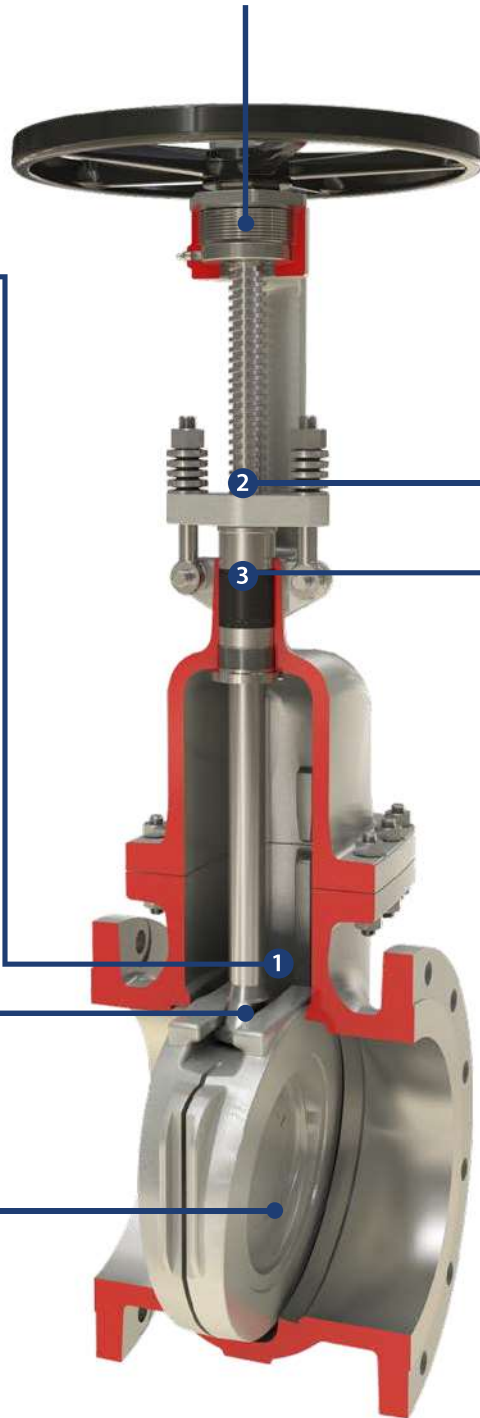


# Key Features - Gate Valve

Stem and stem nuts have been designed to minimize torque



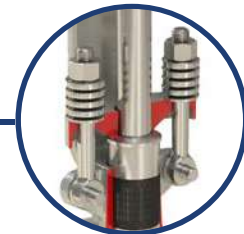
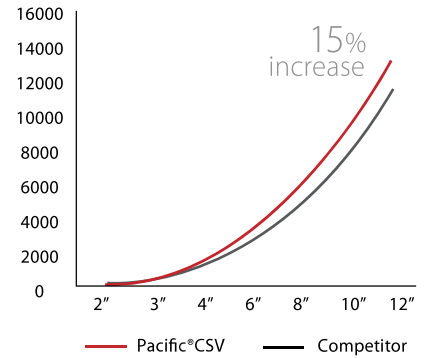
Fully-guided wedge ensures smooth operation in both horizontal and vertical orientations to help prevent sticking



T-slot stem designed for simple installation and maintenance

Available in solid or flexible wedge, which provides a better seal

Gate Valve Cv



Live loading option extends fugitive emissions performance by eliminating the need for manual packing adjustment

