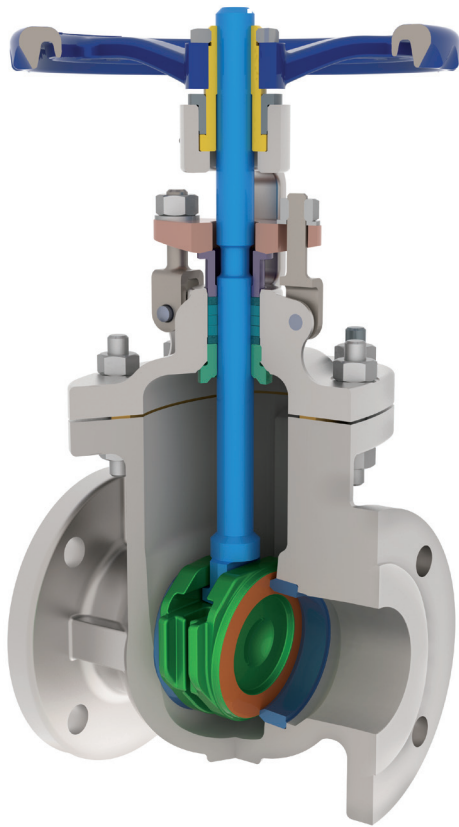


Bolted bonnet cast carbon, stainless or alloy steel

NPS 2–64 (DN 50–1600), ASME Classes 150–1500



ASME Class	Figure number
150	0064C
300	1064C
600	2064C
900	7064C
1500	3064C

Standard materials

Part	Materials			
Body ⁽¹⁾	WCB	WC6	WC9	CF8M
Bonnet ⁽¹⁾	WCB	WC6	WC9	CF8M
Stem ⁽¹⁾⁽³⁾	SS 410			SS 316
Wedge ⁽¹⁾	CA 15 or 13Cr faced WCB	CA 15 or 13Cr faced WC6	CA 15 or 13Cr faced WC9	CF8M
Seat ⁽¹⁾⁽²⁾	CoCr alloy faced carbon steel	CoCr alloy faced F11	CoCr alloy faced F22	CoCr alloy faced F316
Packing flange	Carbon steel			Stainless steel
Gland bushing	Carbon steel			Stainless steel
Packing ring ⁽¹⁾	Graphite			Graphite
Gland stud	Gr. B or B7 ⁽⁴⁾			F316, B8M or 630 ⁽⁵⁾
Gland nut	Gr. 2H			Gr. 8M
Body/bonnet nut	Gr. 2H	Gr. 7		Gr. 8M
Body/bonnet stud	B7	B16		B8M or 630
Back seat ⁽¹⁾⁽³⁾	SS 410			SS 316
Gasket ⁽¹⁾	Class 150: corrugated steel/graphite Class 300–1500: spiral wound stainless steel/graphite			
Key	Carbon steel			
Yoke bushing	Carbon steel			Stainless steel
Bearing	Steel			
Handwheel nut	Malleable iron or steel			
Handwheel ⁽¹⁾	Malleable iron or ductile iron			
Grease fitting	Steel			
Groove pin	Carbon steel			Stainless steel
Bushing	Carbon steel			Stainless steel
Washer	Carbon steel			Stainless steel
Name plate	Stainless steel			
Identification tag	Stainless steel			
Rivet	Stainless steel			
Stem nut	A 439 austenitic ductile iron Gr. D-2C			

(1) Other materials available. (2) Hardfaced. (3) Hardened. (4) For eye bolts Gr.B, for studs B7 is used. (5) For eye bolts F316, for studs B8M or 630 is used.

