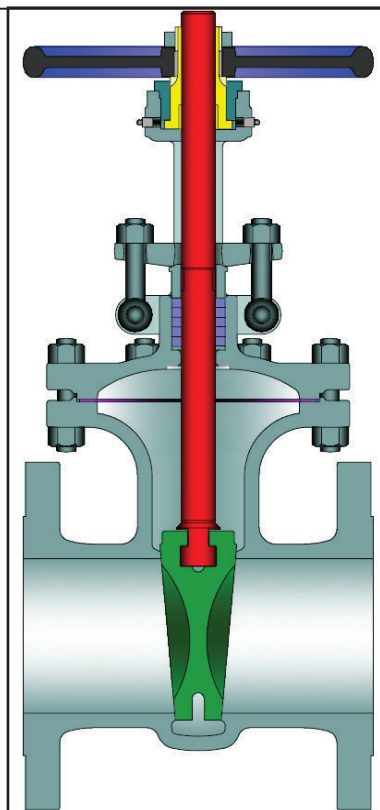




API 603 GATE VALVES
 BOLTED BONNET, ASME CLASSES 150-600
 FLANGED OR BUTTWELD ENDS
 CAST STAINLESS STEEL



| Class | Figure Number |
|-------|---------------|
| 150 | 2456 |
| 300 | 2467 (4) |
| 600 | 1973 (4) |

STANDARD MATERIALS (Other materials available)

| PART | MATERIALS |
|---------------------------------|--------------------------------|
| Body | A351 Gr. CF8M (2) |
| Bonnet | A351 Gr. CF8M |
| Wedge | A351 Gr. CF8M |
| Stem | SST 316 |
| Stem Bushing | A 439 Ductile NI-Resist Gr. D2 |
| Stem Bushing Lock Nut | Series 300 SST |
| Gland Flange | A351 Gr. CF8M |
| Eye Bolt | A193 Gr. B8 |
| Eye Bolt Nut | A194 Gr.8 |
| Groove Pin | Series 300 SST |
| Gland | SST 316 |
| Packing | PTFE (3) |
| Packing Washer / Packing Spacer | SST 316 |
| Gasket | PTFE (3) |
| Hand Wheel | Malleable Iron or Steel |
| Hand Wheel Nut | Malleable Iron or Steel |
| Key | Steel |
| Lubricant Fitting | Steel |
| Body / Bonnet Stud | A193 Gr. B8 |
| Body / Bonnet Nut | A194 Gr.8 |
| Yoke arm (1) | A351 CF8 |
| Bonnet / Yoke arm Stud (1) | A193 Gr. B8 |
| Bonnet / Yoke arm Nut (1) | A194 Gr.8 |
| Bearing Cap (1) | Series 300 SST |
| Cap Screws (1) | |
| Identification Plate | |

- (1) 14" Valve sizes and up all classes have a two piece yoke.
- (2) CF3M for weld end bodies.
- (3) For API 603 compliance, optional graphitic packing and gasket are required.
- (4) See pages 8-9 for 2" and smaller sizes with threaded or socket weld ends.

DESIGN FEATURES:

- **Seat face:** Ground and lapped to a smooth finish.
- **Flexible Wedge** with low center stem –wedge contact. Wedge is ground and lapped to a smooth finish and tightly guided to prevent dragging and seat damage.
- **Non-rotating stem** with precision ACME threads and burnished finish. Double start ACME thread for faster operation.
- **Body and bonnet joint** accurately machined. Gasket materials and details on page 6.
- **Body and bonnet** castings are precision machined. One-piece bonnet up to 12" (350 mm) valve size on all classes.
- **Gland** has two-piece construction for easy alignment.