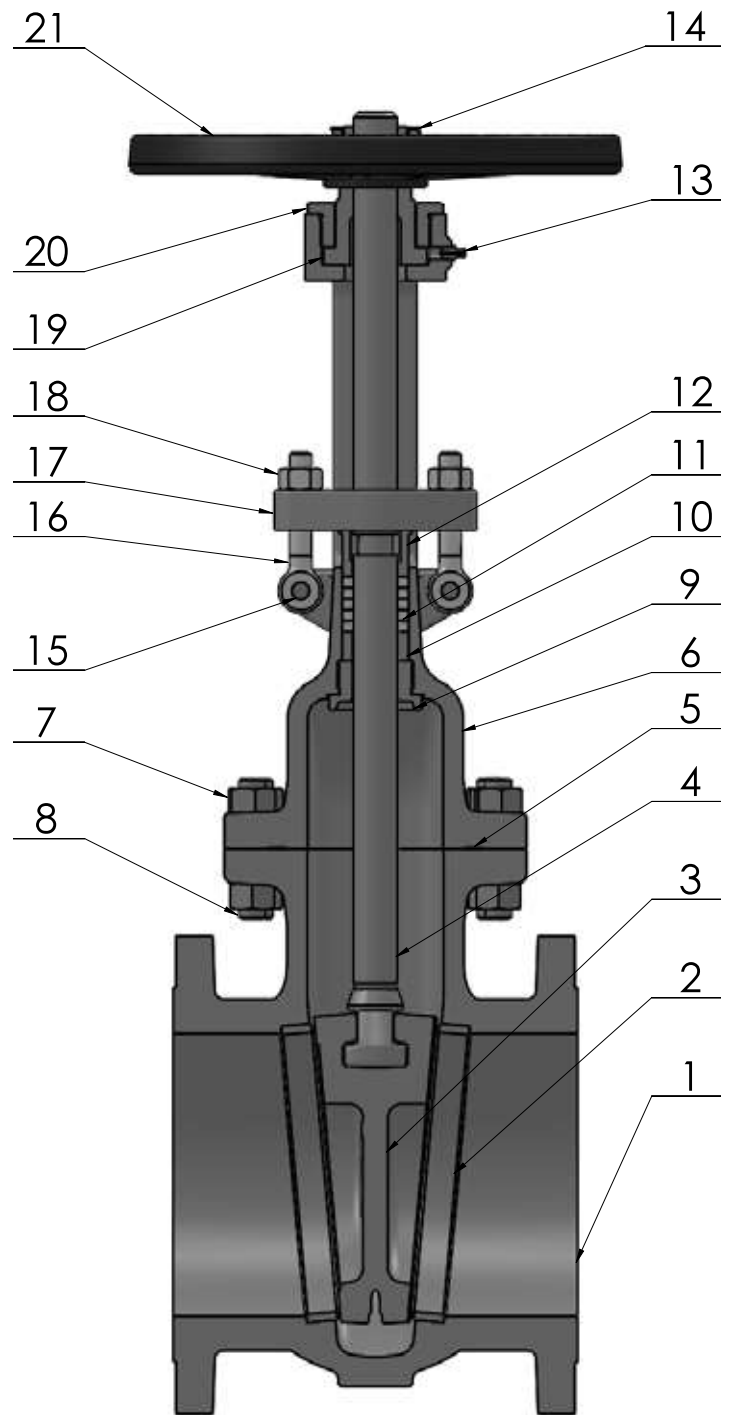


Modular stuffing box facilitates changeover for low fugitive emissions and monitoring port options



# Gate Valve Materials of Construction

Item	Description	Carbon Steel
1	Body	ASTM A216, WCB
2	Seat Ring	ASTM A106 Gr. B, w/ AWS 5.13 CrCo
3	Disc	ASTM A216, WCB W/ AWS 5.9 ER410
4	Stem	ASTM 182, F6a
5	Gasket	Class 150: SS 316 Corr. Class 300: Spiral Wound SS Class 600: Ring Type
6	Bonnet	ASTM A216, WCB
7	Nut	ASTM A194, 2H
8	Stud	ASTM A193, B7
9	Backseat Bushing	ASTM A276, T410
10	Spacer	ASTM A276, T410
11	Packing	Graphite: 2 braided; 3 Die-Formed
12	Packing Gland	ASTM A276, T410
13	Grease Fitting	Steel
14	Handwheel Nut	ASTM A536, Gr.65-45-12
15	Pin	Zinc Plated Steel
16	Eye Bolt	ASTM A 194 2H
17	Gland Flange	ASTM A216 WCB
18	Packing Nuts	ASTM 307 Zinc Plated
19	Stem Nut	ASTM A439 Gr. D2
20	Retainer Nut	ASTM A536 Gr. 65-45-12
21	Handwheel	Carbon Steel/Ductile Iron



Standard construction WCB-Trim 8.  
Other options are available per Materials of Construction on page 14.

