Steel	A276-410
12	Eye Bolt Nut	Carbon Steel	A194 Gr. 2H
13	Eye Bolt Pin	Stainless Steel	A276-304
14	Stem Nut	Stainless Steel	A420
15	Handwheel	Malleable Iron	Commercial
16	Nameplate	Aluminum	Commercial

CONVENTIONAL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	-	-	3.11	3.62	4.37	5.00	5.99	6.74
Valve Open Height (B)	-	-	8.31	8.59	9.57	10.91	11.43	12.45
Handwheel Diameter (C)	-	-	3.94	3.94	4.93	6.30	6.30	7.09
Seat Port Diameter (D)	-	-	0.39	0.52	0.71	0.91	1.19	1.40
Weight (lbs.)	-	-	8.58	9.46	13.86	18.71	26.40	35.60

FULL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	3.11	3.11	6.62	4.37	5.00	5.99	6.74	8.27
Valve Open Height (B)	8.11	8.31	8.59	9.57	10.91	11.34	12.45	13.99
Handwheel Diameter (C)	3.94	3.94	3.94	4.93	6.30	6.30	7.09	9.85
Seat Port Diameter (D)	0.29	0.39	0.52	0.71	0.91	1.19	1.40	1.65
Weight (lbs.)	8.58	8.58	9.46	13.86	18.71	26.40	35.64	39.60

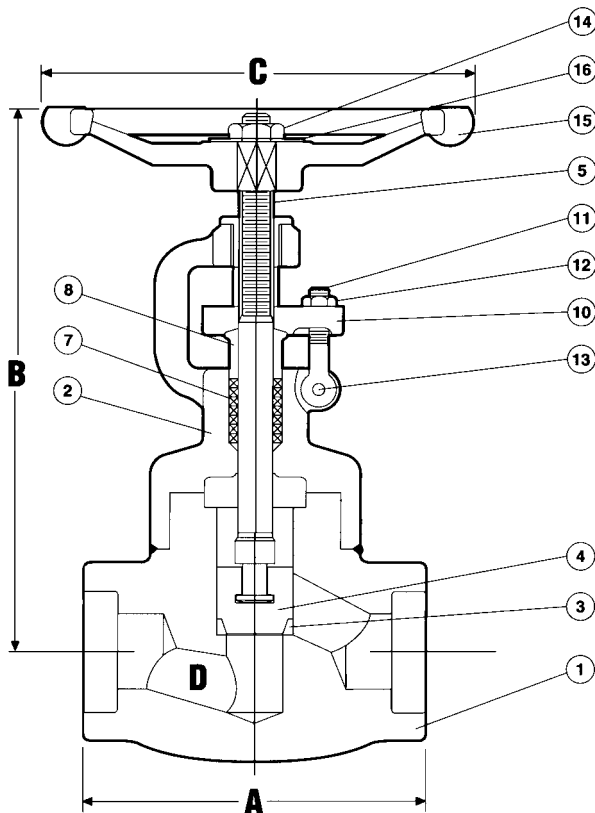
Valves come standard in ASTM carbon steel. Other body, bonnet, and trim materials are available. See material selections on page 5.

CLASS 1500 GLOBE VALVES

MODEL 7512/7522/7514/7524

- 7512 – Screwed Ends, Conventional Port
- 7522 – Socketweld Ends, Conventional Port
- 7514 – Screwed Ends, Full Port
- 7524 – Socketweld Ends, Full Port

- Forged Steel Globe Valve
- Outside Screw and Yoke
- Seal Welded Bonnet
- API Standard 602



Standard Parts and Materials

No.	Description	Material	ASTM Specs.
1	Body	Forged Carbon Steel	A105
2	Bonnet	Forged Carbon Steel	A105
3	Seat (Integral)	Hard Faced	
4	Disc	13/CR Stainless Steel	A276-420
5	Stem	13/CR Stainless Steel	A276-410
7	Packing	Braided Graphite/Graphoil/Braided Graphite	
8	Packing Gland	Forged Carbon Steel	A105
10	Gland Flange	Forged Carbon Steel	A105
11	Eye Bolt	Stainless Steel	A276-410
12	Eye Bolt Nut	Carbon Steel	A194 Gr. 2H
13	Eye Bolt Pin	Stainless Steel	A276-304
14	Stem Nut	Stainless Steel	A420
15	Handwheel	Malleable Iron	Commercial
16	Nameplate	Aluminum	Commercial

CONVENTIONAL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	-	-	3.11	3.62	4.37	5.00	5.99	6.74
Valve Open Height (B)	-	-	8.31	8.59	9.57	10.91	11.43	12.45
Handwheel Diameter (C)	-	-	3.94	3.94	4.93	6.30	6.30	7.09
Seat Port Diameter (D)	-	-	0.39	0.52	0.71	0.91	1.19	1.40
Weight (lbs.)	-	-	8.22	8.99	13.11	17.64	24.88	33.74

FULL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	3.11	3.11	6.62	4.37	5.00	5.99	6.74	8.27
Valve Open Height (B)	8.11	8.31	8.59	9.57	10.91	11.34	12.45	13.99
Handwheel Diameter (C)	3.94	3.94	3.94	4.93	6.30	6.30	7.09	9.85
Seat Port Diameter (D)	0.29	0.39	0.52	0.71	0.91	1.19	1.40	1.65
Weight (lbs.)	8.22	8.22	8.99	13.11	17.64	24.88	33.74	37.71

Valves come standard in ASTM carbon steel. Other body, bonnet, and trim materials are available. See material selections on page 5.