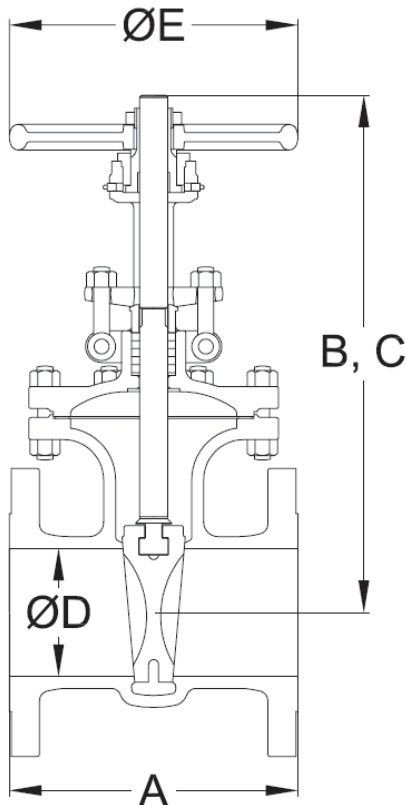
Design Specifications

| Item | Applicable Specification |
|--------------------------------|--------------------------|
| Wall thickness | API 603 + B16.34 |
| Pressure - temperature ratings | ASME B16.34 |
| General valve design | API 603 & B16.34 |
| End to End dimensions | ASME B16.10 |
| Flange design | ASME B16.5 |
| Butt Weld design | ASME B16.25 |
| Materials | ASTM |

- **Flanges:**
 - Classes 150-300: 1/16" raised face.
 - Class 600: 1/4" raised face.
 - Finish 125-250 AARH for all valves.
- **Rotating stem nut** is Austenitic ductile iron Gr D2 renewable in line. Thrust bearings are supplied as follows:
 - Class 150 & 300** 14" (400 mm) and larger valve size.
 - Class 600** 6" (150 mm) and larger valve size.
- **Heavier** walled API 600 design available.
- **Classes** above 600 are available; see the API 600 catalog.
- **Other** available options as follows:
 - Alternate valve materials available
 - Bypass, drain and other auxiliary connections
 - Gear, motor, and cylinder actuators available
 - NACE service
 - Special cleaning for applications such as oxygen or chlorine
 - Other options available as specified

GATE VALVE DIMENSIONS (CLASS 150—600).