Figure A1- Class 150  
Figure A3- Class 300  
Figure A6- Class 600



# Gate Valve Dimensions and Weights

## CLASS 150, 300 & 600

Valve NB in (mm)	Pressure Class	L		H (Open)	H (Close)	M	Weight (lbs.)		Valve NB in (mm)	Pressure Class	L		H (Open)	H (Close)	M	Weight (lbs.)	
		FE	WE				FE	WE			FE	WE					
2" (50)	150	7	8.5	17	14	8	47	42	14" (350)	150	15	22.5	62	48	GO	842	816
	300	8.5	8.5	18	15	8	64	55		300	30	30	65	51	GO	1595	1340
	600	11.5	11.5	18.7	16	8	85	72		600	35	35	65	51	GO	2618	2285
2.5" (65)	150	7.5	9.5	17	14	8	56	48	16" (400)	150	16	24	70	54.41	GO	1094	1032
	300	9.5	9.5	18	15	8	73	59		300	33	33	73	56	GO	2040	1813
	600	13	13	20	17	9	118	98		600	39	39	79	63	GO	3715	3245
3" (80)	150	8	11.12	20	16	9	75	66	18" (450)	150	17	26	76	58	GO	1389	1418
	300	11.12	11.12	21	17	9	110	91		300	36	36	80	62	GO	2638	2252
	600	14	14	24	20	10	138	113		600	43	43	84	66	GO	4490	3911
4" (100)	150	9	12	24	20	10	106	97	20" (500)	150	18	28	86	66	GO	1654	1601
	300	12	12	25	20	10	165	136		300	39	39	90	70	GO	3564	3089
	600	17	17	28	23	14	250	197		600	47	47	93	72	GO	6213	5476
6" (150)	150	10.5	15.88	31	25	14	185	179	24" (600)	150	20	32	99	75	GO	2396	2334
	300	15.88	15.88	33	26	14	310	256		300	45	45	101	77	GO	5338	4625
	600	22	22	36	29	18	584	472		600	55	55	110	86	GO	9385	8342
8" (200)	150	11.5	16.5	39	30	14	278	263	28" (700)	150	22	36	106	81	GO	3145	2985
	300	16.5	16.5	41	32	16	481	400		300	48	48	108	83	GO	6455	5585
	600	26	26	43	35	20	936	793		600	58	58	112	91	GO	12455	10855
10" (250)	150	13	18	46	36	16	411	396	32" (800)	150	24	38	114	87	GO	3615	3455
	300	18	18	50	39	18	737	614		300	52	52	116	93	GO	7555	6655
	600	31	31	54	43	GO	1502	1235		600	62	62	120	101	GO	14555	12855
12" (300)	150	14	19.75	55	42	18	622	593	36" (900)	150	26	40	122	93	GO	4115	3955
	300	19.75	19.75	57	44	20	1036	895		300	56	56	124	97	GO	8455	7555
	600	33	33	62	48	GO	2043	1740		600	66	66	128	105	GO	16555	14855

FE: Flanged End Valve  
 WE: Buttweild End Valve  
 H (open): Valve center to Stem top in Valve open condition  
 H (close): Valve center to Stem top in Valve close condition  
 L: Face to Face dimension  
 M: Handwheel Diameter  
 GO: Gear Operator