CLASS 150/300/600 CHECK VALVES

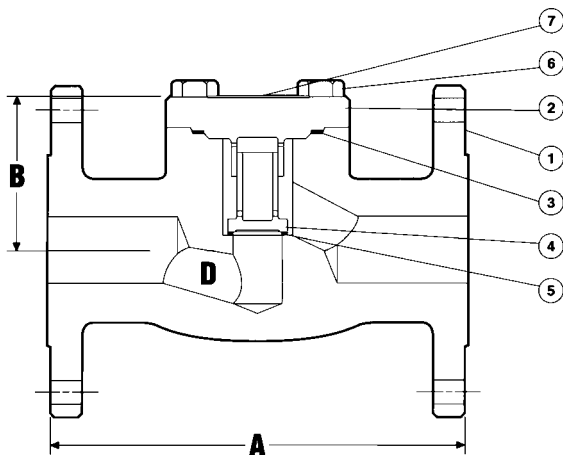
MODEL 8101/9101/10101

PISTON	SWING	BALL	
8101	9101	10101	– Integral Flanged Ends
8201	9201	10201	– Integral Flanged Ends
8301	9301	10301	– Integral Flanged Ends

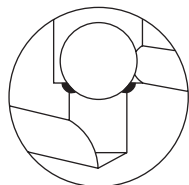
- Forged Steel Piston Check Valve
- Forged Steel Swing Check Valve
- Forged Steel Ball Check Valve
- Bolted Cap
- API Standard 602

Standard Parts and Materials

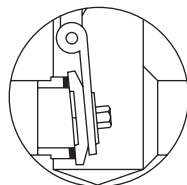
No.	Description	Material	ASTM Specs.
1	Body	Forged Carbon Steel	A105
2	Cap	Forged Carbon Steel	A105
3	Gasket	Spiral-wound Stainless Steel/Graphoil	
4	Disc/Ball	13/CR Stainless Steel	A276-420
5	Seat (Integral)	Hard Faced	
6	Cap Bolt	Alloy Steel	A193 Gr. B7
7	Nameplate	Aluminum	Commercial



CONVENTIONAL PORT (Dimensions in Inches)									
Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	
Face to Face (A) - 150#	–	–	4.25	4.62	5.00	5.50	6.30	8.00	
Face to Face (A) - 300#	–	–	6.00	7.00	8.00	8.50	9.00	10.50	
Face to Face (A) - 600#	–	–	6.50	7.50	8.50	9.00	9.50	11.50	
Height (B)	–	–	2.06	2.31	2.87	3.12	3.87	4.31	
Seat Port Diameter (D)	–	–	0.39	0.51	0.69	0.91	1.18	1.38	
Weight (lbs.) - 150#	–	–	4.40	7.70	11.00	15.34	22.44	33.22	
Weight (lbs.) - 300#	–	–	6.50	10.00	13.52	20.12	27.40	39.38	
Weight (lbs.) - 600#	–	–	7.00	10.88	15.28	23.20	31.36	43.44	



BALL



SWING

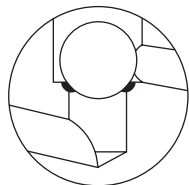
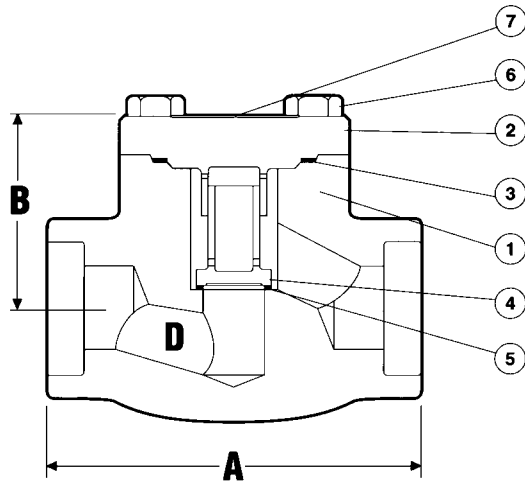
Valves come standard in ASTM carbon steel. Other body, bonnet, and trim materials are available. See material selections on page 5.