| SIZE | ASME 150 | | | | | | ASME 300 | | | | | ASME 600 | | | | |
|------|----------|-------|------|-------|-------|------|----------|-------|-------|-------|------|----------|-------|-------|-------|------|
| | A | | B(1) | C(1) | D | E | A | B(1) | C(1) | D | E | A | B(1) | C(1) | D | E |
| in | FE | WE | | | | | | | | | | | | | | |
| ½ | 4.25 | 4.25 | 7.2 | 7.8 | 0.50 | 3.5 | 5.50 | 7.2 | 7.9 | 0.50 | 3.5 | 6.50 | 7.3 | 7.9 | 0.50 | 3.5 |
| 13 | 109 | 108 | 183 | 198 | 13 | 89 | 140 | 183 | 200 | 13 | 89 | 165 | 185 | 202 | 13 | 89 |
| ¾ | 4.63 | 4.63 | 7.7 | 8.6 | 0.75 | 4.0 | 6.00 | 7.9 | 8.9 | 0.75 | 4.0 | 7.50 | 8.0 | 8.9 | 0.75 | 4.0 |
| 19 | 117 | 117 | 196 | 219 | 19 | 102 | 152 | 201 | 225 | 19 | 102 | 191 | 203 | 225 | 19 | 102 |
| 1 | 5.00 | 5.00 | 8.3 | 9.4 | 1.00 | 4.5 | 6.50 | 8.3 | 9.4 | 1.00 | 4.5 | 8.50 | 8.6 | 9.8 | 1.00 | 5.0 |
| 25 | 127 | 127 | 211 | 240 | 25 | 114 | 165 | 211 | 240 | 25 | 114 | 216 | 218 | 248 | 25 | 127 |
| 1½ | 6.50 | 6.50 | 10.4 | 12.1 | 1.50 | 5.0 | 7.50 | 10.4 | 12.1 | 1.50 | 6.0 | 9.50 | 10.7 | 12.4 | 1.50 | 7.0 |
| 38 | 165 | 165 | 264 | 308 | 38 | 127 | 191 | 264 | 308 | 38 | 152 | 241 | 272 | 316 | 38 | 178 |
| 2 | 7.00 | 8.50 | 12.0 | 14.3 | 2.00 | 6.0 | 8.50 | 12.0 | 14.3 | 2.00 | 7.0 | 11.50 | 12.3 | 14.3 | 2.00 | 9.0 |
| 50 | 178 | 216 | 305 | 362 | 51 | 152 | 216 | 305 | 362 | 51 | 178 | 292 | 312 | 362 | 51 | 229 |
| 2½ | 7.50 | 9.50 | 12.3 | 15.0 | 2.50 | 7.0 | 9.50 | 12.6 | 14.3 | 2.50 | 7.9 | 13.00 | 18.1 | 21.9 | 2.50 | 12.0 |
| 65 | 191 | 241 | 312 | 380 | 64 | 178 | 241 | 319 | 364 | 64 | 201 | 330 | 461 | 555 | 64 | 305 |
| 3 | 8.00 | 11.12 | 13.8 | 17.0 | 3.00 | 7.0 | 11.12 | 13.8 | 17.0 | 3.00 | 9.0 | 14.00 | 19.2 | 22.8 | 3.00 | 12.0 |
| 80 | 203 | 282 | 350 | 431 | 76 | 178 | 283 | 350 | 431 | 76 | 229 | 356 | 487 | 580 | 76 | 305 |
| 4 | 9.00 | 12.00 | 16.8 | 20.9 | 4.00 | 9.0 | 12.00 | 16.8 | 20.9 | 4.00 | 10.0 | 17.00 | 23.0 | 27.5 | 4.00 | 14.0 |
| 100 | 229 | 305 | 427 | 530 | 102 | 229 | 305 | 426 | 530 | 102 | 254 | 432 | 585 | 698 | 102 | 356 |
| 6 | 10.50 | 15.88 | 22.2 | 28.3 | 6.00 | 11.0 | 15.88 | 22.6 | 28.7 | 6.00 | 14.0 | 22.00 | 32.5 | 39.1 | 6.00 | 20.0 |
| 150 | 267 | 403 | 563 | 720 | 152 | 279 | 403 | 574 | 730 | 152 | 356 | 559 | 825 | 993 | 152 | 508 |
| 8 | 11.50 | 16.50 | 29.3 | 38.0 | 8.00 | 14.0 | 16.50 | 30.6 | 39.2 | 8.00 | 16.0 | 26.00 | 35.0 | 45.4 | 7.87 | 22.0 |
| 200 | 292 | 419 | 744 | 965 | 203 | 356 | 419 | 777 | 995 | 203 | 406 | 660 | 890 | 1154 | 200 | 560 |
| 10 | 13.00 | 18.00 | 35.6 | 46.3 | 10.00 | 16.0 | 18.00 | 36.8 | 47.2 | 10.00 | 20.0 | 31.00 | 41.9 | 52.4 | 9.75 | 25.2 |
| 250 | 330 | 457 | 905 | 1175 | 254 | 406 | 457 | 935 | 1199 | 254 | 508 | 787 | 1065 | 1332 | 248 | 640 |
| 12 | 14.00 | 19.75 | 41.1 | 53.5 | 12.00 | 18.0 | 19.75 | 42.6 | 54.7 | 12.00 | 20.0 | 33.00 | 47.3 | 59.9 | 11.75 | 26.8 |
| 300 | 356 | 502 | 1045 | 1359 | 305 | 457 | 502 | 1082 | 1390 | 305 | 508 | 838 | 1202 | 1521 | 298 | 680 |
| 14 | 15.00 | 22.50 | 46.3 | 60.3 | 13.25 | 20.0 | 30.00 | 49.1 | 63.4 | 13.25 | 22.0 | 35.00 | 51.6 | 65.4 | 12.87 | 28.3 |
| 350 | 381 | 572 | 1175 | 1531 | 337 | 508 | 762 | 1248 | 1611 | 337 | 560 | 889 | 1310 | 1662 | 327 | 720 |
| 16 | 16.00 | 24.00 | 51.6 | 67.9 | 15.25 | 22.0 | 33.00 | 70.7 | 85.3 | 15.25 | 25.2 | 39.00 | 73.2 | 88.1 | 14.75 | 35.4 |
| 400 | 406 | 610 | 1310 | 1725 | 387 | 560 | 838 | 1796 | 2387 | 387 | 640 | 991 | 1860 | 2461 | 375 | 900 |
| 18 | 17.00 | 26.00 | 58.1 | 76.4 | 17.25 | 25.2 | 36.00 | 77.2 | 96.9 | 17.00 | 26.8 | 43.00 | 79.1 | 99.1 | 16.50 | 35.4 |
| 450 | 432 | 660 | 1477 | 1940 | 438 | 640 | 914 | 1961 | 2632 | 432 | 680 | 1092 | 2008 | 2632 | 419 | 900 |
| 20 | 18.00 | 28.00 | 63.3 | 83.3 | 19.25 | 26.7 | 38.88 | 85.3 | 109.9 | 19.00 | 28.2 | 46.75 | 85.3 | 109.9 | 18.25 | 28.0 |
| 500 | 457 | 711 | 1615 | 2123 | 489 | 680 | 991 | 2176 | 2912 | 483 | 720 | 1194 | 2166 | 2912 | 464 | 710 |
| 24 | 20.00 | 32.00 | 76.7 | 101.1 | 23.25 | 28.3 | 45.00 | 100.9 | 130.8 | 23.00 | 35.4 | 55.00 | 102.3 | 130.8 | 22.00 | 32.0 |
| 600 | 508 | 813 | 1948 | 2568 | 591 | 720 | 1143 | 2562 | 3408 | 584 | 900 | 1397 | 2599 | 3408 | 559 | 810 |



