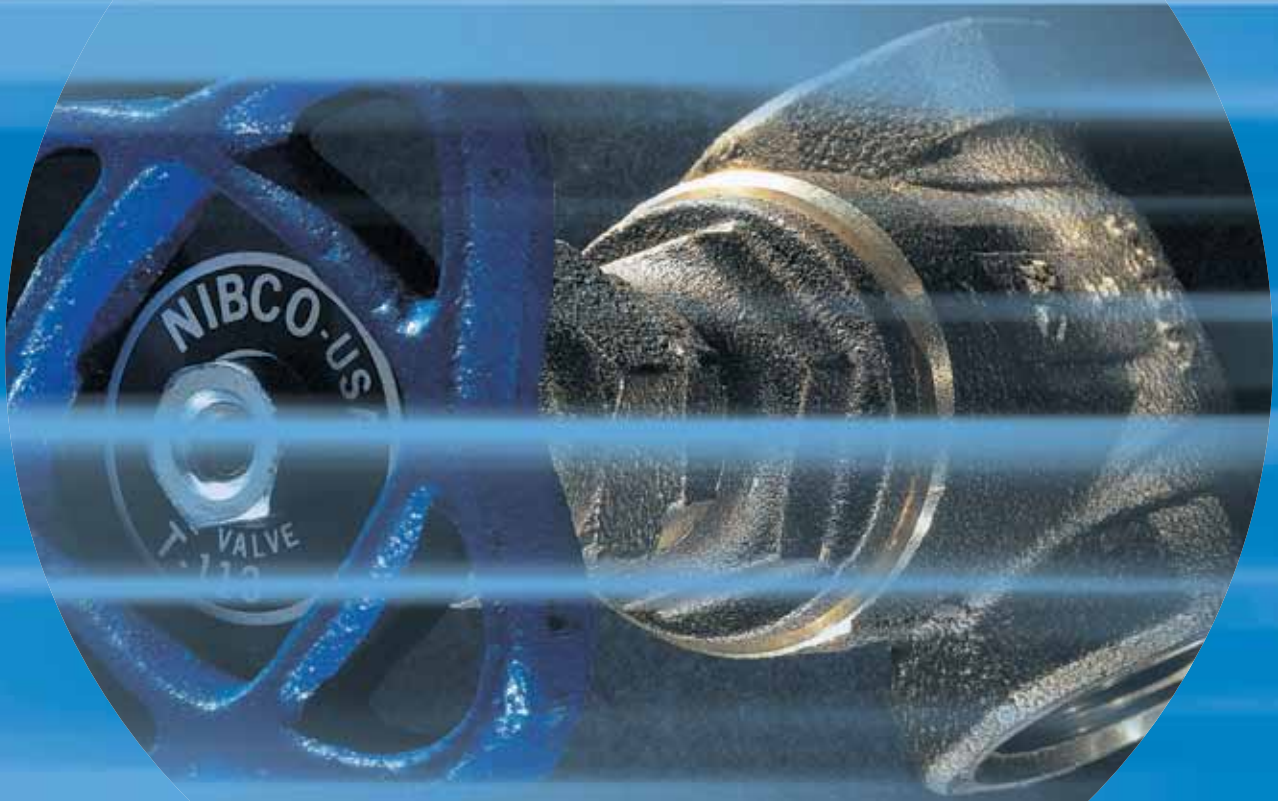


# NIBCO®

AHEAD OF THE FLOW®



Bronze & Iron Valves

# Business-to-Business Solutions

Look to NIBCO for technology leadership.

The velocity with which e-business evolves demands that new products and services be continuously developed and introduced to keep our customers at the center of our business efforts. NIBCO provides an entire suite of business-to-business solutions that is changing the way we interact with customers.



NIBCOpartner.com<sup>SM</sup> is an exclusive set of secure web applications that allow quick access to customer-specific information and online order processing. This self-service approach gives you 24/7 access to your order status putting you in total control of your business.

Real time information includes:

- Online order entry
- Viewable invoices & reports
- Inventory availability
- Current price checks
- Order status
- Online library of price sheets, catalogs & submittals



Electronic Data Interchange (EDI) makes it possible to trade business documents at the speed of light. This technology cuts the cost of each transaction by eliminating the manual labor and paperwork involved in traditional order taking. This amounts to cost-savings, increased accuracy and better use of resources.

With EDI, you can trade:

- Purchase orders
- PO Acknowledgements
- Invoices
- Product activity data
- Advanced ship notices
- Remittance advice



Vendor Managed Inventory (VMI), a sophisticated service for automated inventory management, reduces your overhead by transferring inventory management, order entry and forecasting to NIBCO. This is an on-going, interactive partnership with NIBCO.

Through automation, VMI brings results:

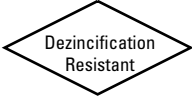
- Improves customer service
- Optimum inventory efficiencies
- Better forecasting
- Cuts transaction costs
- Peace of mind
- Relief from day-to-day management



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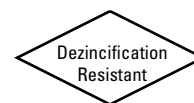
# Pressure Rated Bronze, Iron and Ductile Iron Valves

| Gate, Globe, Angle and Check Valve Figure Number System                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |                                    |                     |                         |                                 |                 |                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------------|---------------------|-------------------------|---------------------------------|-----------------|---------------------------------------------------------------------------|
| <b>Examples:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                      |                                    |                     |                         |                                 |                 |                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1 End                | 2 Type                             | 3 Pressure          | 4 Detail-Features       | 5 Disc Material                 | 6 Misc.         |                                                                           |
| T-113                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | T                    | 1                                  | 1                   | 3                       |                                 |                 |                                                                           |
| F-617-0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | F                    | 6                                  | 1                   | 7                       |                                 | 0               |                                                                           |
| <b>Key:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                      |                                    |                     |                         |                                 |                 |                                                                           |
| 1 End                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2 Type               | 3 Pressure                         | 4 Detail-Features   |                         |                                 | 5 Disc Material | 6 Miscellaneous                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                      |                                    | Gate                | Globe and Angle         | Check                           |                 |                                                                           |
| F-Flanged                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1-Gate-Bronze        | 1-125# SWP/<br>200# CWP            | 1-SB, RS,<br>Solid  | 1-SB, Int               | 3-Hor SW, SB,<br>Int (Y-Pat)    | A-Alloy Threads | BHW-Bronze Handwheel<br>BP-British Parallel<br>BT-British Taper Threads   |
| MJ-Mechanical<br>Joint                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2-Globe-Bronze       | 2-125# SWP/<br>200# CWP            | 2-SB, RS            | 5-UB, Int               | 6-UB, Ren                       | B-Bronze        | B7-B7 Bolting<br>C-Copper Flared<br>D-Drain                               |
| S-Solder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3-Angle-Bronze       | 3-150# SWP/<br>300# or<br>285# CWP | 3-SB, NRS,<br>Solid | 6-UB, Ren               | 8-Hor, SW,<br>BB, Ren           | V-FKM           | GP-Graphite Packing<br>13-3% Nickel Body<br>GO-Gear Operator              |
| T-Threaded                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 4-Check-Bronze       | 5-200# SWP/<br>400# CWP            | 4-UB, RS,<br>Solid  | 8-BB, Ren               | 0-Vert Lift, Ren<br>Silent Type | W-Buna-N        | H-Hose End<br>HC-Hose Cap and Chain<br>K-Cross Handle                     |
| W-Wafer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6-Gate-Iron<br>Body  | 6-250# SWP/<br>500# CWP            | 5-UB, RS,<br>Split  | 9-BB, Ren<br>Stop Check |                                 | Y-PTFE          | L-Lockshield<br>L&W-Lever and Weight<br>L&S-Lever and Spring              |
| P-IPS Push-on                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 7-Globe-Iron<br>Body | 7-300# SWP/<br>600# CWP            | 6-UB, NRS,<br>Solid |                         |                                 |                 | N-Iron Trim<br>O-OS&Y<br>P-Full Plug Disc                                 |
| PR-IPS Push-on<br>w/Joint<br>Restraint                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 8-Angle-Iron<br>Body | 8-250# CWP<br><br>9-300# CWP       | 7-BB, RS,<br>Solid  |                         |                                 |                 | RW-Resilient Wedge<br>SON-Square Operating Nut<br>SS-Stainless Steel Trim |
| G-Grooved                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 9-Check-Iron<br>Body | 0-175# WWP                         | 9-BB, NRS,<br>Solid |                         |                                 |                 | T-Solid Tee Handle<br>TP-PTFE Packing<br>X-Oxygen Service<br>Z-By-Pass    |
| <b>Terms:</b> <div> <div>CI Cast Iron</div> <div>POA Price on Application</div> <div>SB Screw-in Bonnet</div> </div> <div> <div>BB Bolted Bonnet</div> <div>MI Malleable Iron</div> <div>Ren Renewable</div> <div>UB Union Bonnet</div> </div> <div> <div>Int Integral</div> <div>NRS Non-Rising Stem</div> <div>RS Rising Stem</div> <div>FF Flat Face Flanges</div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                      |                                    |                     |                         |                                 |                 |                                                                           |
| <div>  <p><b>De-alloying corrosion, known as "Dezincification," was effectively eradicated from valve products in the 1950s. Today, however, this problem has returned with the increased use of high-zinc alloys (commonly referred to as 'Yellow Brass') in forged and cast valves typically produced outside the United States.</b></p> <p><b>Dezincification selectively removes zinc from the alloy, leaving behind a porous, copper-rich structure that has little mechanical strength. The physical attributes of an in-service valve with Dezincification includes a white powdery substance or mineral stains on its exterior surface.</b></p> <p><b>What's the cure? On all bronze valves the metal components in the waterway must not contain more than 15% zinc in their chemical makeup. As a standard NIBCO bronze pressure-rated valves are made to be "Dezincification Resistant," which is a seal of quality and longevity.</b></p> </div> |                      |                                    |                     |                         |                                 |                 |                                                                           |

This key is a guide only and is not intended to infer that any valve will be produced that is contained in the key.

# Bronze Gate Valves

## Illustrated Index



|                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Bronze Gate Valve<br/>Screw-in Bonnet<br/>125 lb. SWP<br/>200 lb. CWP</p>  <p><b>T or S-111</b><br/>Rising Stem • Solid Wedge<br/>Sizes 1/4" thru 3"<br/>Threaded or Solder Ends<br/><b>Page 6</b></p>   | <p>Bronze Gate Valve<br/>Screw-in Bonnet<br/>125 lb. SWP<br/>200 lb. CWP</p>  <p><b>T or S-113</b><br/>Non-Rising Stem • Solid Wedge<br/>Sizes 1/4" thru 3"<br/>Threaded or Solder Ends<br/><b>Page 7</b></p>                            | <p>Bronze Hose Gate Valve<br/>Screw-in Bonnet<br/>125 lb. SWP<br/>200 lb. CWP</p>  <p><b>T-113-HC</b><br/>Non-Rising Stem • Solid Wedge<br/>Sizes 1/2" thru 1 1/2"<br/>Threaded Ends<br/><b>Page 8</b></p>                                   | <p>Bronze Gate Valve<br/>Union Bonnet<br/>125 lb. SWP<br/>200 lb. CWP</p>  <p><b>T-124</b><br/>Rising Stem • Solid Wedge<br/>Sizes 1/4" thru 3"<br/>Threaded Ends<br/><b>Page 9</b></p>                                                    |
| <p>Bronze Gate Valve<br/>Screw-in Bonnet<br/>150 lb. SWP<br/>300 lb. CWP</p>  <p><b>T-131</b><br/>Rising Stem • Solid Wedge<br/>Sizes 1/4" thru 3"<br/>Threaded Ends<br/><b>Page 10</b></p>                | <p>Bronze Gate Valve<br/>Screw-in Bonnet<br/>150 lb. SWP<br/>300 lb. CWP</p>  <p><b>T-133</b><br/>Non-Rising Stem • Solid Wedge<br/>Sizes 1/4" thru 3"<br/>Threaded Ends<br/><b>Page 11</b></p>                                         | <p>Bronze Gate Valve<br/>Union Bonnet<br/>150 lb. SWP<br/>300 lb. CWP</p>  <p><b>T or S-134</b><br/>Rising Stem • Solid Wedge<br/>Sizes 1/4" thru 3"<br/>Size 4" Bolted Bonnet<br/>Threaded or Solder Ends<br/><b>Page 12, 13</b></p>       | <p>Bronze Gate Valve<br/>Union Bonnet<br/>150 lb. SWP<br/>300 lb. CWP</p>  <p><b>T or S-136</b><br/>Non-Rising Stem • Solid Wedge<br/>Sizes 1/4" thru 3"<br/>Size 4" Bolted Bonnet<br/>Threaded or Solder Ends<br/><b>Page 14, 15</b></p> |
| <p>Bronze Gate Valve<br/>Block Design • Union Bonnet<br/>200 lb. SWP<br/>400 lb. CWP</p>  <p><b>T-154-A</b><br/>Rising Stem • Solid Wedge<br/>Sizes 1/4" thru 2"<br/>Threaded Ends<br/><b>Page 16</b></p> | <p>Bronze Gate Valve<br/>Block Design • Union Bonnet<br/>300 lb. SWP<br/>600 lb. CWP</p>  <p><b>T-174-A or SS</b><br/>Bronze or SS Seats<br/>Rising Stem • Solid Wedge<br/>Sizes 1/4" thru 2"<br/>Threaded Ends<br/><b>Page 17</b></p> | <p>Bronze Gate Valve<br/>Block Design • Union Bonnet<br/>300 lb. SWP<br/>600 lb. CWP</p>  <p><b>T-176-A or SS</b><br/>Bronze or SS Seats<br/>Non-Rising Stem • Solid Wedge<br/>Sizes 1/4" thru 2"<br/>Threaded Ends<br/><b>Page 18</b></p> |                                                                                                                                                                                                                                                                                                                               |

# Class 125 Bronze Gate Valves

Screw-in Bonnet • Rising Stem • Solid Wedge

**125 PSI/8.6 Bar Saturated Steam to 353° F/178° C**  
**200 PSI/13.8 Bar Non-Shock Cold Working Pressure**

CONFORMS TO MSS SP-80

## MATERIAL LIST

| PART                    | SPECIFICATION                                                                 |
|-------------------------|-------------------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                                    |
| 2. Identification Plate | Aluminum                                                                      |
| 3. Handwheel            | Malleable Iron ASTM A 47                                                      |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430<br>or ASTM B 99 Alloy C65100 |
| 5. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16             |
| 6. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16             |
| 7. Packing              | Aramid Fibers with Graphite                                                   |
| 8. Bonnet               | Bronze ASTM B 62                                                              |
| 9. Body                 | Bronze ASTM B 62                                                              |
| 10. Wedge               | Bronze ASTM B 62                                                              |

## DIMENSIONS—WEIGHTS—QUANTITIES

| Dimensions |     |      |     |       |     |      |     |       |      |       |      |       |       | Master<br>Ctn. Qty. |  |
|------------|-----|------|-----|-------|-----|------|-----|-------|------|-------|------|-------|-------|---------------------|--|
| Size       |     | A    |     | B     |     | C    |     | T-111 |      | S-111 |      |       |       |                     |  |
| In.        | mm. | In.  | mm. | In.   | mm. | In.  | mm. | Lbs.  | Kg.  | Lbs.  | Kg.  | T-111 | S-111 |                     |  |
| † ¼        | 8   | 1.69 | 43  | 4.63  | 117 | x    | x   | 0.79  | 0.36 | x     | x    | 50    | x     |                     |  |
| † ⅜        | 10  | 1.69 | 43  | 4.63  | 117 | .69  | 18  | 0.76  | 0.35 | 0.70  | 0.32 | 50    | 50    |                     |  |
| † ½        | 15  | 1.94 | 49  | 4.81  | 122 | .75  | 19  | 0.87  | 0.40 | 0.73  | 0.33 | 50    | 50    |                     |  |
| ¾          | 20  | 2.06 | 54  | 5.81  | 148 | .88  | 22  | 1.19  | 0.54 | 1.07  | 0.49 | 50    | 50    |                     |  |
| 1          | 25  | 2.44 | 62  | 7.09  | 180 | 1.00 | 25  | 1.98  | 0.90 | 1.77  | 0.80 | 30    | 30    |                     |  |
| 1 ¼        | 32  | 2.63 | 67  | 8.13  | 206 | 1.19 | 32  | 2.66  | 1.21 | 2.52  | 1.14 | 20    | 20    |                     |  |
| 1 ½        | 40  | 2.88 | 72  | 9.81  | 249 | 1.25 | 33  | 3.76  | 1.70 | 3.42  | 1.55 | 10    | 10    |                     |  |
| 2          | 50  | 3.06 | 78  | 11.56 | 294 | 1.31 | 34  | 5.56  | 2.52 | 5.23  | 2.37 | 10    | 10    |                     |  |
| 2 ½        | 65  | 4.13 | 105 | 14.31 | 364 | 1.81 | 46  | 10.81 | 4.90 | 9.63  | 4.37 | 4     | 4     |                     |  |
| 3          | 80  | 4.50 | 114 | 16.50 | 419 | 1.94 | 49  | 15.49 | 7.02 | 13.92 | 6.31 | 2     | 4     |                     |  |

† No packing gland, packing only in these sizes.

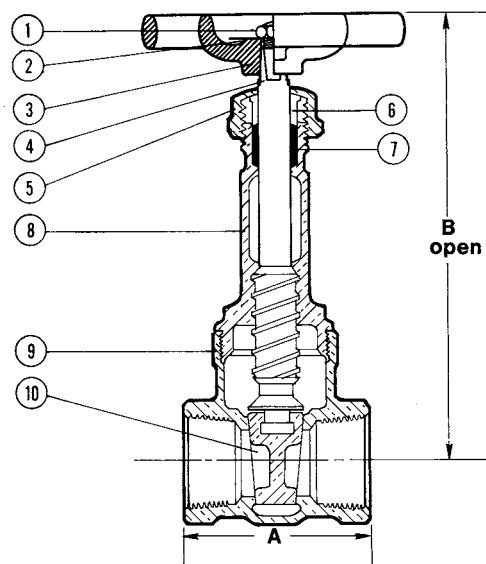
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 Dezincification  
Resistant

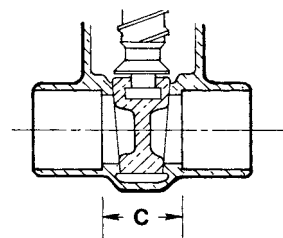

**T-111**  
Threaded



**S-111**  
Solder



**T-111**  
NPT x NPT



**S-111**  
C x C

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 125 Bronze Gate Valves

Screw-in Bonnet • Non-Rising Stem • Solid Wedge

**125 PSI/8.6 Bar Saturated Steam to 353° F/178° C**  
**200 PSI/13.8 Bar Non-Shock Cold Working Pressure**

CONFORMS TO MSS SP-80

## MATERIAL LIST

| PART                    | SPECIFICATION                                                                             |
|-------------------------|-------------------------------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                                                |
| 2. Identification Plate | Aluminum                                                                                  |
| 3. Handwheel            | a. Malleable Iron ASTM A 47 (T-113)<br>b. Bronze (T-113-BHW)<br>c. Bronze Cross (T-113-K) |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430<br>or ASTM B99 Alloy C65100              |
| 5. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16                         |
| 6. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16                         |
| 7. Packing              | Aramid Fibers with Graphite                                                               |
| 8. Stuffing Box         | Bronze ASTM B 62                                                                          |
| 9. Bonnet               | Bronze ASTM B 62                                                                          |
| 10. Body                | Bronze ASTM B 62                                                                          |
| 11. Wedge               | Bronze ASTM B 62                                                                          |

## DIMENSIONS—WEIGHTS—QUANTITIES

| Dimensions |     |      |     |      |     |      |     |       |      |       |      |                  |
|------------|-----|------|-----|------|-----|------|-----|-------|------|-------|------|------------------|
| Size       |     | A    |     | B    |     | C    |     | T-113 |      | S-113 |      | Master Ctn. Qty. |
| In.        | mm. | In.  | mm. | In.  | mm. | In.  | mm. | Lbs.  | Kg.  | Lbs.  | Kg.  |                  |
| ¼ †        | 8   | 1.69 | 43  | 3.38 | 86  | x    | x   | 0.74  | 0.33 | x     | x    | 50               |
| ⅜ †        | 10  | 1.69 | 43  | 3.38 | 86  | .69  | 18  | 0.71  | 0.32 | 0.65  | 0.29 | 50               |
| ½ †        | 15  | 1.94 | 49  | 3.63 | 92  | .75  | 19  | 0.82  | 0.37 | 0.67  | 0.31 | 50               |
| ¾          | 20  | 2.06 | 54  | 3.91 | 99  | .88  | 22  | 1.10  | 0.50 | 0.99  | 0.45 | 50               |
| 1          | 25  | 2.44 | 62  | 4.69 | 119 | 1.00 | 25  | 1.82  | 0.82 | 1.60  | 0.72 | 30               |
| 1¼         | 32  | 2.63 | 67  | 5.22 | 133 | 1.19 | 32  | 2.40  | 1.09 | 2.25  | 1.02 | 20               |
| 1½         | 40  | 2.88 | 72  | 6.25 | 159 | 1.25 | 33  | 3.51  | 1.59 | 3.17  | 1.44 | 10               |
| 2          | 50  | 3.06 | 78  | 7.06 | 179 | 1.31 | 34  | 4.93  | 2.24 | 4.60  | 2.09 | 10               |
| 2½         | 65  | 4.13 | 105 | 8.41 | 224 | 1.81 | 46  | 9.96  | 4.52 | 8.78  | 3.98 | 5                |
| 3          | 80  | 4.50 | 114 | 10   | 254 | 1.94 | 49  | 14.40 | 6.53 | 12.84 | 5.82 | 4                |

† No packing gland, packing only in these sizes.

x Not available this size.

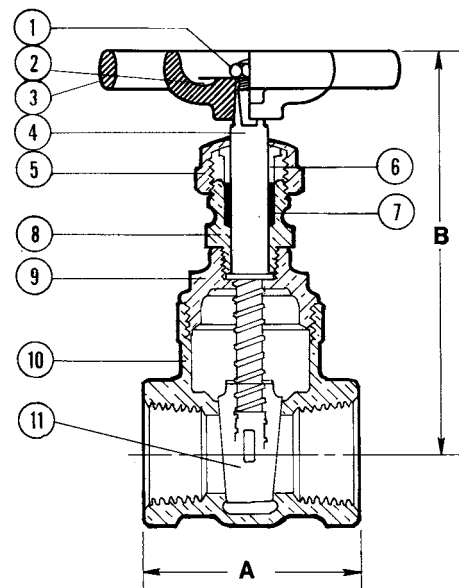


**T-113**  
Threaded

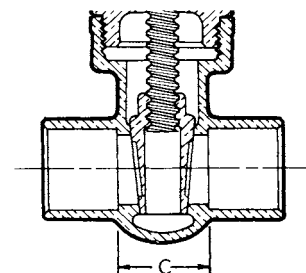


**S-113**  
Solder

Dezincification  
Resistant



**T-113**  
NPT x NPT



**S-113**  
C x C

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 125 Bronze Gate Valves

Screw-in Bonnet • Non-Rising Stem • Solid Wedge

**125 PSI/8.6 Bar Saturated Steam to 353° F/178° C**  
**200 PSI/13.8 Bar Non-Shock Cold Working Pressure**

CONFORMS TO MSS SP-80

## MATERIAL LIST

| PART                    | SPECIFICATION                                                       |
|-------------------------|---------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                          |
| 2. Identification Plate | Aluminum                                                            |
| 3. Handwheel            | Malleable Iron ASTM A 47                                            |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430                    |
| 5. Packing Nut          | Sintered Bronze ASTM B 438 70<br>Grade I Type II or Brass ASTM B 16 |
| 6. Packing Gland        | Sintered Bronze ASTM B 438 70<br>Grade I Type II or Brass ASTM B 16 |
| 7. Packing              | Aramid Fibers with Graphite                                         |
| 8. Stuffing Box         | Bronze ASTM B 62                                                    |
| 9. Bonnet               | Bronze ASTM B 62                                                    |
| 10. Body                | Bronze ASTM B 62                                                    |
| 11. Wedge               | Bronze ASTM B 62                                                    |
| *12. Hose Cap           | Bronze ASTM B 62                                                    |
| 13. Hose Cap Gasket     | Rubber                                                              |
| 14. Safety Chain        | Brass                                                               |

**NOTE: Valve available less cap and chain – consult factory.**

\* ½ – 1 is 11½ threads per inch

1¼–1½ is 9 threads per inch

## DIMENSIONS—WEIGHTS—QUANTITIES

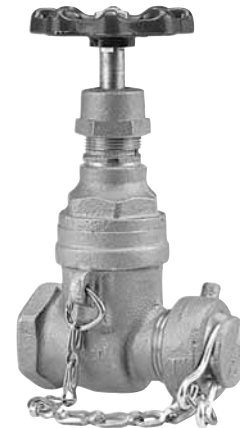
| Dimensions |           |      |     |      |     |      |     |        |      |                     |
|------------|-----------|------|-----|------|-----|------|-----|--------|------|---------------------|
| Size       |           | A    |     | B    |     | H    |     | Weight |      | Master<br>Ctn. Qty. |
| In.        | mm.       | In.  | mm. | In.  | mm. | In.  | mm. | Lbs.   | Kg.  |                     |
| ½ x ¾H     | 15 x 20H† | 1.13 | 29  | 4.44 | 113 | 2.06 | 52  | 1.52   | 0.69 | 30                  |
| ¾ x ¾H     | 20 x 20H† | 1.25 | 32  | 5.06 | 129 | 2.13 | 54  | 1.84   | 0.84 | 20                  |
| 1 x 1H     | 25 x 25H* | 1.44 | 37  | 5.88 | 149 | 2.38 | 60  | 2.93   | 1.33 | 20                  |
| 1¼ x 1¼H   | 32 x 32H‡ | 1.56 | 40  | 6.63 | 168 | 2.75 | 70  | 4.27   | 1.94 | 10                  |
| 1½ x 1½H   | 40 x 40H‡ | 1.69 | 43  | 7.09 | 180 | 2.94 | 75  | 5.75   | 2.61 | 10                  |

† Garden Hose Thread

\* Special Pitch Hose Thread

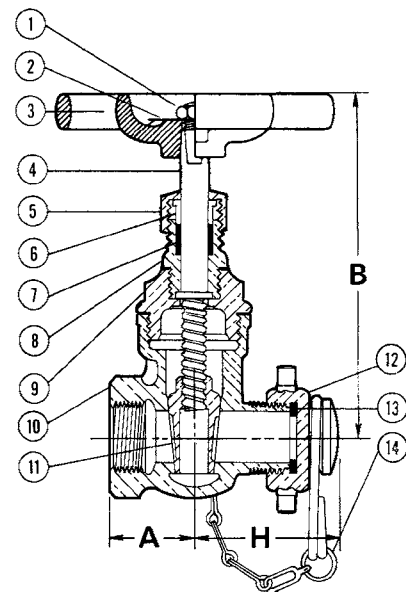
‡ American National Fire Hose Thread

Dezincification  
Resistant



**T-113-HC**

Threaded x Hose Thread



**T-113-HC**

NPT x ANFH

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 125 Bronze Gate Valves

Union Bonnet • Rising Stem • Solid Wedge

**125 PSI/8.6 Bar Saturated Steam to 353° F/178° C**  
**200 PSI/13.8 Bar Non-Shock Cold Working Pressure**

CONFORMS TO MSS SP-80

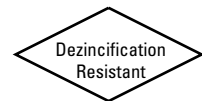
## MATERIAL LIST

| PART                    | SPECIFICATION                                                                 |
|-------------------------|-------------------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                                    |
| 2. Identification Plate | Aluminum                                                                      |
| 3. Handwheel            | Malleable Iron ASTM A 47                                                      |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430<br>or ASTM B 99 Alloy C65100 |
| 5. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16             |
| 6. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16             |
| 7. Packing              | Aramid Fibers with Graphite                                                   |
| 8. Bonnet               | Bronze ASTM B 62                                                              |
| *9. Union Nut           | Bronze ASTM B 62                                                              |
| 10. Body                | Bronze ASTM B 62                                                              |
| 11. Wedge               | Bronze ASTM B 62                                                              |

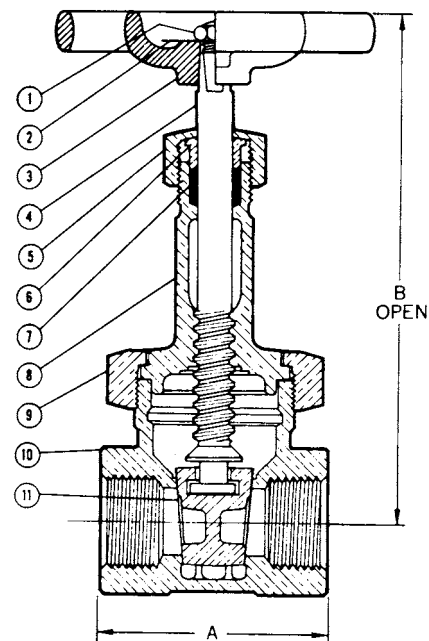
\* Sizes 1/4", 3/8", 1/2" ASTM B 124 Alloy C37700.