CLASS 800 CHECK VALVES

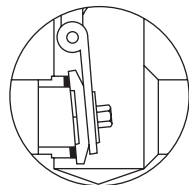
MODEL 8411/9411/10411

PISTON	SWING	BALL	
8411	9411	10411	– Screwed Ends, Conventional Port
8421	9421	10421	– Socketweld Ends, Conventional Port
8413	9413	10413	– Screwed Ends, Full Port
8423	9423	10423	– Socketweld Ends, Full Port

- Forged Steel Piston Check Valve
- Forged Steel Swing Check Valve
- Forged Steel Ball Check Valve
- Bolted Cap
- API Standard 602



BALL



SWING

Standard Parts and Materials

No.	Description	Material	ASTM Specs.
1	Body	Forged Carbon Steel	A105
2	Cap	Forged Carbon Steel	A105
3	Gasket	Spiral-wound Stainless Steel/Graphoil	
4	Disc/Ball	13/CR Stainless Steel	A276-420
5	Seat (Integral)	Hard Faced	
6	Cap Bolt	Alloy Steel	A193 Gr. B7
7	Nameplate	Aluminum	Commercial

CONVENTIONAL PORT (Dimensions in Inches)								
Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	–	–	3.11	3.62	4.37	5.99	5.99	6.78
Valve Open Height (B)	–	–	2.00	2.17	2.68	3.82	3.82	4.06
Seat Port Diameter (D)	–	–	0.39	0.51	0.69	0.91	1.18	1.38
Weight (lbs.)	–	–	2.64	3.08	5.06	12.10	12.10	18.70

FULL PORT (Dimensions in Inches)								
Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	3.11	3.11	3.62	4.37	5.99	5.99	6.78	8.23
Valve Open Height (B)	2.00	2.00	2.17	2.68	3.82	3.82	4.06	4.84
Seat Port Diameter(D)	0.29	0.39	0.51	0.69	0.91	1.18	1.38	1.79
Weight (lbs.)	2.64	2.64	3.08	5.06	12.10	12.10	18.70	28.66

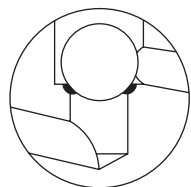
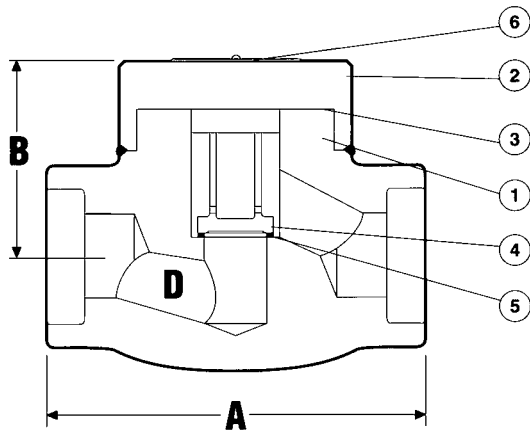
Valves come standard in ASTM carbon steel. Other body, bonnet, and trim materials are available. See material selections on page 5.

CLASS 800 CHECK VALVES

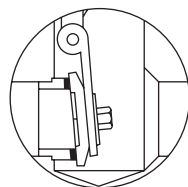
MODEL 8412/9412/10412

PISTON	SWING	BALL	
8412	9412	10412	– Screwed Ends, Conventional Port
8422	9422	10422	– Socketweld Ends, Conventional Port
8414	9414	10414	– Screwed Ends, Full Port
8424	9424	10424	– Socketweld Ends, Full Port

- Forged Steel Piston Check Valve
- Forged Steel Swing Check Valve
- Forged Steel Ball Check Valve
- Seal Welded Cap
- API Standard 602



BALL



SWING

Standard Parts and Materials

No.	Description	Material	ASTM Specs.
1	Body	Forged Carbon Steel	A105
2	Cap	Forged Carbon Steel	A105
3	Gasket	Spiral-wound Stainless Steel/Graphoil	
4	Disc/Ball	13/CR Stainless Steel	A276-420
5	Seat (Integral)	Hard Faced	
6	Nameplate	Aluminum	Commercial

CONVENTIONAL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
End to End (A)	–	–	3.11	3.62	4.37	5.99	5.99	6.78
Valve open Height (B)	–	–	2.00	2.17	2.68	3.82	3.82	4.06
Seat Port Diameter (D)	–	–	0.39	0.51	0.69	0.91	1.18	1.38
Weight (lbs.)	–	–	2.64	3.03	5.06	11.89	11.89	16.95

FULL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
End to End (A)	3.11	3.11	3.62	4.37	5.99	5.99	6.78	8.23
Valve Open Height (B)	2.00	2.00	2.17	2.68	3.82	3.82	4.06	4.84
Seat Port Diameter (D)	0.29	0.39	0.51	0.69	0.91	1.18	1.38	1.79
Weight (lbs.)	2.64	2.64	3.08	5.06	11.89	11.89	16.95	26.85

Valves come standard in ASTM carbon steel. Other body, bonnet, and trim materials are available. See material selections on page 5.