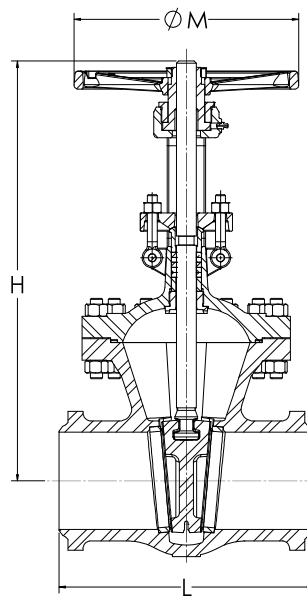
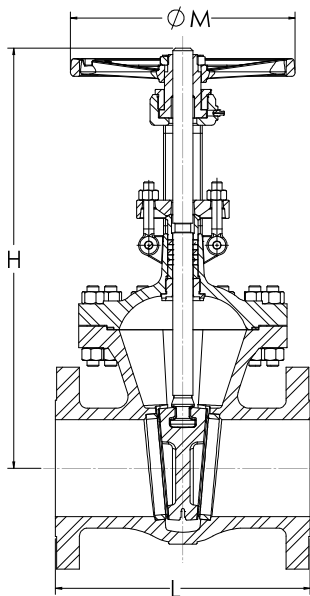


Figure A1- Class 150  
 Figure A3- Class 300  
 Figure A6- Class 600



# Gate Valve Cv and Torque

## Gate Valves - Cv

Size	Class 150		Class 300		Class 600	
	Cv	Kv	Cv	Kv	Cv	Kv
2	324	281	325	281	306	265
2.5	515	445	515	445	491	425
3	757	655	757	655	728	630
4	1374	1188	1345	1163	1334	1154
6	3162	2735	3162	2735	3084	2668
8	5790	5008	5705	4935	5527	4781
10	9287	8034	9251	8002	8797	7610
12	13321	11523	13321	11523	12776	11052
14	16241	14049	16241	14049	15332	13263
16	22398	19375	22409	19385	20953	18126
18	28657	24790	27826	24071	26213	22676
20	35686	30870	34758	30068	32075	27747
24	54371	47033	53199	46019	48673	42105

## Gate Valves - Torque

Size	Pressure Class	Differential Pressure (psi)	Stem Diameter (in)	Stem Travel (in)	Torque (ft-lbs.)
2	150	325	0.75	2.4	6
	300	825	0.75	3.2	11
	600	1650	0.75	2.7	18
2.5	150	325	0.75	2.9	7
	300	825	0.75	3	13
	600	1650	0.875	3.1	29
3	150	325	0.875	3.4	10
	300	825	0.875	3.9	20
	600	1650	1	3.7	46
4	150	325	1	4.5	18
	300	825	1	5	37
	600	1650	1.125	4.6	80
6	150	325	1.125	6.6	35
	300	825	1.25	6.6	89
	600	1650	1.5	6.4	219
8	150	325	1.25	8.3	61
	300	825	1.375	8.3	167
	600	1650	1.625	8.2	373
10	150	325	1.375	10.5	103
	300	825	1.5	10.6	268
	600	1650	1.875	11.2	628
12	150	325	1.5	12.7	154
	300	825	1.625	12.4	402
	600	1650	2	13.1	932
14	150	325	1.625	13.7	198
	300	825	1.75	14	517
	600	1650	2.25	13.9	1302
16	150	325	1.75	16.1	273
	300	825	1.875	17.1	715
	600	1650	2.375	15.9	1848
18	150	325	1.875	18.3	365
	300	825	2	17.8	957
	600	1650	2.5	18.1	2265
20	150	325	2	20	475
	300	825	2.25	20.3	1381
	600	1650	2.75	21.1	2993
24	150	325	2.25	24.1	793
	300	825	2.5	23.9	2171
	600	1650	3	23.3	5736



# Pressure / Temperature Range

The following pressure-temperature charts are derived from ASME B16.34 – 2013 Version. They will cover the most commonly used body and bonnet materials in the industry. All Crane Valves are designed to operate through the pressure and temperature ranges shown in these charts for a particular ASME Class Rating and ASTM Material.