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size  |     | Dimensions |     |       |     | Weight |      | Master Ctn. Qty. |
|-------|-----|------------|-----|-------|-----|--------|------|------------------|
|       |     | A          |     | B     |     |        |      |                  |
| In.   | mm. | In.        | mm. | In.   | mm. | Lbs.   | Kg.  |                  |
| 1/4   | 8   | 1.96       | 60  | 4.81  | 122 | 1.08   | 0.49 | 50               |
| 3/8   | 10  | 1.96       | 50  | 4.81  | 122 | 1.12   | 0.51 | 50               |
| 1/2   | 15  | 2.31       | 59  | 4.81  | 122 | 1.16   | 0.53 | 40               |
| 3/4   | 20  | 2.51       | 64  | 5.81  | 148 | 1.70   | 0.77 | 30               |
| 1     | 25  | 2.92       | 74  | 7.09  | 180 | 2.37   | 1.08 | 20               |
| 1 1/4 | 32  | 3.20       | 81  | 8.13  | 206 | 3.73   | 1.69 | 10               |
| 1 1/2 | 40  | 3.33       | 85  | 9.81  | 249 | 4.67   | 2.12 | 10               |
| 2     | 50  | 3.44       | 87  | 11.56 | 294 | 7.77   | 3.53 | 6                |
| 2 1/2 | 65  | 4.35       | 110 | 14.31 | 364 | 12.70  | 5.76 | 4                |
| 3     | 80  | 5.31       | 135 | 16.50 | 419 | 18.74  | 8.51 | 2                |



**T-124**  
Threaded



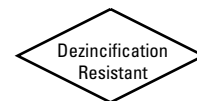
**T-124**  
NPT x NPT

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 150 Bronze Gate Valves

Screw-in Bonnet • Rising Stem • Solid Wedge



**150 PSI/10.3 Bar Saturated Steam to 366° F/185° C**  
**300 PSI/20.7 Bar Non-Shock Working Pressure**

CONFORMS TO MSS SP-80

## MATERIAL LIST

| PART                    | SPECIFICATION                                                                 |
|-------------------------|-------------------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                                    |
| 2. Identification Plate | Aluminum                                                                      |
| 3. Handwheel            | Malleable Iron ASTM A 47                                                      |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430<br>or ASTM B 99 Alloy C65100 |
| 5. Packing Nut          | Bronze ASTM B 62 ASTM B 584<br>Alloy C84400 or Brass ASTM B 16                |
| 6. Packing Gland        | Bronze ASTM B 62 ASTM B 584<br>Alloy C84400 or Brass ASTM B 16                |
| 7. Packing              | Aramid Fibers with Graphite                                                   |
| 8. Bonnet               | Bronze ASTM B 62                                                              |
| 9. Body                 | Bronze ASTM B 62                                                              |
| 10. Wedge               | Bronze ASTM B 62                                                              |

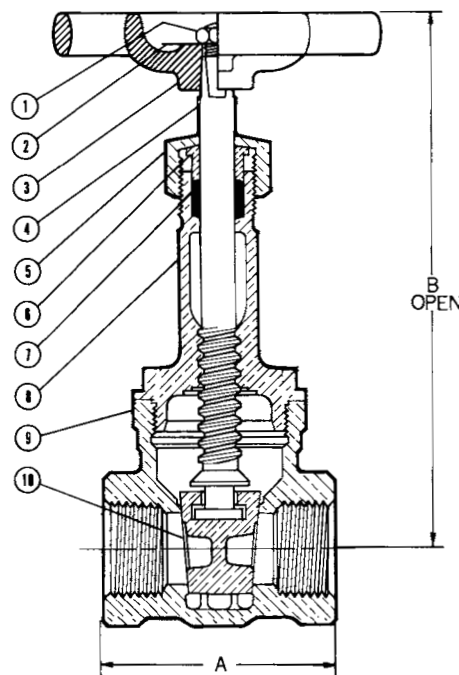


**T-131**

Threaded

## DIMENSIONS—WEIGHTS—QUANTITIES

| Dimensions |     |      |     |       |     |        |      |        |      |
|------------|-----|------|-----|-------|-----|--------|------|--------|------|
| Size       |     | A    |     | B     |     | Weight |      | Master |      |
| In.        | mm. | In.  | mm. | In.   | mm. | Lbs.   | Kg.  | Ctn.   | Qty. |
| 1/4        | 8   | 1.96 | 50  | 4.81  | 122 | 1.01   | 0.46 | 50     |      |
| 3/8        | 10  | 1.96 | 50  | 4.81  | 122 | 1.04   | 0.47 | 50     |      |
| 1/2        | 15  | 2.31 | 59  | 4.81  | 122 | 1.06   | 0.48 | 40     |      |
| 3/4        | 20  | 2.51 | 64  | 5.81  | 148 | 1.49   | 0.67 | 30     |      |
| 1          | 25  | 2.92 | 74  | 7.09  | 180 | 2.18   | 0.99 | 20     |      |
| 1 1/4      | 32  | 3.20 | 81  | 8.13  | 206 | 3.24   | 1.47 | 10     |      |
| 1 1/2      | 40  | 3.33 | 86  | 9.81  | 249 | 4.57   | 2.07 | 10     |      |
| 2          | 50  | 3.44 | 87  | 11.56 | 294 | 7.67   | 3.48 | 6      |      |
| 2 1/2      | 65  | 4.35 | 110 | 14.31 | 364 | 11.97  | 5.43 | 4      |      |
| 3          | 80  | 5.31 | 135 | 16.50 | 419 | 17.43  | 7.91 | 2      |      |



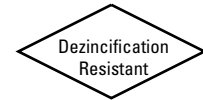
**T-131**  
NPT x NPT

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 150 Bronze Gate Valves

Screw-in Bonnet • Non-Rising Stem • Solid Wedge



**150 PSI/10.3 Bar Saturated Steam to 366° F/185° C**  
**300 PSI/20.7 Bar Non-Shock Cold Working Pressure**

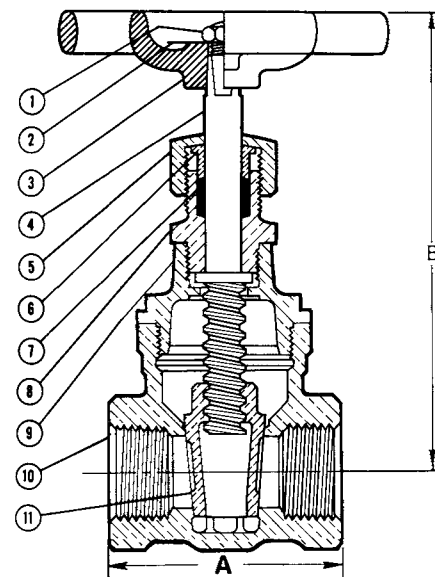
CONFORMS TO MSS SP-80

## MATERIAL LIST

| PART                    | SPECIFICATION                                                                 |
|-------------------------|-------------------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                                    |
| 2. Identification Plate | Aluminum                                                                      |
| 3. Handwheel            | Malleable Iron ASTM A 47                                                      |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430<br>or ASTM B 99 Alloy C65100 |
| 5. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 62             |
| 6. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16             |
| 7. Packing              | Aramid Fibers with Graphite                                                   |
| 8. Stuffing Box         | Bronze ASTM B 62                                                              |
| 9. Bonnet               | Bronze ASTM B 62                                                              |
| 10. Body                | Bronze ASTM B 62                                                              |
| 11. Wedge               | Bronze ASTM B 62                                                              |



**T-133**  
Threaded



**T-133**  
NPT x NPT

## DIMENSIONS—WEIGHTS—QUANTITIES

### Dimensions

| Size |     | A    |     | B     |     | Weight |      | Master Ctn. Qty. |
|------|-----|------|-----|-------|-----|--------|------|------------------|
| In.  | mm. | In.  | mm. | In.   | mm. | Lbs.   | Kg.  |                  |
| ¼    | 8   | 1.96 | 50  | 3.63  | 92  | 1.02   | 0.46 | 50               |
| ⅜    | 10  | 1.96 | 50  | 3.63  | 92  | 1.05   | 0.48 | 50               |
| ½    | 15  | 2.31 | 59  | 3.63  | 92  | 0.93   | 0.42 | 40               |
| ¾    | 20  | 2.51 | 64  | 3.91  | 99  | 1.40   | 0.64 | 30               |
| 1    | 25  | 2.92 | 74  | 4.69  | 119 | 2.03   | 0.92 | 20               |
| 1¼   | 32  | 3.20 | 81  | 5.22  | 133 | 2.97   | 1.35 | 10               |
| 1½   | 40  | 3.33 | 86  | 6.25  | 159 | 4.16   | 1.89 | 10               |
| 2    | 50  | 3.44 | 87  | 7.06  | 179 | 6.75   | 3.07 | 6                |
| 2½   | 65  | 4.35 | 110 | 8.41  | 224 | 10.55  | 4.79 | 4                |
| 3    | 80  | 5.31 | 135 | 10.00 | 254 | 14.86  | 6.75 | 2                |

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 150 Bronze Gate Valves

Union Bonnet • Rising Stem • Solid Wedge

**150 PSI/10.3 Bar Saturated Steam to 366° F/185° C**  
**300 PSI/20.7 Bar Non-Shock Cold Working Pressure**

CONFORMS TO MSS SP-80

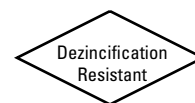
## MATERIAL LIST

| PART                    | SPECIFICATION                                                                 |
|-------------------------|-------------------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                                    |
| 2. Identification Plate | Aluminum                                                                      |
| 3. Handwheel            | Malleable Iron ASTM A 47                                                      |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430<br>or ASTM B 99 Alloy C65100 |
| 5. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16             |
| 6. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16             |
| 7. Packing              | Aramid Fibers with Graphite                                                   |
| 8. Bonnet               | Bronze ASTM B 62                                                              |
| 9. Union Nut            | Bronze ASTM B 62                                                              |
| 10. Body                | Bronze ASTM B 62                                                              |
| 11. Wedge               | Bronze ASTM B 62                                                              |

## DIMENSIONS—WEIGHTS—QUANTITIES

| Dimensions |     |      |     |       |     |      |     |       |      |       |      |    |  | Master<br>Ctn. Qty. |
|------------|-----|------|-----|-------|-----|------|-----|-------|------|-------|------|----|--|---------------------|
| Size       |     | A    |     | B     |     | C    |     | T-134 |      | S-134 |      |    |  |                     |
| In.        | mm. | In.  | mm. | In.   | mm. | In.  | mm. | Lbs.  | Kg.  | Lbs.  | Kg.  |    |  |                     |
| 1/4        | 8   | 1.96 | 50  | 4.81  | 122 | x    | x   | 1.08  | 0.49 | x     | x    | 50 |  |                     |
| 3/8        | 10  | 1.96 | 50  | 4.81  | 122 | 0.79 | 20  | 1.12  | 0.51 | 1.02  | 0.46 | 50 |  |                     |
| 1/2        | 15  | 2.31 | 59  | 4.81  | 122 | 0.76 | 19  | 1.12  | 0.51 | 1.06  | 0.48 | 40 |  |                     |
| 3/4        | 20  | 2.51 | 64  | 5.81  | 148 | 0.98 | 25  | 1.70  | 0.77 | 1.54  | 0.70 | 30 |  |                     |
| 1          | 25  | 2.92 | 74  | 7.09  | 180 | 1.13 | 29  | 2.38  | 1.08 | 2.26  | 1.03 | 20 |  |                     |
| 1 1/4      | 32  | 3.20 | 81  | 8.13  | 206 | 1.18 | 30  | 3.73  | 1.69 | 3.56  | 1.61 | 10 |  |                     |
| 1 1/2      | 40  | 3.33 | 85  | 9.81  | 249 | 1.29 | 33  | 4.67  | 2.12 | 4.46  | 2.02 | 10 |  |                     |
| 2          | 50  | 3.44 | 87  | 11.56 | 294 | 1.31 | 33  | 7.77  | 3.53 | 7.14  | 3.24 | 6  |  |                     |
| 2 1/2      | 65  | 4.35 | 110 | 14.31 | 364 | 1.81 | 46  | 12.70 | 5.77 | 12.30 | 5.58 | 4  |  |                     |
| 3          | 80  | 5.31 | 135 | 16.50 | 419 | 1.97 | 50  | 18.74 | 8.51 | 17.13 | 7.78 | 2  |  |                     |

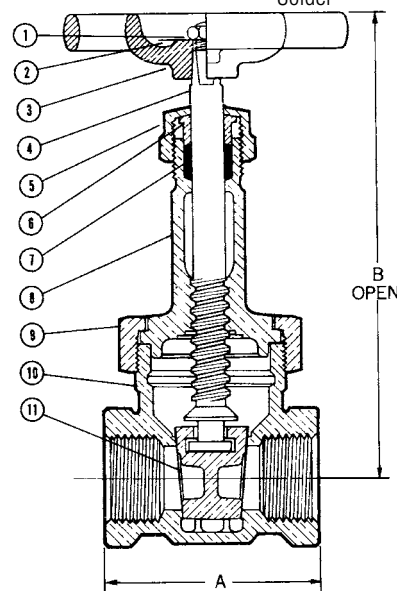
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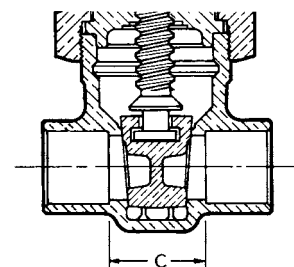
**T-134**  
Threaded



**S-134**  
Solder



**T-134**  
NPT x NPT



**S-134**  
C x C

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 150 Bronze Gate Valves

Bolted Bonnet • Rising Stem • Solid Wedge

**150 PSI/10.3 Bar Saturated Steam to 366° F/185° C**  
**300 PSI/20.7 Bar Non-Shock Cold Working Pressure**

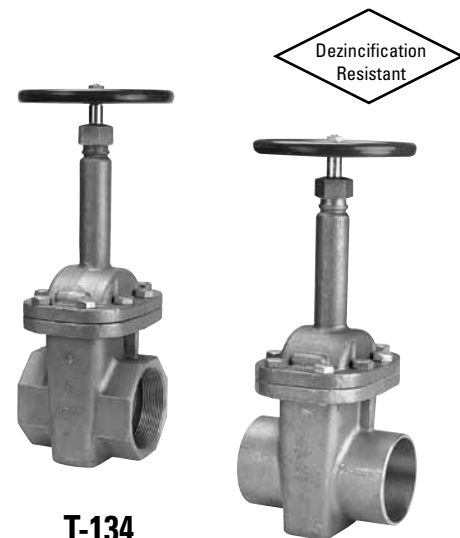
CONFORMS TO MSS SP-80

## MATERIAL LIST

| PART                    | SPECIFICATION                                                     |
|-------------------------|-------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                        |
| 2. Identification Plate | Aluminum                                                          |
| 3. Handwheel            | Aluminum Commercial Alloy 380                                     |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430                  |
| 5. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 6. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 7. Packing              | Aramid Fibers with Graphite                                       |
| 8. Bonnet               | Bronze ASTM B 62                                                  |
| 9. Bonnet Bolt          | Zinc Plated Steel                                                 |
| 10. Bonnet Gasket       | Aramid Fibers with Graphite                                       |
| 11. Wedge               | Bronze ASTM B 62                                                  |
| 12. Body                | Bronze ASTM B 62                                                  |

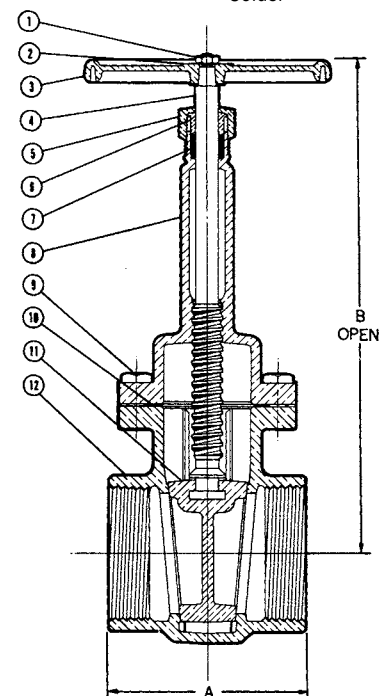
## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |       |     |      |     | T-134 |       | S-134 |       | Master Ctn. Qty |
|------|-----|------------|-----|-------|-----|------|-----|-------|-------|-------|-------|-----------------|
|      |     | A          |     | B     |     | C    |     |       |       |       |       |                 |
| In.  | mm. | In.        | mm. | In.   | mm. | In.  | mm. | Lbs.  | Kg.   | Lbs.  | Kg.   |                 |
| 4    | 100 | 6.44       | 164 | 20.81 | 529 | 3.56 | 90  | 45.68 | 20.72 | 43.96 | 19.94 | 1               |

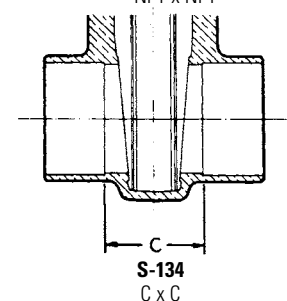


**T-134**  
Threaded

**S-134**  
Solder



**T-134**  
NPT x NPT



**S-134**  
C x C

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 150 Bronze Gate Valves

Union Bonnet • Non-Rising Stem • Solid Wedge

**150 PSI/10.3 Bar Saturated Steam to 366° F/185° C**  
**300 PSI/20.7 Bar Non-Shock Cold Working Pressure**

CONFORMS TO MSS SP-80

## MATERIAL LIST

| PART                    | SPECIFICATION                                                                 |
|-------------------------|-------------------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                                    |
| 2. Identification Plate | Aluminum                                                                      |
| 3. Handwheel            | Malleable Iron ASTM A 47                                                      |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430<br>or ASTM B 99 Alloy C65100 |
| 5. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16             |
| 6. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16             |
| 7. Packing              | Aramid Fibers with Graphite                                                   |
| 8. Stuffing Box         | Bronze ASTM B 62                                                              |
| 9. Bonnet               | Bronze ASTM B 62                                                              |
| 10. Union Nut           | Bronze ASTM B 62                                                              |
| 11. Body                | Bronze ASTM B 62                                                              |
| 12. Wedge               | Bronze ASTM B 62                                                              |
| 13. Wedge Holder        | Bronze ASTM B 62 (Not shown)                                                  |

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |       |     |      |     | T-136 |      | S-136 |      | Master Ctn. Qty. |
|------|-----|------------|-----|-------|-----|------|-----|-------|------|-------|------|------------------|
|      |     | A          |     | B     |     | C    |     |       |      |       |      |                  |
| In.  | mm. | In.        | mm. | In.   | mm. | In.  | mm. | Lbs.  | Kg.  | Lbs.  | Kg.  |                  |
| ¼    | 8   | 1.96       | 50  | 3.63  | 92  | x    | x   | 1.09  | 0.50 | x     | x    | 50               |
| ⅜    | 10  | 1.96       | 50  | 3.63  | 92  | 0.79 | 20  | 1.07  | 0.48 | 1.02  | 0.46 | 50               |
| ½    | 15  | 2.31       | 59  | 3.63  | 92  | 0.76 | 19  | 1.12  | 0.51 | 1.02  | 0.46 | 40               |
| ¾    | 20  | 2.51       | 64  | 3.91  | 99  | 0.98 | 25  | 1.63  | 0.74 | 1.47  | 0.67 | 30               |
| 1    | 25  | 2.92       | 74  | 4.69  | 119 | 1.13 | 29  | 2.26  | 1.03 | 2.15  | 0.98 | 20               |
| 1¼   | 32  | 3.20       | 81  | 5.22  | 133 | 1.18 | 30  | 3.52  | 1.60 | 3.35  | 1.52 | 10               |
| 1½   | 40  | 3.33       | 86  | 6.25  | 159 | 1.29 | 34  | 4.44  | 2.01 | 4.22  | 1.92 | 10               |
| 2    | 50  | 3.44       | 87  | 7.06  | 179 | 1.31 | 33  | 7.35  | 3.34 | 6.72  | 3.05 | 6                |
| 2½   | 65  | 4.35       | 110 | 8.41  | 224 | 1.81 | 46  | 11.80 | 5.36 | 11.40 | 5.17 | 4                |
| 3    | 80  | 5.31       | 135 | 10.00 | 254 | 1.97 | 50  | 17.41 | 7.90 | 15.80 | 7.17 | 2                |

‡ Split Wedge with wedge holder.

x Not available this size.

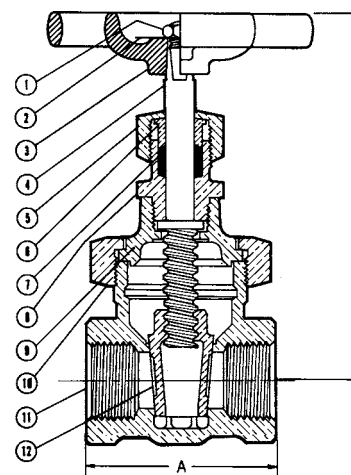
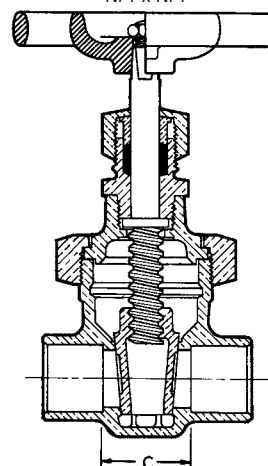
 Dezincification  
Resistant

**T-136**

Threaded


**S-136**

Solder


**T-136**  
NPT x NPT

**S-136**  
C x C

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 150 Bronze Gate Valves

Bolted Bonnet • Non-Rising Stem • Split Wedge

**150 PSI/10.3 Bar Saturated Steam to 366° F/185° C**  
**300 PSI/20.7 Bar Non-Shock Cold Working Pressure**

CONFORMS TO MSS SP-80

## MATERIAL LIST

| PART                    | SPECIFICATION                                                     |
|-------------------------|-------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                        |
| 2. Identification Plate | Aluminum                                                          |
| 3. Handwheel            | Aluminum Commercial Alloy 380                                     |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430                  |
| 5. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 6. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 7. Packing              | Aramid Fibers with Graphite                                       |
| 8. Stuffing Box         | Bronze ASTM B 62                                                  |
| 9. Bonnet               | Bronze ASTM B 62                                                  |
| 10. Bonnet Bolt         | Zinc Plated Steel                                                 |
| 11. Bonnet Gasket       | Aramid Fibers with Graphite                                       |
| 12. Body                | Bronze ASTM B 62                                                  |
| 13. Wedge               | Bronze ASTM B 62                                                  |
| 14. Wedge Holder        | Bronze ASTM B 62                                                  |

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |       |     |      |     | T-136 |       | S-136 |       | Master Ctn. Qty. |
|------|-----|------------|-----|-------|-----|------|-----|-------|-------|-------|-------|------------------|
|      |     | A          |     | B     |     | C    |     |       |       |       |       |                  |
| In.  | mm. | In.        | mm. | In.   | mm. | In.  | mm. | Lbs.  | Kg.   | Lbs.  | Kg.   |                  |
| 4    | 100 | 6.44       | 164 | 12.25 | 311 | 3.56 | 90  | 43.85 | 19.89 | 42.13 | 19.13 | 1                |

NOTE: Split wedge with wedge holder.

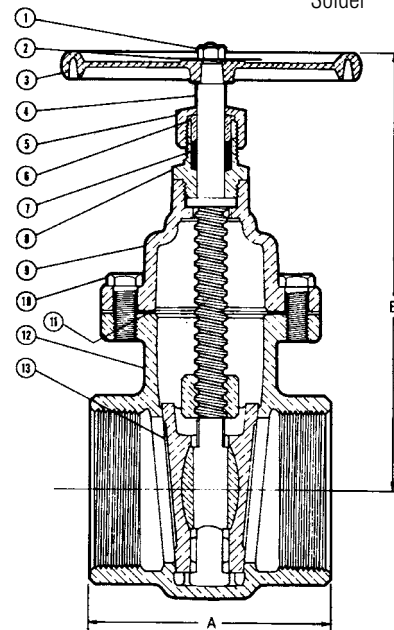
Dezincification  
Resistant



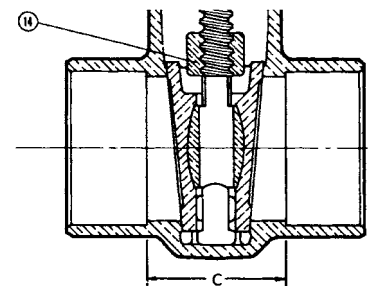
**T-136**  
Threaded



**S-136**  
Solder



**T-136**  
NPT x NPT



**S-136**  
C x C

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 200 Bronze Gate Valves

Block Pattern • Union Bonnet • Rising Stem • Alloy Solid Wedge • Integral Seat

Dezincification  
Resistant

**200 PSI/13.8 Bar Saturated Steam to 391° F/201° C**  
**400 PSI/27.6 Bar Non-Shock Cold Working Pressure**

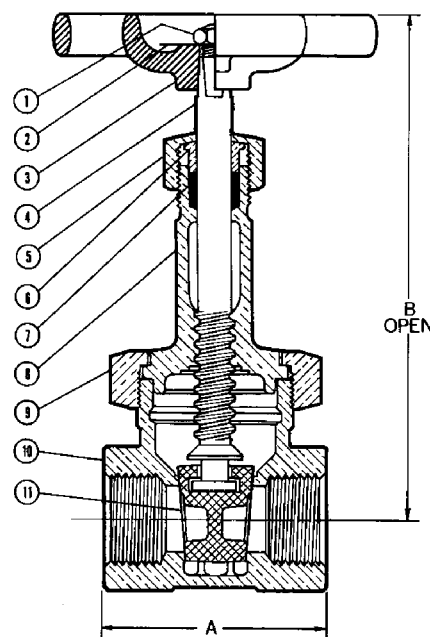
CONFORMS TO MSS SP-80

## MATERIAL LIST

| PART                    | SPECIFICATION                                                                 |
|-------------------------|-------------------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                                    |
| 2. Identification Plate | Aluminum                                                                      |
| 3. Handwheel            | Malleable Iron ASTM A 47                                                      |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430 or ASTM B 99<br>Alloy C65100 |
| 5. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16             |
| 6. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16             |
| 7. Packing              | Aramid Fibers with Graphite                                                   |
| 8. Bonnet               | Bronze ASTM B 61                                                              |
| 9. Union Nut            | Bronze ASTM B 61                                                              |
| 10. Body                | Bronze ASTM B 61                                                              |
| 11. Wedge               | ASTM B 584 Alloy C97600                                                       |



**T-154-A**  
Threaded



**T-154-A**  
NPT x NPT  
with Integral Seats

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size  |     | Dimensions |     |       |     | Weight |      | Master Ctn. Qty. |
|-------|-----|------------|-----|-------|-----|--------|------|------------------|
|       |     | A          |     | B     |     |        |      |                  |
| In.   | mm. | In.        | mm. | In.   | mm. | Lbs.   | Kg.  |                  |
| 1/4   | 8   | 1.88       | 48  | 4.81  | 122 | 1.15   | 0.52 | 50               |
| 3/8   | 10  | 2.06       | 52  | 4.81  | 122 | 1.14   | 0.52 | 50               |
| 1/2   | 15  | 2.31       | 59  | 5.38  | 137 | 1.49   | 0.68 | 40               |
| 3/4   | 20  | 2.44       | 62  | 6.31  | 160 | 2.23   | 1.01 | 30               |
| 1     | 25  | 2.88       | 73  | 7.56  | 192 | 3.37   | 1.53 | 20               |
| 1 1/4 | 32  | 3.13       | 83  | 8.88  | 226 | 4.76   | 2.16 | 10               |
| 1 1/2 | 40  | 3.38       | 86  | 10.25 | 260 | 6.32   | 2.87 | 10               |
| 2     | 50  | 3.88       | 99  | 12.50 | 318 | 10.96  | 4.97 | 6                |

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 300 Bronze Gate Valves

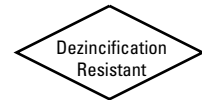
Block Pattern • Union Bonnet • Rising Stem • Alloy Solid Wedge

**300 PSI/20.7 Bar Saturated Steam to 421° F/216° C**  
**600 PSI/41.4 Bar Non-Shock Cold Working Pressure**

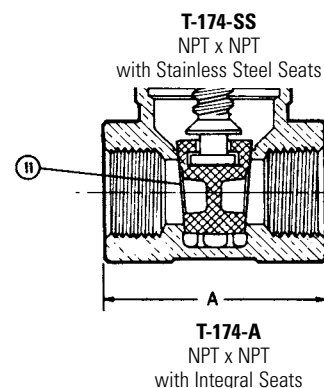
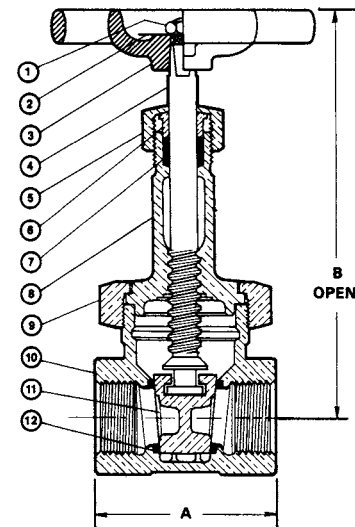
CONFORMS TO MSS SP-80

## MATERIAL LIST

| PART                    | SPECIFICATION                                                                              |
|-------------------------|--------------------------------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                                                 |
| 2. Identification Plate | Aluminum                                                                                   |
| 3. Handwheel            | Malleable Iron ASTM A 47                                                                   |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430<br>or ASTM B 99 Alloy C65100              |
| 5. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16                          |
| 6. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16                          |
| 7. Packing              | Aramid Fibers with Graphite                                                                |
| 8. Bonnet               | Bronze ASTM B 61                                                                           |
| 9. Union Nut            | Bronze ASTM B 61                                                                           |
| 10. Body                | Bronze ASTM B 61                                                                           |
| 11. Wedge               | T-174-SS Bronze ASTM B 61<br>T-174-A Copper Nickel Alloy                                   |
| 12. Seats               | T-174-SS Stainless Steel Type 410<br>ASTM A 276 Alloy 541000<br>T-174-A Integral with Body |



**T-174-SS**  
**T-174-A**  
Threaded



**T-174-SS**  
NPT x NPT  
with Stainless Steel Seats

**T-174-A**  
NPT x NPT  
with Integral Seats

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

## DIMENSIONS—WEIGHTS—QUANTITIES

### Dimensions

| Size |     | T-174-SS |     |       |     | T-174-A |     |       |     | T-174-SS |      | T-174-A |      | Master    |
|------|-----|----------|-----|-------|-----|---------|-----|-------|-----|----------|------|---------|------|-----------|
|      |     | A        |     | B     |     | A       |     | B     |     |          |      |         |      |           |
| In.  | mm. | In.      | mm. | In.   | mm. | In.     | mm. | In.   | mm. | Lbs.     | Kg.  | Lbs.    | Kg.  | Ctn. Qty. |
| ¼    | 8   | x        | x   | x     | x   | 1.88    | 48  | 4.81  | 122 | x        | x    | 1.15    | 0.52 | 50        |
| ⅜    | 10  | x        | x   | x     | x   | 2.06    | 53  | 4.81  | 122 | x        | x    | 1.14    | 0.52 | 50        |
| ½    | 15  | 2.38     | 60  | 5.38  | 137 | 2.31    | 59  | 5.38  | 137 | 1.48     | 0.67 | 1.49    | 0.68 | 40        |
| ¾    | 20  | 2.69     | 68  | 6.31  | 160 | 2.44    | 62  | 6.31  | 160 | 2.23     | 1.01 | 2.23    | 1.01 | 30        |
| 1    | 25  | 3.13     | 79  | 7.56  | 192 | 2.88    | 73  | 7.56  | 192 | 3.37     | 1.53 | 3.37    | 1.53 | 20        |
| 1¼   | 32  | 3.44     | 87  | 8.88  | 226 | 3.13    | 79  | 8.75  | 222 | 4.74     | 2.15 | 4.76    | 2.16 | 10        |
| 1½   | 40  | 3.75     | 95  | 10.25 | 260 | 3.38    | 86  | 10.25 | 260 | 6.29     | 2.85 | 6.32    | 2.87 | 10        |
| 2    | 50  | 4.25     | 108 | 12.50 | 318 | 3.88    | 99  | 12.50 | 318 | 10.84    | 4.92 | 10.96   | 4.97 | 6         |

x Not available this size.

# Class 300 Bronze Gate Valves

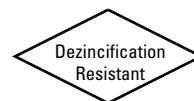
Block Pattern • Union Bonnet • Non-Rising Stem • Alloy Solid Wedge

**300 PSI/20.7 Bar Saturated Steam to 421° F/216° C**  
**600 PSI/41.4 Bar Non-Shock Cold Working Pressure**

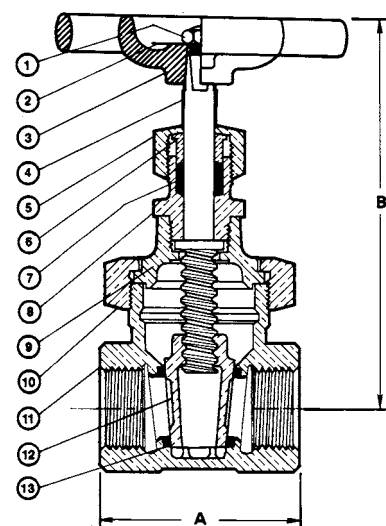
CONFORMS TO MSS SP-80

## MATERIAL LIST

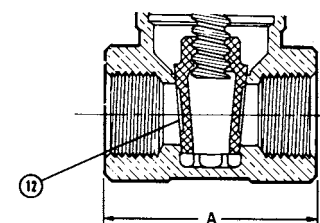
| PART                    | SPECIFICATION                                                                              |
|-------------------------|--------------------------------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                                                 |
| 2. Identification Plate | Aluminum                                                                                   |
| 3. Handwheel            | Malleable Iron ASTM A 47                                                                   |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430<br>or ASTM B 99 Alloy C65100              |
| 5. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16                          |
| 6. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16                          |
| 7. Packing              | Aramid Fibers with Graphite                                                                |
| 8. Stuffing Box         | Bronze ASTM B 61                                                                           |
| 9. Bonnet               | Bronze ASTM B 61                                                                           |
| 10. Union Nut           | Bronze ASTM B 61                                                                           |
| 11. Body                | Bronze ASTM B 61                                                                           |
| 12. Wedge               | T-176-SS Bronze ASTM B 61<br>T-176-A Copper Nickel Alloy                                   |
| 13. Seats               | T-176-SS Stainless Steel Type 410<br>ASTM A 276 Alloy 541000<br>T-176-A Integral with Body |



**T-176-SS**  
**T-176-A**  
Threaded



**T-176-SS**  
NPT x NPT  
with Stainless Steel Seats



**T-176-A**  
NPT x NPT  
with Integral Seats

## DIMENSIONS—WEIGHTS—QUANTITIES

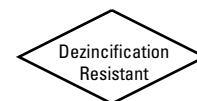
| Size |     | Dimensions |     |      |     |         |     |      |     | T-176-SS |      | T-176-A |      | Master    |
|------|-----|------------|-----|------|-----|---------|-----|------|-----|----------|------|---------|------|-----------|
|      |     | T-176-SS   |     |      |     | T-176-A |     |      |     |          |      |         |      |           |
|      |     | A          |     | B    |     | A       |     | B    |     |          |      |         |      |           |
| In.  | mm. | In.        | mm. | In.  | mm. | In.     | mm. | In.  | mm. | Lbs.     | Kg.  | Lbs.    | Kg.  | Ctn. Qty. |
| ¼    | 8   | x          | x   | x    | x   | 1.88    | 48  | 3.88 | 98  | x        | x    | 1.15    | 0.52 | 50        |
| ⅜    | 10  | x          | x   | x    | x   | 2.06    | 53  | 3.88 | 98  | x        | x    | 1.14    | 0.52 | 50        |
| ½    | 15  | 2.38       | 60  | 4.19 | 106 | 2.31    | 59  | 4.31 | 106 | 1.44     | 0.65 | 1.44    | 0.65 | 40        |
| ¾    | 20  | 2.69       | 68  | 4.63 | 117 | 2.44    | 62  | 4.63 | 117 | 2.15     | 0.98 | 2.13    | 0.97 | 30        |
| 1    | 25  | 3.13       | 79  | 5.44 | 138 | 2.88    | 73  | 5.44 | 138 | 3.25     | 1.47 | 3.24    | 1.47 | 20        |
| 1 ¼  | 32  | 3.44       | 87  | 6.06 | 154 | 3.13    | 79  | 6.06 | 154 | 4.56     | 2.07 | 4.57    | 2.07 | 10        |
| 1 ½  | 40  | 3.75       | 95  | 7.13 | 181 | 3.38    | 86  | 7.13 | 181 | 6.02     | 2.73 | 5.98    | 2.71 | 10        |
| 2    | 50  | 4.25       | 108 | 8.31 | 211 | 3.88    | 99  | 8.31 | 211 | 10.46    | 4.74 | 10.18   | 4.62 | 6         |

x Not available this size.