CLASS 1500 CHECK VALVES

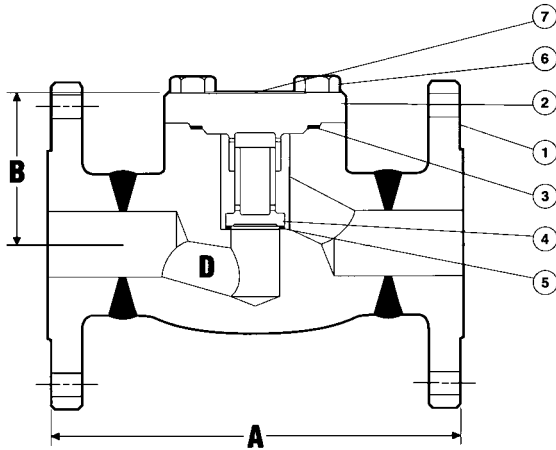
MODEL 8501/9501/10501

PISTON **SWING** **BALL**
 8501 9501 10501 – Welded Flanged Ends

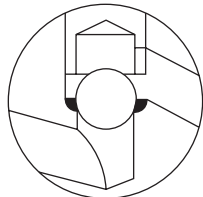
- Forged Steel Piston Check Valve
- Forged Steel Swing Check Valve
- Forged Steel Ball Check Valve
- Bolted Cap
- API Standard 602

Standard Parts and Materials

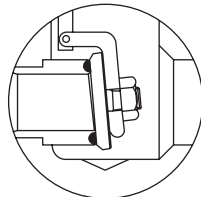
No.	Description	Material	ASTM Specs.
1	Body	Forged Carbon Steel	A105
2	Cap	Forged Carbon Steel	A105
3	Gasket	Spiral-wound Stainless Steel/Graphoil	
4	Disc/Ball	13/CR Stainless Steel	A276-420
5	Seat (Integral)	Hard Faced	
6	Cap Bolt	Alloy Steel	A193 Gr. B7
7	Nameplate	Aluminum	Commercial



CONVENTIONAL PORT (Dimensions in Inches)								
Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	-	-	8.50	9.00	10.00	11.00	12.00	14.50
Valve Height (B)	-	-	2.01	2.63	3.19	3.97	4.26	4.61
Seat Port Diameter (D)	-	-	0.39	0.52	0.71	0.91	1.19	1.40
Weight (lbs.)	-	-	16.60	21.91	30.81	42.26	57.60	72.67



BALL



SWING

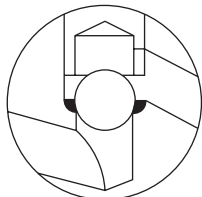
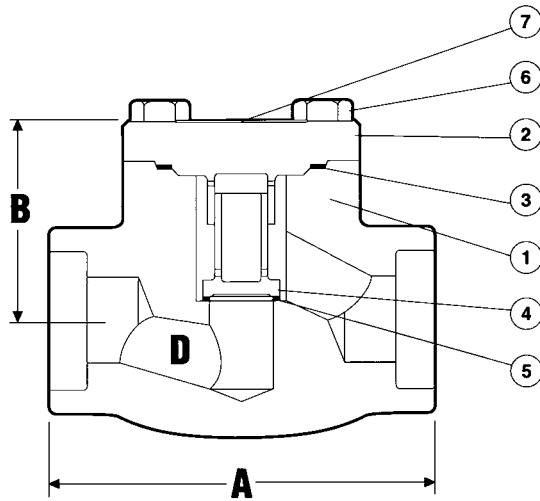
Valves come standard in ASTM carbon steel. Other body, bonnet, and trim materials are available. See material selections on page 5.

CLASS 1500 CHECK VALVES

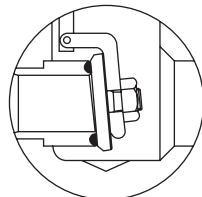
MODEL 8511/9511/10511

PISTON	SWING	BALL	
8511	9511	10511	– Screwed Ends, Conventional Port
8521	9521	10521	– Socketweld Ends, Conventional Port
8513	9513	10513	– Screwed Ends, Full Port
8523	9523	10523	– Socketweld Ends, Full Port

- Forged Steel Piston Check Valve
- Forged Steel Swing Check Valve
- Forged Steel Ball Check Valve
- Bolted Cap
- API Standard 602



BALL



SWING

Standard Parts and Materials

No.	Description	Material	ASTM Specs.
1	Body	Forged Carbon Steel	A105
2	Cap	Forged Carbon Steel	A105
3	Gasket	Spiral-wound Stainless Steel/Graphoil	
4	Disc/Ball	13/Cfl Stainless Steel	A276-420
5	Seat (Integral)	Hard Faced	
6	Cap Bolt	Alloy Steel	A193 Gr. B7
7	Nameplate	Aluminum	Commercial

CONVENTIONAL PORT (Dimensions in Inches)								
Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	–	–	3.11	3.62	4.37	5.00	5.99	6.74
Valve Open Height (B)	–	–	2.01	2.68	3.19	3.97	4.26	4.61
Seat Port Diameter (D)	–	–	0.39	0.52	0.71	0.91	1.19	1.40
Weight (lbs.)	–	–	4.34	5.28	8.36	9.24	17.60	28.82

FULL PORT (Dimensions in Inches)								
Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	3.11	3.11	3.62	4.37	5.00	5.99	6.74	8.27
Valve Open Height (B)	2.01	2.01	2.68	3.19	3.97	4.26	4.61	6.70
Seat Port Diameter(D)	0.29	0.39	0.52	0.71	0.91	1.19	1.40	1.65
Weight (lbs.)	4.84	4.84	5.23	8.36	9.24	17.60	28.82	33.00

Valves come standard in ASTM carbon steel. Other body, bonnet, and trim materials are available. See material selections on page 5.

