

## Design

cast steel gate valve are designed and manufactured to provide maximum service life and dependability. All gate valves are full ported and meet the design requirements of American petroleum institute Standard API 600 & API 6D, British Standard BS 1414 & BS EN 1084 and generally conform to American Society of Mechanical Engineers Standard ASME B 18.34. Valves are available in a complete range of body/bonnet materials and trims.

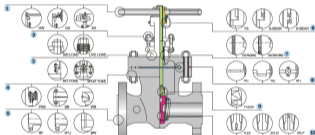
## Available Modifications For Cast Steel Valves

- \* Trim changes
- \* End connection Modifications
- \* Packing and Gasket Changes
- \* Operator Mounting
- \* Handwheel Extensions

## Range of Materials

Standard body/bonnet materials include nine grades of carbon, low alloy and stainless steels. For special applications they can be supplied in other grades of alloy and stainless steel. There's a full range of trim materials to match any service. Optional packing and gasket materials are available for a full range of service conditions.

- \* Pressure Equalizing
- \* By-pass
- \* Customer specified Coatings
- \* Weld End Box Changes
- \* Oxygen & Chlorine Cleaning & Packaging



### 1 Operating

Large hand wheels for easy operation. Also available with gearing, motor actuation, pneumatic or hydraulic actuation for more difficult services.

### 2 OS & Y

Outside Screw and Yoke. Cast steel gate valve yokes. Integral with bonnet for 100LB-3" - 300LB-6" , 900LB-6" - 900LB-4" & Small.

### 3 End Connections

A choice of Flanged, RTJ flanged or Butt welding end for piping flexibility

### 7 Lantern Ring and Double Packing set

Lantern ring with leak-off fitting connection and double packing stack is optionally available for critical services.

### 8 Stem

All wedge gate valves are provided with upset forged T-head stems. By forging the T-head, the stem at the stem-wedge connection is strengthened. This design also allows the wedge to self-align, eliminating the possibility of a bent stem jamming the wedge.

### 2 Live Load Packing

In services requiring frequent cycling or with high pressure/temperature variations, live loading extends the service life between maintenance periods by requiring less frequent packing gland adjustments. Belleville springs are employed to provide constant packing gland stress.

### 4 BB

Bolted bonnet. Welding bonnet and pressure seal bonnet in services requiring frequent cycling or with high pressure/temperature variations.

### 6 Yoke Sleeve

Extra long thread engagement between yoke sleeve and stem provide long thread life. Values of sizes larger than 150LB-12" , 300LB-10" - 900LB-8" - 900LB/1500LB/2500LB-4" are regularly provided with roll bearing yokes.

### 5 Body-to-Bonnet Joint

A flat face gasket joint is used in the 100LB valves. A male and female joint is used in 300LB to 600LB valves. Ring joint is used in the body to bonnet connection in 900LB & higher rated valves.

### 3 Wedge

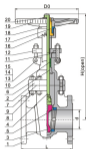
Integral guide rib faces assure self-centering of wedge. Flexible wedge gate valve has a one-piece, twin-disc wedge, which is designed so that each half flexes independently. Available in solid, for split and HSS designs.

### Applicable standards:

STEEL GATE VALVES, API 600/API 6D  
 STEEL GATE VALVES, ISO 1944/ISO 14313  
 STEEL VALVES, ASME B 16.34  
 FACE TO FACE, ASME B 16.5  
 END FLANGES, ASME B 16.5  
 BUTTWELDING ENDS, ASME B 16.25  
 INSPECTION AND TEST, API 688/API 6D

### Design description:

FULL PORT DESIGN  
 OS & Y, OUTSIDE SCREW AND YOKER  
 BS, BOLTED BONNET  
 FLEXIBLE WEDGE, FULLY GUIDED  
 CHOICE OF SOLID OR SPLIT WEDGE  
 RENOVABLES SEAT RINGS  
 FORGED T-HREAD STEM  
 RISING STEM AND NOM. RISING HANDWHEEL  
 FLANGED OR BUTTWELDING ENDS  
 AVAILABLE WITH BS OPERATOR

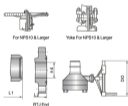


### Materials of parts

| No | Part Name         | ASTM Material                 |             |               |
|----|-------------------|-------------------------------|-------------|---------------|
|    |                   | Carbon Steel                  | 1 1/4Cr-1Mo | Carbon Steel  |
| 1  | Body              | A216-WCB                      | A217-WC2    | A352-LDB      |
| 2  | Bonnet            | A216-WCB                      | A217-WC2    | A352-LDB      |
| 3  | Wedge             | A216-WCB-CR13                 | A217-WC2H-F | A352-LDB-CR13 |
| 4  | Seat              | A192-FH3                      | 2H 8852     | A192-FH3      |
| 5  | Seat Ring         | A192-CR13                     | A192-F1H-F  | A350-F3H-CR13 |
| 6  | Stem Neck Seal    | A276-420                      | A276-304    | A276-420      |
| 7  | Bonnet Gasket     | Spiral Wound (Graphite+304)   |             |               |
| 8  | Bonnet Stud       | A193-B7                       | A193-B7E    | A320-L7       |
| 9  | Bonnet Stud Nut   | A194-2H                       | A194-7      | A194-4        |
| 10 | Packing           | Graphite                      |             |               |
| 11 | Gland             | A276-420                      | A276-304    | A276-420      |
| 12 | Gland Flange      | A216-WCB                      | A217-WC2    | A352-LDB      |
| 13 | Eyebolt Pin       | Carbon Steel                  | A276-420    | Carbon Steel  |
| 14 | Eyebolt           | Carbon Steel                  | A193-B7     | Carbon Steel  |
| 15 | Eyebolt Nut       | Carbon Steel                  | A194-2H     | Carbon Steel  |
| 16 | Grease Fitting    | Brass+Steel                   |             |               |
| 17 | Yokascrew         | Aluminum-Bronze <sup>1)</sup> |             |               |
| 18 | Yokascrew Jam Nut | Carbon Steel                  |             |               |
| 19 | Handwheel         | Maleable Iron                 |             |               |
| 20 | Handwheel Nut     | Carbon Steel                  |             |               |