Design features

- Trim: Available in all trim material combinations specified in API 6XX, as well as custom material combinations.
- Seat face CoCr alloy hardfaced, ground, and lapped to a mirror finish.
- All graphite packed gate valves are dual qualified to API 624 and ISO-15848-1⁽⁶⁾.
- Flexible wedge with low center stem-wedge contact, in solid CA15 (13Cr) or hardfaced with 13Cr, SS 316, Monel or CoCr alloy. Wedge is ground and lapped to a mirror finish and tightly guided to prevent dragging and seat damage.
- Hardfacing of wedge guiding surfaces available when specified by purchaser⁽⁷⁾.
- Non-rotating stem with precision Acme threads and burnished finish. Double start Acme for faster operation.
- Gland has two-piece construction for easy alignment.
- Body and bonnet joint accurately machined.
- Body and bonnet castings are precision machined. One-piece bonnet⁽⁸⁾ for better alignment and fewer parts.
- End connection flanges in accordance with ASME B16.5 ASME Classes: 150–300: 1/16" raised face. ASME Classes: 600–1500: 1/4" raised face. Finish: 125–250 AARH for all valves.
- Rotating stem nut is austenitic ductile iron Gr. D-2C serviceable in line. When handwheel is used, thrust bearing arrangements vary depending on valve size and class.

(6) See Velan's Product update at this link: [PU-API624-03-18](https://www.velan.com/PU-API624-03-18). Available to My Velan member's on velan.com.

(7) For valves in conformance with API 600 13th Edition, hardfacing of wedge and body guides is standard for sizes NPS 26 and larger.

(8) One-piece bonnet for Class 150 & 300 up to NPS 16 (DN 400), Class 600 up to NPS 12 (DN 300), Class 900 up to NPS 10 (DN 250) and Class 1500 up to NPS 8 (DN 200) only.

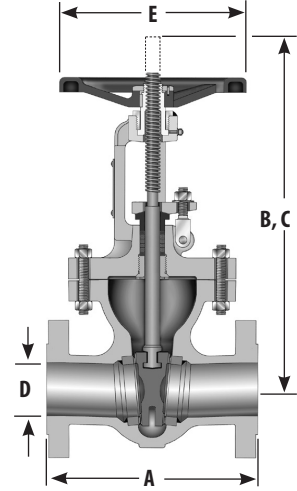
Quick sheet: API 600 cast steel gate valve

Design specifications

Item	Applicable specification	Item	Applicable specification
Wall thickness and general design ≤ NPS 42 in Pressure Class 150 and 300 and ≤ NPS 24 in Pressure Class 600 and greater.	API 600	Pressure-temperature rating	ASME B16.34
Wall thickness and general design > NPS 42 in Pressure Class 150 and 300 and > NPS 24 in Pressure Class 600 and greater.	ASME B16.34 plus additional allowance	Face-to-face dimensions	ASME B16.10 for butt weld and flanged valves
		Flange design	ASME B16.5
		Butt welding design	ASME B16.25
		Materials	ASTM