CLASS 1500 CHECK VALVES

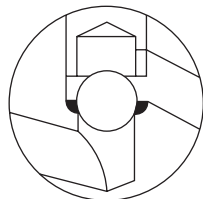
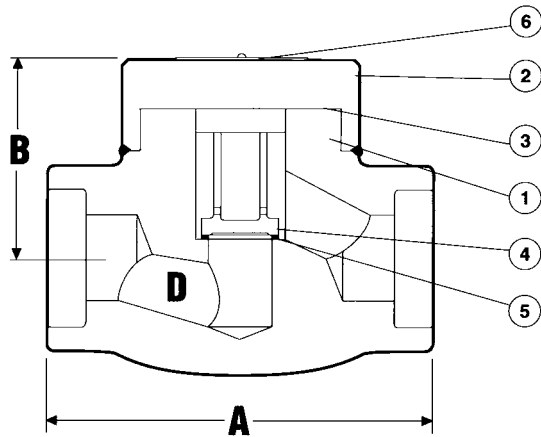
MODEL 8512/9512/10512

PISTON	SWING	BALL	
8512	9512	10512	– Screwed Ends, Conventional Port
8522	9522	10522	– Socketweld Ends, Conventional Port
8514	9514	10514	– Screwed Ends, Full Port
8524	9524	10524	– Socketweld Ends, Full Port

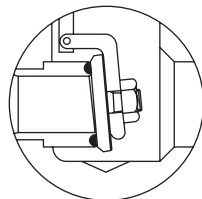
- Forged Steel Piston Check Valve
- Forged Steel Swing Check Valve
- Forged Steel Ball Check Valve
- Seal Welded Cap
- API Standard 602

Standard Parts and Materials

No.	Description	Material	ASTM Specs.
1	Body	Forged Carbon Steel	A105
2	Cap	Forged Carbon Steel	A105
3	Gasket	Spiral-wound Stainless Steel/Graphoil	
4	Disc/Ball	13/CR Stainless Steel	A276-420
5	Seat (Integral)	Hard Faced	
6	Nameplate	Aluminum	Commercial



BALL



SWING

CONVENTIONAL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	–	–	3.11	3.62	4.37	5.00	5.99	6.74
Valve Open Height (B)	–	–	2.01	2.68	3.19	3.97	4.26	4.61
Seat Port Diameter (D)	–	–	0.39	0.52	0.71	0.91	1.19	1.40
Weight (lbs.)	–	–	4.84	5.28	7.88	8.75	15.95	26.94

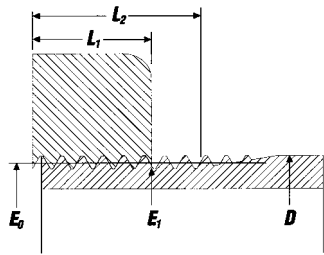
FULL PORT (Dimensions in Inches)

Size	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
End to End (A)	3.11	3.11	3.62	4.37	5.00	5.99	6.74	8.27
Valve Open Height (B)	2.01	2.01	2.68	3.19	3.97	4.26	4.61	6.70
Seat Port Diameter (D)	0.29	0.39	0.52	0.71	0.91	1.19	1.40	1.65
Weight (lbs.)	4.84	4.84	5.28	7.88	8.75	15.95	26.91	31.22

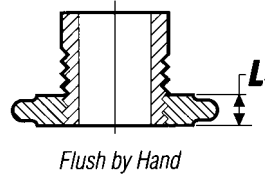
Valves come standard in ASTM carbon steel. Other body, bonnet, and trim materials are available. See material selections on page 5.

TECHNICAL DATA

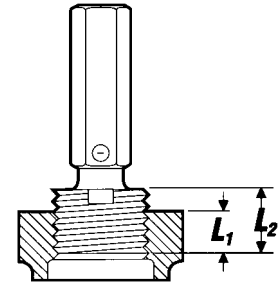
PIPE THREADS – ASME B1.20.1



$E_0 = D - (0.050D + 1.1)p$ $*E_1 = E_0 + 0.0625L_1$
 $L_2 = (0.80D + 6.8)p$ $p = \text{Pitch}$
 Height of Thread (h) = 0.80p
 Taper of thread = 1 in 16 measured on diameter



Gauging External Taper Threads
 Tolerance on Product
 One Turn Large or Small from notch on plug gauge of face of ring gauge.