Note 1) Ductile N-Resist optional

2) Wedge and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.



### Dimensions data

| NPS | 2  | 2 1/2 | 3  | 4   | 6   | 8   | 10  | 12  | 14  | 16  | 18  | 20  | 24  | 26  | 28  | 30  | 32  | 36  | 40   | 42   | 48   | in |
|-----|----|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|----|
| DN  | 50 | 65    | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 | 650 | 700 | 750 | 800 | 900 | 1000 | 1050 | 1200 | mm |

#### ANSI Class 150Lb

|          |       |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |
|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| L (RF)   | 7.00  | 7.50  | 8.00  | 9.00  | 10.50 | 11.50 | 13.00 | 14.00 | 15.00 | 16.00 | 17.00 | 18.00 | 20.00 | 22.00  | 24.00  | 24.00  | 26.00  | 28.00  | 32.00  | 32.00  | 32.00  | 42.00  | 42.00  |
| L1 (RF)  | 178   | 191   | 203   | 229   | 267   | 282   | 330   | 356   | 391   | 406   | 432   | 457   | 508   | 559    | 610    | 610    | 711    | 711    | 813    | 813    | 813    | 1067   | 1067   |
| L2 (RF)  | 8.5   | 9.50  | 11.12 | 12.00 | 15.88 | 16.50 | 18.00 | 19.75 | 22.50 | 24.00 | 26.00 | 28.00 | 32.00 | 34.00  | 36.00  | 36.00  | 40.00  | 42.00  | 48.00  | 48.00  | 48.00  | 53.97  | 53.97  |
| H (RF)   | 216   | 241   | 283   | 305   | 403   | 410   | 457   | 502   | 572   | 610   | 660   | 711   | 813   | 864    | 914    | 914    | 965    | 1016   | 1067   | 1143   | 1371   | 1371   | 1371   |
| L2 (RTJ) | 7.46  | 7.99  | 8.50  | 9.48  | 10.98 | 12.00 | 13.50 | 14.48 | 15.51 | 16.49 | 17.51 | 18.50 | 20.51 | -      | -      | 24.48  | -      | 28.50  | -      | -      | -      | -      | -      |
| H (DPEN) | 190   | 203   | 216   | 241   | 279   | 305   | 343   | 368   | 394   | 419   | 445   | 470   | 521   | -      | -      | 622    | -      | 724    | -      | -      | -      | -      | -      |
| (G)      | 16.25 | 17.00 | 18.08 | 23.00 | 30.50 | 37.82 | 45.90 | 53.12 | 60.38 | 67.90 | 74.50 | 83.90 | 96.25 | 110.90 | 116.90 | 124.00 | 129.00 | 146.90 | 130.00 | 130.00 | 136.90 | 161.75 | 161.75 |
| DO       | 380   | 434   | 480   | 594   | 785   | 990   | 1149  | 1350  | 1568  | 1703  | 1882  | 2119  | 2500  | 2806   | 2980   | 3160   | 3289   | 3720   | 3302   | 3479   | 3962   | 3962   | 3962   |
| (G)      | 8     | 8     | 10    | 12    | 12    | 14    | 16    | 18    | 20    | 22    | 24    | 26    | 29    | 29     | 32     | 32     | 36     | 40     | 48     | 48     | 48     | 48     | 48     |
| DO       | 200   | 200   | 250   | 300   | 300   | 350   | 400   | 450   | 500   | 550   | 600   | 640   | 720   | 720    | 800    | 800    | 950    | 1000   | 1020   | 1020   | 1020   | 1020   | 1020   |
| WT (kg)  | 10    | 25    | 32    | 50    | 77    | 121   | 178   | 265   | 363   | 483   | 621   | 792   | 1190  | 1521   | 1838   | 2281   | 2490   | 3310   | 4650   | 5100   | 6500   | 8000   | 8000   |
| WT (kg)  | 15    | 18    | 28    | 41    | 69    | 108   | 158   | 248   | 330   | 424   | 587   | 752   | 1144  | 1570   | 1990   | 3310   | 2540   | 3380   | -      | -      | -      | -      | -      |
| Total    | 13    | 13    | 15    | 27    | 36    | 63    | 84    | 131   | 151   | 235   | 285   | 341   | 602   | -      | -      | 1079   | -      | 1497   | -      | -      | -      | -      | -      |