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Bronze Globe Valves Illustrated Index



Bronze Globe Valve  
Screw-in Bonnet  
125 lb. SWP  
200 lb. CWP



**T or S-211-B or Y**  
Bronze or PTFE Disc  
Sizes 1/8" thru 3"  
Threaded or Solder Ends  
**Page 20**

Bronze Globe Valve  
Union Bonnet  
150 lb. SWP  
200 lb. CWP



**T or S-235-Y**  
PTFE Disc  
Sizes 1/8" thru 3"  
Threaded or Solder Ends  
**Page 21**

Bronze Globe Valve  
Union Bonnet  
200 lb. SWP  
400 lb. CWP



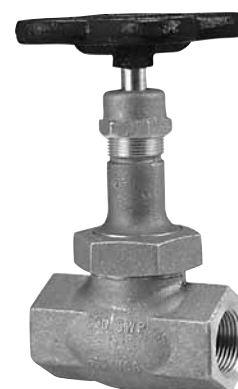
**T-256-AP**  
Hardened Stainless Steel Full-plug Disc and Seat  
Sizes 1/4" thru 3"  
Threaded Ends  
**Page 22**

Bronze Globe Valve  
Union Bonnet  
300 lb. SWP  
600 lb. CWP



**T-275-B or Y**  
Bronze or PTFE Disc  
Sizes 1/4" thru 3"  
Threaded Ends  
**Page 23**

Bronze Globe Valve  
Union Bonnet  
300 lb. SWP  
600 lb. CWP



**T-276-AP**  
Hardened Stainless Steel Full-plug Disc and Seat  
Sizes 1/4" thru 3"  
Threaded Ends  
**Page 24**

# Class 125 Bronze Globe Valves

Screw-in Bonnet • Integral Seat • Renewable Seat and Disc

**125 PSI/8.6 Bar Saturated Steam to 353° F/178° C**  
**200 PSI/13.8 Bar Non-Shock Cold Working Pressure**

CONFORMS TO MSS SP-80

## MATERIAL LIST

| PART                    | SPECIFICATION                                                     |
|-------------------------|-------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                        |
| 2. Identification Plate | Aluminum                                                          |
| 3. Handwheel            | Malleable Iron ASTM A 47                                          |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430                  |
| 5. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 6. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 7. Packing              | Aramid Fibers with Graphite                                       |
| 8. Bonnet               | Bronze ASTM B 62                                                  |
| 9. Disc Holder Nut      | Bronze ASTM B 140<br>Alloy C31400 or B 62                         |
| *10. Disc Holder        | Bronze ASTM B 62                                                  |
| *11. Seat Disc          | Water, Oil or Gas<br>Steam (PTFE) (Y)                             |
| *11a. Seat Disc         | Bronze ASTM B 62 (B)                                              |
| *12. Disc Nut           | Bronze ASTM B 62/ASTM B 98<br>Alloy C65100 w/SS Washer            |
| 13. Body                | Bronze ASTM B 62                                                  |

Note: S-211 not available with (B) Disc.

\* The Bronze Disc does not require a Disc Nut. When converting from (B) Disc to (Y) Disc, order Disc Nut (12) and Disc Holder (10) and proper disc (11).

## DIMENSIONS—WEIGHTS—QUANTITIES

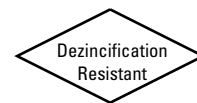
| Size  |     | Dimensions |     |       |     |      |     | T-211 |       | S-211 |      | Master |       |
|-------|-----|------------|-----|-------|-----|------|-----|-------|-------|-------|------|--------|-------|
|       |     | A          |     | B     |     | C    |     |       |       |       |      | Ctn.   | Qty.  |
| In.   | mm. | In.        | mm. | In.   | mm. | In.  | mm. | Lbs.  | Kg.   | Lbs.  | Kg.  | T-211  | S-211 |
| *1/8† | 6   | 2.38       | 60  | 3.38  | 86  | 1.81 | 46  | 1.01  | 0.46  | 0.98  | 0.44 | 50     | 50    |
| *1/4† | 8   | 2.38       | 60  | 3.38  | 86  | 1.81 | 46  | 1.00  | 0.45  | 0.94  | 0.43 | 50     | 50    |
| *3/8† | 10  | 2.38       | 60  | 3.38  | 86  | 1.81 | 46  | 0.98  | 0.45  | 0.93  | 0.42 | 50     | 50    |
| *1/2† | 15  | 2.56       | 65  | 3.38  | 86  | 1.69 | 43  | 1.03  | 0.47  | 0.95  | 0.43 | 50     | 50    |
| 3/4   | 20  | 3.06       | 78  | 4.88  | 124 | 2.25 | 57  | 1.73  | 0.79  | 1.80  | 0.82 | 30     | 30    |
| 1     | 25  | 3.69       | 94  | 5.69  | 145 | 2.81 | 72  | 2.85  | 1.29  | 2.87  | 1.30 | 20     | 20    |
| 1 1/4 | 32  | 4.31       | 110 | 6.13  | 156 | 3.06 | 78  | 3.79  | 1.72  | 3.55  | 1.61 | 10     | 10    |
| 1 1/2 | 40  | 4.69       | 119 | 7.38  | 187 | 3.56 | 91  | 5.90  | 2.68  | 5.70  | 2.58 | 10     | 10    |
| 2     | 50  | 5.63       | 143 | 7.94  | 202 | 4.44 | 113 | 8.68  | 3.94  | 8.91  | 4.04 | 6      | 4     |
| 2 1/2 | 65  | 6.63       | 168 | 10.19 | 259 | 5.25 | 133 | 15.40 | 6.98  | 15.92 | 7.22 | 2      | 2     |
| 3     | 80  | 7.75       | 197 | 11.19 | 284 | 6.50 | 165 | 22.44 | 10.18 | 21.32 | 9.67 | 2      | 2     |

\* Stem and Disc (or Disc Holder) are integral.

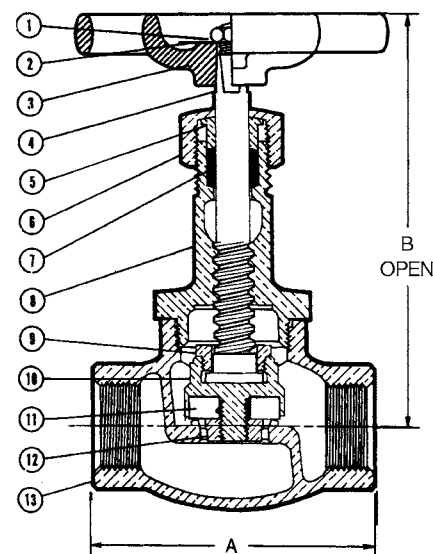
† No packing gland, packing only in these sizes.



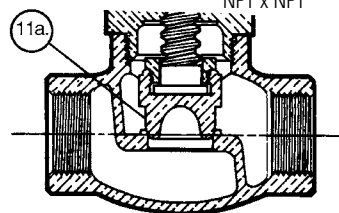
**T-211**  
Threaded



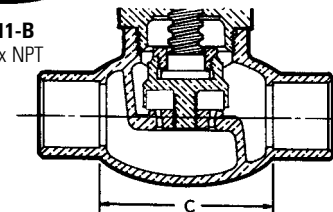
**S-211**  
Solder



**T-211-Y**  
NPT x NPT



**T-211-B**  
NPT x NPT



**S-211-Y**  
C x C

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 150 Bronze Globe Valves

Union Bonnet • Integral Seat • Renewable Seat and Disc

**150 PSI/10.3 Bar Saturated Steam to 366° F/185° C**  
**300 PSI/20.7 Bar Non-Shock Cold Working Pressure**

CONFORMS TO MSS SP-80

## MATERIAL LIST

| PART                    | SPECIFICATION                                                     |
|-------------------------|-------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                        |
| 2. Identification Plate | Aluminum                                                          |
| 3. Handwheel            | Malleable Iron ASTM A 47                                          |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430                  |
| 5. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 6. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 7. Packing              | Aramid Fibers with Graphite                                       |
| 8. Bonnet               | Bronze ASTM B 62                                                  |
| 9. Union Nut            | Bronze ASTM B 62                                                  |
| 10. Body                | Bronze ASTM B 62                                                  |
| 11. Disc Holder         | Bronze ASTM B 62                                                  |
| 12. Disc                | Steam (PTFE) (Y)                                                  |
| 13. Disc Nut            | Bronze ASTM B 62/ASTM B 98<br>Alloy C65100 w/SS Washer            |

## DIMENSIONS—WEIGHTS—QUANTITIES

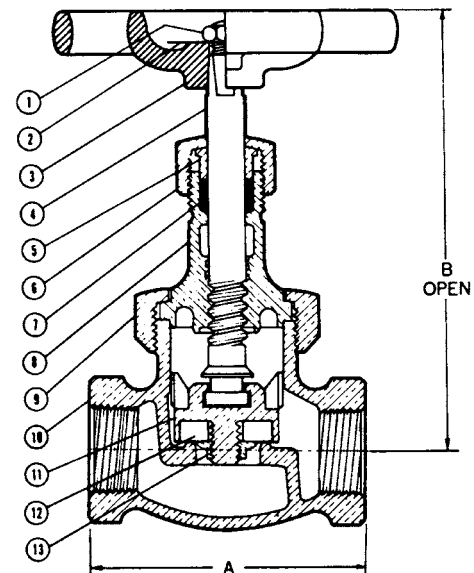
| Size  |     | Dimensions |     |       |     |      |     | T-235-Y |       | S-235-Y |       | Master    |         |
|-------|-----|------------|-----|-------|-----|------|-----|---------|-------|---------|-------|-----------|---------|
|       |     | A          |     | B     |     | C    |     |         |       |         |       | Ctn. Qty. |         |
| In.   | mm. | In.        | mm. | In.   | mm. | In.  | mm. | Lbs.    | Kg.   | Lbs.    | Kg.   | T-235-Y   | S-235-Y |
| † 1/8 | 6   | 2.31       | 59  | 3.88  | 99  | 2.00 | 51  | 1.21    | 0.55  | 1.06    | 0.48  | 50        | 50      |
| † 1/4 | 8   | 2.31       | 59  | 3.88  | 99  | 1.88 | 48  | 1.19    | 0.54  | 1.05    | 0.48  | 50        | 50      |
| † 3/8 | 10  | 2.38       | 60  | 3.88  | 99  | 1.75 | 45  | 1.17    | 0.53  | 1.03    | 0.47  | 50        | 50      |
| 1/2   | 15  | 2.69       | 68  | 4.63  | 118 | 1.88 | 48  | 1.60    | 0.73  | 1.38    | 0.62  | 40        | 50      |
| 3/4   | 20  | 3.19       | 81  | 5.38  | 137 | 2.31 | 59  | 2.34    | 1.06  | 2.21    | 1.00  | 20        | 20      |
| 1     | 25  | 3.75       | 95  | 6.00  | 153 | 2.88 | 73  | 3.56    | 1.61  | 3.35    | 1.52  | 10        | 20      |
| 1 1/4 | 32  | 4.25       | 108 | 6.56  | 167 | 3.13 | 79  | 5.76    | 2.61  | 4.93    | 2.23  | 10        | 10      |
| 1 1/2 | 40  | 4.75       | 121 | 7.38  | 187 | 3.75 | 95  | 7.59    | 3.44  | 7.17    | 3.25  | 6         | 10      |
| 2     | 50  | 5.75       | 146 | 8.31  | 211 | 4.50 | 114 | 12.56   | 5.70  | 11.02   | 5.00  | 4         | 4       |
| 2 1/2 | 65  | 6.63       | 168 | 10.19 | 259 | 5.38 | 137 | 17.44   | 7.91  | 17.16   | 7.79  | 2         | 2       |
| 3     | 80  | 7.75       | 197 | 11.13 | 283 | 6.50 | 165 | 23.87   | 10.83 | 22.82   | 10.35 | 2         | 2       |

† No packing gland, packing only in these sizes.

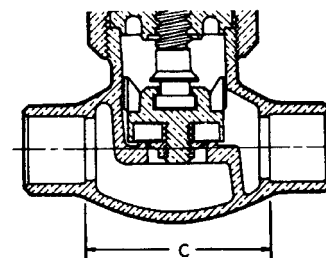


**T-235-Y**  
Threaded

**S-235-Y**  
Solder



**T-235-Y**  
NPT x NPT



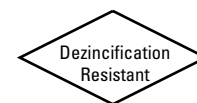
**S-235-Y**  
C x C

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 200 Bronze Globe Valves

Union Bonnet • Replaceable Seat and Full Plug Disc



**200 PSI/13.8 Bar Saturated Steam to 391° F/201° C**  
**400 PSI/27.6 Bar Non-Shock Cold Working Pressure**

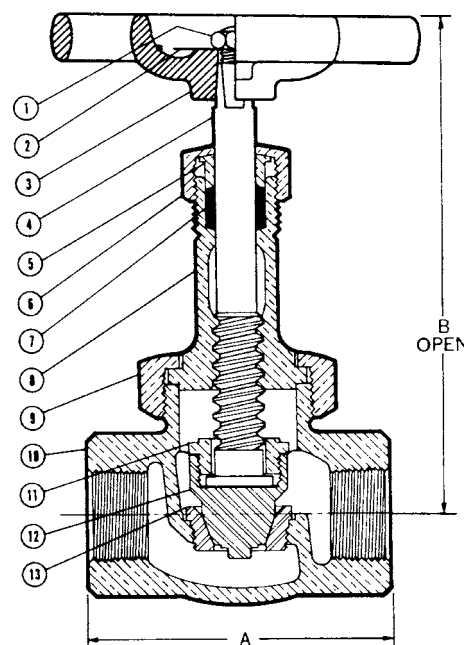
CONFORMS TO MSS SP-80

## MATERIAL LIST

| PART                    | SPECIFICATION                                                     |
|-------------------------|-------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                        |
| 2. Identification Plate | Aluminum                                                          |
| 3. Handwheel            | Malleable Iron ASTM A 47                                          |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430                  |
| 5. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 6. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 7. Packing              | Aramid Fibers with Graphite                                       |
| 8. Bonnet               | Bronze ASTM B 61                                                  |
| 9. Union Nut            | Bronze ASTM B 61                                                  |
| 10. Body                | Bronze ASTM B 61                                                  |
| 11. Disc Holder Nut     | Bronze ASTM B 61                                                  |
| 12. Plug Disc           | S42000 Stainless Steel<br>ASTM A 276 Hardened                     |
| 13. Plug Seat Ring      | S42000 Stainless Steel<br>ASTM A 276 Hardened                     |



**T-256-AP**  
Threaded



**T-256-AP**  
NPT x NPT  
Full Plug

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |        |     | Weight |       | Master Ctn. Qty. |
|------|-----|------------|-----|--------|-----|--------|-------|------------------|
|      |     | A          |     | B      |     |        |       |                  |
| In.  | mm. | In.        | mm. | In.    | mm. | Lbs.   | Kg.   |                  |
| †1¼  | 8   | 2.63       | 67  | 4.44   | 113 | 1.37   | 0.62  | 50               |
| †¾   | 10  | 2.63       | 67  | 4.44   | 113 | 1.33   | 0.60  | 50               |
| ½    | 15  | 2.69       | 68  | 4.88   | 124 | 1.83   | 0.83  | 30               |
| ¾    | 20  | 3.38       | 86  | 5.75   | 146 | 2.76   | 1.25  | 20               |
| 1    | 25  | 4.00       | 102 | 7.00   | 178 | 4.71   | 2.13  | 10               |
| 1¼   | 32  | 4.63       | 118 | 7.63   | 194 | 6.61   | 3.00  | 10               |
| 1½   | 40  | 5.00       | 127 | 7.69   | 195 | 8.01   | 3.63  | 6                |
| 2    | 50  | 6.00       | 153 | 9.25   | 235 | 12.89  | 5.85  | 4                |
| 2½   | 65  | 6.63       | 168 | 10.19  | 259 | 17.74  | 8.04  | 2                |
| 3    | 80  | 7.75       | 197 | 11.125 | 283 | 24.55  | 11.13 | 2                |

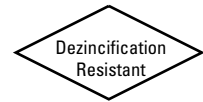
† No packing gland, packing only in these sizes.

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 300 Bronze Globe Valves

Union Bonnet • Integral Seat • Renewable Seat and Disc



**300 PSI/20.7 Bar Saturated Steam to 421° F/216° C**  
**600 PSI/41.4 Bar Non-Shock Cold Working Pressure**

CONFORMS TO MSS SP-80

## MATERIAL LIST

| PART                    | SPECIFICATION                                                     |
|-------------------------|-------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                        |
| 2. Identification Plate | Aluminum                                                          |
| 3. Handwheel            | Malleable Iron ASTM A 47                                          |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430                  |
| 5. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 6. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 7. Packing              | Aramid Fibers with Graphite                                       |
| 8. Bonnet               | Bronze ASTM B 61                                                  |
| 9. Union Nut            | Bronze ASTM B 61                                                  |
| 10. Body                | Bronze ASTM B 61                                                  |
| 11. Disc Holder Nut     | Bronze ASTM B 61                                                  |
| 12. Seat Disc           | Bronze ASTM B 61 (B) Steam (PTFE) (Y)                             |
| 13. Seat Disc Nut       | Bronze ASTM B 61 w/SS Washer                                      |
| 14. Disc Holder         | Bronze ASTM B 62                                                  |

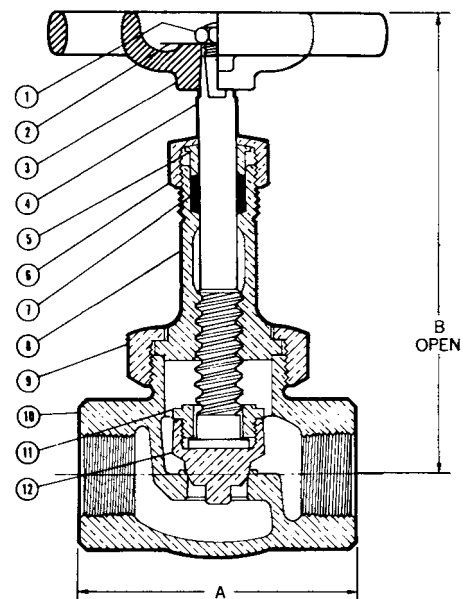
## DIMENSIONS—WEIGHTS—QUANTITIES

| Size  | Dimensions |      |     |       |     |       | Weight |     | Master Ctn. Qty. |
|-------|------------|------|-----|-------|-----|-------|--------|-----|------------------|
|       | In.        | mm.  | A   |       | B   |       | Lbs.   | Kg. |                  |
| 1 1/8 | 6          | 2.63 | 67  | 4.44  | 113 | 1.38  | 0.62   | 50  |                  |
| 1 1/4 | 8          | 2.63 | 67  | 4.44  | 113 | 1.37  | 0.62   | 50  |                  |
| 1 3/8 | 10         | 2.63 | 67  | 4.44  | 113 | 1.32  | 0.60   | 50  |                  |
| 1 1/2 | 15         | 2.69 | 68  | 4.88  | 124 | 1.82  | 0.83   | 30  |                  |
| 3/4   | 20         | 3.38 | 86  | 5.75  | 146 | 2.84  | 1.29   | 20  |                  |
| 1     | 25         | 4.00 | 102 | 7.00  | 178 | 4.80  | 2.18   | 10  |                  |
| 1 1/4 | 32         | 4.63 | 118 | 7.63  | 194 | 7.03  | 3.19   | 10  |                  |
| 1 1/2 | 40         | 5.00 | 127 | 7.69  | 195 | 8.34  | 3.78   | 6   |                  |
| 2     | 50         | 6.00 | 153 | 9.25  | 235 | 13.65 | 6.19   | 4   |                  |
| 2 1/2 | 65         | 6.63 | 168 | 10.19 | 259 | 17.39 | 7.89   | 2   |                  |
| 3     | 80         | 7.75 | 197 | 11.13 | 283 | 23.69 | 10.75  | 2   |                  |

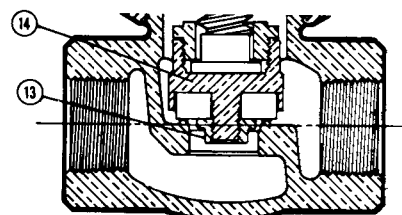
† No packing gland, packing only in these sizes.



**T-275**  
Threaded



**T-275-B**  
NPT x NPT



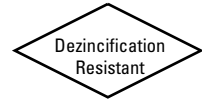
**T-275-Y**  
NPT x NPT

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 300 Bronze Globe Valves

Union Bonnet • Replaceable Seat and Full Plug Disc



**300 PSI/20.7 Bar Saturated Steam to 421° F/216° C**  
**600 PSI/41.4 Bar Non-Shock Cold Working Pressure**

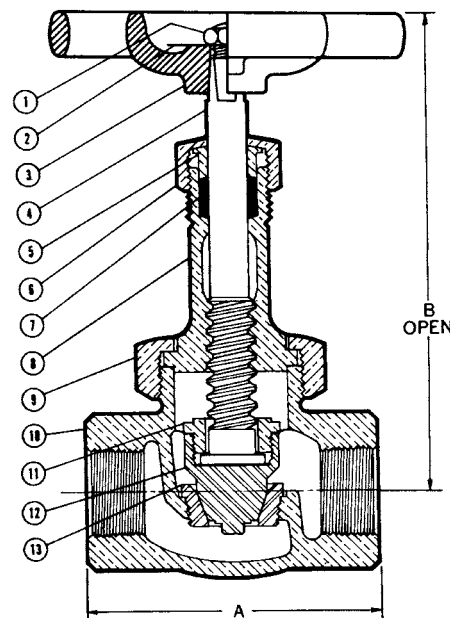
CONFORMS TO MSS SP-80

## MATERIAL LIST

| PART                    | SPECIFICATION                                                     |
|-------------------------|-------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                        |
| 2. Identification Plate | Aluminum                                                          |
| 3. Handwheel            | Malleable Iron ASTM A 47                                          |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430                  |
| 5. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 6. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 7. Packing              | Aramid Fibers with Graphite                                       |
| 8. Bonnet               | Bronze ASTM B 61                                                  |
| 9. Union Nut            | Bronze ASTM B 61                                                  |
| 10. Body                | Bronze ASTM B 61                                                  |
| 11. Disc Holder Nut     | Bronze ASTM B 61                                                  |
| 12. Plug Disc           | S42000 Stainless Steel<br>ASTM A 276 Hardened                     |
| 13. Plug Seat Ring      | S42000 Stainless Steel<br>ASTM A 276 Hardened                     |



**T-276-AP**  
Threaded



**T-276-AP**  
NPT x NPT  
Full Plug

## DIMENSIONS—WEIGHTS—QUANTITIES

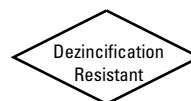
| Size |     | Dimensions |     |       |     | Weight |       | Master Ctn. Qty. |
|------|-----|------------|-----|-------|-----|--------|-------|------------------|
|      |     | A          |     | B     |     |        |       |                  |
| In.  | mm. | In.        | mm. | In.   | mm. | Lbs.   | Kg.   |                  |
| † ¼  | 8†  | 2.63       | 67  | 4.44  | 113 | 1.34   | 0.61  | 50               |
| † ⅜  | 10† | 2.63       | 67  | 4.44  | 113 | 1.35   | 0.61  | 50               |
| ½    | 15  | 2.69       | 68  | 4.88  | 124 | 1.82   | 0.83  | 30               |
| ¾    | 20  | 3.38       | 86  | 5.75  | 146 | 2.88   | 1.30  | 20               |
| 1    | 25  | 4.00       | 102 | 7.00  | 178 | 4.77   | 2.16  | 10               |
| 1 ¼  | 32  | 4.63       | 118 | 7.63  | 194 | 6.96   | 3.16  | 10               |
| 1 ½  | 40  | 5.00       | 127 | 7.69  | 195 | 8.41   | 3.81  | 6                |
| 2    | 50  | 6.00       | 153 | 9.25  | 235 | 13.41  | 6.08  | 4                |
| 2 ½  | 65  | 6.63       | 168 | 10.19 | 259 | 17.59  | 7.98  | 2                |
| 3    | 80  | 7.75       | 197 | 11.13 | 283 | 24.55  | 11.13 | 2                |

† No packing gland, packing only in these sizes.

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Bronze Angle Valves Illustrated Index



Bronze Angle Valve  
Screw-in Bonnet  
125 lb. SWP  
200 lb. CWP



**T or S-311-Y**  
PTFE Disc  
Sizes 1/4" thru 3"  
Threaded or Solder Ends  
**Page 26**

Bronze Angle Valve  
Union Bonnet  
150 lb. SWP  
300 lb. CWP



**T-335-Y**  
PTFE Disc  
Sizes 1/8" thru 3"  
Threaded Ends  
**Page 27**

Bronze Angle Valve  
Union Bonnet  
300 lb. SWP  
600 lb. CWP



**T-375-B or Y**  
Bronze or PTFE Disc  
Sizes 1/4" thru 2"  
**Page 28**

Bronze Angle Valve  
Union Bonnet  
300 lb. SWP  
600 lb. CWP



**T-376-AP**  
Hardened Stainless Steel Full-plug Disc and Seat  
Sizes 1/4" thru 2"  
**Page 29**

# Class 125 Bronze Angle Valves

Screw-in Bonnet • Integral Seat • Renewable Seat and Disc

**125 PSI/8.6 Bar Saturated Steam to 353° F/178° C**  
**200 PSI/13.8 Bar Non-Shock Cold Working Pressure**

CONFORMS TO MSS SP-80

## MATERIAL LIST

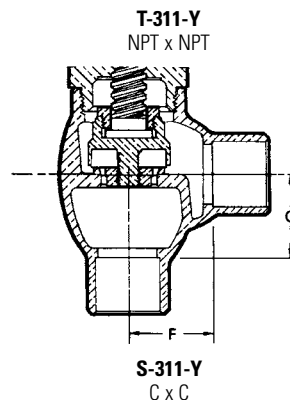
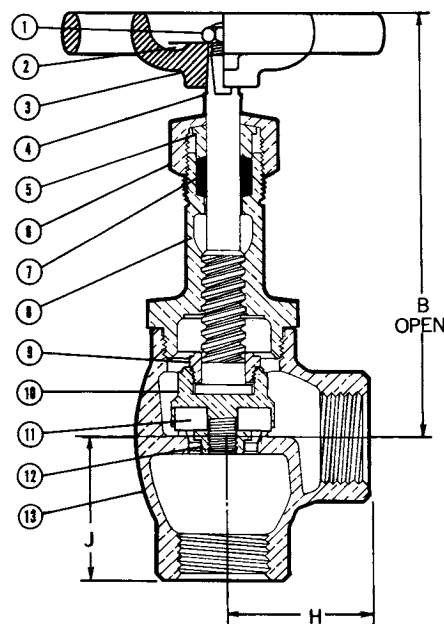
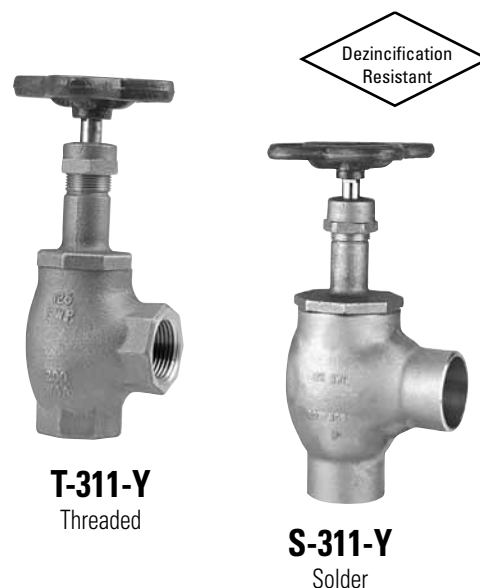
| PART                    | SPECIFICATION                                                     |
|-------------------------|-------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                        |
| 2. Identification Plate | Aluminum                                                          |
| 3. Handwheel            | Malleable Iron ASTM A 47                                          |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430                  |
| 5. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 6. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 7. Packing              | Aramid Fibers with Graphite                                       |
| 8. Bonnet               | Bronze ASTM B 62                                                  |
| *9. Disc Holder Nut     | Bronze ASTM B 62 or<br>B 140 Alloy C31400                         |
| 10. Disc Holder         | Bronze ASTM B 62                                                  |
| 11. Seat Disc           | Steam (PTFE) (Y)                                                  |
| 12. Seat Disc Nut       | Bronze ASTM B 62 w/SS Washer                                      |
| 13. Body                | Bronze ASTM B 62                                                  |

\* 2½" and 3" are ASTM B 61

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size | Dimensions |       |          |      |              |      |              |       |               |       |               |     | Master Ctn. Qty. |
|------|------------|-------|----------|------|--------------|------|--------------|-------|---------------|-------|---------------|-----|------------------|
|      | In.        | mm.   | B<br>In. | mm.  | F & G<br>In. | mm.  | H & J<br>In. | mm.   | T-311<br>Lbs. | Kg.   | S-311<br>Lbs. | Kg. |                  |
| *¼   | 8          | 3.50  | 89       | .94  | 24           | 1.19 | 30           | 0.98  | 0.44          | 0.82  | 0.37          | 50  |                  |
| *⅜   | 10         | 3.50  | 89       | .88  | 22           | 1.19 | 30           | 0.93  | 0.42          | 0.82  | 0.37          | 50  |                  |
| *½   | 15         | 3.50  | 89       | .88  | 22           | 1.31 | 33           | 1.01  | 0.46          | 0.95  | 0.43          | 30  |                  |
| ¾    | 20         | 4.94  | 126      | 1.13 | 29           | 1.56 | 40           | 1.70  | 0.77          | 1.71  | 0.78          | 20  |                  |
| 1    | 25         | 5.75  | 146      | 1.44 | 37           | 1.88 | 48           | 2.82  | 1.28          | 2.79  | 1.27          | 10  |                  |
| 1¼   | 32         | 6.13  | 156      | 1.50 | 38           | 2.19 | 51           | 3.76  | 1.70          | 3.77  | 1.71          | 10  |                  |
| 1½   | 40         | 7.25  | 179      | 1.75 | 45           | 2.38 | 60           | 5.79  | 2.63          | 4.70  | 2.13          | 6   |                  |
| 2    | 50         | 8.13  | 206      | 2.16 | 55           | 2.81 | 72           | 8.76  | 3.97          | 8.73  | 3.96          | 4   |                  |
| 2½   | 65         | 10.56 | 268      | 2.69 | 68           | 3.19 | 81           | 16.13 | 7.32          | 16.13 | 7.32          | 2   |                  |
| 3    | 80         | 11.19 | 284      | 3.25 | 83           | 3.88 | 99           | 21.72 | 9.85          | 21.32 | 9.67          | 2   |                  |

\* Stem and Disc or Disc Holder are integral. No packing gland, packing only in these sizes.