Gauging Internal Taper Threads
 Tolerance on Product
 Notch flush with face of fitting (if chambered, notch flush with bottom of chamber). One turn large or small from notch.

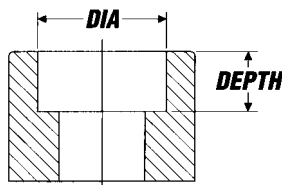
Nominal pipe size	D Outside diameter of pipe	n Number of threads per inch	p Pitch of thread	E_0 Pitch diameter at beginning of external thread	E_1^n Handtight engagement diameter	L_1^\bullet Handtight engagement Length	$L_2^=$ Length of effective external thread	h Height of thread
1/4	0.540	18	0.05556	0.47739	0.49163	0.2278	0.4018	0.04444
3/8	0.675	18	0.05556	0.61201	0.62701	0.240	0.4078	0.04444
1/2	0.840	14	0.07143	0.75843	0.77843	0.320	0.5337	0.05714
3/4	1.050	14	0.07143	0.96768	0.98887	0.339	0.5457	0.05714
1	1.315	11.5	0.08696	1.21363	1.23863	0.400	0.6828	0.06957
1-1/4	1.660	11.5	0.08696	1.55713	1.58338	0.420	0.7068	0.06957
1-1/2	1.900	11.5	0.08696	1.79609	1.82234	0.420	0.7235	0.06957
2	2.375	11.5	0.08696	2.26902	2.29627	0.436	0.7565	0.06957

ⁿ Also pitch diameter at gauging notch.

[•] Also length of ring gauge, and length from gauging notch to small end of plug gauge.

⁼ Also length of plug gauge.

SOCKET WELD – ASME B16.1.1



Nominal Pipe Size		Socket Bore Diameter				Socket Depth Min	
		Inches		Millimeters			
NPS	DN	Max.	Min.	Max.	Min.	Inch	mm
1/4	8	0.575	0.555	14.60	14.20	0.38	9.5
3/8	10	0.710	0.690	18.00	17.60	0.38	9.5
1/2	15	0.875	0.855	22.20	21.80	0.38	9.5
3/4	20	1.085	1.065	27.60	27.20	0.50	12.5
1	25	1.350	1.330	34.30	33.90	0.50	12.5
1 1/4	32	1.695	1.675	43.10	42.70	0.50	12.5
1 1/2	40	1.935	1.915	49.20	48.80	0.50	12.5
2	50	2.426	2.406	61.70	61.20	0.62	16.0

PRESSURE-TEMPERATURE RATINGS

WORKING PRESSURE BY CLASS, PSIG

Class 150/300/600/800

Material	A105 & A350-LF2				F5				F11				F22				F304 F304H				F316 F316H				F304L F316L							
Class	150	300	600	800	150	300	600	800	150	300	600	800	150	300	600	800	150	300	600	800	150	300	600	800	150	300	600	800	150	300	600	800
-20 to 100	285	740	1480	1975	290	750	1500	2000	290	750	1500	2000	290	750	1500	2000	275	720	1440	1920	275	720	1440	1920	230	600	1200	1600				
200	260	675	1350	1800	260	745	1490	2000	260	750	1500	1900	260	750	1500	1910	230	600	1200	1600	235	620	1240	1655	195	505	1015	1350				
300	230	655	1315	1750	230	715	1430	1940	230	720	1445	1795	230	730	1455	1805	205	540	1080	1410	215	560	1120	1495	175	455	910	1210				
400	200	635	1270	1690	200	705	1410	1880	200	695	1385	1755	200	705	1410	1730	190	495	995	1255	195	515	1025	1370	160	415	825	1100				
500	170	600	1200	1595	170	665	1330	1775	170	665	1330	1710	170	665	1330	1705	170	465	930	1165	170	480	955	1275	145	380	765	1020				
600	140	550	1095	1460	140	605	1210	1615	140	605	1210	1615	140	605	1210	1615	140	435	875	1105	140	450	900	1205	140	360	720	960				
650	125	535	1075	1430	125	590	1175	1570	125	590	1175	1570	125	590	1175	1570	125	430	860	1090	125	445	890	1185	125	350	700	935				
700	110	535	1065	1420	110	570	1135	1515	110	570	1135	1515	110	570	1135	1515	110	425	850	1075	110	430	870	1150	110	345	685	915				
750	95	505	1010	1345	95	530	1055	1420	95	530	1065	1420	95	530	1065	1420	95	415	830	1060	95	425	855	1130	95	335	670	895				
800	80	410	825	1100	80	510	1015	1325	80	510	1015	1355	80	510	1015	1355	80	405	805	1050	80	420	845	1105	80	330	660	875				
850	65	270	535	715	65	485	965	1170	65	485	975	1300	65	485	975	1300	65	395	790	1035	65	420	835	1080	65	320	645	860				
900	50	170	345	460	50	370	740	940	50	450	900	1200	50	450	900	1200	50	390	780	1025	50	415	830	1050								
950					35	275	550	695	35	320	640	1005	35	375	755	1005	35	380	765	1000	35	385	775	1030								
1000					20	200	400	510	20	215	430	595	20	260	520	715	20	320	640	860	20	350	700	970								
1050						145	290	375		145	290	365		175	350	530		310	615	825		345	685	960								
1100						100	200	275		95	190	225		110	220	300		255	515	685		305	610	860								
1150						60	125	185		60	125	140		70	135	275		200	400	520		235	475	735								
1200						35	70	120		40	75	95		40	80	145		155	310	415		185	370	550								
1250																		115	225	295		145	295	485								
1300																		85	170	220		115	235	365								