Dimensions, weights, and Cvs

Size NPS DN	ASME Class 150									ASME Class 300								
	A		B ⁽²⁾	C ⁽²⁾	D	E	lb / kg		Cv	A ⁽¹⁾	B ⁽²⁾	C ⁽²⁾	D	E	lb / kg		Cv	
	BW	FLG					BW	FLG							BW	FLG		
2	8.5	7	15.63	20.38	2	8	42	48	260	8.5	15.63	20.38	2	8	46	60	260	
50	216	178	397	518	51	203	19	22		216	397	518	51	203	21	27		
2½	9.5	7.5	16.88	22.14	2.5	8	50	59	417	9.5	16.94	22.2	2.5	8	55	76	417	
65	241	191	429	562	64	203	23	27		241	430	564	64	203	25	34		
3	11.13	8	18.56	24.26	3	10	67	78	614	11.13	20.22	26.38	3	10	90	115	614	
80	282	203	471	616	76	254	30	35		283	514	670	76	254	41	52		
4	12	9	22.25	28.32	4	10	97	117	1127	12	23.9	30.95	4	10	136	166	1127	
100	305	229	565	719	102	254	44	53		305	607	786	102	254	62	75		
6	15.88	10.5	31.19	38	6	14	180	198	2650	15.87	32.31	40.38	6	14	245	314	2650	
150	403	267	792	965	152	356	82	90		403	821	1026	152	356	111	142		
8	16.5	11.5	38.19	46.13	8	18	278	319	4855	16.5	40.94	50.16	8	18	415	506	4855	
200	419	292	970	1172	203	457	126	145		419	1040	1274	203	457	188	230		
10	18	13	47.16	56.28	10	20	456	515	7761	18	49.19	59.87	10	20	605	726	7761	
250	457	330	1198	1430	254	508	207	234		457	1249	1521	254	508	274	329		
12	19.75	14	55.91	66.75	12	20	646	738	11,381	19.75	59	70.61	12	20	900	1100	11,381	
300	502	356	1420	1695	305	508	293	335		502	1499	1763	305	508	408	499		
14	22.5	15	61.5	75.5	13.25	24	828	901	14,011	30	61.38	77.75	13.25	24	1173	1457	14,011	
350	572	381	1562	1918	337	610	375	409		30	1159	1463	337	610	532	661		
16	24	16	68.75	85	15.25	24	1025	1112	18,816	33	68.75	85.5	15.25	30	1610	1898	18,816	
400	610	406	1746	2159	387	610	465	505		838	1746	2172	387	762	730	861		
18	26	17	73.25	90	17.25	24	1185	1235	24,361	36	77.88	94	17	2025	2404	23,627		
450	660	432	1861	2286	438	610	538	560		914	1978	2388	432	(3)	918	1090		
20	28	18	83	100	19.25	30	1571	1619	30,655	39	86.5	100	19	(3)	2777	3232	29,827	
500	711	457	2108	2540	489	762	713	735		991	2197	2540	483	(3)	1259	1466		
24	32	20	97	115	23.25	30	2306	2353	45,516	45	101.25	125	23	(3)	4303	4989	44,498	
600	813	508	2464	2921	591	762	1046	1067		1143	2572	3175	584	(3)	1952	2263		
26	34	22	114.5	125	25	(3)	3139	3340	54,095	49	114.5	125	25	(3)	4986	5813	52,980	
650	864	559	2908	3175	635	(3)	1424	1515		1245	2908	3175	635	(3)	2262	2637		
28	36	24	118.63	130	27	(3)	3871	4050	63,446	53	118.63	130	27	(3)	7770	8756	62,235	