**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 150 Bronze Angle Valves

Union Bonnet • Integral Seat • Renewable Seat and Disc

**150 PSI/10.3 Bar Saturated Steam to 366° F/185° C**  
**300 PSI/20.7 Bar Non-Shock Cold Working Pressure**

CONFORMS TO MSS SP-80

## MATERIAL LIST

| PART                    | SPECIFICATION                                                     |
|-------------------------|-------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                        |
| 2. Identification Plate | Aluminum                                                          |
| 3. Handwheel            | Malleable Iron ASTM A 47                                          |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430                  |
| 5. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 6. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 7. Packing              | Aramid Fibers with Graphite                                       |
| 8. Bonnet               | Bronze ASTM B 62                                                  |
| 9. Union Nut            | Bronze ASTM B 62                                                  |
| 10. Disc Holder         | Bronze ASTM B 62                                                  |
| 11. Seat Disc           | Steam (PTFE) (Y)                                                  |
| 12. Disc Nut            | Bronze ASTM B 62 w/SS Washer                                      |
| 13. Body                | Bronze ASTM B 62                                                  |

## DIMENSIONS—WEIGHTS—QUANTITIES

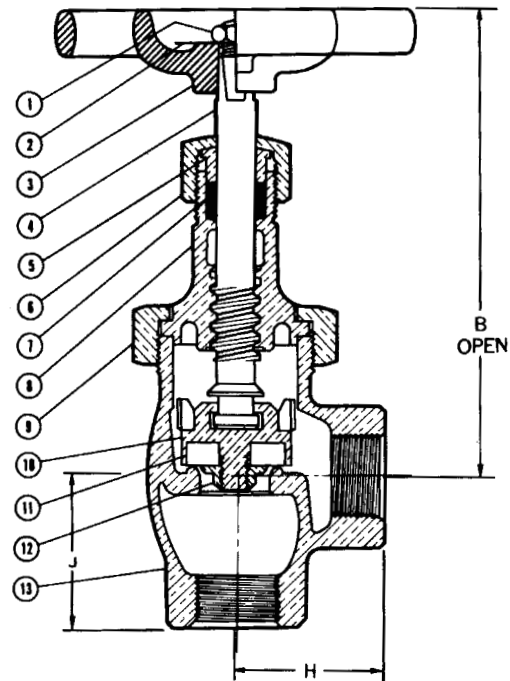
| Size  |     | Dimensions |     |       |     |      |     | Weight |       | Master    |
|-------|-----|------------|-----|-------|-----|------|-----|--------|-------|-----------|
|       |     | H          |     | B     |     | J    |     |        |       |           |
| In.   | mm. | In.        | mm. | In.   | mm. | In.  | mm. | Lbs.   | Kg.   | Ctn. Qty. |
| † 1/8 | 6   | 1.19       | 30  | 3.88  | 99  | 1.19 | 30  | 1.17   | 0.53  | 50        |
| † 1/4 | 8   | 1.19       | 30  | 3.88  | 99  | 1.19 | 30  | 1.12   | 0.51  | 50        |
| † 3/8 | 10  | 1.19       | 30  | 3.88  | 99  | 1.19 | 30  | 1.10   | 0.50  | 50        |
| 1/2   | 15  | 1.31       | 33  | 4.44  | 113 | 1.31 | 33  | 1.39   | 0.63  | 50        |
| 3/4   | 20  | 1.56       | 40  | 5.38  | 137 | 1.56 | 40  | 2.32   | 1.05  | 20        |
| 1     | 25  | 1.88       | 48  | 6.00  | 153 | 1.88 | 48  | 3.52   | 1.60  | 20        |
| 1 1/4 | 32  | 2.13       | 54  | 3.56  | 167 | 2.13 | 54  | 5.18   | 2.35  | 10        |
| 1 1/2 | 40  | 2.38       | 60  | 7.25  | 179 | 2.38 | 60  | 7.58   | 3.44  | 6         |
| 2     | 50  | 2.88       | 73  | 8.31  | 211 | 2.88 | 73  | 11.83  | 5.37  | 4         |
| 2 1/2 | 65  | 3.31       | 85  | 10.19 | 259 | 3.31 | 85  | 17.71  | 8.03  | 4         |
| 3     | 80  | 3.88       | 99  | 11.19 | 284 | 3.88 | 99  | 24.49  | 11.11 | 2         |

† No packing gland, packing only in these sizes.

Dezincification  
Resistant



**T-335-Y**  
Threaded



**T-335-Y**  
NPT x NPT

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 300 Bronze Angle Valves

Union Bonnet • Integral Seat • Renewable Seat and Disc

**300 PSI/20.7 Bar Saturated Steam to 421° F/216° C**  
**600 PSI/41.4 Bar Non-Shock Cold Working Pressure**

CONFORMS TO MSS SP-80

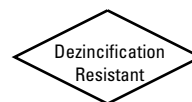
## MATERIAL LIST

| PART                    | SPECIFICATION                                                     |
|-------------------------|-------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                        |
| 2. Identification Plate | Aluminum                                                          |
| 3. Handwheel            | Malleable Iron ASTM A 47                                          |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430                  |
| 5. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 6. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 7. Packing              | Aramid Fibers with Graphite                                       |
| 8. Bonnet               | Bronze ASTM B 61                                                  |
| 9. Union Nut            | Bronze ASTM B 61                                                  |
| 10. Disc Holder Nut     | Bronze ASTM B 61                                                  |
| 11. Seat Disc           | Bronze ASTM B 61 (B) Steam (PTFE) (Y)                             |
| 12. Body                | Bronze ASTM B 61                                                  |

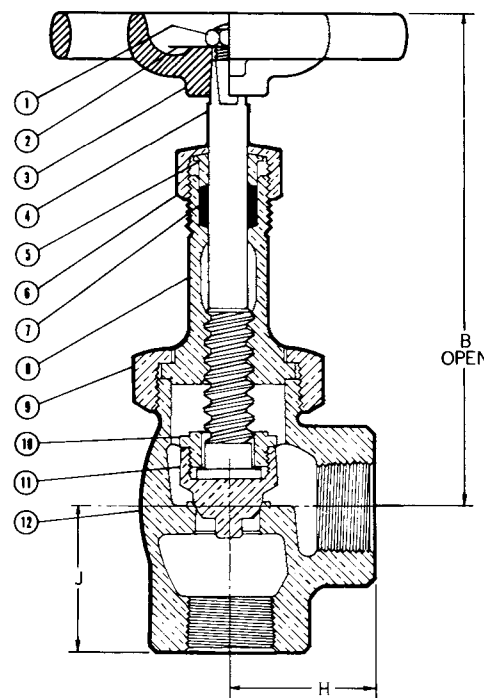
## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |       |     | Weight |       | Master Ctn. Qty. |
|------|-----|------------|-----|-------|-----|--------|-------|------------------|
|      |     | B          |     | H & J |     |        |       |                  |
| In.  | mm. | In.        | mm. | In.   | mm. | Lbs.   | Kg.   |                  |
| † ¼  | 8   | 4.38       | 111 | 1.31  | 33  | 1.36   | 0.62  | 50               |
| † ⅜  | 10  | 4.38       | 111 | 1.31  | 33  | 1.30   | 0.59  | 50               |
| ½    | 15  | 4.88       | 124 | 1.38  | 35  | 1.81   | 0.82  | 50               |
| ¾    | 20  | 5.75       | 146 | 1.69  | 43  | 2.78   | 1.26  | 20               |
| 1    | 25  | 7.00       | 178 | 2.00  | 51  | 4.54   | 2.06  | 10               |
| 1 ¼  | 32  | 7.63       | 194 | 2.31  | 59  | 6.88   | 3.12  | 10               |
| 1 ½  | 40  | 7.69       | 195 | 2.50  | 64  | 8.31   | 3.77  | 6                |
| 2    | 50  | 9.25       | 235 | 3.00  | 76  | 12.81  | 5.81  | 4                |
| 2 ½  | 65  | 10.13      | 257 | 3.31  | 84  | 16.86  | 7.65  | 4                |
| 3    | 80  | 11.13      | 283 | 3.88  | 98  | 22.76  | 10.32 | 2                |

† No packing gland, packing only in these sizes.



**T-375-B**  
Threaded



**T-375-B**  
NPT x NPT

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 300 Bronze Angle Valves

Union Bonnet • Replaceable Seat and Full-Plug Disc

**300 PSI/20.7 Bar Saturated Steam to 421° F/216° C**  
**600 PSI/41.4 Bar Non-Shock Cold Working Pressure**

CONFORMS TO MSS SP-80

## MATERIAL LIST

| PART                    | SPECIFICATION                                                     |
|-------------------------|-------------------------------------------------------------------|
| 1. Handwheel Nut        | 300 Series Stainless Steel                                        |
| 2. Identification Plate | Aluminum                                                          |
| 3. Handwheel            | Malleable Iron ASTM A 47                                          |
| 4. Stem                 | Silicon Bronze ASTM B 371<br>Alloy C69400/C69430                  |
| 5. Packing Gland        | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 6. Packing Nut          | Bronze ASTM B 62 or ASTM B 584<br>Alloy C84400 or Brass ASTM B 16 |
| 7. Packing              | Aramid Fibers with Graphite                                       |
| 8. Bonnet               | Bronze ASTM B 61                                                  |
| 9. Union Nut            | Bronze ASTM B 61                                                  |
| 10. Body                | Bronze ASTM B 61                                                  |
| 11. Disc Holder Nut     | Bronze ASTM B 61                                                  |
| 12. Plug Disc           | S42000 Stainless Steel<br>ASTM A 276 Hardened                     |
| 13. Seat Ring           | S42000 Stainless Steel<br>ASTM A 276 Hardened                     |

## DIMENSIONS—WEIGHTS—QUANTITIES

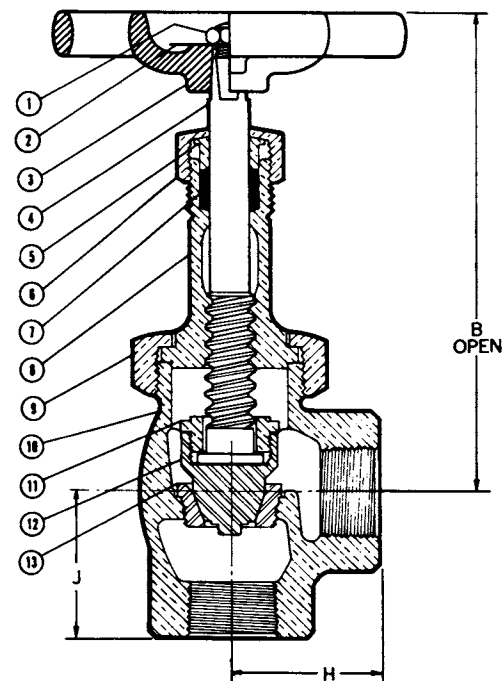
| Size |     | Dimensions |     |       |     | Weight |      | Master Ctn. Qty. |
|------|-----|------------|-----|-------|-----|--------|------|------------------|
|      |     | B          |     | H & J |     |        |      |                  |
| In.  | mm. | In.        | mm. | In.   | mm. | Lbs.   | Kg.  |                  |
| † ¼  | 8   | 4.38       | 111 | 1.31  | 33  | 1.38   | 0.63 | 50               |
| † ⅜  | 10  | 4.38       | 111 | 1.31  | 33  | 1.22   | 0.55 | 50               |
| ½    | 15  | 4.88       | 124 | 1.38  | 35  | 1.81   | 0.82 | 25               |
| ¾    | 20  | 5.75       | 146 | 1.69  | 43  | 2.78   | 1.26 | 20               |
| 1    | 25  | 7.00       | 178 | 2.00  | 51  | 4.62   | 2.10 | 10               |
| 1 ¼  | 32  | 7.63       | 194 | 2.31  | 59  | 6.84   | 3.10 | 10               |
| 1 ½  | 40  | 7.69       | 195 | 2.50  | 64  | 8.61   | 3.90 | 6                |
| 2    | 50  | 9.25       | 235 | 3.00  | 76  | 13.09  | 5.94 | 4                |

† No packing gland, packing only in these sizes.

Dezincification  
Resistant



**T-376-AP**  
Threaded



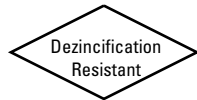
**T-376-AP**  
NPT x NPT

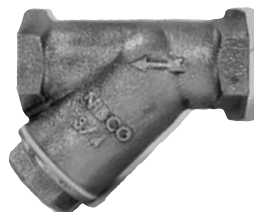
**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Bronze Check Valves & Y-Strainers

## Illustrated Index



|                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Bronze Check Valve<br/>Horizontal Swing<br/>125 lb. SWP<br/>200 lb. CWP</p>  <p><b>T or S-413-B or V, W, Y</b><br/>Bronze or Various Non-Metallic Discs<br/>Regrinding Type • Y-Pattern<br/>Sizes 1/4" thru 3"<br/>Threaded or Solder Ends<br/><b>Page 31</b></p> | <p>Bronze Check Valve<br/>Horizontal Swing<br/>150 lb. SWP<br/>300 lb. CWP</p>  <p><b>T or S-433-B or Y</b><br/>Bronze or PTFE Discs<br/>Regrinding Type • Y-Pattern<br/>Sizes 1/4" thru 3"<br/>Threaded or Solder Ends<br/><b>Page 32</b></p> | <p>Bronze Check Valve<br/>Horizontal Swing<br/>150 lb. SWP<br/>300 lb. CWP</p>  <p><b>S-433-B</b><br/>Bronze Disc<br/>Regrinding Type • Bolted Bonnet<br/>Size 4"<br/>Solder Ends<br/><b>Page 33</b></p>                                 | <p>Bronze Check Valve<br/>Horizontal Swing<br/>200 lb. SWP<br/>400 lb. CWP</p>  <p><b>T-453-B</b><br/>Bronze Disc<br/>Regrinding Type • Y-Pattern<br/>Sizes 1/4" thru 3"<br/>Threaded Ends<br/><b>Page 34</b></p>       |
| <p>Bronze Check Valve<br/>Horizontal Swing<br/>300 lb. SWP<br/>600 lb. CWP</p>  <p><b>T-473-B or Y</b><br/>Bronze or PTFE Disc<br/>Regrinding Type • Y-Pattern<br/>Sizes 3/8" thru 2"<br/>Threaded Ends<br/><b>Page 35</b></p>                                      | <p>Bronze Gate Valve<br/>Screw-in Bonnet<br/>150 lb. SWP<br/>300 lb. CWP</p>  <p><b>T or S-480</b><br/>Buna-N or PTFE Disc (Y-suffix)<br/>Sizes 3/8" thru 2"<br/>Threaded or Solder Ends<br/><b>Page 36</b></p>                               |                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                 | <p>Bronze Y-Strainer<br/>Tapped Cap w/Blow-off Plug<br/>125 lb. SWP<br/>200 lb. CWP</p>  <p><b>T/S-221/222-A</b><br/>304 SS 20 Mesh or<br/>Perforated Screen<br/>Sizes 1/4" thru 3"<br/>Threaded or Solder Ends<br/><b>Page 37</b></p> | <p>Bronze Y-Strainer<br/>Solid Cap<br/>125 lb. SWP<br/>200 lb. CWP</p>  <p><b>T/S-221/222-B</b><br/>304 SS 20 Mesh or<br/>Perforated Screen<br/>Sizes 1/4" thru 3"<br/>Threaded or Solder Ends<br/><b>Page 37</b></p> |

# Class 125 Bronze Check Valves

Horizontal Swing • Regrinding Type • Y-Pattern  
• Renewable Seat and Disc

**125 PSI/8.6 Bar Saturated Steam to 353° F/178° C**  
**200 PSI/13.8 Bar Non-Shock Cold Working Pressure**

CONFORMS TO MSS SP-80

## MATERIAL LIST

| PART                  | SPECIFICATION                                                                             |
|-----------------------|-------------------------------------------------------------------------------------------|
| 1. Bonnet             | Bronze ASTM B 62                                                                          |
| 2. Body               | Bronze ASTM B 62                                                                          |
| 3. Hinge Pin          | Bronze ASTM B 140 Alloy C31400 or B 134 Alloy C23000                                      |
| 4. Disc Hanger        | Bronze ASTM B 62 or 304 Stainless Steel ¼" thru ¾" sizes                                  |
| 5. Hanger Nut         | Bronze ASTM B 16                                                                          |
| 6. Disc Holder        | Bronze ASTM B 62                                                                          |
| 7. Seat Disc          | Water, Oil or Gas (Buna-N) (W)<br>Steam (PTFE) (Y)<br>Bronze ASTM (B) FKM (V) B 62 C83600 |
| 8. Seat Disc Nut      | Bronze ASTM B 16 or B 62                                                                  |
| 9. Hinge Pin Plug     | Bronze ASTM B 140 Alloy C31400 (not shown)                                                |
| 10. Seat Disc Washer* | ASTM B 98 Alloy C65500 or ASTM B 103                                                      |

\* Sizes ¾", 1", 1¼", 1½" and 2" only.

## DIMENSIONS—WEIGHTS—QUANTITIES

| Dimensions |     |      |     |      |     |      |     |       |      |       |      |                  |
|------------|-----|------|-----|------|-----|------|-----|-------|------|-------|------|------------------|
| Size       |     | A    |     | B    |     | C    |     | T-413 |      | S-413 |      | Master Ctn. Qty. |
| In.        | mm. | In.  | mm. | In.  | mm. | In.  | mm. | Lbs.  | Kg.  | Lbs.  | Kg.  |                  |
| ¼          | 8   | 2.13 | 54  | 1.63 | 41  | 1.38 | 35  | 0.50  | 0.23 | 0.51  | 0.23 | 50               |
| ⅜          | 10  | 2.13 | 54  | 1.63 | 41  | 1.31 | 33  | 0.47  | 0.22 | 0.48  | 0.22 | 50               |
| ½          | 15  | 2.44 | 62  | 1.69 | 43  | 1.50 | 38  | 0.55  | 0.25 | 0.55  | 0.25 | 50               |
| ¾          | 20  | 2.94 | 75  | 1.88 | 48  | 1.88 | 48  | 0.90  | 0.41 | 0.88  | 0.40 | 50               |
| 1          | 25  | 3.56 | 90  | 2.31 | 59  | 2.25 | 57  | 1.46  | 0.66 | 1.48  | 0.67 | 30               |
| 1¼         | 32  | 4.19 | 106 | 2.69 | 68  | 2.75 | 70  | 2.17  | 0.99 | 2.22  | 1.01 | 20               |
| 1½         | 40  | 4.50 | 114 | 2.94 | 75  | 1.13 | 79  | 2.95  | 1.34 | 3.00  | 1.36 | 10               |
| 2          | 50  | 5.25 | 133 | 3.94 | 100 | 3.75 | 95  | 4.79  | 2.17 | 4.87  | 2.21 | 10               |
| 2½*        | 65  | 8.00 | 203 | 5.06 | 129 | 5.06 | 129 | 11.48 | 5.21 | 10.48 | 4.76 | 5                |
| 3*         | 80  | 9.25 | 235 | 6.25 | 159 | 6.25 | 159 | 17.53 | 7.96 | 15.29 | 6.94 | 4                |

Ordering: T-413 and S-413 normally furnished with Bronze Disc (T-413-B) or (S-413-B).  
Both available with PTFE Steam Disc (T-413-Y), (S-413-Y), or CWP Disc (T-413-W),  
(S-413-W) or 300° F 67 PSI steam FKM Disc (T-413-V).

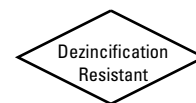
\* Class 150 (433) furnished for these sizes.

For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.



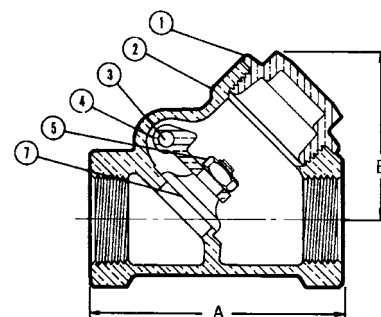
**T-413**

Threaded

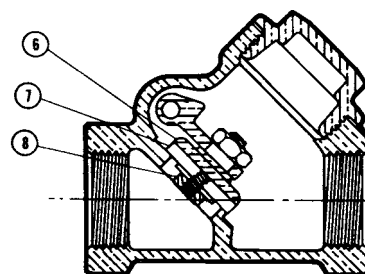


**S-413**

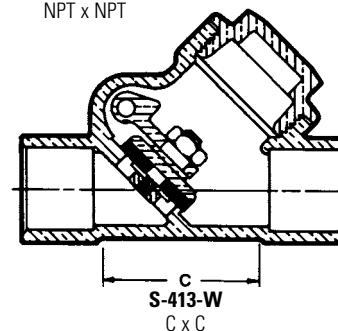
Solder



**T-413-B**  
NPT x NPT



**T-413-Y**  
NPT x NPT



**S-413-W**  
C x C

NIBCO check valves may be installed in both horizontal and vertical lines with upward flow or in any intermediate position. They will operate satisfactorily in a declining plane (no more than 15°).

**Warning – Do Not Use For Reciprocating Air Compressor Service.**

## Class 150 Bronze Check Valves

Horizontal Swing • Regrinding Type • Y-Pattern  
• Renewable Seat and Disc

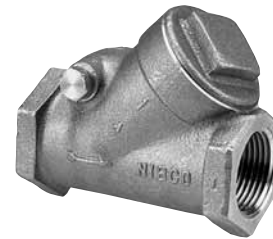
**150 PSI/10.3 Bar Saturated Steam to 366° F/185° C**  
**300 PSI/20.7 Bar Non-Shock Cold Working Pressure**

CONFORMS TO MSS SP-80

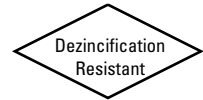
### MATERIAL LIST

| PART                  | SPECIFICATION                                                |
|-----------------------|--------------------------------------------------------------|
| 1. Bonnet             | Bronze ASTM B 62                                             |
| 2. Body               | Bronze ASTM B 62                                             |
| 3. Hinge Pin          | Bronze ASTM B 140 Alloy C31400 or B 134 Alloy C23000         |
| 4. Disc Hanger        | Bronze ASTM B 62 or 304 Stainless Steel 1/4" thru 3/4" sizes |
| 5. Hanger Nut         | Bronze ASTM B 16                                             |
| 6. Disc Holder        | Bronze ASTM B 62                                             |
| 7. Seat Disc          | Steam (PTFE) (Y)<br>Bronze ASTM B 62 C83600 (B)              |
| 8. Seat Disc Nut      | Bronze ASTM B 16 or B 62                                     |
| 9. Hinge Pin Plug     | Bronze ASTM B 140 Alloy C31400 (not shown)                   |
| *10. Seat Disc Washer | ASTM B 98 Alloy C65500 or ASTM B 103                         |

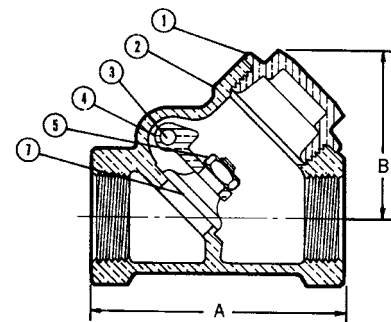
\* Sizes 3/4", 1", 1 1/4", 1 1/2" and 2" only.



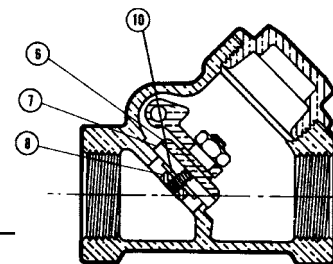
**T-433**  
Threaded



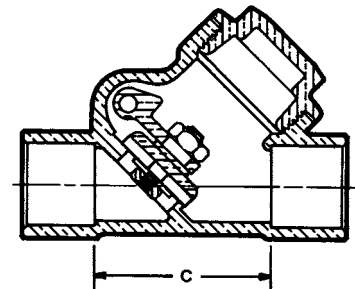
**S-433**  
Solder



**T-433-B**  
NPT x NPT



**T-433-Y**  
NPT x NPT



**S-433-Y**  
C x C

### DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |      |     |      |     |      |     | T-433 |      | S-433 |      | Master Ctn. Qty |
|------|-----|------------|-----|------|-----|------|-----|------|-----|-------|------|-------|------|-----------------|
|      |     | A          |     | B    |     | C    |     | D    |     |       |      |       |      |                 |
| In.  | mm. | In.        | mm. | In.  | mm. | In.  | mm. | In.  | mm. | Lbs.  | Kg.  | Lbs.  | Kg.  |                 |
| ¼    | 8   | 2.13       | 54  | 1.63 | 41  | 1.63 | 41  | 1.38 | 35  | 0.54  | 0.24 | 0.54  | 0.24 | 50              |
| ⅜    | 10  | 2.13       | 54  | 1.63 | 41  | 1.63 | 41  | 1.31 | 33  | 0.54  | 0.24 | 0.53  | 0.24 | 50              |
| ½    | 15  | 2.44       | 62  | 1.69 | 43  | 1.69 | 43  | 1.50 | 38  | 0.60  | 0.27 | 0.60  | 0.27 | 50              |
| ¾    | 20  | 2.94       | 75  | 1.88 | 48  | 1.88 | 48  | 1.88 | 48  | 0.98  | 0.44 | 0.99  | 0.45 | 50              |
| 1    | 25  | 3.56       | 90  | 2.31 | 59  | 2.31 | 59  | 2.25 | 57  | 1.58  | 0.72 | 1.57  | 0.71 | 30              |
| 1¼   | 32  | 4.19       | 106 | 2.69 | 68  | 2.69 | 68  | 2.75 | 70  | 2.39  | 1.08 | 2.34  | 1.06 | 20              |
| 1½   | 40  | 4.50       | 114 | 2.94 | 75  | 2.94 | 75  | 3.13 | 79  | 3.16  | 1.43 | 3.11  | 1.41 | 10              |
| 2    | 50  | 5.25       | 133 | 3.94 | 100 | 3.94 | 100 | 3.75 | 95  | 5.41  | 2.45 | 5.34  | 2.42 | 10              |
| 2½   | 65  | 8.00       | 203 | 5.06 | 129 | 5.06 | 129 | 5.31 | 135 | 11.48 | 5.21 | 11.20 | 5.08 | 5               |
| 3    | 80  | 9.25       | 235 | 6.25 | 159 | 6.25 | 159 | 6.25 | 159 | 17.53 | 7.95 | 16.91 | 7.67 | 4               |

Ordering: T-433 and S-433 normally furnished with Bronze Disc (T-433-B) or (S-433-B).  
Both available with PTFE Steam Disc (T-433-Y), (S-433-Y).

NIBCO check valves may be installed in both horizontal and vertical lines with upward flow or in any intermediate position. They will operate satisfactorily in a declining plane (no more than 15°).

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

Warning – Do Not Use For Reciprocating Air Compressor Service.

# Class 150 Bronze Check Valves

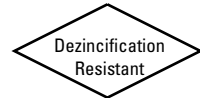
Bolted Bonnet • Horizontal Swing • Regrinding Type  
• Renewable Seat and Disc

**150 PSI/10.3 Bar Saturated Steam to 366° F/185° C**  
**300 PSI/20.7 Bar Non-Shock Cold Working Pressure**

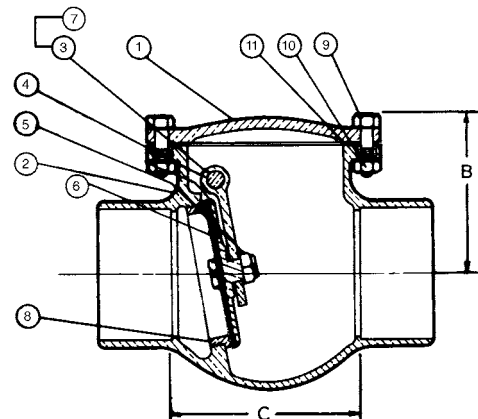
CONFORMS TO MSS SP-80

## MATERIAL LIST

| PART              | SPECIFICATION                  |
|-------------------|--------------------------------|
| 1. Bonnet         | Bronze ASTM B 62               |
| 2. Body           | Bronze ASTM B 62               |
| 3. Hinge Pin      | ASTM B 371 Alloy C69400        |
| 4. Disc Hanger    | Bronze ASTM B 62               |
| 5. Hanger Nut     | ASTM B 62 Alloy C83600         |
| 6. Disc           | Bronze ASTM B 62 (B)           |
| 7. Hinge Pin Plug | Bronze ASTM B 140 Alloy C31400 |
| 8. Seat Ring      | Bronze ASTM B 62 C83600        |
| 9. Body Bolt      | Zinc Plated Steel              |
| 10. Body Nut      | Zinc Plated Steel              |
| 11. Gasket        | Aramid Fibers with Graphite    |



**S-433-B**  
Solder



**S-433-B**  
C x C

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |      |     | Weight |       | Master Ctn. Qty. |
|------|-----|------------|-----|------|-----|--------|-------|------------------|
|      |     | B          |     | C    |     |        |       |                  |
| In.  | mm. | In.        | mm. | In.  | mm. | Lbs.   | Kg.   |                  |
| 4    | 100 | 6.19       | 157 | 7.38 | 187 | 37     | 16.78 | 1                |

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

NIBCO check valves may be installed in both horizontal and vertical lines with upward flow or in any intermediate position. They will operate satisfactorily in a declining plane (no more than 15°).

**Warning – Do Not Use For Reciprocating Air Compressor Service.**

# Class 200 Bronze Check Valves

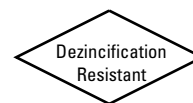
Horizontal Swing • Regrinding Type • Renewable Seat and Disc  
• Y-Pattern

**200 PSI/13.8 Bar Saturated Steam to 391° F/201° C**  
**400 PSI/27.6 Bar Non-Shock Cold Working Pressure**

CONFORMS TO MSS SP-80

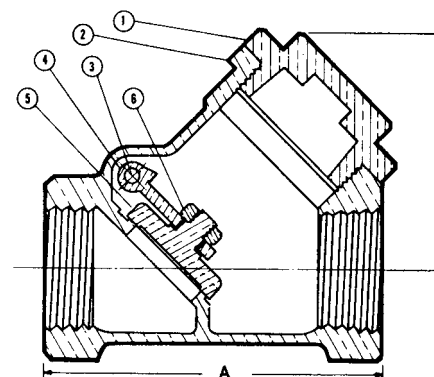
## MATERIAL LIST

| PART              | SPECIFICATION                                            |
|-------------------|----------------------------------------------------------|
| 1. Bonnet         | Bronze ASTM B 61                                         |
| 2. Body           | Bronze ASTM B 61                                         |
| 3. Hinge Pin      | Bronze ASTM B 140 Alloy C31400 or B 134 Alloy C23000     |
| 4. Disc Hanger    | Bronze ASTM B 61 or 304 Stainless Steel ¼" thru ¾" sizes |
| 5. Seat Disc      | Bronze ASTM B 61 C92200                                  |
| 6. Hanger Nut     | Bronze ASTM B 16 C31400                                  |
| 7. Hinge Pin Plug | ASTM B 140 Alloy C31600 (not shown)                      |



**T-453-B**

Threaded



**T-453-B**  
NPT x NPT

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |      |     | Weight |      | Master.<br>Ctn. Qty. |
|------|-----|------------|-----|------|-----|--------|------|----------------------|
|      |     | A          |     | B    |     |        |      |                      |
| In.  | mm. | In.        | mm. | In.  | mm. | Lbs.   | Kg.  |                      |
| ¼    | 8   | 2.25       | 57  | 1.56 | 40  | 0.53   | 0.24 | 50                   |
| ⅜    | 10  | 2.25       | 57  | 1.56 | 40  | 0.54   | 0.24 | 50                   |
| ½    | 15  | 2.63       | 67  | 1.75 | 44  | 0.60   | 0.27 | 50                   |
| ¾    | 20  | 3.13       | 79  | 2.06 | 52  | 0.99   | 0.45 | 25                   |
| 1    | 25  | 3.75       | 95  | 2.44 | 62  | 1.56   | 0.71 | 30                   |
| 1 ¼  | 32  | 4.38       | 111 | 3.13 | 79  | 2.33   | 1.06 | 10                   |
| 1 ½  | 40  | 4.94       | 125 | 3.75 | 95  | 3.11   | 1.41 | 10                   |
| 2    | 50  | 5.81       | 148 | 4.50 | 114 | 5.33   | 2.42 | 5                    |
| 2 ½  | 65  | 8.00       | 203 | 5.31 | 135 | 13.72  | 6.22 | 5                    |
| 3    | 80  | 9.25       | 235 | 6.25 | 159 | 17.64  | 8.00 | 4                    |

NIBCO check valves may be installed in both horizontal and vertical lines with upward flow or in any intermediate position. They will operate satisfactorily in a declining plane (no more than 15°).

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

**Warning – Do Not Use For Reciprocating Air Compressor Service.**

# Class 300 Bronze Check Valves

Horizontal Swing • Regrinding Type • Renewable Seat and Disc  
• Y-Pattern

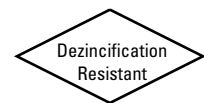
**300 PSI/20.7 Bar Saturated Steam to 421° F/216° C**  
**600 PSI/41.4 Bar Non-Shock Cold Working Pressure**

CONFORMS TO MSS SP-80

## MATERIAL LIST

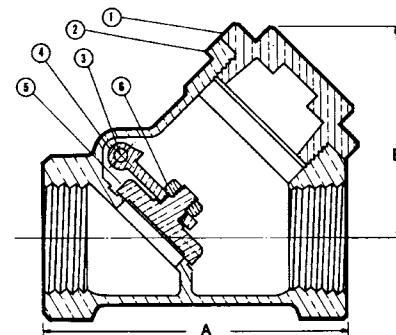
| PART                  | SPECIFICATION                                                |
|-----------------------|--------------------------------------------------------------|
| 1. Bonnet             | Bronze ASTM B 61                                             |
| 2. Body               | Bronze ASTM B 61                                             |
| 3. Hinge Pin          | Bronze ASTM B 140 Alloy C31400 or B 134 Alloy C23000         |
| 4. Disc Hanger        | Bronze ASTM B 61 or 304 Stainless Steel 1/4" thru 3/4" sizes |
| 5. Seat Disc          | Bronze ASTM B 61 C92200 Steam (PTFE) (Y)                     |
| 6. Hanger Nut         | Bronze ASTM B 16                                             |
| 7. Hinge Pin Plug     | Bronze ASTM B 140 Alloy C31400 (not shown)                   |
| 8. Disc Holder        | Bronze ASTM B 61                                             |
| 9. Disc Nut           | Bronze ASTM B 62 or B 16                                     |
| *10. Seat Disc Washer | ASTM B 98 Alloy C65500 (not shown) or ASTM B 103 (not shown) |

\* Sizes 3/4", 1", 1 1/4", 1 1/2" and 2" only.