(1) Gear operators standard for 16" and up classes 300 and 600. Height is to top of actuator.

FE = Flanged
WE = Butt weld

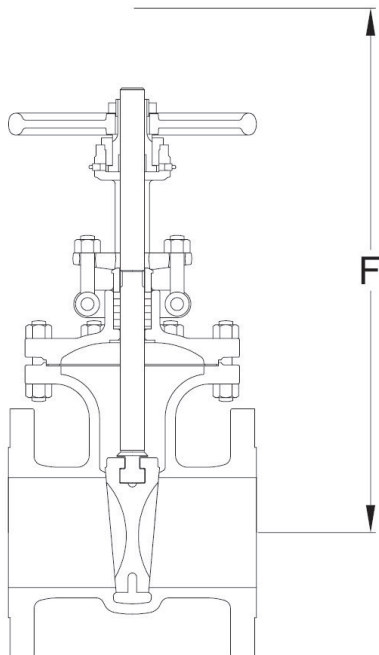
B = Center to top closed
C = Center to top open



Established 1846

API 603 GATE VALVES
BOLTED BONNET, ASME CLASSES 150-600
FLANGED OR BUTTWELD ENDS
CAST STAINLESS STEEL

| SIZE | ASME 150 | | | | | | | ASME 300 | | | | | | | ASME 600 | | | | | | | | |
|-------|----------|----|------|----|------|----|----------------|----------|----|------|----|------|----|----------------|----------|----|------|----|------|----|----------------|--|-------|
| | F | in | WT | lb | WT | lb | C _v | F | in | WT | lb | WT | lb | C _v | F | in | WT | lb | WT | lb | C _v | | |
| mm | | mm | FE | kg | WE | kg | | | mm | FE | kg | WE | kg | | | mm | FE | kg | WE | kg | | | |
| 1/2 | 9.5 | | 6.0 | | 4.8 | | 12.6 | 9.5 | | 7.3 | | 4.6 | | 12.6 | 9.5 | | 8.3 | | 5.1 | | 2.3 | | 12.6 |
| 13 | 241 | | 2.7 | | 2.2 | | | 241 | | 3.3 | | 2.1 | | | 244 | | 3.8 | | 2.3 | | | | |
| 3/4 | 10.3 | | 8.4 | | 6.5 | | 30 | 10.3 | | 11.2 | | 6.1 | | 30 | 10.6 | | 15.0 | | 7.1 | | | | 30 |
| 19 | 262 | | 3.8 | | 2.9 | | | 262 | | 5.1 | | 2.8 | | | 269 | | 6.8 | | 3.2 | | | | |
| 1 | 11.3 | | 12.5 | | 9.0 | | 55 | 11.3 | | 15.4 | | 9.1 | | 55 | 11.5 | | 20.9 | | 10.6 | | | | 55 |
| 25 | 287 | | 5.7 | | 4.1 | | | 287 | | 7.0 | | 4.1 | | | 292 | | 9.5 | | 4.8 | | | | |
| 1 1/2 | 14.5 | | 23.9 | | 18.0 | | 130 | 14.5 | | 33.1 | | 18.0 | | 130 | 14.8 | | 38.1 | | 21.3 | | | | 130 |
| 38 | 368 | | 10.8 | | 8.2 | | | 368 | | 15.0 | | 8.2 | | | 376 | | 17.3 | | 9.7 | | | | |
| 2 | 16.6 | | 29 | | 24.3 | | 240 | 16.8 | | 37 | | 28 | | 240 | 19.8 | | 77 | | 57 | | | | 240 |
| 50 | 421 | | 13 | | 11 | | | 426 | | 17 | | 13 | | | 502 | | 35 | | 26 | | | | |
| 2 1/2 | 18.3 | | 43 | | 37 | | 390 | 20.2 | | 50 | | 36 | | 390 | 25.7 | | 148 | | 126 | | | | 390 |
| 65 | 464 | | 20 | | 17 | | | 514 | | 23 | | 16 | | | 653 | | 67 | | 57 | | | | |
| 3 | 20.7 | | 53 | | 48 | | 560 | 20.9 | | 53 | | 48 | | 560 | 27.9 | | 174 | | 143 | | | | 560 |
| 80 | 527 | | 24 | | 22 | | | 530 | | 24 | | 22 | | | 709 | | 79 | | 65 | | | | |