Class 900/1500/2500

Material	A105 & A350-LF2			F5			F11			F22			F304 F304H			F316 F316H			F304L F316L		
Class	900	1500	2500	900	1500	2500	900	1500	2500	900	1500	2500	900	1500	2500	900	1500	2500	900	1500	2500
-20 to 100	2220	3705	6170	2250	3750	6250	2250	3750	6250	2250	3750	6250	2160	3600	6000	2160	3600	6000	1800	3000	5000
200	2025	3375	5625	2235	3725	6205	2250	3750	6250	2250	3750	6250	1800	3000	5000	1860	3095	5160	1520	2530	4220
300	1970	3280	5470	2150	3580	5965	2165	3610	6015	2185	3640	6070	1620	2700	4500	1680	2795	4660	1360	2270	3780
400	1900	3170	5280	2115	3530	5880	2080	3465	5775	2115	3530	5880	1490	2485	4140	1540	2570	4280	1240	2065	3440
500	1795	2995	4990	1995	3325	5540	1995	3325	5540	1995	3325	5540	1395	2330	3880	1435	2390	3980	1145	1910	3180
600	1640	2735	4560	1815	3025	5040	1815	3025	5040	1815	3025	5040	1310	2185	3640	1355	2255	3760	1080	1800	3000
650	1610	2685	4475	1765	2940	4905	1765	2940	4905	1765	2940	4905	1290	2150	3580	1330	2220	3700	1050	1750	2920
700	1600	2665	4440	1705	2840	4730	1705	2840	4730	1705	2840	4730	1275	2125	3540	1305	2170	3620	1030	1715	2860
750	1510	2520	4200	1585	2640	4400	1595	2660	4430	1595	2660	4430	1245	2075	3460	1280	2135	3560	1010	1680	2800
800	1235	2060	3430	1525	2540	4230	1525	2540	4230	1525	2540	4230	1210	2015	3360	1265	2110	3520	985	1645	2740
850	805	1340	2230	1450	2415	4030	1460	2435	4060	1460	2435	4060	1190	1980	3300	1255	2090	3480	965	1610	2680
900	515	860	1430	1110	1850	3085	1350	2245	3745	1350	2245	3745	1165	1945	3240	1245	2075	3460			
950				825	1370	2285	955	1595	2655	1130	1885	3145	1145	1910	3180	1160	1930	3220			
1000				595	995	1655	650	1080	1800	780	1305	2170	965	1605	2675	1050	1750	2915			
1050				430	720	1200	430	720	1200	525	875	1455	925	1545	2570	1030	1720	2865			
1100				300	495	830	290	480	800	330	550	915	770	1285	2145	915	1525	2545			
1150				185	310	515	185	310	515	205	345	570	595	995	1655	710	1185	1970			
1200				105	170	285	115	190	315	125	205	345	465	770	1285	555	925	1545			
1250													340	565	945	440	735	1230			
1300													255	430	715	350	585	970			

- 1.0 Following grades permissible but not recommended for prolonged use:
 - 1.1 Carbon steel A105, over 850°F
 - 1.2 F11 and F22 over 1100°F
 - 1.3 F304L over 800°F
 - 1.4 F316L over 850°F
- 2.0 Temperature limitation for material grades not listed, see: B16.5, B16.34 and API 602.
- 3.0 Types and grades of material used for bolting and gaskets, also influence temperature limitation.

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CHEMICAL AND PHYSICAL PROPERTIES