700	914	610	3013	3302	686	(3)	1756	1837		1346	3013	3302	686	(3)	3525	3971		
30	36	24	124.13	140	29.25	(3)	4432	4693	73,574	55	124.13	145	29.25	(3)	8096	9270	72,266	
750	914	610	3153	3556	743	(3)	2010	2128		1397	3153	3683	743	(3)	3672	4205		
32	38	26	129.63	150	30.75	(3)	5033	5476	84,484	60	129.63	150	30.75	(3)	9405	10729	81,683	
800	965	660	3293	3810	781	(3)	2283	2484		1524	3293	3810	781	(3)	4266	4867		
34	40	28	143	163	32.75	(3)	5439	5989	96,181	64	147.63	168	32.75	(3)	10728	12269	93,183	
850	1000	700	3632	4140	832	(3)	2467	2716		1626	3750	4267	832	(3)	4866	5565		
36	40	28	146.68	170	35.25	(3)	7229	7697	108,666	68	147.81	185	35.25	(3)	12498	14006	108,666	
900	1016	711	3726	4318	895	(3)	3279	3491		1727	3754	4699	895	(3)	5669	6353		
38	41	29	155.91	175	36.5	(3)	9203	10020	121,945	—	—	—	—	—	—	—	—	
950	1041	736	3960	4445	927	(3)	4174	4545		—	—	—	—	—	—	—	—	
40	42	30	158.66	188	38.5	(3)	8400	9000	136,021	76	167	190	38.5	(3)	15475	16469	130,649	
1000	1067	762	4030	4775	978	(3)	3810	4082		1930	4242	4826	978	(3)	7019	7470		
42	44	31	166.5	195	40.25	(3)	12308	13280	150,898	76	167	190	38.5	(3)	15475	17101	130,649	
1050	1118	787	4229	4953	1022	(3)	5583	6024		1930	4242	4826	978	(3)	7019	7757		
44	—	—	—	—	—	—	—	—	—	80	186.75	286	42.25	(3)	21987	23252	158,637	
1100	—	—	—	—	—	—	—	—	—	2032	4743	7264	1073	(3)	9973	10547		
46	43	34	186.79	225	44	(3)	14717	16016	172,664	80	189.47	193.92	42.25	(3)	21987	23916	158,637	
1150	1092	850	4744	5715	1117	(3)	6675	7265		2032	4813	4926	1073	(3)	9973	10848		
48	44	36	189.81	225	46	(3)	14565	13939	189,453	88	201.68	330	46	(3)	27807	29390	189,453	
1200	1118	914	4821	5715	1168	(3)	6606	6323		2235	5123	8342	1168	(3)	12613	13331		
50	—	38	204.06	231	47.25	(3)	—	20442	200,357	—	—	—	—	—	—	—	—	
1250	—	950	5183	5867	1200	(3)	—	9272		—	—	—	—	—	—	—	—	
54	—	40	216.56	248	51.5	(3)	—	19766	239,806	90	232.03	250	51.75	(3)	37159	39672	242,241	
1350	—	1016	5501	6299	1308	(3)	—	8966		2286	5894	6350	1314	(3)	16855	17995		
56	—	41	228	258.25	53.69	—	—	20200	261,548	—	—	—	—	—	—	—	—	
1400	—	1041	5791	6458	1364	—	—	9162		—	—	—	—	—	—	—	—	
60	—	42	238.8	275	57.5	(3)	—	27939	301,786	—	—	—	—	—	—	—	—	
1500	—	1067	6066	6985	1461	(3)	—	12673		—	—	—	—	—	—	—	—	
64	—	44	259.5	300	61.25	(3)	—	30444	344,285	—	—	—	—	—	—	—	—	
1600	—	1118	6591	7620	1556	(3)	—	13809		—	—	—	—	—	—	—	—	