**T-473**

Threaded

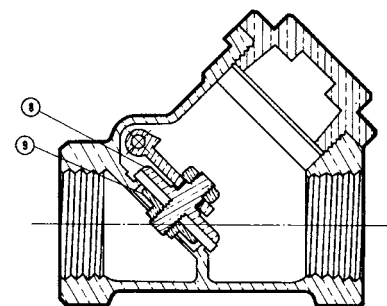


**T-473-B**  
NPT x NPT

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size  |     | Dimensions |     |      |     | Weight |      | Master Ctn. Qty. |
|-------|-----|------------|-----|------|-----|--------|------|------------------|
|       |     | A          |     | B    |     |        |      |                  |
| In.   | mm. | In.        | mm. | In.  | mm. | Lbs.   | Kg.  |                  |
| 1/4   | 8   | 2.25       | 57  | 1.56 | 40  | 0.57   | 0.26 | 50               |
| 3/8   | 10  | 2.25       | 57  | 1.56 | 40  | 0.57   | 0.26 | 50               |
| 1/2   | 15  | 2.63       | 67  | 1.75 | 44  | 0.69   | 0.31 | 50               |
| 3/4   | 20  | 3.13       | 79  | 2.06 | 52  | 1.02   | 0.46 | 25               |
| 1     | 25  | 3.75       | 95  | 2.44 | 62  | 1.65   | 0.75 | 30               |
| 1 1/4 | 32  | 4.38       | 111 | 3.13 | 79  | 2.98   | 1.35 | 10               |
| 1 1/2 | 40  | 4.94       | 125 | 3.75 | 95  | 4.81   | 2.18 | 10               |
| 2     | 50  | 5.81       | 148 | 4.50 | 114 | 8.13   | 3.69 | 5                |

Ordering: T-473 is normally furnished with Bronze Disc (T-473-B).  
Available with PTFE Steam Disc (T-473-Y).



**T-473-Y**  
NPT x NPT

NIBCO check valves may be installed in both horizontal and vertical lines with upward flow or in any intermediate position. They will operate satisfactorily in a declining plane (no more than 15°).

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

Warning – Do Not Use For Reciprocating Air Compressor Service.

# Class 125 Bronze Ring Check® Valves

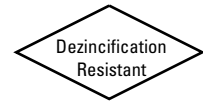
Inline Lift Type • Resilient Discs • Spring Actuated

**125 PSI/8.6 Bar Saturated Steam to 353° F/178° C (PTFE Disc)**  
**250 PSI/17.2 Bar Non-Shock Cold Working Pressure**

CONFORMS TO MSS SP-80

## MATERIAL LIST

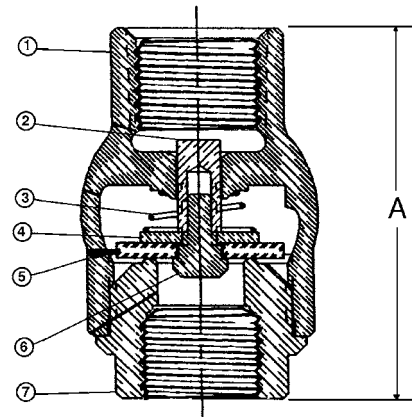
| PART           | SPECIFICATION                               |
|----------------|---------------------------------------------|
| 1. Body        | Bronze ASTM B 584 Alloy C84400              |
| 2. Stem        | Stainless Steel ASTM A 582 Alloy C30300     |
| 3. Spring      | 316 Stainless Steel                         |
| 4. Disc Holder | Stainless Steel Type 301                    |
| 5. Disc        | Water, Oil or Gas (Buna-N) Steam (PTFE) (Y) |
| 6. Seat Screw  | Stainless Steel ASTM A 276 Alloy S43000     |
| 7. Body End    | Bronze ASTM B 584 Alloy C84400              |



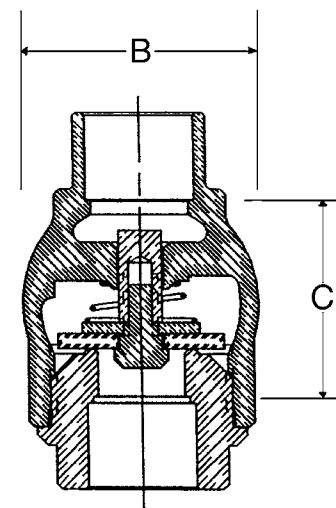
**T-480**  
Threaded



**S-480**  
Solder



**T-480-Y (PTFE Disc)**  
NPT x NPT



**S-480-Y (PTFE Disc)**  
C x C

## DIMENSIONS—WEIGHTS—QUANTITIES

| Dimensions |     |      |     |      |     |      |     |       |      |       |      |                 |
|------------|-----|------|-----|------|-----|------|-----|-------|------|-------|------|-----------------|
| Size       |     | A    |     | B    |     | C    |     | T-480 |      | S-480 |      | Master Ctn. Qty |
| In.        | mm. | In.  | mm. | In.  | mm. | In.  | mm. | Lbs.  | mm.  | Lbs.  | Kg.  |                 |
| ¾          | 10  | 2.00 | 51  | 1.38 | 35  | 1.44 | 37  | 0.41  | 0.19 | 0.44  | 0.20 | 100             |
| ½          | 15  | 2.06 | 52  | 1.38 | 35  | 1.19 | 30  | 0.36  | 0.16 | 0.40  | 0.18 | 100             |
| ¾          | 20  | 2.25 | 57  | 1.63 | 41  | 1.31 | 33  | 0.48  | 0.22 | 0.52  | 0.24 | 100             |
| 1          | 25  | 2.63 | 67  | 2.00 | 51  | 1.50 | 38  | 0.77  | 0.35 | 0.85  | 0.39 | 50              |
| 1 ¼        | 32  | 2.94 | 75  | 2.38 | 60  | 1.69 | 43  | 1.14  | 0.51 | 1.28  | 0.58 | 30              |
| 1 ½        | 40  | 3.31 | 84  | 2.75 | 70  | 2.00 | 51  | 1.63  | 0.74 | 1.75  | 0.79 | 30              |
| 2          | 50  | 3.69 | 94  | 3.38 | 86  | 2.31 | 59  | 2.27  | 1.03 | 2.70  | 1.23 | 10              |

Ordering: The T-480 and S-480 both have standard Buna-N Discs.  
Also available with PTFE (Y) Discs; specify T-480-Y or S-480-Y.  
3/8" thru 2" require 1/2 pound pressure to open.

NIBCO check valves may be installed in both horizontal and vertical lines with upward flow or in any intermediate position.

Warning – Do Not Use For Reciprocating Air Compressor Service.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 125 Bronze Y-Strainers

Screw-in Cap • Tapped Cap w/ Blow-off Plug or Solid Cap  
• 20 Mesh SS Screen or SS Perforated Screen

**125 PSI/8.6 Bar Saturated Steam to 353° F/178° C**  
**200 PSI/13.8 Bar Non-Shock Cold Working Pressure**

CONFORMS TO ANSI B1.20.1 (NPT) OR B16.18 (SOLDER)

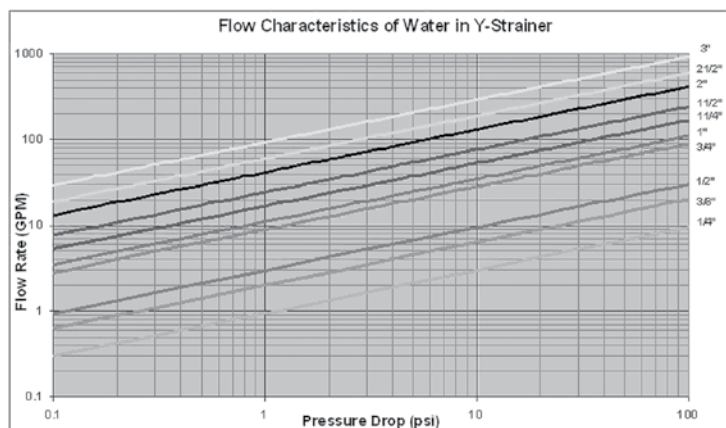
## MATERIAL LIST

| PART      | SPECIFICATION                                                                             |
|-----------|-------------------------------------------------------------------------------------------|
| 1. Body   | Bronze ASTM B584 Alloy C84400 (Solder)<br>Bronze ASTM B62 Alloy C83600 (Threaded)         |
| 2. Cap    | Bronze ASTM B62 Alloy C83600                                                              |
| 3. Gasket | PTFE                                                                                      |
| 4. Screen | ASTM E2016 20 Mesh - 304 Stainless Steel or<br>ASTM E674 Perforated - 304 Stainless Steel |
| 5. Plug   | Brass ASTM B16 Alloy C36000 or<br>Bronze ASTM B584 Alloy C84400                           |

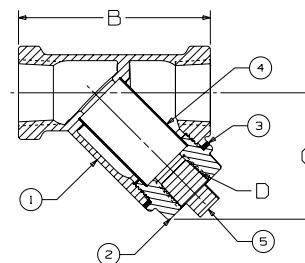
| END CONNECTION | SCREEN               | CAP                          |
|----------------|----------------------|------------------------------|
| S - Solder     | 221 - 20 Mesh (STD.) | A - Tapped Cap w/Plug (STD.) |
| T - Threaded   | 222 - Perforated     | B - Solid Cap                |

## DIMENSIONS—WEIGHTS—QUANTITIES

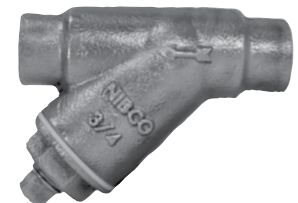
| Dimensions |     |      |     |      |     |      |     |       |     |       |      |       |      |    | Master<br>Ctn. Qty. |
|------------|-----|------|-----|------|-----|------|-----|-------|-----|-------|------|-------|------|----|---------------------|
| Size       |     | A    |     | B    |     | C    |     | D     |     | T-221 |      | S-221 |      |    |                     |
| In.        | mm. | In.  | mm. | In.  | mm. | In.  | mm. | In.   | mm. | Lbs.  | Kg.  | Lbs.  | Kg.  |    |                     |
| 1/4        | 8   | 1.75 | 45  | 2.53 | 64  | 1.79 | 46  | 1/4   | 8   | 0.74  | 0.33 | —     | —    | 50 |                     |
| 3/8        | 10  | 1.75 | 45  | 2.53 | 64  | 1.79 | 46  | 1/4   | 8   | 0.72  | 0.32 | —     | —    | 50 |                     |
| 1/2        | 15  | 1.75 | 45  | 2.53 | 64  | 1.79 | 46  | 1/4   | 8   | 0.81  | 0.37 | 0.57  | 0.26 | 50 |                     |
| 3/4        | 20  | 2.20 | 56  | 3.25 | 83  | 2.15 | 55  | 3/8   | 10  | 1.13  | 0.51 | 1.01  | 0.46 | 30 |                     |
| 1          | 25  | 2.59 | 66  | 3.77 | 96  | 2.82 | 72  | 3/8   | 10  | 1.85  | 0.84 | 1.58  | 0.72 | 25 |                     |
| 1 1/4      | 32  | 3.27 | 83  | 4.56 | 116 | 3.25 | 83  | 3/4   | 20  | 2.96  | 1.34 | 2.69  | 1.22 | 10 |                     |
| 1 1/2      | 40  | 3.59 | 114 | 5.24 | 133 | 3.63 | 92  | 3/4   | 20  | 4.47  | 2.03 | 3.99  | 1.81 | 10 |                     |
| 2          | 50  | 4.44 | 113 | 5.95 | 151 | 5.00 | 127 | 1     | 25  | 7.43  | 3.37 | 6.94  | 3.15 | 6  |                     |
| 2 1/2      | 65  | —    | —   | 7.98 | 203 | 5.70 | 145 | 1 1/4 | 32  | 14.94 | 6.78 | —     | —    | 3  |                     |
| 3          | 80  | —    | —   | 9.28 | 236 | 6.52 | 166 | 1 1/2 | 40  | 21.68 | 9.84 | —     | —    | 2  |                     |



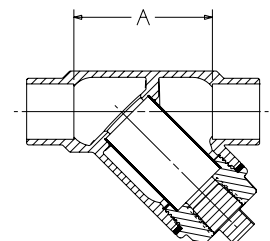
**T-221/222-A**  
Threaded



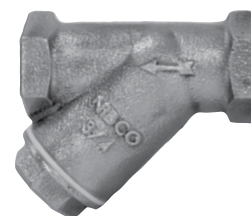
**T-221/222-A**  
Threaded



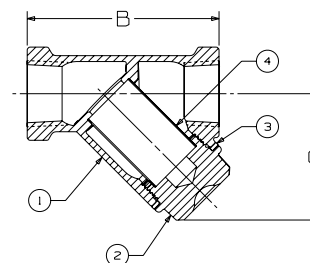
**S-221/222-A**  
Solder



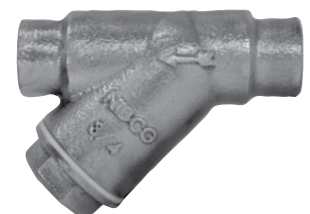
**S-221/222-A**  
Solder



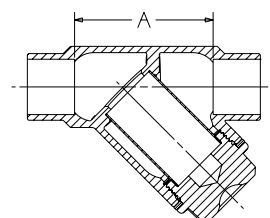
**T-221/222-B**  
Threaded



**T-221/222-B**  
Threaded



**S-221/222-B**  
Solder



**S-221/222-B**  
Solder

# Iron Gate Valves Illustrated Index

Iron Body Gate Valve  
Outside Screw and Yoke  
125 lb. SWP  
200 lb. CWP



**F-617-O/F-617-ON  
T-617-O/T-617-ON**

Rising Stem • Solid Wedge  
Sizes 2" thru 24" Flanged  
Sizes 2" thru 4" only Threaded  
**Page 39-42**

Iron Body Gate Valve  
Inside Screw  
125 lb. SWP  
200 lb. CWP



**F-619/F-619-N  
T-619/T-619-N**

Non-Rising Stem • Solid Wedge  
Sizes 2" thru 16" Flanged  
Sizes 2" thru 4" only Threaded  
**Page 43, 44**

Iron Body Gate Valve  
Outside Screw and Yoke  
Resilient Wedge  
250 lb. CWP



**F-607-RW**

Rising Stem • Resilient Wedge  
Sizes 2½" thru 12" Flanged  
**Page 45**

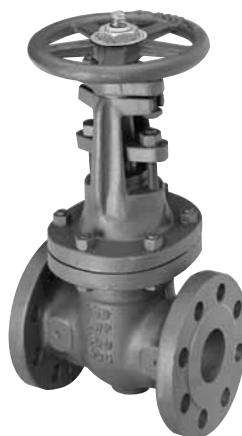
Iron Body Gate Valve  
Inside Screw  
250 lb. CWP



**F-619-RW/MJ-619-RW  
P-619-RW/PCR-619-RW/FPCR-619-RW**

Non-Rising Stem • Resilient Wedge  
Sizes 2" thru 12" Flanged  
Sizes 3" thru 12" Mechanical Joint  
Sizes 2" thru 12" IPS Push On  
Sizes 4" thru 12" C509 Push On  
Sizes 4" thru 12" C509 Push On by Flanged  
**Page 46-50**

Iron Body Gate Valve  
Outside Screw and Yoke  
250 lb. SWP  
500 lb. CWP



**F-667-O**

Rising Stem • Solid Wedge  
Sizes 2" thru 12" Flanged  
**Page 51**

Iron Body Gate Valve  
Inside Screw  
250 lb. SWP  
500 lb. CWP



**F-669**

Non-Rising Stem • Solid Wedge  
Sizes 2" thru 12" Flanged  
**Page 52**

# Class 125 Iron Body Gate Valves

Bolted Bonnet • Outside Screw and Yoke • Solid Wedge • Bronze Mounted

**125 PSI/8.6 Bar Saturated Steam to 353° F/178° C**  
**200 PSI/13.8 Bar Non-Shock Cold Working Pressure**  
**to -20° F to 150° F/-29° C to 66° C◆**

CONFORMS TO MSS SP-70

## MATERIAL LIST

| PART                    | SPECIFICATION                                                                       |
|-------------------------|-------------------------------------------------------------------------------------|
| 1. Stem                 | Brass ASTM B 16 Alloy C36000                                                        |
| 2. Handwheel Nut        | Cast Bronze ASTM B 584 Alloy C84400                                                 |
| 3. Identification Plate | Aluminum                                                                            |
| 4. Yoke Bushing         | Cast Bronze ASTM B 584 Alloy C84400                                                 |
| 5. Handwheel            | Cast Iron ASTM A 126 Class B                                                        |
| 6. Bonnet Cap Nut       | Steel ASTM A 307                                                                    |
| 7. Bonnet Cap           | Cast Iron ASTM A 126 Class B<br>or Ductile Iron ASTM A 536                          |
| 8. <sup>1</sup> Bonnet  | Cast Iron ASTM A 126 Class B                                                        |
| 9. Bonnet Cap Bolt      | Steel ASTM A 307                                                                    |
| 10. Gland Follower Nut  | Brass ASTM B 16 Alloy C36000                                                        |
| 11. Gland Follower      | Cast Iron ASTM A 126 Class B<br>or Ductile Iron ASTM A 536                          |
| 12. Packing Gland       | Zinc Plated Powdered Iron ASTM B 783<br>or Brass ASTM B 16 Alloy C36000             |
| 13. Packing             | Synthetic Fibers with Graphite                                                      |
| 14. Gland Follower Bolt | Steel ASTM A 307                                                                    |
| 15. Backseat Bushing    | Cast Bronze ASTM B 584 Alloy C84400                                                 |
| 16. Body Nut            | Steel ASTM A 307                                                                    |
| 17. Body Bolt           | Steel ASTM A 307                                                                    |
| 18. Wedge Pin           | Silicon Bronze ASTM B 371 Alloy C69400<br>(10" & 12") or B 140 Alloy C31600 (2"-8") |
| 19. Body                | Cast Iron ASTM A 126 Class B                                                        |
| 20. Seat Ring           | Cast Bronze ASTM B 584 Alloy C84400                                                 |
| 21. Wedge Face Ring     | Cast Bronze ASTM B 584 Alloy C84400                                                 |
| 22. <sup>2</sup> Wedge  | Cast Iron ASTM A 126 Class B                                                        |
| 23. Body Gasket         | Synthetic Fibers                                                                    |
| 24. Stem Collar         | Brass ASTM B 16 Alloy C36000                                                        |

<sup>1</sup> Sizes thru 8" made with Yoke Integral with Bonnet. 10" and 12" sizes made with separate Yoke Bolted to Bonnet.

<sup>2</sup> Sizes 2" thru 6" are all Bronze Wedges. Sizes 8" thru 12" made with Cast Iron Wedge with Bronze Wedge Face Rings.

## DIMENSIONS—WEIGHTS—QUANTITIES

| Dimensions |     |         |     |         |     |       |      |     |     |       |     |      |     |         |     |
|------------|-----|---------|-----|---------|-----|-------|------|-----|-----|-------|-----|------|-----|---------|-----|
| Size       |     | F-617-0 |     | T-617-0 |     | B     |      | C   |     | D     |     | E    |     | F-617-0 |     |
|            |     | A       | A   | A       | A   |       |      |     |     |       |     |      |     | Lbs.    | Kg. |
| In.        | mm. | In.     | mm. | In.     | mm. | In.   | mm.  | In. | mm. | In.   | mm. | In.  | mm. | Lbs.    | Kg. |
| 2          | 50  | 7.00    | 178 | 5.63    | 143 | 16.31 | 414  | 8   | 203 | 6.00  | 152 | .63  | 16  | 41      | 19  |
| 2½         | 65  | 7.50    | 191 | 5.88    | 149 | 17.19 | 437  | 8   | 203 | 7.00  | 178 | .69  | 17  | 55      | 25  |
| 3          | 80  | 8.00    | 203 | 6.13    | 156 | 19.50 | 495  | 8   | 203 | 7.50  | 191 | .75  | 19  | 67      | 30  |
| 4          | 100 | 9.00    | 229 | 6.50    | 165 | 24.00 | 610  | 10  | 254 | 9.00  | 229 | .94  | 24  | 107     | 48  |
| 5          | 125 | 10.00   | 254 | x       | x   | 27.13 | 689  | 10  | 254 | 10.00 | 254 | .94  | 24  | 145     | 66  |
| 6          | 150 | 10.50   | 267 | x       | x   | 31.06 | 789  | 12  | 305 | 11.00 | 279 | 1.00 | 25  | 178     | 81  |
| 8          | 200 | 11.50   | 292 | x       | x   | 40.19 | 1021 | 14  | 356 | 13.50 | 343 | 1.13 | 29  | 309     | 140 |
| 10         | 250 | 13.00   | 330 | x       | x   | 48.25 | 1226 | 16  | 406 | 16.00 | 406 | 1.19 | 30  | 481     | 218 |
| 12         | 300 | 14.00   | 356 | x       | x   | 56.88 | 1445 | 18  | 457 | 19.00 | 483 | 1.25 | 32  | 706     | 320 |

x Not available this size.



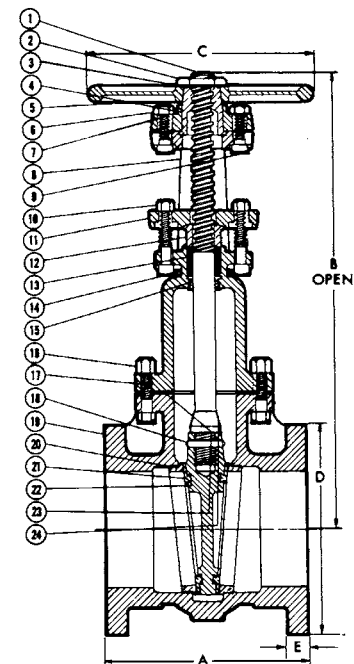
**F-617-0**

Flanged



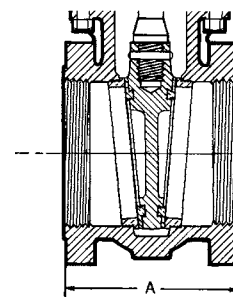
**T-617-0**

Threaded



**F-617-0**

Flg x Flg



**T-617-0**

NPT x NPT

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

Position indicators available, see page 95.

◆For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 125 Iron Body Gate Valves

Bolted Bonnet • Outside Screw and Yoke • Solid Wedge • Bronze Mounted

**\*100 PSI/6.9 Bar Saturated Steam to 338° F/170° C**  
**150 PSI/10.3 Bar Non-Shock Cold Working Pressure**  
**to -20° F to 150° F/-29° C to 66° C◆**

CONFORMS TO MSS SP-70

## MATERIAL LIST

| PART                    | SPECIFICATION                                                 |
|-------------------------|---------------------------------------------------------------|
| 1. Handwheel Nut        | Cast Bronze ASTM B 584 Alloy C84400                           |
| 2. I.D. Tag             | Aluminum                                                      |
| 3. Handwheel            | Fabricated Steel                                              |
| 4. Yoke Bushing         | Cast Bronze ASTM B 584 Alloy C84400                           |
| 5. Split Yoke Bolt      | Steel ASTM A 307                                              |
| 6. Split Yoke Bolt Nut  | Steel ASTM A 307                                              |
| 7. Yoke                 | Cast Iron ASTM A 126 Class B                                  |
| 8. Gland Follower Nut   | Brass ASTM B 16 Alloy C36000                                  |
| 9. Gland Follower       | Cast Iron ASTM A 126 Class B or Ductile Iron ASTM A 536       |
| 10. Yoke Bolt           | Steel ASTM A 307                                              |
| 11. Yoke Bolt Nut       | Steel ASTM A 307                                              |
| 12. Gland Follower Bolt | Steel ASTM A 307                                              |
| 13. Packing Gland       | Cast Bronze ASTM B 584 Alloy C84400 or Brass ASTM B 16 C36000 |
| 14. Packing             | Synthetic Fibers with Graphite                                |
| 15. Backseat Bushing    | Cast Bronze ASTM B 584 Alloy C84400                           |
| 16. Bonnet              | Cast Iron ASTM A 126 Class B                                  |
| 17. Stem                | Brass ASTM B 16 Alloy C36000                                  |
| 18. Bonnet Bolt         | Steel ASTM A 307                                              |
| 19. Bonnet Bolt Nut     | Steel ASTM A 307                                              |
| 20. Bonnet Gasket       | Synthetic Fibers                                              |
| 21. Body                | Cast Iron ASTM A 126 Class B                                  |
| 22. Wedge               | Cast Iron ASTM A 126 Class B                                  |
| 23. Seat Ring           | Cast Bronze ASTM B 584 Alloy C84400                           |
| 24. Wedge Ring          | Cast Bronze ASTM B 584 Alloy C84400                           |
| 25. Swing Nut           | Steel ASTM A 307                                              |
| 26. Swing Bolt          | Steel ASTM A 307                                              |
| 27. Grease Fitting      | Alemite 1743B (not shown)                                     |
| 28. Stem Collar         | Brass ASTM B 16 Alloy C36000 (not shown)                      |
| 29. Wedge Pin           | Brass ASTM B 371 C69400 (not shown)                           |
| 30. Wedge Nut           | Brass ASTM B 61 C92200 (not shown)                            |

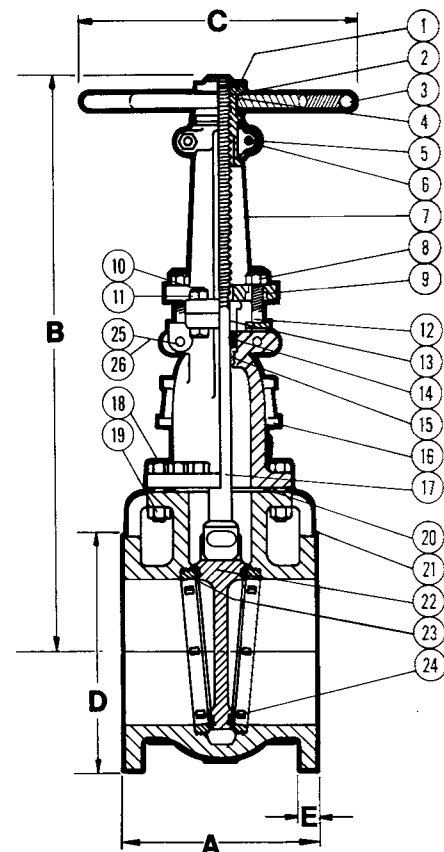
## DIMENSIONS—WEIGHTS—QUANTITIES

| Dimensions |     |     |     |        |      |     |     |       |     |      |     |                  |        |      |  |
|------------|-----|-----|-----|--------|------|-----|-----|-------|-----|------|-----|------------------|--------|------|--|
| Size       |     | A   |     | B      |      | C   |     | D     |     | E    |     | Turns to<br>Open | Weight |      |  |
| In.        | mm. | In. | mm. | In.    | mm.  | In. | mm. | In.   | mm. | In.  | mm. |                  | Lbs.   | Kg.  |  |
| 14         | 350 | 15  | 381 | 65.50  | 1660 | 24  | 610 | 21.00 | 533 | 1.38 | 35  | 29.38            | 892    | 405  |  |
| 16         | 400 | 16  | 407 | 74.50  | 1892 | 24  | 610 | 23.50 | 597 | 1.44 | 37  | 33.50            | 1253   | 568  |  |
| 18         | 450 | 17  | 432 | 82.50  | 2096 | 24  | 610 | 25.00 | 635 | 1.56 | 40  | 37.63            | 1598   | 725  |  |
| 20         | 500 | 18  | 457 | 91.00  | 2311 | 30  | 762 | 27.50 | 699 | 1.69 | 43  | 41.88            | 2000   | 907  |  |
| 24         | 600 | 20  | 508 | 107.50 | 2731 | 30  | 762 | 32.00 | 813 | 1.88 | 48  | 50.06            | 2909   | 1319 |  |

\* 18", 20" and 24" sizes recommended for 50 PSI maximum steam service.


**F-617-0**

Flanged


**F-617-0**

Flg x Flg

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

Position indicators available, see page 95.

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 125 All Iron Trim Iron Body Gate Valves

Bolted Bonnet • Outside Screw and Yoke • Solid Wedge

**125 PSI/8.6 Bar Fluid Pressure to 353° F/178° C**  
**200 PSI/13.8 Bar Non-Shock Cold Working Pressure**  
**to -20° F to 150° F/-29° C to 66° C**

CONFORMS TO MSS SP-70

## MATERIAL LIST

| PART                    | SPECIFICATION                            |
|-------------------------|------------------------------------------|
| 1. Stem                 | Steel ASTM A 108 12L14 Electroless Ni-Pi |
| 2. Handwheel Nut        | Ductile Iron ASTM A 536                  |
| 3. Identification Plate | Aluminum                                 |
| 4. Yoke Bushing         | Ductile Iron ASTM A 395 or A 536         |
| 5. Handwheel            | Cast Iron ASTM A 126 Class B             |
| 6. Bonnet Cap Nut       | Steel ASTM A 307                         |
| 7. Bonnet Cap           | Ductile Iron ASTM A 536                  |
| 8. <sup>1</sup> Bonnet  | Cast Iron ASTM A 126 Class B             |
| 9. Bonnet Cap Bolt      | Steel ASTM A 307                         |
| 10. Gland Follower Nut  | Steel ASTM A 307                         |
| 11. Gland Follower      | Ductile Iron ASTM A 536                  |
| 12. Packing Gland       | Zinc Plated Powdered Iron ASTM B 783     |
| 13. Packing             | PTFE Braided                             |
| 14. Gland Follower Bolt | Steel ASTM A 307                         |
| 15. Backseat Bushing    | Steel ASTM A 108 12L14                   |
| 16. Body Nut            | Steel ASTM A 307                         |
| 17. Body Bolt           | Steel ASTM A 307                         |
| 18. Wedge Pin           | Steel ASTM A 108 12L14                   |
| 19. Body                | Cast Iron ASTM A 126 Class B             |
| 20. Seat Ring           | Cast Iron ASTM A 126 Class B             |
| 21. Wedge Face          | Cast Iron ASTM A 126 Class B             |
| 22. Wedge               | Cast Iron ASTM A 126 Class B             |
| 23. Body Gasket         | Synthetic Fibers                         |
| 24. Stem Collar         | Steel ASTM A 108 12L14                   |
| 25. Grease Fitting      | Alemite 1743B (not shown)                |

<sup>1</sup> Sizes thru 8" made with Yoke Integral with Bonnet. 10" and 12" sizes made with separate Yoke Bolted to Bonnet.