## ASTM A216 GR WCB

°F	STANDARD CLASS B16.34 - 2013						SPECIAL CLASS B16.34 - 2013					
	MAXIMUM NON-SHOCK WORKING PRESSURE, PSIG						MAXIMUM NON-SHOCK WORKING PRESSURE, PSIG					
	150	300	600	900	1500	2500	150	300	600	900	1500	2500
-20 to 100	285	740	1480	2220	3705	6170	290	750	1500	2250	3750	6250
200	260	680	1360	2035	3395	5655	290	750	1500	2250	3750	6250
300	230	655	1310	1965	3270	5450	285	740	1480	2220	3700	6170
400	200	635	1265	1900	3170	5280	280	735	1465	2200	3665	6105
500	170	605	1205	1810	3015	5025	280	735	1465	2200	3665	6105
600	140	570	1135	1705	2840	4730	280	735	1465	2200	3665	6105
650	125	550	1100	1650	2745	4575	275	715	1430	2145	3575	5960
700	110	530	1060	1590	2665	4425	265	690	1380	2075	3455	5760
750	95	505	1015	1520	2535	4230	245	635	1270	1905	3170	5285
800	80	410	825	1235	2055	3430	195	515	1030	1545	2570	4285

NOTE: Upon prolonged exposure to temperatures above 800°F (426°C), the carbide phase of steel may be converted to graphite. Permissible, but not recommended for prolonged use above 800°F (426°C).

## ASTM A352 GR LCB

°F	STANDARD CLASS B16.34 - 2013						SPECIAL CLASS B16.34 - 2013					
	MAXIMUM NON-SHOCK WORKING PRESSURE, PSIG						MAXIMUM NON-SHOCK WORKING PRESSURE, PSIG					
	150	300	600	900	1500	2500	150	300	600	900	1500	2500
-20 to 100	265	695	1395	2090	3480	5805	290	695	1395	2090	3480	5805
200	255	660	1320	1980	3300	5505	290	695	1395	2090	3480	5805
300	230	640	1275	1915	3190	5315	290	695	1395	2090	3480	5805
400	200	615	1230	1845	3075	5125	290	695	1395	2090	3480	5805
500	170	585	1175	1760	2930	4885	290	695	1395	2090	3480	5805
600	140	550	1105	1655	2755	4595	290	695	1395	2090	3480	5805
650	125	535	1065	1600	2665	4440	290	695	1390	2080	3470	5780

NOTE: Not to be used over 650°F (343°C).

## ASTM A352 GR LCC & LC3

°F	STANDARD CLASS B16.34 - 2013						SPECIAL CLASS B16.34 - 2013					
	MAXIMUM NON-SHOCK WORKING PRESSURE, PSIG						MAXIMUM NON-SHOCK WORKING PRESSURE, PSIG					
	150	300	600	900	1500	2500	150	300	600	900	1500	2500
-20 to 100	290	750	1500	2250	3750	6250	290	750	1500	2250	3750	6250
200	260	750	1500	2250	3750	6250	290	750	1500	2250	3750	6250
300	230	730	1455	2185	3640	6070	290	750	1500	2250	3750	6250
400	200	705	1405	2110	3520	5865	290	750	1500	2250	3750	6250
500	170	665	1330	1995	3325	5540	290	750	1500	2250	3750	6250
600	140	605	1210	1815	3025	5040	290	750	1500	2250	3750	6250
650	125	590	1175	1765	2940	4905	290	750	1500	2250	3750	6250

NOTE: Not to be used over 650°F (343°C).

\* "Special Class" applies to weld-end valves only and requires NDE testing in accordance with ASME B16.34 - 2013.



# Pressure / Temperature Range

## ASTM A217 GR WC6

°F	STANDARD CLASS B16.34 - 2013						SPECIAL CLASS B16.34 - 2013					
	MAXIMUM NON-SHOCK WORKING PRESSURE, PSIG						MAXIMUM NON-SHOCK WORKING PRESSURE, PSIG					
	150	300	600	900	1500	2500	150	300	600	900	1500	2500
-20 to 100	290	750	1500	2250	3750	6250	290	750	1500	2250	3750	6250
200	260	750	1500	2250	3750	6250	290	750	1500	2250	3750	6250
300	230	720	1445	2165	3610	6015	290	750	1500	2250	3750	6250
400	200	695	1385	2080	3465	5775	290	750	1500	2250	3750	6250
500	170	665	1330	1995	3325	5540	290	750	1500	2250	3750	6250
600	140	605	1210	1815	3025	5040	290	750	1500	2250	3750	6250
650	125	590	1175	1765	2940	4905	290	750	1500	2250	3750	6250
700	110	570	1135	1705	2840	4730	280	735	1465	2200	3665	6110
750	95	530	1065	1595	2660	4430	280	730	1460	2185	3645	6070
800	80	510	1015	1525	2540	4230	275	720	1440	2160	3600	6000
850	65	485	975	1460	2435	4060	260	680	1355	2030	3385	5645
900	50	450	900	1350	2245	3745	225	585	1175	1760	2935	4895
950	35	320	640	955	1595	2655	155	400	795	1195	1995	3320
1000	20	215	430	650	1080	1800	105	270	540	810	1350	2250
1050	20(a)	145	290	430	720	1200	70	180	360	540	900	1500
1100	20(a)	95	190	290	480	800	45	120	240	360	600	1000