- A = Face-to-face (flanged)
End-to-end (butt weld)
- B = Center-to-top, open
- C = Dismantling height
- D = Port
- E = Handwheel

Notes

Flow coefficients (Cv).

Kv is the metric equivalent of Cv.

$$Kv = Cv \times 0.85$$

Class 150 and 300 gate valves in sizes NPS 2–42 (DN 50–1050) comply with API 600.

(1) Butt weld and flanged valves have the same end-to-end dimensions for Class 300 and up.

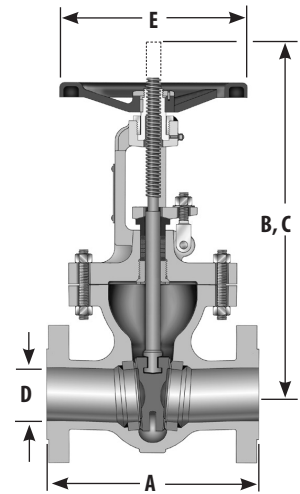
(2) Height does not include actuator.

(3) Gear actuator.

Quick sheet: API 600 cast steel gate valve

Dimensions, weights, and Cvs

Size NPS DN	ASME Class 600								ASME Class 900								ASME Class 1500								
	A ⁽¹⁾	B ⁽²⁾	C ⁽²⁾	D	E	lb / kg		Cv	A ⁽¹⁾	B ⁽²⁾	C ⁽²⁾	D	E	lb / kg ⁽¹⁾		Cv	A ⁽¹⁾	B ⁽²⁾	C ⁽²⁾	D	E	lb / kg ⁽¹⁾		Cv	
						BW	FLG							BW	FLG							BW	FLG		
2 50	11.5 292	15.66 398	20.51 521	2 51	8 203	60 27	72 33	260	14.5 368	21.25 540	29 737	1.88 48	10 254	140 64	180 82	227	14.5 368	21.25 540	29 737	1.88 48	10 254	140 64	180 82	227	
2½ 65	13 330	18.59 472	24.19 614	2.5 64	10 254	89 40	102 46	417	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
3 80	14 356	21.63 549	27.78 706	3 76	10 254	130 59	157 71	614	15 381	25.75 654	34.5 876	2.88 73	14 356	240 109	284 129	561	18.5 470	25.75 654	34.5 876	2.75 70	14 356	270 122	338 153	511	
4 100	17 432	25.75 654	32.76 832	4 102	14 356	224 102	275 125	1127	18 457	28.75 730	37.5 953	3.88 99	18 457	350 159	423 192	1054	21.5 546	28.75 730	37.5 953	3.63 92	18 457	430 195	520 236	916	
6 150	22 559	36.28 922	44.18 1122	6 152	20 508	581 263	685 311	2650	24 610	39 991	49 1245	5.75 146	20 508	824 374	971 440	2423	27.75 705	39 991	49 1245	5.38 137	(3)	1071 486	1278 580	2102	
8 200	26 660	43.72 1110	53.25 1353	7.88 200	24 610	726 329	884 401	4855	29 737	51.75 1315	62.75 1594	7.5 191	(3)	1346 611	1592 722	4239	32.75 832	45.25 1149	60 1524	7 178	(3)	1891 858	2240 1016	3666	
10 250	31 787	49.06 1246	59.87 1521	9.75 248	30 762	1141 518	1379 625	7761	33 838	57.75 1467	67.25 1708	9.38 238	(3)	3669 1664	4007 1818	6777	39 991	57.75 1467	71 1803	8.75 222	(3)	2600 1497	3300 1497	5862	
12 300	33 838	61.13 1553	72.74 1848	11.75 298	30 762	1750 794	2028 920	10,440	38 965	66.57 1691	83 2108	11.13 283	(3)	3292 1493	3770 1710	9708	45 1130	74 1868	90 2286	10 264	(3)	5688 2580	6564 2977	8385	
14 350	35 889	72.5 1842	83.5 2121	12.88 327	(3)	2197 997	2551 1157	13,192	40.5 1029	73.88 1877	90 2286	12.25 311	(3)	4138 1877	4658 2113	11,884	—	—	—	—	—	—	—	—	—
16 400	39 991	82.25 2089	91 2311	14.75 375	(3)	2912 1321	3418 1550	17,545	44.5 1130	80.44 2043	100 2540	14 356	(3)	5850 2653	6459 2930	15,726	—	—	—	—	—	—	—	—	—
18 450	43 1092	87.06 2211	116 2946	16.5 419	(3)	4024 1825	4618 2095	22,194	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
20 500	47 1194	103 2616	123 3124	18.25 464	(3)	5619 2549	6372 2890	27,414	52 1321	104 2648	128 3261	18 445	(3)	11547 5238	12610 5720	25,107	—	—	—	—	—	—	—	—	—
24 600	55 1397	115 2921	132 3353	22 559	(3)	8251 3743	9389 4259	40,544	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
26 650	57 1448	103.86 2638	125 3175	21.38 543	(3)	7570 3434	8483 3848	38,171	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
28 700	61 1549	108.25 2750	135 3429	23 584	(3)	7222 3276	9243 4193	44,498	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
30 750	65 1651	122.5 3112	150 3810	24.75 629	(3)	9554 4333	11851 5375	51,331	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
32 800	70 1778	145.06 3684	170 4318	29.25 743	(3)	16737 7592	18691 8478	73,574	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
34 850	76 1930	138 3505	187 4750	31 787	(3)	18107 8213	20025 9083	83,078	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
36 900	68 1727	145.13 3686	170 4318	29 737	(3)	21705 9845	23835 10811	94,675	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
38 950	86 2184	121 3073	162 4115	34.5 876	(3)	24393 11064	26523 12031	103,891	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40 1000	90 2286	175 4445	198 5030	36.38 924	(3)	31052 14085	32972 14956	116,038	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
42 1050	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
44 1100	98 2490	185 4700	211 5360	40.5 1028	(3)	39936 18115	42582 19315	145,225	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
46 1150	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
48 1200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50 1250	110 2794	214 5435	230 5842	46 1168	(3)	55569 25205	58803 26673	189,453	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—



- A = Face-to-face (flanged)
End-to-end (butt weld)
- B = Center-to-top, open
- C = Dismantling height
- D = Port
- E = Handwheel

(1) Butt weld and flanged valves have the same end-to-end dimensions for Class 300 and up.

(2) Height does not include actuator.

(3) Gear actuator.

Notes

Flow coefficients (Cv).

Kv is the metric equivalent of Cv.

$Kv = Cv \times 0.85$

Class 600 gate valves in series NPS 2-24 (DN 50-600) comply with API 600.

Forged gate valves
ASME Classes 900–2500
are also available.