## DIMENSIONS—WEIGHTS—QUANTITIES

### Dimensions

|      |     | F-617-ON |     | T-617-ON |     |       |      |     |     |       |     |      |     |          |     |          |     |
|------|-----|----------|-----|----------|-----|-------|------|-----|-----|-------|-----|------|-----|----------|-----|----------|-----|
| Size |     | A        |     | A        |     | B     |      | C   |     | D     |     | E    |     | F-617-ON |     | T-617-ON |     |
| In.  | mm. | In.      | mm. | In.      | mm. | In.   | mm.  | In. | mm. | In.   | mm. | In.  | mm. | Lbs.     | Kg. | Lbs.     | Kg. |
| 2    | 50  | 7.00     | 178 | 5.63     | 143 | 16.31 | 414  | 8   | 203 | 6.00  | 152 | .63  | 16  | 41       | 18  | 30       | 14  |
| 2½   | 65  | 7.50     | 191 | 5.88     | 149 | 17.19 | 437  | 8   | 203 | 7.00  | 178 | .69  | 17  | 55       | 25  | 39       | 18  |
| 3    | 80  | 8.00     | 203 | 6.13     | 156 | 19.50 | 495  | 8   | 203 | 7.50  | 191 | .75  | 19  | 66       | 30  | 47       | 21  |
| 4    | 100 | 9.00     | 229 | 6.50     | 165 | 24.00 | 610  | 10  | 254 | 9.00  | 229 | .94  | 24  | 104      | 47  | 77       | 35  |
| 5    | 125 | 10.00    | 254 | x        | x   | 27.13 | 689  | 10  | 254 | 10.00 | 254 | .94  | 24  | 144      | 65  | x        | x   |
| 6    | 150 | 10.50    | 267 | x        | x   | 31.06 | 789  | 12  | 305 | 11.00 | 279 | 1.00 | 25  | 178      | 81  | x        | x   |
| 8    | 200 | 11.50    | 292 | x        | x   | 40.19 | 1021 | 14  | 356 | 13.50 | 343 | 1.13 | 29  | 309      | 140 | x        | x   |
| 10   | 250 | 13.00    | 330 | x        | x   | 48.25 | 1226 | 16  | 406 | 16.00 | 406 | 1.19 | 30  | 481      | 218 | x        | x   |
| 12   | 300 | 14.00    | 356 | x        | x   | 56.88 | 1445 | 18  | 457 | 19.00 | 483 | 1.25 | 32  | 702      | 318 | x        | x   |

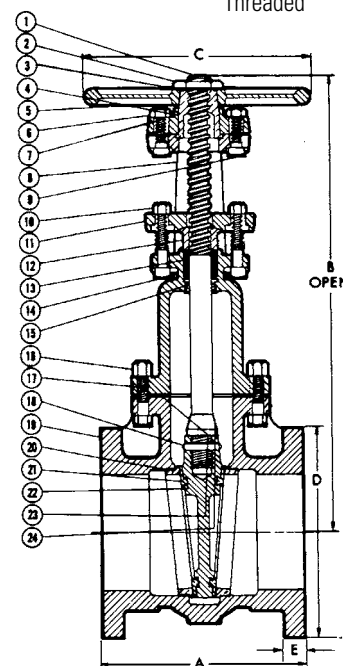
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**F-617-ON**

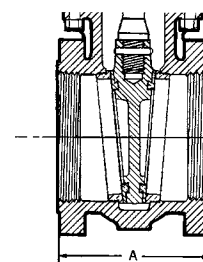
Flanged


**T-617-ON**

Threaded


**F-617-ON**

Flg x Flg


**T-617-ON**

NPT x NPT

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

Position indicators available, see page 95.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 125 All Iron Trim Iron Body Gate Valves

Bolted Bonnet • Outside Screw and Yoke • Solid Wedge

**100 PSI/6.9 Bar Fluid Pressure to 338° F/170° C**
**150 PSI/10.3 Bar Non-Shock Cold Working Pressure  
to -20° F to 150° F/-29° C to 66° C◆**

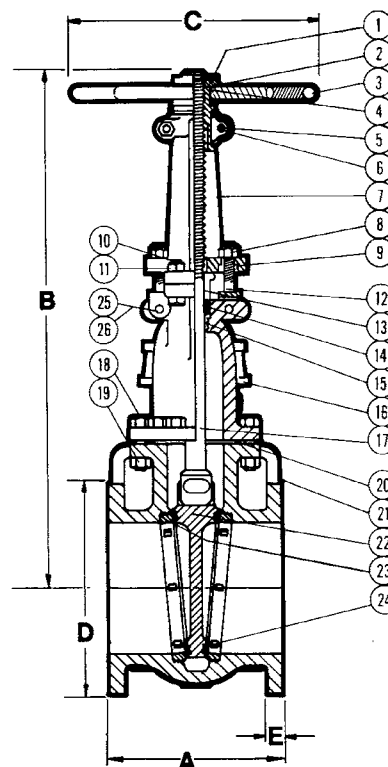
CONFORMS TO MSS SP-70

## MATERIAL LIST

| PART                    | SPECIFICATION                            |
|-------------------------|------------------------------------------|
| 1. Handwheel Nut        | Ductile Iron ASTM A 536                  |
| 2. Identification Tag   | Aluminum                                 |
| 3. Handwheel            | Fabricated Steel                         |
| 4. Yoke Bushing         | Ductile Iron ASTM A 536                  |
| 5. Split Yoke Bolt      | Steel ASTM A 307                         |
| 6. Split Yoke Bolt Nut  | Steel ASTM A 307                         |
| 7. Yoke                 | Cast Iron ASTM A 126 Class B             |
| 8. Gland Follower Nut   | Steel ASTM A 307                         |
| 9. Gland Follower       | Ductile Iron ASTM A 536                  |
| 10. Yoke Bolt           | Steel ASTM A 307                         |
| 11. Yoke Bolt Nut       | Steel ASTM A 307                         |
| 12. Gland Follower Bolt | Steel ASTM A 307                         |
| 13. Packing Gland       | Steel ASTM A 108 12L14                   |
| 14. Packing             | PTFE Braided                             |
| 15. Backseat Bushing    | Steel ASTM A 108 12L14                   |
| 16. Bonnet              | Cast Iron ASTM A 126 Class B             |
| 17. Stem                | Steel ASTM A 108 12L14 Electroless Ni-Pi |
| 18. Bonnet Bolt         | Steel ASTM A 307                         |
| 19. Bonnet Bolt Nut     | Steel ASTM A 307                         |
| 20. Bonnet Gasket       | Synthetic Fibers                         |
| 21. Body                | Cast Iron ASTM A 126 Class B             |
| 22. Wedge               | Cast Iron ASTM A 126 Class B             |
| 23. Seat Ring           | Cast Iron ASTM A 126 Class B             |
| 24. Grease Fitting      | Alemite 1743B (not shown)                |
| 25. Swing Nut           | Steel ASTM A 307                         |
| 26. Swing Bolt          | Steel ASTM A 307                         |
| 27. Stem Collar         | Steel ASTM A 108 12L14 (not shown)       |
| 28. Wedge Pin           | Steel ASTM A 108 12L14 (not shown)       |
| 29. Wedge Nut           | Ductile Iron ASTM A 536 (not shown)      |


**F-617-ON**

Flanged


**F-617-ON**

Flg x Flg

## DIMENSIONS—WEIGHTS—QUANTITIES

| Dimensions |     |     |     |        |      |     |     |       |     |      |     |                  |        |      |
|------------|-----|-----|-----|--------|------|-----|-----|-------|-----|------|-----|------------------|--------|------|
| Size       |     | A   |     | B      |      | C   |     | D     |     | E    |     | Turns to<br>Open | Weight |      |
| In.        | mm. | In. | mm. | In.    | mm.  | In. | mm. | In.   | mm. | In.  | mm. |                  | Lbs.   | Kg.  |
| 14         | 350 | 15  | 381 | 65.50  | 1660 | 24  | 610 | 21.00 | 533 | 1.38 | 35  | 29.38            | 890    | 404  |
| 16         | 400 | 16  | 407 | 74.50  | 1892 | 24  | 610 | 23.50 | 597 | 1.44 | 37  | 33.50            | 1252   | 568  |
| 18*        | 450 | 17  | 432 | 82.50  | 2096 | 24  | 610 | 25.50 | 635 | 1.56 | 40  | 37.63            | 1595   | 724  |
| 20*        | 500 | 18  | 457 | 91.00  | 2311 | 30  | 762 | 27.50 | 699 | 1.69 | 43  | 41.88            | 2001   | 907  |
| 24*        | 600 | 20  | 508 | 107.50 | 2731 | 30  | 762 | 32.00 | 813 | 1.88 | 48  | 50.06            | 2879   | 1306 |

\* 18", 20" and 24" sizes recommended for 50 PSI maximum steam service. For higher pressures see F-637-33.

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

Position indicators available, see page 95.

◆For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 125 Iron Body Gate Valves

Bolted Bonnet • Non-Rising Stem • Solid Wedge • Bronze Mounted

**125 PSI/8.6 Bar Saturated Steam to 353° F/178° C**  
**200 PSI/13.8 Bar Non-Shock Cold Working Pressure**  
**to -20° F to 150° F/-29° C to 66° C**

CONFORMS TO MSS SP-70

## MATERIAL LIST

| PART                                 | SPECIFICATION                                           |
|--------------------------------------|---------------------------------------------------------|
| 1. Handwheel Nut                     | Steel ASTM A 307                                        |
| 2. Identification Plate              | Aluminum                                                |
| 3. Handwheel or Square Operating Nut | Cast Iron ASTM A 126 Class B                            |
| 4. Stem                              | Brass ASTM B 16 Alloy C36000                            |
| 5. Gland Follower Nut                | Bronze ASTM F 467 Alloy C27000                          |
| 6. Gland Follower                    | Cast Iron ASTM A 126 Class B or Ductile Iron ASTM A 536 |
| 7. Gland Follower Bolt               | Steel ASTM A 307                                        |
| 8. Packing Gland                     | Zinc Plated Powdered Iron ASTM B 783 or Brass ASTM B 16 |
| 9. Stuffing Box                      | Cast Iron ASTM A 126 Class B                            |
| 10. Packing                          | Synthetic Fibers with Graphite                          |
| 11. Stuffing Box Gasket              | Synthetic Fibers                                        |
| 12. Bonnet                           | Cast Iron ASTM A 126 Class B                            |
| 13. Body Bolt                        | ASTM A 307                                              |
| 14. Body Gasket                      | Synthetic Fibers                                        |
| 15. Body Nut                         | Steel ASTM A 307                                        |
| 16. <sup>1</sup> Wedge Bushing       | Cast Bronze ASTM B 584 Alloy C84400                     |
| 17. Seat Ring                        | Cast Bronze ASTM B 584 Alloy C84400                     |
| 18. Wedge Face Ring                  | Cast Bronze ASTM B 584 Alloy C84400                     |
| 19. <sup>1</sup> Wedge               | Cast Iron ASTM A 126 Class B                            |
| 20. Body                             | Cast Iron ASTM A 126 Class B                            |
| 21. Stuffing Box Nut                 | Steel ASTM A 307 (not shown)                            |

<sup>1</sup> Sizes thru 6" have Bronze Wedges. Sizes 8" thru 12" made with Cast Iron Wedge with Bronze Bushing and Wedge Face Rings.

## DIMENSIONS—WEIGHTS—QUANTITIES

| Dimensions |     |       |     |       |     |       |      |     |     |       |     |      |     |       |     |       |     |
|------------|-----|-------|-----|-------|-----|-------|------|-----|-----|-------|-----|------|-----|-------|-----|-------|-----|
| Size       |     | F-619 |     | T-619 |     | B     |      | C   |     | D     |     | E    |     | F-619 |     | T-619 |     |
|            |     | A     |     | A     |     |       |      |     |     |       |     |      |     |       |     |       |     |
| In.        | mm. | In.   | mm. | In.   | mm. | In.   | mm.  | In. | mm. | In.   | mm. | In.  | mm. | Lbs.  | Kg. | Lbs.  | Kg. |
| 2          | 50  | 7.00  | 178 | 5.63  | 143 | 11.00 | 279  | 7   | 178 | 6.00  | 152 | .63  | 16  | 35    | 16  | 25    | 11  |
| 2½         | 65  | 7.50  | 191 | 5.88  | 149 | 12.50 | 318  | 7   | 178 | 7.00  | 178 | .69  | 17  | 49    | 22  | 33    | 15  |
| 3          | 80  | 8.00  | 203 | 6.13  | 156 | 13.50 | 343  | 8   | 203 | 7.50  | 191 | .75  | 19  | 60    | 27  | 42    | 19  |
| 4          | 100 | 9.00  | 229 | 6.50  | 165 | 15.75 | 400  | 10  | 254 | 9.00  | 229 | .94  | 24  | 90    | 41  | 61    | 28  |
| 5          | 125 | 10.00 | 254 | x     | x   | 17.00 | 432  | 10  | 254 | 10.00 | 254 | .94  | 24  | 129   | 59  | x     | x   |
| 6          | 150 | 10.50 | 267 | x     | x   | 21.00 | 533  | 12  | 305 | 11.00 | 279 | 1.00 | 25  | 161   | 73  | x     | x   |
| 8          | 200 | 11.50 | 292 | x     | x   | 25.00 | 635  | 14  | 356 | 13.50 | 343 | 1.13 | 29  | 277   | 126 | x     | x   |
| 10         | 250 | 13.00 | 330 | x     | x   | 29.00 | 737  | 16  | 406 | 16.00 | 406 | 1.19 | 30  | 415   | 188 | x     | x   |
| 12         | 300 | 14.00 | 356 | x     | x   | 34.50 | 876  | 18  | 457 | 19.00 | 483 | 1.25 | 32  | 631   | 287 | x     | x   |
| 14         | 350 | 15.00 | 381 | x     | x   | 40.38 | 1026 | 24  | 610 | 21.00 | 533 | 1.38 | 35  | 869   | 394 | x     | x   |
| 16         | 400 | 16.00 | 407 | x     | x   | 45.75 | 1162 | 24  | 610 | 23.50 | 597 | 1.44 | 37  | 1224  | 555 | x     | x   |

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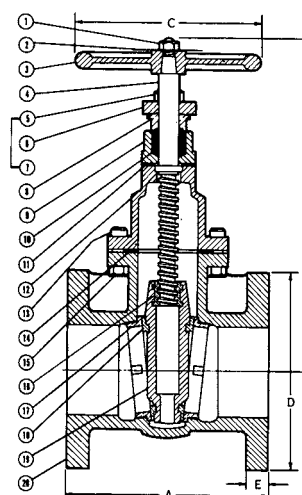
**F-619**  
Flanged



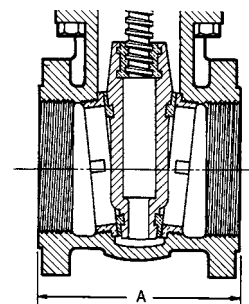
**T-619**  
Threaded



**F-619-S0N**  
Flanged  
With Square Op. Nut



**F-619**  
Flg x Flg



**T-619**  
NPT x NPT

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

Position indicators available, see page 95.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 125 All Iron Trim Iron Body Gate Valves

Bolted Bonnet • Non-Rising Stem • Solid Wedge

**125 PSI/8.6 Bar Fluid Pressure to 353° F/178° C**
**200 PSI/13.8 Bar Non-Shock Cold Working Pressure**
**to -20° F to 150° F/-29° C to 66° C◆**

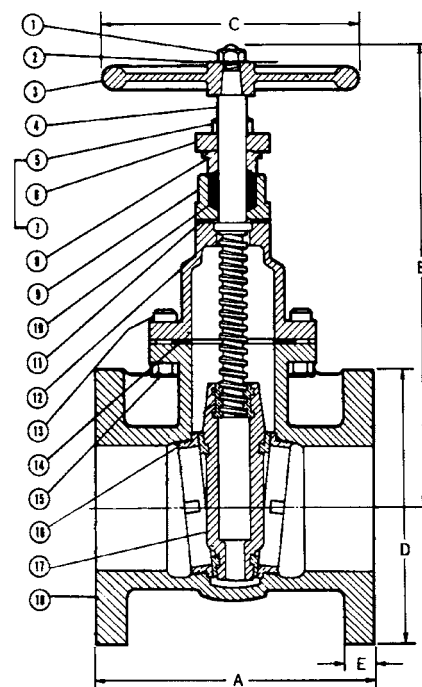
CONFORMS TO MSS SP-70

## MATERIAL LIST

| PART                    | SPECIFICATION                            |
|-------------------------|------------------------------------------|
| 1. Handwheel Nut        | Steel ASTM A 307                         |
| 2. Identification Plate | Aluminum                                 |
| 3. Handwheel            | Cast Iron ASTM A 126 Class B             |
| 4. Stem                 | Steel ASTM A 108 12L14 Electroless NI-PI |
| 5. Gland Follower Nut   | Steel ASTM A 307                         |
| 6. Gland Follower       | Ductile Iron ASTM A 536                  |
| 7. Gland Follower Bolt  | Steel ASTM A 307                         |
| 8. Packing Gland        | Zinc Plated Powdered Iron ASTM B 783     |
| 9. Stuffing Box         | Cast Iron ASTM A 126 Class B             |
| 10. Packing             | PTFE Braided                             |
| 11. Stuffing Box Gasket | Synthetic Fibers                         |
| 12. Bonnet              | Cast Iron ASTM A 126 Class B             |
| 13. Body Bolt           | Steel ASTM A 307                         |
| 14. Body Gasket         | Synthetic Fibers                         |
| 15. Body Nut            | Steel ASTM A 307                         |
| 16. Seat Ring           | Cast Iron ASTM A 126 Class B             |
| 17. Wedge               | Cast Iron ASTM A 126 Class B             |
| 18. Body                | Cast Iron ASTM A 126 Class B             |
| 19. Stuffing Box Nut    | Steel ASTM A 307 (not shown)             |


**F-619-N**

Flanged


**F-619-N**

Flg x Flg

## DIMENSIONS—WEIGHTS—QUANTITIES

| Dimensions |     |       |     |       |      |     |     |       |     |      |     |        |     |
|------------|-----|-------|-----|-------|------|-----|-----|-------|-----|------|-----|--------|-----|
| Size       |     | A     |     | B     |      | C   |     | D     |     | E    |     | Weight |     |
| In.        | mm. | In.   | mm. | In.   | mm.  | In. | mm. | In.   | mm. | In.  | mm. | Lbs.   | Kg. |
| 2          | 50  | 7.00  | 178 | 11.00 | 279  | 7   | 178 | 6.00  | 152 | .63  | 16  | 35     | 16  |
| 2½         | 65  | 7.50  | 191 | 12.50 | 318  | 7   | 178 | 7.00  | 178 | .94  | 17  | 49     | 22  |
| 3          | 80  | 8.00  | 203 | 13.50 | 343  | 8   | 203 | 7.50  | 191 | .75  | 19  | 60     | 27  |
| 4          | 100 | 9.00  | 229 | 15.75 | 400  | 10  | 254 | 9.00  | 229 | .94  | 24  | 90     | 41  |
| 5          | 125 | 10.00 | 254 | 17.00 | 432  | 10  | 254 | 10.00 | 254 | .94  | 24  | 129    | 59  |
| 6          | 150 | 10.50 | 267 | 21.00 | 533  | 12  | 305 | 11.00 | 279 | 1.00 | 25  | 161    | 73  |
| 8          | 200 | 11.50 | 292 | 25.00 | 635  | 14  | 356 | 13.50 | 343 | 1.13 | 29  | 277    | 126 |
| 10         | 250 | 13.00 | 330 | 29.00 | 737  | 16  | 406 | 16.00 | 406 | 1.19 | 30  | 415    | 188 |
| 12         | 300 | 14.00 | 356 | 34.50 | 876  | 18  | 457 | 19.00 | 483 | 1.25 | 32  | 631    | 287 |
| 14*        | 350 | 15.00 | 381 | 40.38 | 1026 | 20  | 508 | 21.00 | 533 | 1.38 | 35  | 869    | 394 |
| 16*        | 400 | 16.00 | 407 | 45.75 | 1162 | 22  | 559 | 23.50 | 597 | 1.44 | 37  | 1224   | 555 |

\* 14"–16" sizes rated to 100 PSI maximum steam service, 150 PSI Non-Shock Cold Working Pressure.  
For higher pressures, see F-639.

x Not available this size.

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# 250 lb. WWP Iron Body Gate Valves

- Fire Protection Valve • Outside Screw and Yoke • Resilient Wedge
- Epoxy Coated Interior/Exterior • Pre-Grooved Stem for Supervisory Switch
- Drilled, Tapped and Plugged at Boss Location A\*\*
- Flanges Conform with ANSI B16.1 Class 125

**250 PSI/17.2 Bar Non-Shock Cold Working Pressure**  
**(160° F/71° C max. operating temperature)**

UL/ULC LISTED • FMRC APPROVED •  
AWWA C509 & 515 • M.E.A. APPROVED 236-93E

## MATERIAL LIST

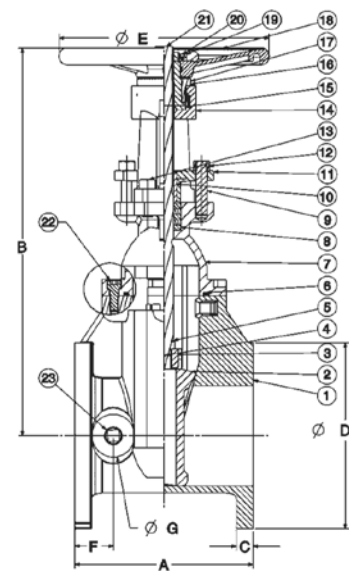
| PART                        | SPECIFICATION                            |
|-----------------------------|------------------------------------------|
| 1. Valve Body               | Ductile Iron ASTM A 536                  |
| 2. Resilient Wedge          | Ductile Iron ASTM A 536/EPDM ASTM D 2000 |
| 3. Wedge Nut                | Bronze ASTM B 584 UNS C83600             |
| 4. Dowel Pin                | Stainless Steel ASTM A 276 UNS S42000    |
| 5. Stem Back Seat O-Ring    | EPDM ASTM D 2000                         |
| 6. Bonnet Gasket            | EPDM ASTM D 2000                         |
| 7. Bonnet                   | Ductile Iron ASTM A 536                  |
| 8. Stem Packing             | EPDM ASTM D 2000                         |
| 9. Threaded Rod             | Carbon Steel Zinc Plated                 |
| 10. Gland Bushing           | Bronze ASTM B 584                        |
| 11. Gland                   | Cast Iron ASTM A 126-B                   |
| 12. Gland Nut               | Stainless Steel 18-8                     |
| 13. Yoke Screw              | Alloy Steel ASTM A 574M Zinc Plated      |
| 14. Yoke                    | Cast Iron ASTM A 126-B                   |
| 15. Yoke Bushing            | Bronze ASTM B 584                        |
| 16. Flat Point Set Screw    | Alloy Steel ASTM F 912M Black Oxide      |
| 17. Yoke Bushing Retainer   | Cast Iron ASTM A 126-B                   |
| 18. Handwheel               | Ductile Iron ASTM A 536                  |
| 19. Handwheel Nut           | Carbon Steel Zinc Plated                 |
| 20. Flat Head Screw         | Carbon Steel Zinc Plated                 |
| 21. Stem                    | Bronze ASTM B 150 UNS C61400             |
| 22. Bonnet Screw            | Alloy Steel ASTM A 574M Zinc Plated      |
| 23. NPT Pipe Plug           | Malleable Iron ANSI B16.3 (Epoxy Coated) |
| 24. UL/FM Label (not shown) | Aluminum                                 |

\* Electrostatically applied fusion-bonded epoxy coated inside and outside per AWWA C-550.

\*\* Drilled, tapped and plugged at Position A with 1/2" valve sizes 2 1/2"-4",  
3/4" on 6"-8", 1" on 10"-12".



**F-607-RW**  
Flanged



**F-607-RW**  
Flg x Flg

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |        |      |          |      |      |      |      |     |      |     |      |     |     |     | Bolt Circle |     | Flange Holes | Turns To Open | Weight |     |
|------|-----|------------|-----|--------|------|----------|------|------|------|------|-----|------|-----|------|-----|-----|-----|-------------|-----|--------------|---------------|--------|-----|
|      |     | A          |     | B Open |      | B Closed |      | C    |      | D    |     | E    |     | F    |     | G   |     |             |     |              |               |        |     |
|      |     | In.        | mm. | In.    | mm.  | In.      | mm.  | In.  | mm.  | In.  | mm. | In.  | mm. | In.  | mm. | In. | mm. | In.         | mm. |              |               | Lbs.   | Kg. |
| 2½   | 65  | 7.5        | 190 | 17.8   | 453  | 14.9     | 378  | 0.69 | 17.5 | 7.0  | 178 | 7.9  | 200 | 1.50 | 38  | 1.6 | 40  | 5.50        | 140 | 4            | 8.8           | 45     | 20  |
| 3    | 80  | 8.0        | 203 | 19.7   | 500  | 15.9     | 405  | 0.75 | 19.0 | 7.5  | 191 | 7.9  | 200 | 1.73 | 44  | 2.1 | 54  | 6.00        | 152 | 4            | 10.5          | 53     | 24  |
| 4    | 100 | 9.0        | 229 | 21.0   | 534  | 16.6     | 422  | 0.94 | 24.0 | 9.0  | 229 | 10.2 | 260 | 2.13 | 54  | 2.1 | 54  | 7.50        | 191 | 8            | 10.4          | 94     | 43  |
| 6    | 150 | 10.5       | 267 | 29.3   | 744  | 22.9     | 581  | 1.00 | 25.4 | 11.0 | 279 | 12.4 | 315 | 2.24 | 57  | 2.5 | 64  | 9.50        | 241 | 8            | 15.7          | 154    | 70  |
| 8    | 200 | 11.5       | 292 | 37.0   | 939  | 28.5     | 724  | 1.13 | 28.6 | 13.5 | 343 | 14.8 | 375 | 2.48 | 63  | 2.8 | 70  | 11.75       | 298 | 8            | 17.2          | 247    | 112 |
| 10   | 250 | 13.0       | 330 | 44.8   | 1139 | 34.5     | 877  | 1.19 | 30.2 | 16.0 | 406 | 16.4 | 416 | 2.56 | 65  | 2.8 | 70  | 14.25       | 362 | 12           | 21.4          | 349    | 159 |
| 12   | 300 | 14.0       | 356 | 52.2   | 1326 | 39.9     | 1014 | 1.25 | 31.8 | 19.0 | 483 | 17.5 | 445 | 2.91 | 74  | 3.4 | 86  | 17.00       | 432 | 12           | 25.5          | 484    | 220 |



**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

# 250 PSI CWP Iron Body Gate Valves

Bolted Bonnet • Non-Rising Stem • Resilient Wedge • Flanged Ends

- Drilled, Tapped and Plugged at Boss Location A\*\*
- Flanges Conform with ANSI B16.1 Class 125

**250 PSI/17.2 Bar Non-Shock Cold Working Pressure**

CONFORMS TO AWWA C509

## MATERIAL LIST

| PART                           | SPECIFICATION                            |
|--------------------------------|------------------------------------------|
| 1. Valve Body                  | Ductile Iron ASTM A 536                  |
| 2. Resilient Wedge             | Ductile Iron ASTM A 536/EPDM ASTM D 2000 |
| 3. Wedge Nut                   | Bronze ASTM B 584 UNS C83600             |
| 4. Stem                        | Bronze ASTM B 150 UNS C61400             |
| 5. Bonnet Gasket               | EPDM ASTM D 2000                         |
| 6. Bonnet Screw                | Alloy Steel ASTM A 574M Zinc Plated      |
| 7. Bonnet                      | Ductile Iron ASTM A 536                  |
| 8. Stem Primary O-Ring         | EPDM ASTM D 2000                         |
| 9. Stem Thrust Washer (lower)  | Bronze ASTM B 584 UNS C83600             |
| 10. Stem Thrust Washer (upper) | Stainless Steel ASTM A 276 UNS S41000    |
| 11. Gland Seal O-Ring          | EPDM ASTM D 2000                         |
| 12. Stem Seal Bushing          | Bronze ASTM B 584 UNS C83600             |
| 13. Stem Secondary O-Ring (2)  | EPDM ASTM D 2000                         |
| 14. Gland Flange               | Ductile Iron ASTM A 536                  |
| 15. Gland Flange Screw         | Alloy Steel ASTM A 574M Zinc Plated      |
| 16. Stem Ring Wiper            | EPDM ASTM D 2000                         |
| 17. Square Operating Nut       | Cast Iron ASTM A 126-B                   |
| 17A. Handwheel (Optional)      | Ductile Iron ASTM A 536                  |
| 18. Flat Washer                | Carbon Steel Zinc Plated                 |
| 19. Screw                      | Alloy Steel ASTM A 574M Zinc Plated      |

**Coating** — Electrostatically applied fusion-bonded epoxy 10-14 mil. inside and outside.  
Meets or exceeds AWWA C550. Coating is NSF-61 and FDA certified.

**Maximum operating temperature 160°F/71°C.**

\*\* Drilled, tapped and plugged at Position A with 1/2" valve sizes 2 1/2"–4",  
3/4" on 6"–8", 1" on 10"–12".



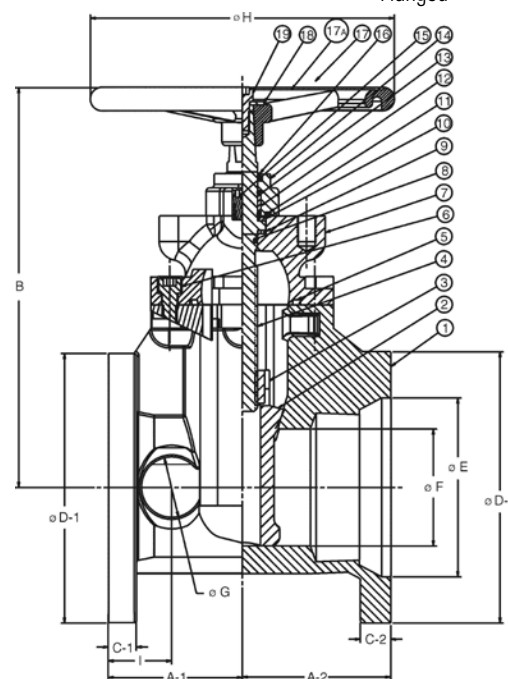
**F-619-RW**

Flanged



**F-619-RW-SON**

Flanged



FM-619-RW  
FLG x MJ

**F-619-RW**  
Flg x Flg

Shown with optional handwheel

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size  |     | Dimensions |     |      |     |      |      |      |     |      |     |     |     |      |     | Bolt Circle |     | Flange Holes | Turns to Open | Weight |     |
|-------|-----|------------|-----|------|-----|------|------|------|-----|------|-----|-----|-----|------|-----|-------------|-----|--------------|---------------|--------|-----|
|       |     | A          | B   | C    | D   | F    | G    | H    |     |      |     |     |     |      |     |             |     |              |               |        |     |
| In.   | mm. | In.        | mm. | In.  | mm. | In.  | mm.  | In.  | mm. | In.  | mm. | In. | mm. | In.  | mm. | In.         | mm. |              |               | Lbs.   | Kg. |
| 2     | 50  | 7.0        | 178 | 10.0 | 255 | 0.63 | 16.0 | 6.0  | 152 | 1.42 | 36  | 1.6 | 40  | 7.9  | 200 | 4.75        | 121 | 4            | 6.5           | 30     | 14  |
| 2 1/2 | 65  | 7.5        | 190 | 11.3 | 287 | 0.69 | 17.5 | 7.0  | 178 | 1.50 | 38  | 1.6 | 40  | 7.9  | 200 | 5.50        | 140 | 4            | 8.8           | 35     | 16  |
| 3     | 80  | 8.0        | 203 | 12.6 | 321 | 0.75 | 19.0 | 7.5  | 191 | 1.73 | 44  | 2.1 | 54  | 10.2 | 260 | 6.00        | 152 | 4            | 10.6          | 45     | 20  |
| 4     | 100 | 9.0        | 229 | 13.5 | 344 | 0.94 | 24.0 | 9.0  | 229 | 2.13 | 54  | 2.1 | 54  | 10.2 | 260 | 7.50        | 191 | 8            | 13.0          | 71     | 32  |
| 6     | 150 | 10.5       | 267 | 17.4 | 441 | 1.00 | 25.4 | 11.0 | 279 | 2.24 | 57  | 2.5 | 64  | 14.8 | 375 | 9.50        | 241 | 8            | 15.6          | 122    | 55  |
| 8     | 200 | 11.5       | 292 | 20.8 | 529 | 1.13 | 28.6 | 13.5 | 343 | 2.48 | 63  | 2.8 | 70  | 14.8 | 375 | 11.75       | 298 | 8            | 17.3          | 196    | 89  |
| 10    | 250 | 13.0       | 330 | 24.2 | 614 | 1.19 | 30.2 | 16.0 | 406 | 2.56 | 65  | 2.8 | 70  | 15.7 | 400 | 14.25       | 362 | 12           | 21.4          | 294    | 134 |
| 12    | 300 | 14.0       | 356 | 27.6 | 700 | 1.25 | 31.8 | 19.0 | 483 | 2.91 | 74  | 3.4 | 86  | 19.7 | 500 | 17.00       | 432 | 12           | 25.3          | 426    | 194 |
| 14    | 350 | 15.0       | 381 | 31.8 | 807 | 1.38 | 35.0 | 21.0 | 533 | 2.95 | 75  | 3.1 | 80  | 19.7 | 500 | 18.75       | 476 | 12           | 44            | 600    | 273 |
| 16    | 400 | 16.0       | 406 | 34.1 | 869 | 1.46 | 37.0 | 23.5 | 597 | 3.00 | 77  | 3.1 | 80  | 19.7 | 500 | 21.25       | 540 | 16           | 50            | 810    | 369 |

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

# 250 PSI CWP Iron Body Gate Valves

Bolted Bonnet • Non-rising Stem • Resilient Wedge • MJ Ends  
• Flanges Conform with ANSI B16.1 Class 125

**250 PSI/17.2 Bar Non-Shock Cold Working Pressure**

CONFORMS TO AWWA C509

## MATERIAL LIST

| PART                           | SPECIFICATION                            |
|--------------------------------|------------------------------------------|
| 1. Valve Body                  | Ductile Iron ASTM A 536                  |
| 2. Resilient Wedge             | Ductile Iron ASTM A 536/EPDM ASTM D 2000 |
| 3. Wedge Nut                   | Bronze ASTM B 584 UNS C83600             |
| 4. Stem                        | Bronze ASTM B 150 UNS C61400             |
| 5. Bonnet Gasket               | EPDM ASTM D 2000                         |
| 6. Bonnet Screw                | 18-8 Stainless Steel ASTM 193            |
| 7. Bonnet                      | Ductile Iron ASTM A 536                  |
| 8. Stem Primary O-Ring         | EPDM ASTM D 2000                         |
| 9. Stem Thrust Washer (lower)  | Bronze ASTM B 584 UNS C83600             |
| 10. Stem Thrust Washer (upper) | Stainless Steel ASTM A 276 UNS S41000    |
| 11. Gland Seal O-Ring          | EPDM ASTM D 2000                         |
| 12. Stem Seal Bushing          | Bronze ASTM B 584 UNS C83600             |
| 13. Stem Secondary O-Ring (2)  | EPDM ASTM D 2000                         |
| 14. Gland Flange               | Ductile Iron ASTM A 536                  |
| 15. Gland Flange Screw         | Alloy Steel ASTM A 574M Zinc Plated      |
| 16. Stem Ring Wiper            | EPDM ASTM D 2000                         |
| 17. Square Operating Nut       | Cast Iron ASTM A 126-B                   |
| 17A. Handwheel (Optional)      | Ductile Iron ASTM A 536                  |
| 18. Flat Washer                | Carbon Steel Zinc Plated                 |
| 19. Screw                      | Alloy Steel ASTM A 574M Zinc Plated      |

Coating — Electrostatically applied fusion-bonded epoxy 10-14 mil. inside and outside.