BODY AND BONNET MATERIALS

Specification	Carbon Steel	Low Temp ASTM A350		Austenitic Stainless Steel per ASTM A182									
		ASTM A105	LF2	LF3	F5	F9	F11 Class 2	F22 Class 3	F304	F304H	F304L	F316	F316L
Chem. Composition (↔)	ASTM A105												
Carbon max%	0.35	0.35	0.20	0.15	0.15	0.10-0.20	0.05-0.15	0.08	0.04-0.10	0.035	0.08	0.035	0.04-0.1
Manganese max%	0.60-1.05	0.60-1.35	0.90	0.30-0.60	0.30-0.60	0.30-0.80	0.30-0.60	2.00	2.00	2.00	2.00	2.00	2.00
Phosphorus max%	0.035	0.035	0.035	0.030	0.030	0.040	0.040	0.045	0.045	0.045	0.045	0.045	0.045
Sulphur max%	0.040	0.040	0.040	0.030	0.030	0.040	0.040	0.030	0.030	0.030	0.030	0.030	0.030
Silicon max%	0.10-0.35	0.15-0.30	0.20-0.35	0.50	0.50-1.00	0.50-1.00	0.50	1.00	1.00	1.00	1.00	1.00	1.00
Nickel max%	0.40	0.40	3.3-3.7	0.50	—	—	—	8.0-11.0	8.0-11.0	8.0-13.0	10.0-14.0	10.0-15.0	9.0-13.0
Chromium max%	0.30	0.30	0.30	4.0-6.0	8.0-10.0	1.00-1.50	2.00-2.50	18.0-20.0	18.0-20.0	18.0-20.0	16.0-18.0	16.0-18.0	17.0-20.0
Molybdenum max%	0.12	0.12	0.12	0.44-0.65	0.90-1.10	0.44-0.65	0.87-1.13	—	—	—	2.00-3.00	2.00-3.00	—
Mechanical Prop. (↔)	ASTM A105	LF2	LF3	F5	F9	F11 Class 2	F22 Class 3	F304	F304H	F304L	F316	F316L	F347H
Tensile Strength min. k.s.i.	70	70-95	70-95	70	85	70	75	75	75	70	75	70	75
Yield Strength min. k.s.i.	36	36	37.5	40	55	40	45	30	30	25	30	25	30
Elongation in 2" min. %	22	22	22	20	20	20	20	30	30	30	30	30	30
Reduction of area min. %	30	30	35	35	40	30	30	50	50	50	50	50	50
Hardness, HB max	187(2)	197	197	143-217	179-217	143-207	156-207	—	—	—	—	—	—

(↔) Values shown are referred to ASTM specifications 1998 edition.

Tensile properties shown apply to room temperature test. Low temperature steel impact tested according to ASTM A370; 10 x 10 "V" notch specimen, obtained from representative test bar. At minus 50°F average value of three specimen set is 15 ft. lb. with a minimum of 12 ft. lb. for one specimen only.

(2) Applicable on small forgings where no test specimen or representative test bar are available or when forgings have been liquid quenched and tempered.

TRIM AND BOLTING MATERIALS

Specification	TRIM MATERIALS					BOLTING MATERIALS				
	AISI 410	AISI 416	AISI 420	Monel ASTM B164	Stellite Gr. 6	ASTM A193		AISI 430	ASTM A194	
						B7	B8		2H	G8
Chem. Composition (↔)										
Carbon %	0.15 max.	0.15 max.	0.15 min.	0.3 max	1.00	0.37-0.49	0.08 max.	0.12 max.	0.40 min	0.08 max.
Manganese %	1.00 max.	1.25 max.	1.00 max.	2.0 max.	1.00 max.	0.65-1.10	2.0 max.	1.00 max	1.00 max.	2.00 max
Phosphor. max. %	0.040	0.060max.	0.040	—	—	0.035	0.045	0.040	0.040 max	0.045
Sulphur max. %	0.030	0.15 min.	0.030	0.024	—	0.04	0.030	0.030	0.050 max.	0.030
Silicon %	1.00 max.	1.00 max.	1.00 max.	0.5 max	1.00	0.15-0.35	1.00 max.	1.00 max	0.40 max.	1.00 max.
Chromium %	11.50-13.50	12.0-14.0	12.0-14.0	—	28.00	0.75-1.20	18.0-20.0	14.0-18.0	—	18.0-20.0
Nickel %	—	—	—	63.0min.	3.0max.	—	8.00-11.0	—	—	8.00-11.0
Molybdenum %	—	0.60 max.	—	—	—	0.15-0.25	—	—	—	—
Copper %	—	—	—	28.0-34.0	—	—	—	—	—	—
Other elem. %	—	—	—	Fe:2.5 max.	Fe:3.0 max. W :4.0 Co:balance	—	—	—	—	—
Mechanical Prop. (↔)	410	416	420	ASTM B164	Gr. 6	B7	B8	430	2H	G8
Tensile Strength Min. k.s.i. / kg/mm ²	99/85 / 70/130	85/170 / 85/170	149/298 / 105/210	70(2) / 49.2	— / —	125 / 87.8	75 / 52.7	75.4 / 53	— / —	— / —
Yield Strength Min. k.s.i. / kg/mm ²	59/170 / 42/120	59/128 / 42/90	119/199 / 84/140	25(2) / 17.6	— / —	105 / 73.8	30 / 21	40 / 28	— / —	— / —
Elongation in 2" min. %	(15)(1)	(10)(1)	(8)(1)	(35)(2)	—	16	30	28	—	—
Reduction of area min. %	50/75	8/60	5/40	—	—	50	50	65	—	—
Brinell Hardness	180-375	180-375	300-600	—	HRC min.37	—	—	160	248-352	126-300

(↔) Values shown are referred to ASTM, AISI and AMS specifications.

(↔) These values refer to material in the heat treated condition (quenched and tempered or solution annealed) as suggested by manufacturer practice or required by related specifications.

(1) Indicative only.

(2) Age hardened material available with higher tensile values.

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