NOTE: Use normalized and tempered material only. Not to be used over 1100°F (593°C). The deliberate addition of any element not listed in ASTM A217, Table 1 is prohibited, except that Ca and Mg may be added for deoxidation.

(a) Flanged end valve ratings terminate at 1000°F (537°C).

## ASTM A217 GR WC9

°F	STANDARD CLASS B16.34 - 2013						SPECIAL CLASS B16.34 - 2013					
	MAXIMUM NON-SHOCK WORKING PRESSURE, PSIG						MAXIMUM NON-SHOCK WORKING PRESSURE, PSIG					
	150	300	600	900	1500	2500	150	300	600	900	1500	2500
-20 to 100	290	750	1500	2250	3750	6250	290	750	1500	2250	3750	6250
200	260	750	1500	2250	3750	6250	290	750	1500	2250	3750	6250
300	230	730	1455	2185	3640	6070	285	740	1480	2220	3695	6160
400	200	705	1410	2115	3530	5880	280	730	1455	2185	3640	6065
500	170	665	1330	1995	3325	5540	280	725	1450	2175	3620	6035
600	140	605	1210	1815	3025	5040	275	720	1440	2165	3605	6010
650	125	590	1175	1765	2940	4905	275	715	1430	2145	3580	5965
700	110	570	1135	1705	2840	4730	270	705	1415	2120	3535	5895
750	95	530	1065	1595	2660	4430	270	705	1415	2120	3535	5895
800	80	510	1015	1525	2540	4230	270	705	1415	2120	3535	5895
850	65	485	975	1460	2435	4060	260	680	1355	2030	3385	5645
900	50	450	900	1350	2245	3745	230	600	1200	1800	3000	5000
950	35	385	755	1160	1930	3220	180	470	945	1415	2360	3930
1000	20	265	535	800	1335	2230	130	335	670	1005	1670	2785
1050	20(a)	175	350	525	875	1455	85	220	435	655	1095	1820
1100	20(a)	110	220	330	550	915	55	135	275	410	685	1145

NOTE: Use normalized and tempered material only. Not to be used over 1100°F (593°C). The deliberate addition of any element not listed in ASTM A217, Table 1 is prohibited, except that Ca and Mg may be added for deoxidation.

(a) Flanged end valve ratings terminate at 1000°F (537°C).



# Pressure / Temperature Range

## ASTM A217 GR C5

°F	STANDARD CLASS B16.34 - 2013						SPECIAL CLASS B16.34 - 2013					
	MAXIMUM NON-SHOCK WORKING PRESSURE, PSIG						MAXIMUM NON-SHOCK WORKING PRESSURE, PSIG					
	150	300	600	900	1500	2500	150	300	600	900	1500	2500
-20 to 100	290	750	1500	2250	3750	6250	290	750	1500	2250	3750	6250
200	260	750	1500	2250	3750	6250	290	750	1500	2250	3750	6250
300	230	730	1445	2185	3640	6070	290	750	1500	2250	3750	6250
400	200	705	1410	2115	3530	5880	290	750	1500	2250	3750	6250
500	170	665	1330	1995	3325	5540	290	750	1500	2250	3750	6250
600	140	605	1210	1815	3025	5040	290	750	1500	2250	3750	6250
650	125	590	1175	1765	2940	4905	290	750	1500	2250	3750	6250
700	110	570	1135	1705	2840	4730	280	735	1465	2200	3665	6110
750	95	530	1065	1595	2660	4430	280	730	1460	2185	3645	6070
800	80	510	1015	1525	2540	4230	275	720	1440	2160	3600	6000
850	65	485	975	1460	2435	4060	260	615	1225	1840	3065	5105
900	50	375	745	1120	1870	3115	230	465	935	1400	2335	3895
950	35	275	550	825	1370	2285	170	345	685	1030	1715	2855
1000	20	200	400	595	995	1655	125	250	495	745	1245	2070
1050	20(a)	145	290	430	720	1200	90	180	360	540	900	1500
1100	20(a)	100	200	300	495	830	60	125	250	375	620	1035
1150	20(a)	60	125	185	310	515	40	75	155	230	385	645
1200	15(a)	35	70	105	170	285	20	45	85	130	215	355