Meets or exceeds AWWA C550. Coating is NSF-61 and FDA certified.

Maximum operating temperature 160°F/71°C.



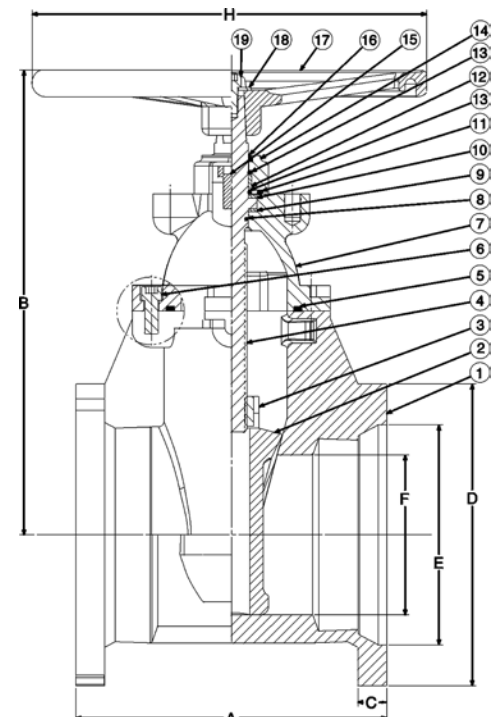
**MJ-619-RW**

Mechanical Joint



**MJ-619-RW-SON**

Mechanical Joint



**MJ-619-RW**

MJ x MJ

## DIMENSIONS—WEIGHTS—QUANTITIES

| Dimensions - Weight Examples |     |            |     |      |     |      |     |      |     |      |     |      |     |      |     |       |     |             |              |               |        |  |
|------------------------------|-----|------------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|-------|-----|-------------|--------------|---------------|--------|--|
| Size                         |     | Dimensions |     |      |     |      |     |      |     |      |     |      |     |      |     |       |     | Bolt Circle | Flange Holes | Turns to Open | Weight |  |
|                              |     | A          |     | B    |     | C    |     | D    |     | E    |     | F    |     | H    |     |       |     |             |              |               |        |  |
| In.                          | mm. | In.        | mm. | In.  | mm. | In.  | mm. | In.  | mm. | In.  | mm. | In.  | mm. | In.  | mm. | In.   | mm. | In.         | mm.          | Lbs.          | Kg.    |  |
| 3                            | 80  | 8.0        | 203 | 12.7 | 322 | 0.94 | 24  | 7.7  | 196 | 4.9  | 126 | 3.1  | 80  | 10.2 | 260 | 6.19  | 157 | 4           | 10.8         | 43            | 20     |  |
| 4                            | 100 | 10.0       | 254 | 13.5 | 344 | 1.00 | 26  | 9.1  | 232 | 6.0  | 153 | 3.9  | 100 | 10.2 | 260 | 7.50  | 191 | 4           | 13.0         | 70            | 36     |  |
| 6                            | 150 | 11.5       | 292 | 17.4 | 441 | 1.06 | 27  | 11.1 | 283 | 8.1  | 206 | 5.9  | 150 | 14.8 | 375 | 9.50  | 241 | 6           | 15.7         | 112           | 51     |  |
| 8                            | 200 | 11.5       | 292 | 20.8 | 529 | 1.12 | 28  | 13.4 | 340 | 10.3 | 261 | 7.9  | 200 | 14.8 | 375 | 11.75 | 298 | 6           | 17.3         | 170           | 77     |  |
| 10                           | 250 | 13.0       | 330 | 24.2 | 614 | 1.18 | 30  | 15.7 | 400 | 12.3 | 313 | 9.8  | 250 | 15.7 | 400 | 14.00 | 356 | 8           | 21.4         | 267           | 121    |  |
| 12                           | 300 | 14.0       | 356 | 27.6 | 700 | 1.25 | 32  | 18.0 | 456 | 14.4 | 367 | 11.8 | 300 | 19.7 | 500 | 16.25 | 413 | 8           | 25.3         | 388           | 176    |  |
| 14                           | 350 | 15.0       | 381 | 31.8 | 807 | 1.34 | 34  | 20.5 | 516 | 16.5 | 420 | 13.8 | 350 | 19.7 | 500 | 18.75 | 476 | 10          | 44.0         | 570           | 259    |  |
| 16                           | 400 | 16.0       | 406 | 34.2 | 869 | 1.38 | 35  | 22.5 | 573 | 18.6 | 474 | 15.7 | 400 | 19.7 | 500 | 21.00 | 533 | 12          | 50.0         | 765           | 348    |  |

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

# 250 PSI CWP Iron Body Gate Valves

Bolted Bonnet • Non-Rising Stem • Resilient Wedge • IPS PVC Push-on

**250 PSI/17.2 Bar Non-Shock Cold Working Pressure**



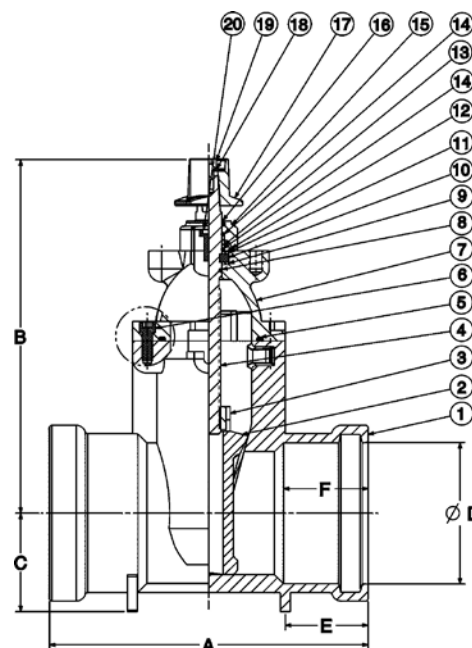
**P-619-RW**  
IPS Push-On

## MATERIAL LIST

| PART                           | SPECIFICATION                            |
|--------------------------------|------------------------------------------|
| 1. Valve Body                  | Cast Iron ASTM A 126-B                   |
| 2. Resilient Wedge             | Ductile Iron ASTM A 536/EPDM ASTM D 2000 |
| 3. Wedge Nut                   | Bronze ASTM B 584 UNS C83600             |
| 4. Stem                        | Stainless Steel ASTM A 276 UNS S41000    |
| 5. Bonnet Gasket               | EPDM ASTM D 2000                         |
| 6. Bonnet Screw                | 18-8 Stainless Steel ASTM A193           |
| 7. Bonnet                      | Cast Iron ASTM A 126-B                   |
| 8. Stem Primary O-Ring         | EPDM ASTM D 2000                         |
| 9. Stem Thrust Washer (lower)  | Nylon 1010                               |
| 10. Stem Collar                | Brass ASTM B 16 UNS C36000               |
| 11. Stem Thrust Washer (upper) | Stainless Steel ASTM A 276 UNS S41000    |
| 12. Gland Seal O-Ring          | EPDM ASTM D 2000                         |
| 13. Stem Seal Bushing          | Nylon 1010                               |
| 14. Stem Secondary O-Ring (2)  | EPDM ASTM D 2000                         |
| 15. Gland Flange               | Ductile Iron ASTM A 536                  |
| 16. Stem Ring Wiper            | EPDM ASTM D 2000                         |
| 17. Square Operating Nut       | Cast Iron ASTM A 126-B                   |
| 17A. Handwheel (Optional)      | Ductile Iron ASTM A 536                  |
| 18. Operating Nut Washer       | Carbon Steel Zinc Plated                 |
| 19. Operating Nut Screw        | Alloy Steel ASTM A 574M Zinc Plated      |
| 20. Gland Flange Screw         | Alloy Steel ASTM A 574M Zinc Plated      |

**Coating** — Electrostatically applied fusion-bonded epoxy 10-14 mil. inside and outside.  
Meets or exceeds AWWA C550. Coating is NSF-61 and FDA certified.

**Maximum operating temperature 160°F/71°C.**



**P-619-RW**  
IPS Push-On

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |      |     |     |     |       |       |     |     |     |     | Handwheel (Opt.) Turns to Open |     | Weight<br>Lbs. Kg. |         |
|------|-----|------------|-----|------|-----|-----|-----|-------|-------|-----|-----|-----|-----|--------------------------------|-----|--------------------|---------|
|      |     | A          | B   | C    | D   | E   | F   |       |       |     |     |     |     |                                |     |                    |         |
| In.  | mm. | In.        | mm. | In.  | mm. | In. | mm. | In.   | mm.   | In. | mm. | In. | mm. |                                |     |                    |         |
| 2    | 50  | 11.4       | 289 | 10.2 | 259 | 2.4 | 60  | 2.48  | 63    | 2.3 | 58  | 2.7 | 69  | 7.9                            | 200 | 6.5                | 24 11   |
| 2½   | 65  | 11.4       | 289 | 11.3 | 288 | 2.6 | 67  | 2.99  | 76    | 2.3 | 58  | 2.7 | 69  | 7.9                            | 200 | 8.8                | 32 15   |
| 3    | 80  | 11.3       | 287 | 12.7 | 322 | 3.1 | 80  | 3.62  | 92    | 2.2 | 56  | 3.0 | 75  | 10.2                           | 250 | 10.6               | 40 18   |
| 4    | 100 | 11.7       | 298 | 13.4 | 341 | 3.5 | 90  | 4.65  | 118   | 2.5 | 63  | 3.5 | 89  | 10.2                           | 260 | 12.8               | 56 25   |
| 6    | 150 | 15.3       | 388 | 17.0 | 431 | 4.7 | 120 | 6.77  | 172   | 4.0 | 101 | 4.1 | 103 | 14.8                           | 375 | 15.6               | 106 48  |
| 8    | 200 | 16.5       | 418 | 20.4 | 518 | 5.9 | 150 | 8.74  | 222   | 3.0 | 77  | 4.5 | 115 | 14.8                           | 375 | 17.3               | 172 78  |
| 10   | 250 | 21.2       | 539 | 23.8 | 604 | 7.1 | 180 | 10.94 | 278   | 3.7 | 93  | 5.2 | 132 | 15.7                           | 400 | 21.3               | 307 140 |
| 12   | 300 | 26.5       | 672 | 27.0 | 685 | 8.1 | 206 | 12.89 | 327.5 | 4.1 | 103 | 5.5 | 139 | 19.7                           | 500 | 25.3               | 447 203 |

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

# 250 PSI CWP Iron Body Gate Valve

Bolted Bonnet • Non-Rising Stem • Resilient Wedge

**250 PSI/17.2 Bar Non-Shock Cold Working Pressure**

CONFORMS TO AWWA C509  
EPOXY MEETS OR EXCEEDS AWWA C550. END CONNECTIONS  
DESIGNED FOR USE WITH C900 PVC PIPE.



**PCR-619-RW**

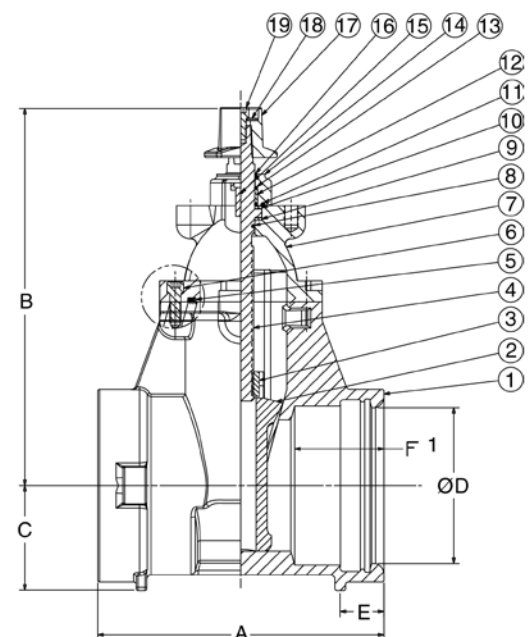
## MATERIAL LIST

| PART                           | SPECIFICATION                                      |
|--------------------------------|----------------------------------------------------|
| 1. Valve Body                  | Ductile Iron ASTM A 536                            |
| 2. Resilient Wedge             | Ductile Iron Disc Encapsulated by EPDM ASTM D 2000 |
| 3. Wedge Nut                   | Bronze ASTM B 584 Alloy C83600                     |
| 4. Stem                        | Aluminum Bronze ASTM B 150 Alloy C61400            |
| 5. Bonnet Gasket               | EPDM ASTM D 2000                                   |
| 6. Bonnet Screw                | 18-8 Stainless Steel ASTM A193                     |
| 7. Bonnet                      | Ductile Iron ASTM A 536                            |
| 8. Stem Primary O-Ring         | EPDM ASTM D 2000                                   |
| 9. Stem Thrust Washer (lower)  | Bronze ASTM B 584                                  |
| 10. Stem Thrust Washer (upper) | Stainless Steel ASTM A 276 UNS S 41000             |
| 11. Gland Seal O-Ring          | EPDM ASTM D 2000                                   |
| 12. Stem Seal Bushing          | Bronze ASTM B 584                                  |
| 13. Stem Secondary O-Ring (2)  | EPDM ASTM D 2000                                   |
| 14. Gland Flange               | Ductile Iron ASTM A 536                            |
| 15. Wiper Ring - Stem          | EPDM ASTM D 2000                                   |
| 16. Nut, Wrench - Square       | Iron ASTM A 126-B                                  |
| 17. Washer, Wrench Nut         | Carbon Steel, DIN 9021 B                           |
| 18. Screw WR Nut               | Alloy Steel ASTM A 574 M Zinc Plated               |
| 19. Screw, Gland Flange        | Alloy Steel ASTM A 574 M Zinc Plated               |
| 20. Handwheel (Optional)       | Ductile ASTM A 536 (not pictured)                  |

Coating — Electrostatically applied fusion-bonded epoxy 10-14 mil. inside and outside.

Meets or exceeds AWWA C550. Coating is NSF-61 and FDA certified.

Maximum operating temperature 160°F/71°C.



## DIMENSIONS — WEIGHTS — QUANTITIES

| Size |     | A    |     | B    |     | C   |     | D    |     | E   |     | F   |     | Hand Wheel<br>(Optional) |     | Turns<br>to Open | Weight |     |
|------|-----|------|-----|------|-----|-----|-----|------|-----|-----|-----|-----|-----|--------------------------|-----|------------------|--------|-----|
| In.  | mm. | In.  | mm. | In.  | mm. | In. | mm. | In.  | mm. | In. | mm. | In. | mm. | In.                      | mm. |                  | Lbs.   | Kg. |
| 4    | 100 | 10.7 | 272 | 13.5 | 342 | 3.5 | 90  | 4.9  | 125 | 1.8 | 46  | 3.5 | 89  | 10.2                     | 260 | 13.0             | 62     | 28  |
| 6    | 150 | 12.9 | 327 | 17.0 | 432 | 4.7 | 120 | 7.0  | 178 | 2.0 | 50  | 4.0 | 102 | 14.8                     | 375 | 15.6             | 106    | 48  |
| 8    | 200 | 15.6 | 396 | 20.4 | 519 | 5.9 | 150 | 9.2  | 233 | 2.5 | 64  | 4.5 | 114 | 14.8                     | 375 | 17.3             | 187    | 85  |
| 10   | 250 | 17.0 | 432 | 23.8 | 605 | 8.0 | 203 | 11.2 | 285 | 2.4 | 60  | 5.2 | 132 | 15.7                     | 400 | 21.4             | 286    | 130 |
| 12   | 300 | 18.0 | 457 | 27.0 | 686 | 9.5 | 242 | 13.3 | 338 | 2.5 | 64  | 5.5 | 140 | 19.7                     | 500 | 25.3             | 418    | 190 |

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

# 250 PSI CWP Iron Body Gate Valve

Bolted Bonnet • Non-Rising Stem • Resilient Wedge

**250 PSI/17.2 Bar Non-Shock Cold Working Pressure**

CONFORMS TO AWWA C509  
EPOXY MEETS OR EXCEEDS AWWA C550. END CONNECTIONS  
DESIGNED FOR USE WITH C900 PVC PIPE.



**FPCR-619-RW**

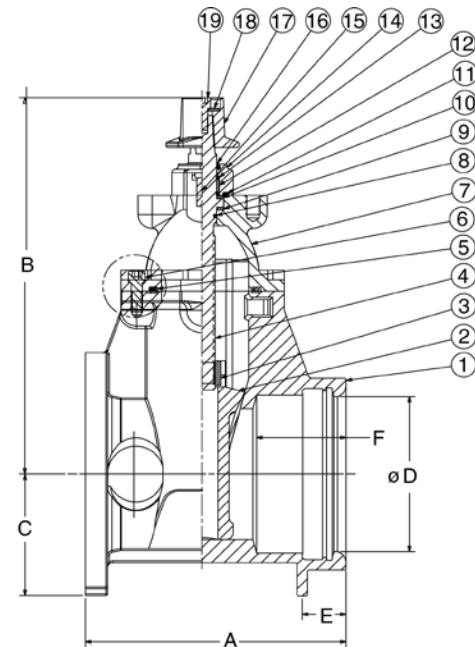
## MATERIAL LIST

| PART                           | SPECIFICATION                                 |
|--------------------------------|-----------------------------------------------|
| 1. Valve Body                  | Ductile Iron ASTM A 536                       |
| 2. Resilient Wedge             | Ductile Iron Encapsulated by EPDM ASTM D 2000 |
| 3. Wedge Nut                   | Bronze ASTM B 584 Alloy C83600                |
| 4. Stem                        | Aluminum Bronze ASTM B 150 Alloy C61400       |
| 5. Bonnet Gasket               | EPDM ASTM D 2000                              |
| 6. Bonnet Screw                | 18-8 Stainless Steel ASTM 193                 |
| 7. Bonnet                      | Ductile Iron ASTM A 536                       |
| 8. Stem Primary O-Ring         | EPDM ASTM D 2000                              |
| 9. Stem Thrust Washer (lower)  | Bronze ASTM B 584                             |
| 10. Stem Thrust Washer (upper) | Stainless Steel ASTM A 276 UNS S 41000        |
| 11. Gland Seal O-Ring          | EPDM ASTM D 2000                              |
| 12. Stem Seal Bushing          | Bronze ASTM B 584                             |
| 13. Stem Secondary O-Ring (2)  | EPDM ASTM D 2000                              |
| 14. Gland Flange               | Ductile Iron ASTM A 536                       |
| 15. Wiper Ring - Stem          | EPDM ASTM D 2000                              |
| 16. Nut, Wrench - Square       | Iron ASTM A 126-B                             |
| 17. Washer, Wrench Nut         | Carbon Steel, DIN 9021 B                      |
| 18. Screw WR Nut               | Alloy Steel ASTM A 574 M Zinc Plated          |
| 19. Screw, Gland Flange        | Alloy Steel ASTM A 574 M Zinc Plated          |
| 20. Handwheel (Optional)       | Ductile ASTM A 536 (not pictured)             |

Coating — Electrostatically applied fusion-bonded epoxy 10-14 mil. inside and outside.

Meets or exceeds AWWA C550. Coating is NSF-61 and FDA certified.

Maximum operating temperature 160°F/71°C.



## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |      |     |     |     |      |     |     |     |     |     | Hand Wheel<br>(Optional) |     | Bolt<br>Circle |     | Flange<br>Holes | Turns to<br>Open | Weight |     |
|------|-----|------------|-----|------|-----|-----|-----|------|-----|-----|-----|-----|-----|--------------------------|-----|----------------|-----|-----------------|------------------|--------|-----|
|      |     | A          |     | B    |     | C   |     | D    |     | E   |     | F   |     |                          |     |                |     |                 |                  |        |     |
| In.  | mm. | In.        | mm. | In.  | mm. | In. | mm. | In.  | mm. | In. | mm. | In. | mm. | In.                      | mm. | In.            | mm. |                 |                  | Lbs.   | Kg. |
| 4    | 100 | 9.8        | 250 | 13.5 | 342 | 4.5 | 115 | 4.9  | 125 | 1.8 | 46  | 3.5 | 89  | 10.2                     | 260 | 7.50           | 191 | 8               | 13.0             | 70     | 32  |
| 6    | 150 | 11.7       | 297 | 17.0 | 432 | 5.5 | 140 | 7.0  | 178 | 2.0 | 50  | 4.0 | 102 | 14.8                     | 375 | 9.50           | 241 | 8               | 15.6             | 117    | 53  |
| 8    | 200 | 13.5       | 344 | 20.4 | 519 | 6.8 | 172 | 9.2  | 233 | 2.5 | 64  | 4.5 | 114 | 14.8                     | 375 | 11.75          | 298 | 8               | 17.3             | 198    | 90  |
| 10   | 250 | 15.0       | 381 | 23.8 | 605 | 8.0 | 203 | 11.2 | 285 | 2.4 | 60  | 5.2 | 132 | 15.7                     | 400 | 14.25          | 362 | 12              | 21.4             | 297    | 135 |
| 12   | 300 | 16.0       | 406 | 27.0 | 686 | 9.5 | 242 | 13.3 | 338 | 2.5 | 64  | 5.5 | 140 | 19.7                     | 500 | 17.00          | 432 | 12              | 25.3             | 429    | 195 |

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

# Class 250 Iron Body Gate Valves

Bolted Bonnet • Outside Screw and Yoke • Solid Wedge • Bronze Mounted

**250 PSI/17.2 Bar Saturated Steam to 406° F/207° C**  
**500 PSI/34.5 Bar Non-Shock Cold Working Pressure**  
**to -20° F to 150° F/-29° C to 66° C◆**

CONFORMS TO MSS SP-70 • APPROVED BY THE NEW  
YORK CITY B.S.A. 143-69-SA AT 350 PSI  
NON-SHOCK COLD WATER

## MATERIAL LIST

| PART                             | SPECIFICATION                                                        |
|----------------------------------|----------------------------------------------------------------------|
| 1. Stem                          | Brass ASTM B 16 Alloy C36000                                         |
| 2. Handwheel Nut                 | Cast Bronze ASTM B 584 Alloy C84400                                  |
| 3. Identification Plate          | Aluminum                                                             |
| 4. Yoke Bushing                  | Cast Bronze ASTM B 584 Alloy C84400                                  |
| 5. Handwheel                     | Cast Iron ASTM A 126 Class B                                         |
| 6. Bonnet Cap Nut                | Steel ASTM A 307                                                     |
| 7. Bonnet Cap                    | Cast Iron ASTM A 126 Class B<br>or Ductile Iron ASTM A 536           |
| 8. <sup>1</sup> Bonnet           | Cast Iron ASTM A 126 Class B                                         |
| 9. Bonnet Cap Bolt               | Steel ASTM A 307                                                     |
| 10. Gland Follower Nut           | Brass ASTM F 467 Alloy C27000                                        |
| 11. Gland Follower               | Cast Iron ASTM A 126 Class B<br>or Ductile Iron ASTM A 536           |
| 12. Packing Gland                | Zinc Plated Powdered Iron ASTM B 783<br>or Brass ASTM B 16           |
| 13. Packing                      | PTFE Braided                                                         |
| 14. Gland Follower Bolt          | Steel ASTM A 307                                                     |
| 15. Backseat Bushing             | Cast Bronze ASTM B 584 Alloy C84400                                  |
| 16. Body Nut                     | Steel ASTM A 307                                                     |
| 17. Body Gasket                  | Reinforced Graphite                                                  |
| 18. Body Bolt                    | Steel ASTM A 307                                                     |
| 19. Body                         | Cast Iron ASTM A 126 Class B                                         |
| 20. Stem Collar                  | Brass ASTM B 16 Alloy C36000                                         |
| 21. <sup>2</sup> Wedge           | Cast Iron ASTM A 126 Class B                                         |
| 22. <sup>3</sup> Wedge Nut       | Cast Bronze ASTM B 584 Alloy C84400                                  |
| 23. Wedge Pin                    | Silicon Bronze ASTM B 371 Alloy C69400<br>or ASTM B 140 Alloy C31400 |
| 24. Seat Ring                    | Cast Bronze ASTM B 584 Alloy C84400                                  |
| 25. <sup>2</sup> Wedge Face Ring | Cast Bronze ASTM B 584 Alloy C84400                                  |

<sup>1</sup> Sizes 2" thru 8" made with Yoke Integral with Bonnet. Sizes 8" thru 12" made with separate Yoke Bolted to Bonnet.

<sup>2</sup> Wedge construction – 2" thru 3" all bronze.  
– 4" thru 12" Cast Iron with Bronze Wedge Face Rings.

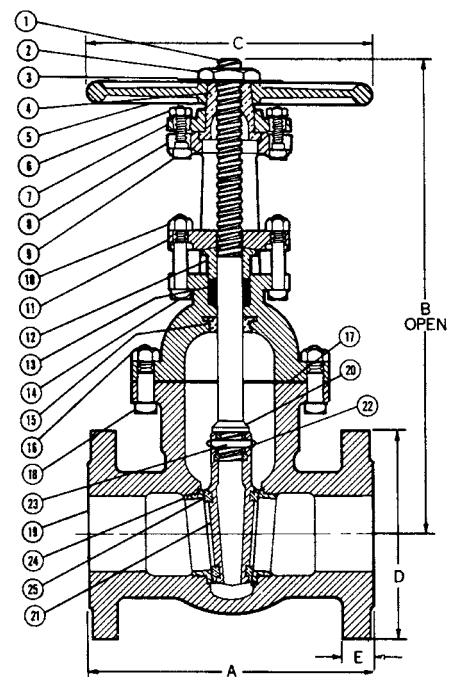
<sup>3</sup> Bronze Wedge Nuts used on sizes 5" thru 12".

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |       |      |     |     |       |     |      |     | Weight |     |
|------|-----|------------|-----|-------|------|-----|-----|-------|-----|------|-----|--------|-----|
|      |     | A          | B   | C     | D    | E   |     |       |     |      |     |        |     |
| In.  | mm. | In.        | mm. | In.   | mm.  | In. | mm. | In.   | mm. | In.  | mm. | Lbs.   | Kg. |
| 2    | 50  | 8.50       | 216 | 16.00 | 406  | 8   | 203 | 6.50  | 165 | .88  | 22  | 56     | 25  |
| 2½   | 65  | 9.50       | 241 | 18.44 | 468  | 8   | 203 | 7.50  | 191 | 1.00 | 25  | 74     | 34  |
| 3    | 80  | 11.13      | 283 | 20.50 | 521  | 10  | 254 | 8.25  | 210 | 1.13 | 29  | 122    | 55  |
| 4    | 100 | 12.00      | 305 | 27.00 | 686  | 12  | 305 | 10.00 | 254 | 1.25 | 32  | 193    | 87  |
| 5    | 125 | 15.00      | 381 | 31.50 | 800  | 12  | 305 | 11.00 | 279 | 1.38 | 35  | 297    | 135 |
| 6    | 150 | 15.88      | 403 | 33.00 | 838  | 16  | 406 | 12.50 | 318 | 1.44 | 37  | 411    | 187 |
| 8    | 200 | 16.50      | 419 | 45.50 | 1156 | 16  | 406 | 15.00 | 381 | 1.63 | 41  | 637    | 289 |
| 10   | 250 | 18.00      | 457 | 56.00 | 1422 | 20  | 508 | 17.50 | 445 | 1.88 | 48  | 897    | 407 |
| 12   | 300 | 19.75      | 502 | 60.00 | 1524 | 20  | 508 | 20.50 | 521 | 2.00 | 51  | 1172   | 532 |



**F-667-0**  
Flanged



**F-667-0**  
Flg x Flg

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 250 Iron Body Gate Valves

Bolted Bonnet • Non-Rising Stem • Solid Wedge • Bronze Mounted

**250 PSI/17.2 Bar Saturated Steam to 406° F/207° C**  
**500 PSI/34.5 Bar Non-Shock Cold Working Pressure**  
**to -20° F to 150° F/-29° C to 66° C** ♦

CONFORMS TO MSS SP-70

## MATERIAL LIST

| PART                             | SPECIFICATION                                           |
|----------------------------------|---------------------------------------------------------|
| 1. Handwheel Nut                 | Steel ASTM A 307                                        |
| 2. Identification Plate          | Aluminum                                                |
| 3. Handwheel                     | Cast Iron ASTM A 126 Class B                            |
| 4. Stem                          | Brass ASTM B 16 Alloy C36000                            |
| 5. Gland Follower Nut            | Brass ASTM F 467 Alloy C27000                           |
| 6. Gland Follower                | Cast Iron ASTM A 126 Class B or Ductile Iron ASTM A 536 |
| 7. Gland Follower Bolt           | Steel ASTM A 307                                        |
| 8. Packing Gland                 | Zinc Plated Powdered Iron ASTM B 783 or Brass ASTM B 16 |
| 9. Stuffing Box                  | Cast Iron ASTM A 126 Class B                            |
| 10. Packing                      | PTFE Braided                                            |
| 11. Stuffing Box Gasket          | Reinforced Graphite                                     |
| 12. Stuffing Box Bolt            | Steel ASTM A 307                                        |
| 13. Stuffing Box Nut             | Steel ASTM A 307                                        |
| 14. Body Bolt                    | Steel ASTM A 307                                        |
| 15. Bonnet                       | Cast Iron ASTM A 126 Class B                            |
| 16. Body Gasket                  | Reinforced Graphite                                     |
| 17. Body Nut                     | Steel ASTM A 307                                        |
| 18. <sup>2</sup> Wedge Nut       | Cast Bronze ASTM B 584 Alloy C84400                     |
| 19. Seat Ring                    | Cast Bronze ASTM B 584 Alloy C84400                     |
| 20. <sup>1</sup> Wedge Face Ring | Cast Bronze ASTM B 584 Alloy C84400                     |
| 21. <sup>1</sup> Wedge           | Cast Iron ASTM A 126 Class B                            |
| 22. Body                         | Cast Iron ASTM A 126 Class B                            |

<sup>1</sup> Sizes thru 3" have Bronze Wedges. 4" thru 12" have Cast Iron Wedges with Bronze Wedge Face Rings.

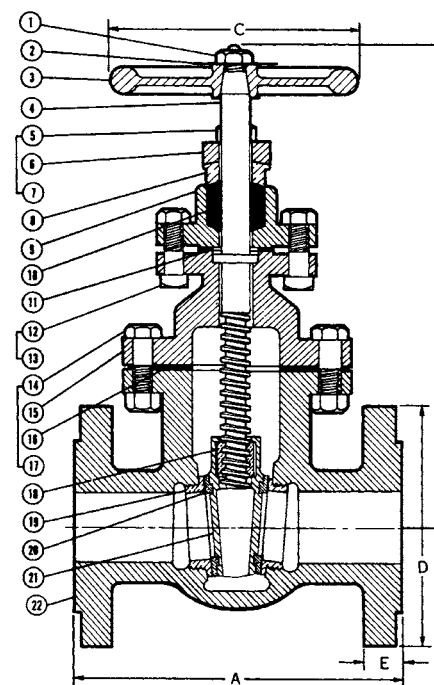
<sup>2</sup> Bronze Wedge Bushing cast in place on 4" Wedge. Bronze Wedge Nut used in sizes 5" thru 12".