| 4 | 25.8 | | 86 | | 75 | | 1020 | 25.9 | | 119 | | 101 | | 1020 | 33.4 | | 315 | | 251 | | | | 1020 |
| 100 | 655 | | 39 | | 34 | | | 658 | | 54 | | 46 | | | 848 | | 143 | | 114 | | | | |
| 6 | 34.1 | | 139 | | 129 | | 2440 | 34.6 | | 227 | | 174 | | 2440 | 46.5 | | 677 | | 573 | | | | 2440 |
| 150 | 867 | | 63 | | 58 | | | 878 | | 103 | | 79 | | | 1182 | | 307 | | 260 | | | | |
| 8 | 44.1 | | 251 | | 210 | | 4490 | 46.5 | | 412 | | 379 | | 4490 | 54.3 | | 1096 | | 942 | | | | 4340 |
| 200 | 1119 | | 114 | | 95 | | | 1180 | | 187 | | 172 | | | 1380 | | 497 | | 427 | | | | |
| 10 | 53.6 | | 419 | | 348 | | 7000 | 56.0 | | 673 | | 617 | | 7000 | 62.2 | | 1574 | | 1334 | | | | 6660 |
| 250 | 1362 | | 190 | | 158 | | | 1423 | | 305 | | 280 | | | 1581 | | 714 | | 605 | | | | |
| 12 | 61.4 | | 551 | | 536 | | 10500 | 65.0 | | 957 | | 917 | | 10500 | 71.1 | | 2000 | | 1702 | | | | 10000 |
| 300 | 1560 | | 250 | | 243 | | | 1650 | | 434 | | 416 | | | 1806 | | 907 | | 772 | | | | |
| 14 | 66.7 | | 741 | | 732 | | 12800 | 73.8 | | 1555 | | 1277 | | 12800 | 76.2 | | 2761 | | 2373 | | | | 12000 |
| 350 | 1693 | | 336 | | 332 | | | 1875 | | 705 | | 579 | | | 1935 | | 1252 | | 1076 | | | | |
| 16 | 74.4 | | 975 | | 963 | | 16900 | 81.8 | | 1949 | | 1663 | | 16900 | 84.7 | | 3616 | | 3098 | | | | 15800 |
| 400 | 1889 | | 442 | | 437 | | | 2078 | | 884 | | 754 | | | 2151 | | 1640 | | 1405 | | | | |
| 18 | 84.7 | | 1433 | | 1299 | | 22500 | 89.3 | | 4935 | | 2196 | | 21900 | 91.5 | | 4507 | | 3861 | | | | 20600 |
| 450 | 2151 | | 650 | | 589 | | | 2267 | | 2238 | | 996 | | | 2324 | | 2044 | | 1751 | | | | |
| 20 | 94.7 | | 1744 | | 1678 | | 28100 | 98.1 | | 3380 | | 2745 | | 27300 | 99.1 | | 4507 | | 4279 | | | | 25200 |
| 500 | 2414 | | 791 | | 761 | | | 2502 | | 1533 | | 1245 | | | 2517 | | 2044 | | 1941 | | | | |
| 24 | 112.6 | | 2580 | | 2481 | | 40900 | 115.8 | | 4911 | | 3958 | | 40000 | 116.5 | | 7949 | | 7621 | | | | 36600 |
| 600 | 2859 | | 1170 | | 1125 | | | 2942 | | 2227 | | 1795 | | | 2960 | | 3605 | | 3457 | | | | |



FE = Flanged ends
WE = Weld ends

F = Dismantling Dimension

WT = Weight
C_v = Flow coefficient