NOTE: Use normalized and tempered material only. The deliberate addition of any element not listed in ASTM A217, Table 1 is prohibited, except that Ca and Mg may be added for deoxidation.

(a) Flanged end valve ratings terminate at 1000°F (537°C).

## ASTM A217 GR C12

°F	STANDARD CLASS B16.34 - 2013						SPECIAL CLASS B16.34 - 2013					
	MAXIMUM NON-SHOCK WORKING PRESSURE, PSIG						MAXIMUM NON-SHOCK WORKING PRESSURE, PSIG					
	150	300	600	900	1500	2500	150	300	600	900	1500	2500
-20 to 100	290	750	1500	2250	3750	6250	290	750	1500	2250	3750	6250
200	260	750	1500	2250	3750	6250	290	750	1500	2250	3750	6250
300	230	730	1455	2185	3640	6070	290	750	1500	2250	3750	6250
400	200	705	1410	2115	3530	5880	290	750	1500	2250	3750	6250
500	170	665	1330	1995	3325	5540	290	750	1500	2250	3750	6250
600	140	605	1210	1815	3025	5040	290	750	1500	2250	3750	6250
650	125	590	1175	1765	2940	4905	290	750	1500	2250	3750	6250
700	110	570	1135	1705	2840	4730	280	735	1465	2200	3665	6110
750	95	530	1065	1595	2660	4430	280	730	1460	2185	3645	6070
800	80	510	1015	1525	2540	4230	275	720	1440	2160	3600	6000
850	65	485	975	1460	2435	4060	260	680	1355	2030	3385	5646
900	50	450	900	1350	2245	3745	230	600	1200	1800	3000	5000
950	35	375	755	1130	1885	3145	180	470	945	1415	2355	3930
1000	20	255	505	760	1270	2115	120	315	635	950	1585	2645
1050	20(a)	170	345	515	855	1430	80	215	430	645	1070	1785
1100	20(a)	115	225	340	565	945	55	140	285	425	705	1180
1150	20(a)	75	150	225	375	630	35	95	190	285	470	785
1200	20(a)	50	105	155	255	430	25	65	130	195	320	535

NOTE: Use normalized and tempered material only. The deliberate addition of any element not listed in ASTM A217, Table 1 is prohibited, except that Ca and Mg may be added for deoxidation.

(a) Flanged end valve ratings terminate at 1000°F (537°C).

\* "Special Class" applies to weld-end valves only and requires NDE testing in accordance with ASME B16.34 - 2013.





# How To Order

## First 11 Figure Number Characters\*

Size		Type	Class	Material	Trim	Operator	End	Schedule	Weld End Prep	Mounting
1	2	A	1	A	8	H	F	4	B	0

\*The remaining 6 characters are used for Options, Features, Special Material Processes and Special Requirements. N is used to signify "No" requirement.

### Figure Number Rules for Size, Type and Class (first 4 characters)

SIZE		TYPE		CLASS	
02	2"	A	GATE (Flex-Wedge)	1	150#
2H	2.5"	B	GLOBE (T-Globe)	3	300#
03	3"	C	CHECK (Swing type)	6	600#
04	4"				
-	-				
18	18"				
20	20"				
24	24"				

### Figure Number Rules for Material (5<sup>TH</sup> character)

MATERIAL		
No.	ASTM	Material
A	A216 WCB	Carbon Steel
B	A352 LCB	Low Carbon Steel
C	A352 LCC	Low Carbon Steel
D	A216 WCC	Carbon Steel
E	A217 WC6	11/4 CR, 1/2 Mo
F	A217 WC9	21/4 CR, 1 Mo
G	A217 C5	5% CR, 1/2 Mo
H	A217 C12	9% CR, 1 Mo
J	A351 CF8M	316 SS
L	A351 CF8	304 SS
M	A351 CF3	304L SS
N	A351 CF3M	316L SS
P	A351 CG8M	317 SS
Q	A351 CG3M	317L SS
R	A351 CF8C	347 SS
W	CD3MN	Duplex 1B
X	CD3MWCuN	Duplex 4A
Y	CD4MCuN	Duplex 6A
S	A351 CN7M	Alloy 20
Z		Special

### Figure Number Rules for Trim Material (6<sup>TH</sup> character)

TRIM MATERIAL				
No.	API Trim No.	Nominal Trim	Seating Surfaces	Stem Material
	1		Obsolete (Offer Trim 8)	
5	5	HF / HF <sup>(2)</sup>	Alloy 6	13 Cr (410)
9	9	Monel® / Monel® <sup>(4)</sup>	Monel®	Monel®
8	8*	F6 / HF <sup>(1)(2)</sup>	13 Cr / Alloy 6	13 Cr (410)
1	11	Monel® / HF <sup>(4)(2)</sup>	Monel® / Alloy 6	Monel®
2	12	316 / HF <sup>(3)(2)</sup>	316SS / Alloy 6	316 SS
6	16	316/HF / 316/HF <sup>(3)(2)</sup>	316SS / Alloy 6 (both)	316 SS
E		8 to NACE MR0103 / MR0175		
N		12 to NACE MR0103 / MR0175		
Z		Special / Custom		

(1) 13% Chromium AISI Type 410 Stainless Steel.  
(2) Hard Facing is weld deposited Cobalt base alloy  
(3) Ni-Cr-Mo stainless steel in the AISI Type 316 category  
(4) Ni-Cu Alloy Standard Offering

### Figure Number Rules for Operator, Valve Ends, Schedule and Weld End Prep (7<sup>TH</sup>, 8<sup>TH</sup>, 9<sup>TH</sup> & 10<sup>TH</sup> characters)

OPERATOR		SCHEDULE	
0	N/A (e.g. check valves)	0 = N/A (e.g. flanged end)	F = Schedule 60
H	Handwheel	D = Schedule STD	G = Schedule 80 <sup>(2)</sup>
G	Bevel Gear	A = Schedule 10	H = Schedule XS
S	Bare Stem	B = Schedule 10S	J = Schedule 100
P	Pneumatic Cylinder	C = Schedule 20	X = Different Inlet & Outlet
E	Electric Motor Customer Supplied	K = Schedule 30	Z = Custom
C	Electric Motor with Bevel Gear	E = Schedule 4 <sup>(1)</sup>	
Y	Hydraulic Actuator Special / Custom		
Z			

(1) same as Schedule STD for size 2" - 10"  
(2) same as Schedule XS for size 2" - 8"

WELD END PREP	
0	N/A (e.g. flanged end)
B	2B Or 3B Based on wall thickness
C	2C or 3C Based on wall thickness
Z	Custom

VALVE ENDS	
F	Raised Face
W	Butt Weld End

### Figure Number Rules for Mounting (11<sup>TH</sup> character)

MOUNTING	
0 = N/A <sup>(1)</sup>	
1 = F10	A = FA10
2 = F12	B = FA12
3 = F14	C = FA14
4 = F16	D = FA16
5 = F25	E = FA25
6 = F30	F = FA30
7 = F35	G = FA35
8 = F40	H = FA40
Z = Other / Special	

(1) e.g. Handwheel / Check Valve

### SPECIAL REQUIREMENT (digit 17)

N = None	M = MSS SP-61 testing
2 = API 600 12 <sup>TH</sup> edition	Z = Other
C = CE/PED	