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |       |     |     |     |       |     |      |     | Weight |     |
|------|-----|------------|-----|-------|-----|-----|-----|-------|-----|------|-----|--------|-----|
|      |     | A          |     | B     |     | C   |     | D     |     | E    |     |        |     |
| In.  | mm. | In.        | mm. | In.   | mm. | In. | mm. | In.   | mm. | In.  | mm. | Lbs.   | Kg. |
| 2    | 50  | 8.50       | 216 | 13.50 | 343 | 7   | 178 | 6.50  | 165 | .88  | 22  | 53     | 24  |
| 2½   | 65  | 9.50       | 241 | 15.00 | 381 | 8   | 203 | 7.50  | 191 | 1.00 | 25  | 72     | 33  |
| 3    | 80  | 11.13      | 283 | 16.50 | 419 | 10  | 254 | 8.25  | 210 | 1.13 | 29  | 115    | 52  |
| 4    | 100 | 12.00      | 305 | 18.50 | 470 | 12  | 305 | 10.00 | 254 | 1.25 | 32  | 186    | 85  |
| 5    | 125 | 15.00      | 381 | 20.75 | 527 | 12  | 305 | 11.00 | 279 | 1.38 | 35  | 269    | 122 |
| 6    | 150 | 15.88      | 403 | 24.00 | 610 | 16  | 406 | 12.50 | 318 | 1.44 | 37  | 374    | 170 |
| 8    | 200 | 16.50      | 419 | 28.50 | 724 | 16  | 406 | 15.00 | 381 | 1.63 | 41  | 581    | 264 |
| 10   | 250 | 18.00      | 457 | 34.00 | 864 | 18  | 457 | 17.50 | 445 | 1.88 | 48  | 786    | 357 |
| 12   | 300 | 19.75      | 502 | 36.00 | 914 | 20  | 508 | 20.50 | 521 | 2.00 | 51  | 1098   | 498 |


**F-669**

Flanged


**F-669**  
Flg x Flg

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Iron Globe and Angle Valves

## Illustrated Index

Iron Body Globe Valve  
Outside Screw and Yoke  
125 lb. SWP  
200 lb. CWP



**F-718-B** Bronze Disc  
**F-718-N** All Iron Trim  
Sizes 2" thru 10" Flanged  
**Page 54, 55**

Iron Body Globe Valve  
Outside Screw and Yoke • Bronze Mounted  
250 lb. SWP  
500 lb. CWP



**F-768-B**  
Bronze Disc  
Sizes 2" thru 8" Flanged  
**Page 56**

Iron Body Angle Valve  
Outside Screw and Yoke • Bronze Mounted  
125 lb. SWP  
200 lb. CWP



**F-818-B**  
Bronze Disc  
Sizes 2" thru 8" Flanged  
**Page 57**

Iron Body Stop Check Valve  
Outside Screw and Yoke • Bronze Mounted  
250 lb. SWP  
500 lb. CWP



**F-869-B**  
Bronze Disc  
Sizes 2½" thru 8" Flanged  
**Page 58**

# Class 125 Iron Body Globe Valves

Bolted Bonnet • Renewable Seat and Disc\* • Bronze Mounted

**125 PSI/8.6 Bar Saturated Steam to 353° F/178° C**  
**200 PSI/13.8 Bar Non-Shock Cold Working Pressure**  
**to -20° F to 150° F/-29° C to 66° C** ♦

CONFORMS TO MSS SP-85

## MATERIAL LIST

| PART                          | SPECIFICATION                                              |
|-------------------------------|------------------------------------------------------------|
| 1. Handwheel Nut              | Steel ASTM A 307                                           |
| 2. Identification Plate       | Aluminum                                                   |
| 3. Handwheel                  | Cast Iron ASTM A 126 Class B                               |
| 4. Yoke Bushing               | Cast Bronze ASTM B 584 Alloy C84400                        |
| 5. Bonnet                     | Cast Iron ASTM A 126 Class B                               |
| 6. Stem                       | Brass ASTM B 16 Alloy C36000                               |
| 7. Gland Follower Nut         | Brass ASTM F 467 Alloy C27000                              |
| 8. Gland Follower             | Cast Iron ASTM A 126 Class B<br>or Ductile Iron ASTM A 536 |
| 9. Packing Gland              | Zinc Plated Powdered Iron ASTM B 783<br>or Brass ASTM B 16 |
| 10. Gland Follower Stud       | Steel ASTM A 307                                           |
| 11. Packing                   | Synthetic Fibers with Graphite                             |
| 12. <sup>1</sup> Body Bolt    | Steel ASTM A 307                                           |
| 13. Body Gasket               | Synthetic Fibers                                           |
| 14. <sup>1</sup> Body Nut     | Steel ASTM A 307                                           |
| 15. Swivel Nut                | Cast Bronze ASTM B 584 Alloy C84400                        |
| 16. <sup>2</sup> Disc Cage    | Cast Iron ASTM A 126 Class B                               |
| 17. <sup>3</sup> Disc         | Cast Bronze ASTM B 584 Alloy C84400 (B)                    |
| **18. <sup>4</sup> Disc Plate | Cast Iron ASTM A 126 Class B                               |
| **19. Disc Nut                | Bronze                                                     |
| 20. Seat Ring                 | Cast Bronze ASTM B 584 Alloy C84400                        |
| 21. Body                      | Cast Iron ASTM A 126 Class B                               |

<sup>1</sup> 2" and 10" have hex head steel capscrew.

<sup>2</sup> 2" thru 5" are Cast Bronze ASTM B 584 Alloy C84400

<sup>3</sup> For (B) Disc, 2" thru 6" have Bronze ASTM B 584 Alloy C84400 Disc.

<sup>4</sup> 8" thru 10" have Iron Disc with Bronze Disc Face Rings and Brass Pilots.

<sup>5</sup> 2" thru 4" are Cast Bronze ASTM B 584 Alloy C84400.

\*\* For PTFE Seat Valves Only.

## DIMENSIONS—WEIGHTS—QUANTITIES

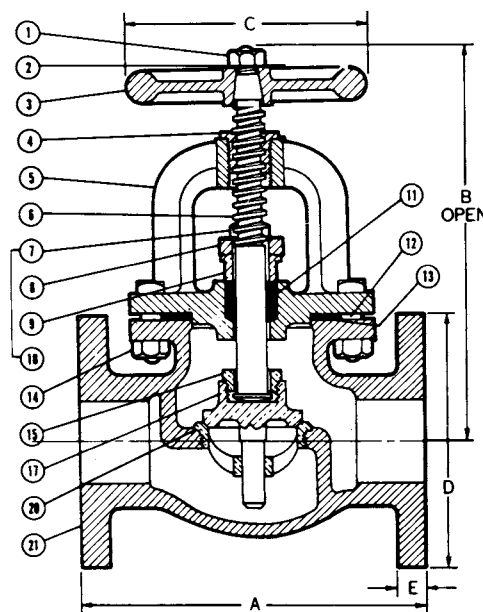
| Size |     | Dimensions |     |       |     |     |     |       |     |      |     | Weight |     |
|------|-----|------------|-----|-------|-----|-----|-----|-------|-----|------|-----|--------|-----|
|      |     | A          | B   | C     | D   | E   |     |       |     |      |     |        |     |
| In.  | mm. | In.        | mm. | In.   | mm. | In. | mm. | In.   | mm. | In.  | mm. | Lbs.   | Kg. |
| 2    | 50  | 8.00       | 203 | 10.19 | 259 | 7   | 178 | 6.00  | 152 | .63  | 16  | 32     | 15  |
| 2½   | 65  | 8.50       | 216 | 11.81 | 300 | 8   | 203 | 7.00  | 178 | .69  | 17  | 49     | 22  |
| 3    | 80  | 9.50       | 241 | 12.50 | 318 | 8   | 203 | 7.50  | 191 | .75  | 19  | 65     | 30  |
| 4    | 100 | 11.50      | 292 | 15.81 | 402 | 10  | 254 | 9.00  | 229 | .94  | 24  | 98     | 44  |
| 5    | 125 | 13.00      | 330 | 16.50 | 419 | 10  | 254 | 10.00 | 254 | .94  | 24  | 140    | 63  |
| 6    | 150 | 14.00      | 356 | 18.88 | 479 | 12  | 305 | 11.00 | 279 | 1.00 | 25  | 182    | 83  |
| 8    | 200 | 19.50      | 495 | 21.13 | 537 | 16  | 406 | 13.50 | 343 | 1.13 | 29  | 361    | 164 |
| 10   | 250 | 24.50      | 622 | 25.19 | 640 | 18  | 457 | 16.00 | 406 | 1.19 | 30  | 586    | 266 |

\* With proper machining facilities.



**F-718-B**

Flanged



**F-718-B**

Flg x Flg

**Freezing Weather Precaution** – Subsequent to testing a piping system, valves should be in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 125 All Iron Trim Iron Body Globe Valves

Bolted Bonnet • Renewable Seat and Disc\*

**125 PSI/8.6 Bar Fluid Pressure to 353° F/178° C**  
**200 PSI/13.8 Bar Non-Shock Cold Working Pressure**  
**to -20° F to 150° F/-29° C to 66° C ♦**

CONFORMS TO MSS SP-85

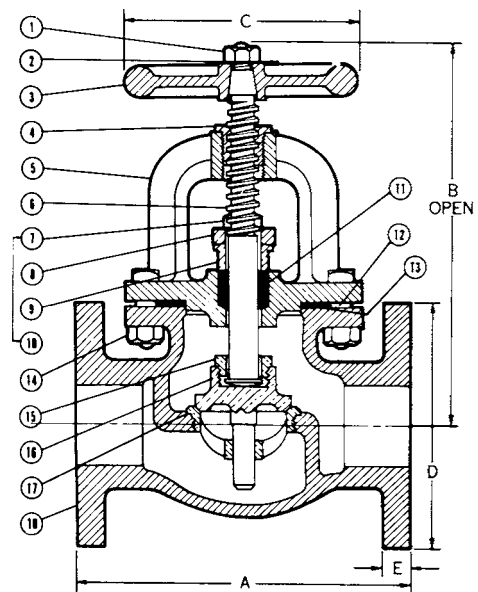
## MATERIAL LIST

| PART                    | SPECIFICATION                                              |
|-------------------------|------------------------------------------------------------|
| 1. Handwheel Nut        | Steel ASTM A 307                                           |
| 2. Identification Plate | Aluminum                                                   |
| 3. Handwheel            | Cast Iron ASTM A 126 Class B                               |
| 4. Yoke Bushing         | Ductile Iron ASTM A 536                                    |
| 5. Bonnet               | Cast Iron ASTM A 126 Class B                               |
| 6. Stem                 | Steel ASTM A 108 12L14 Electroless NI-PI                   |
| 7. Gland Follower Nut   | Steel ASTM A 307                                           |
| 8. Gland Follower       | Cast Iron ASTM A 126 Class B<br>or Ductile Iron ASTM A 536 |
| 9. Packing Gland        | Zinc Plated Powdered Iron ASTM B 783                       |
| 10. Gland Follower Stud | Steel ASTM A 307                                           |
| 11. Packing             | PTFE Braided                                               |
| 12. 1 Body Bolt         | Steel ASTM A 307                                           |
| 13. Body Gasket         | Synthetic Fibers                                           |
| 14. 1 Body Nut          | Steel ASTM A 307                                           |
| 15. Swivel Nut          | Cast Iron ASTM A 126 Class B                               |
| 16. Disc                | Cast Iron ASTM A 126 Class B                               |
| 17. Seat Ring           | Cast Iron ASTM A 126 Class B                               |
| 18. Body                | Cast Iron ASTM A 126 Class B                               |

12" and 10" have hex head steel capscrow.



**F-718-N**  
Flanged



**F-718-N**  
Flg x Flg

## DIMENSIONS—WEIGHTS—QUANTITIES

### Dimensions

| Size    | A         | B         | C       | D         | E       | Weight   |
|---------|-----------|-----------|---------|-----------|---------|----------|
| In. mm. | In. mm.   | In. mm.   | In. mm. | In. mm.   | In. mm. | Lbs. Kg. |
| 2 50    | 8.00 203  | 10.19 259 | 7 178   | 6.00 152  | .63 16  | 33 15    |
| 2½ 65   | 8.50 216  | 11.81 300 | 8 203   | 7.00 178  | .69 17  | 49 22    |
| 3 80    | 9.50 241  | 12.50 318 | 8 203   | 7.50 191  | .75 19  | 66 30    |
| 4 100   | 11.50 292 | 15.81 402 | 10 254  | 9.00 229  | .94 24  | 97 44    |
| 5 125   | 13.00 330 | 16.50 419 | 10 254  | 10.00 254 | .94 24  | 141 64   |
| 6 150   | 14.00 356 | 18.88 479 | 12 305  | 11.00 279 | 1.00 25 | 183 83   |
| 8 200   | 19.50 495 | 21.13 537 | 16 406  | 13.50 343 | 1.13 29 | 359 163  |
| 10 250  | 24.50 622 | 25.19 640 | 18 457  | 16.00 406 | 1.19 30 | 611 277  |

\* With proper machining facilities available.

**Freezing Weather Precaution** – Subsequent to testing a piping system, valves should be in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 250 Iron Body Globe Valves

Bolted Bonnet • Renewable Seat and Disc\* • Bronze Mounted

**250 PSI/17.2 Bar Saturated Steam to 406° F/207° C**  
**500 PSI/34.5 Bar Non-Shock Cold Working Pressure**  
**to -20° F to 150° F/-29° C to 66° C** ♦

CONFORMS TO MSS SP-85

## MATERIAL LIST

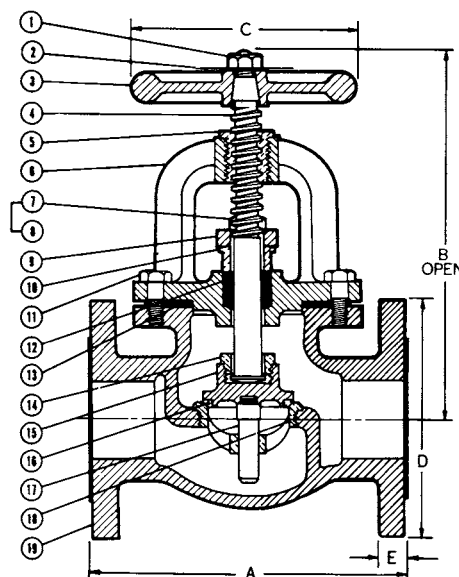
| PART                    | SPECIFICATION                                                    |
|-------------------------|------------------------------------------------------------------|
| 1. Handwheel Nut        | Steel ASTM A 307                                                 |
| 2. Identification Plate | Aluminum                                                         |
| 3. Handwheel            | Cast Iron ASTM A 126 Class B                                     |
| 4. Stem                 | Brass ASTM B 16 Alloy C36000                                     |
| 5. Yoke Bushing         | Cast Bronze ASTM B 584 Alloy C84400                              |
| 6. Bonnet               | Cast Iron ASTM A 126 Class B                                     |
| 7. Gland Follower Nut   | Brass ASTM F 467 Alloy C27000                                    |
| 8. Gland Follower Stud  | Steel ASTM A 307                                                 |
| 9. Gland Follower       | Cast Iron ASTM A 126 Class B<br>or Ductile Iron ASTM A 536       |
| 10. Packing Gland       | Zinc Plated Powdered Iron ASTM B 783<br>or Brass ASTM B 16       |
| 11. Hex Head Cap Screw  | Steel ASTM A 307                                                 |
| 12. Packing             | PTFE Braided                                                     |
| 13. Body Gasket         | Reinforced Graphite                                              |
| 14. Swivel Nut          | Cast Bronze ASTM B 584 Alloy C84400<br>or ASTM B 16 Alloy C36000 |
| 15. <sup>1</sup> Disc   | Cast Iron ASTM A 126 Class B                                     |
| 16. Disc Ring           | Cast Bronze ASTM B 584 Alloy C84400                              |
| 17. Disc Pilot          | Cast Bronze ASTM B 584 Alloy C84400                              |
| 18. Seat Ring           | Cast Bronze ASTM B 584 Alloy C84400                              |
| 19. Body                | Cast Iron ASTM A 126 Class B                                     |

<sup>1</sup>Sizes thru 4" have all Bronze Discs

Sizes 6" and 8" have Cast Iron Disc with Bronze Disc Face Rings and Brass Pilots.


**F-768-B**

Flanged


**F-768-B**

Flg x Flg

## DIMENSIONS—WEIGHTS—QUANTITIES

| Dimensions |     |       |     |       |     |     |     |       |     |      |     |        |     |
|------------|-----|-------|-----|-------|-----|-----|-----|-------|-----|------|-----|--------|-----|
| Size       |     | A     |     | B     |     | C   |     | D     |     | E    |     | Weight |     |
| In.        | mm. | In.   | mm. | In.   | mm. | In. | mm. | In.   | mm. | In.  | mm. | Lbs.   | Kg. |
| 2          | 50  | 10.50 | 267 | 10.31 | 262 | 7   | 178 | 6.50  | 165 | .88  | 22  | 42     | 19  |
| 2½         | 65  | 11.50 | 292 | 13.56 | 344 | 8   | 203 | 7.50  | 191 | 1.00 | 25  | 78     | 35  |
| 3          | 80  | 12.50 | 318 | 14.00 | 356 | 10  | 254 | 8.25  | 210 | 1.13 | 29  | 96     | 44  |
| 4          | 100 | 14.00 | 356 | 16.50 | 419 | 11  | 279 | 10.00 | 254 | 1.25 | 32  | 154    | 70  |
| 6          | 150 | 17.50 | 445 | 23.50 | 597 | 14  | 356 | 12.50 | 318 | 1.44 | 37  | 360    | 163 |
| 8          | 200 | 21.00 | 533 | 26.50 | 673 | 16  | 406 | 15.00 | 381 | 1.63 | 41  | 546    | 248 |

\* With proper machining facilities available.

**Freezing Weather Precaution** – Subsequent to testing a piping system, valves should be in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 125 Iron Body Angle Valves

Bolted Bonnet • Renewable Seat and Disc\* • Bronze Mounted

**125 PSI/8.6 Bar Saturated Steam to 353° F/178° C**  
**200 PSI/13.8 Bar Non-Shock Cold Working Pressure**  
**to -20° F to 150° F/-29° C to 66° C◆**

CONFORMS TO MSS SP-85

## MATERIAL LIST

| PART                        | SPECIFICATION                                              |
|-----------------------------|------------------------------------------------------------|
| 1. Handwheel Nut            | Steel ASTM A 307                                           |
| 2. Identification Plate     | Aluminum                                                   |
| 3. Handwheel                | Cast Iron ASTM A 126 Class B                               |
| 4. Yoke Bushing             | Cast Bronze ASTM B 584 Alloy C84400                        |
| 5. Bonnet                   | Cast Iron ASTM A 126 Class B                               |
| 6. Stem                     | Brass ASTM B 16 Alloy C36000                               |
| 7. Gland Follower Nut       | Brass ASTM F 467 Alloy C27000                              |
| 8. Gland Follower Stud      | Steel ASTM A 307                                           |
| 9. Gland Follower           | Cast Iron ASTM A 126 Class B<br>or Ductile Iron ASTM A 536 |
| 10. Packing Gland           | Zinc Plated Powdered Iron ASTM B 783<br>or ASTM B 16       |
| 11. Packing                 | Synthetic Fibers with Graphite                             |
| 12. <sup>1</sup> Body Bolt  | Steel ASTM A 307                                           |
| 13. Body Gasket             | Synthetic Fibers                                           |
| 14. <sup>1</sup> Body Nut   | Steel ASTM A 307                                           |
| 15. Swivel Nut              | Cast Bronze ASTM B 584 Alloy C84400                        |
| 16. <sup>2</sup> Disc Cage  | Cast Iron ASTM A 126 Class B                               |
| 17. <sup>3</sup> Disc       | Bronze ASTM B 584 Alloy C84400 (B)                         |
| 18. <sup>4</sup> Disc Plate | Cast Iron ASTM A 126 Class B                               |
| 19. Disc Nut                | Bronze                                                     |
| 20. Seat Ring               | Cast Bronze ASTM B 584 Alloy C84400                        |
| 21. Body                    | Cast Iron ASTM A 126 Class B                               |

<sup>1</sup>2" have hex head steel capscrews.

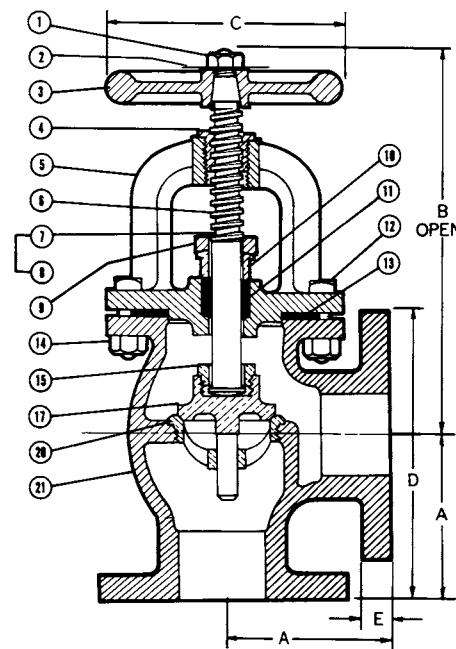
<sup>2</sup>2" thru 5" are Cast Bronze ASTM B 584 Alloy C84400.

<sup>3</sup>8" have Cast Iron Disc with Bronze Disc Face Rings and Brass Pilots.

<sup>4</sup>2" thru 4" are Cast Bronze ASTM B 584 Alloy C84400.

**F-818-B**

Flanged


**F-818-B**

Flg x Flg

## DIMENSIONS—WEIGHTS—QUANTITIES

| Dimensions and Weight Conversions |     |            |     |       |     |     |     |       |     |      |     |        |     |
|-----------------------------------|-----|------------|-----|-------|-----|-----|-----|-------|-----|------|-----|--------|-----|
| Size                              |     | Dimensions |     |       |     |     |     |       |     |      |     | Weight |     |
|                                   |     | A          |     | B     |     | C   |     | D     |     | E    |     |        |     |
| In.                               | mm. | In.        | mm. | In.   | mm. | In. | mm. | In.   | mm. | In.  | mm. | Lbs.   | Kg. |
| 2                                 | 50  | 4.00       | 102 | 10.00 | 254 | 7   | 178 | 6.00  | 152 | .63  | 16  | 30     | 14  |
| 2½                                | 65  | 4.25       | 108 | 11.50 | 292 | 8   | 203 | 7.00  | 178 | .69  | 17  | 50     | 23  |
| 3                                 | 80  | 4.75       | 121 | 12.25 | 311 | 8   | 203 | 7.50  | 191 | .75  | 19  | 60     | 27  |
| 4                                 | 100 | 5.75       | 146 | 15.00 | 381 | 10  | 254 | 9.00  | 229 | .94  | 24  | 99     | 45  |
| 5                                 | 125 | 6.50       | 171 | 16.50 | 419 | 10  | 254 | 10.00 | 254 | .94  | 24  | 133    | 60  |
| 6                                 | 150 | 7.00       | 178 | 18.88 | 479 | 12  | 305 | 11.00 | 279 | 1.00 | 25  | 187    | 85  |
| 8                                 | 200 | 9.75       | 248 | 20.75 | 527 | 16  | 406 | 13.50 | 343 | 1.13 | 29  | 349    | 158 |

\* With proper machining facilities available.

**Freezing Weather Precaution** – Subsequent to testing a piping system, valves should be in an open position to allow complete drainage.

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 250 Iron Body Automatic Stop Check Valves

Bolted Bonnet • Angle Pattern • Renewable Seat and Disc\* • Bronze Mounted

**250 PSI/17.2 Bar Saturated Steam to 406° F/207° C**  
**500 PSI/34.5 Bar Non-Shock Cold Working Pressure**  
**to -20° F to 150° F/-29° C to 66° C◆**

CONFORMS TO MSS SP-85

## MATERIAL LIST

| PART                           | SPECIFICATION                                           |
|--------------------------------|---------------------------------------------------------|
| 1. Handwheel Nut               | Steel ASTM A 307                                        |
| 2. Identification Plate        | Aluminum                                                |
| 3. Handwheel                   | Cast Iron ASTM A 126 Class B                            |
| 4. Stem                        | Brass ASTM B 16 Alloy C36000                            |
| 5. Yoke Bushing                | Cast Bronze ASTM B 584 Alloy C84400                     |
| 6. Bonnet                      | Cast Iron ASTM A 126 Class B                            |
| 7. Gland Follower Stud         | Steel ASTM A 307 (not shown)                            |
| 8. Gland Follower Nut          | Brass ASTM F 467 Alloy C27000 (not shown)               |
| 9. Gland Follower              | Ductile Iron ASTM A 536                                 |
| 10. Packing Gland              | Zinc Plated Powdered Iron ASTM B 783 or Brass ASTM B 16 |
| 11. Packing                    | PTFE Braided                                            |
| 12. 1 Butterfly Handle Nut     | Steel ASTM A 307                                        |
| 13. 1 Butterfly Handle         | Cast bronze ASTM B 584 Alloy C84400                     |
| 14. 1 Control Valve Stem       | Bronze ASTM B 371 Alloy C69400                          |
| 15. 1 Control Valve Pack Nut   | Cast Bronze ASTM B 584 Alloy C84400                     |
| 16. 1 Control Valve Pack Gland | Brass ASTM B 16 Alloy C36000                            |
| 17. 1 Control Valve Packing    | Synthetic Fibers with Graphite                          |
| 18. 1 Control Valve Body       | Cast Bronze ASTM B 584 Alloy C84400                     |
| 19. Hex Head Cap Screw         | Steel ASTM A 307                                        |
| 20. Body Gasket                | Reinforced Graphite                                     |
| 21. 1 Dashpot Gasket           | Reinforced Graphite                                     |
| 22. 1 Dashpot                  | Cast Bronze ASTM B 584 Alloy C84400                     |
| 23. 1 Piston-Disc              | Cast Iron ASTM A 126 Class B                            |
| 24. 1 Piston Ring (2)          | PTFE Composite Material                                 |
| 25. 1 Disc Face Ring           | Cast Bronze ASTM B 584 Alloy C84400                     |
| 26. 1 Seat Ring                | Cast Bronze ASTM B 584 Alloy C84400                     |
| 27. Body                       | Cast Iron ASTM A 126 Class B                            |
| 28. 2 Piston Ring Collar       | Brass ASTM B 16 Alloy C36000                            |
| 29. 2 Disc Cage                | Bronze ASTM B 584 Alloy C84400                          |
| 30. 2 PTFE Disc                | PTFE                                                    |
| 31. 2 Disc Plate and Nut       | Bronze ASTM B 584 C84400                                |
| 32. 2 Piston Rod Plug          | Brass ASTM B 16 Alloy C36000                            |
| 33. 2 Piston Rod Plug Pin      | Red Bronze ASTM B 140 Alloy C31400                      |

1 4" thru 8" size only. (4" thru 8" have Cast Iron Disc with Bronze Disc Face Ring)

2 TFE Seat Disc in 2½" and 3" only. Maximum 150 psi saturated steam working pressure

## DIMENSIONS—WEIGHTS—QUANTITIES

|      |     | Dimensions |     |       |     |     |     |       |     |      |     | Weight |     |
|------|-----|------------|-----|-------|-----|-----|-----|-------|-----|------|-----|--------|-----|
| Size |     | A          | B   | C     | D   | E   |     |       |     |      |     | Lbs.   | Kg. |
| In.  | mm. | In.        | mm. | In.   | mm. | In. | mm. | In.   | mm. | In.  | mm. |        |     |
| 2½   | 65  | 5.75       | 146 | 12.63 | 321 | 8   | 203 | 7.50  | 191 | 1.00 | 25  | 80     | 36  |
| 3    | 80  | 6.25       | 159 | 14.00 | 356 | 10  | 254 | 8.25  | 210 | 1.13 | 29  | 102    | 46  |
| 4    | 100 | 7.00       | 178 | 16.50 | 419 | 10  | 254 | 10.00 | 254 | 1.25 | 32  | 168    | 76  |
| 6    | 150 | 8.75       | 222 | 20.75 | 527 | 14  | 356 | 12.50 | 318 | 1.44 | 37  | 311    | 141 |
| 8    | 200 | 10.50      | 267 | 23.81 | 605 | 16  | 406 | 15.00 | 381 | 1.63 | 41  | 520    | 236 |

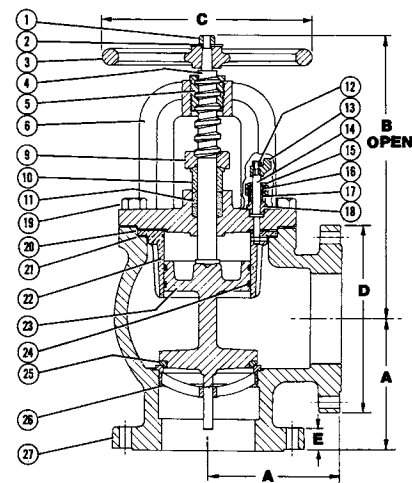
\* With proper machining facilities available.

Valve must be installed vertically.



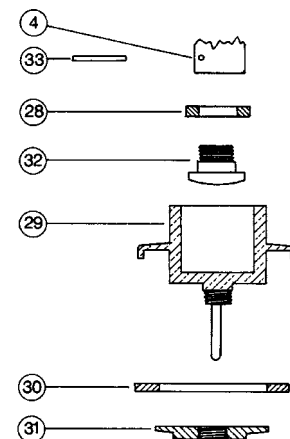
**F-869-B**

Flanged  
Series D



**F-869-B**

Flg x Flg



Freezing Weather Precaution – Subsequent to testing a piping system, valves should be in an open position to allow complete drainage.

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Sizing NIBCO Automatic Stop Check Valves F-869-B

## CALCULATED STEAM VOLUME SYSTEM REQUIREMENTS

| HOUR              | EXAMPLE 1<br>NORMAL<br>VOLUME<br>lbs/hr | EXAMPLE 2<br>WINTER<br>VOLUME<br>lbs/hr |
|-------------------|-----------------------------------------|-----------------------------------------|
| 12 AM             | 17,000                                  | 29,000                                  |
| 1                 | 13,000                                  | 24,000                                  |
| 2                 | 15,000                                  | 26,000                                  |
| 3                 | 13,000                                  | 25,000                                  |
| 4                 | 10,000                                  | 22,000                                  |
| 5                 | 14,000                                  | 25,000                                  |
| 6                 | 15,000                                  | 26,000                                  |
| 7                 | 20,000                                  | 31,000                                  |
| 8                 | 23,000                                  | 34,000                                  |
| 9                 | 39,000                                  | 50,000                                  |
| 10                | 44,000                                  | 55,000                                  |
| 11                | 45,000                                  | 63,000                                  |
| 12 PM             | 40,000                                  | 51,000                                  |
| 1                 | 22,000                                  | 32,000                                  |
| 2                 | 35,000                                  | 46,000                                  |
| 3                 | 37,000                                  | 49,000                                  |
| 4                 | 34,000                                  | 45,000                                  |
| 5                 | 35,000                                  | 45,000                                  |
| 6                 | 33,000                                  | 44,000                                  |
| 7                 | 33,000                                  | 44,000                                  |
| 8                 | 34,000                                  | 46,000                                  |
| 9                 | 29,000                                  | 43,000                                  |
| 10                | 27,000                                  | 40,000                                  |
| 11                | 20,000                                  | 33,000                                  |
| DAILY<br>TOTAL    | 647,000                                 | 928,000                                 |
| HOURLY<br>AVERAGE | 26,958                                  | 38,667                                  |

### STEP 1

- Calculate and chart the expected steam volume requirements for each hour of boiler operation. See example chart on left.
- Total the volume and divide by the number of hours the boiler is in operation to get steam Hourly Average volume in lbs/hour.

### STEP 2

**Example 1** - This is a typical boiler system where the steam volume is consistent throughout the year. Use the Sizing Chart below, upper section with 2 psi pressure drop.

- Identify system steam working gauge pressure.  
For our example we will use 125 psi.
- Use **Hourly Average** steam demand calculated in Step 1 above. For our example use 26,958 from chart on left, center column.
- Find the **Gauge Pressure** column in Sizing Chart below closest to the system pressure of our example, 125 psi, for each size valve (**120 psi** is closest).
- Find the **lbs/hr** in Sizing Chart below closest to calculated Hourly Average of our example, 26,958 lbs/hr (**23,100** is closest).
- Read across to choose a 6" size valve.

**Example 2** - This is a typical boiler system where the steam volume is higher in the winter than in summer. Use the Sizing Chart below, lower section with 5 psi pressure drop.

- Identify system steam working gauge pressure.  
For our example we will use 125 psi.
- Use **Hourly Average** steam demand calculated in Step 1 above. For our example use 38,667 from chart on left, right column.
- Find the **Gauge Pressure** column in Sizing Chart below closest to the system pressure of our example, 125 psi, for each size valve (**120 psi** is closest).
- Find the **lbs/hr** in Sizing Chart below closest to calculated Hourly Average of our example, 38,667 lbs/hr (**37,400** is closest).
- Read across to choose a 6" size valve.

**NOTE:** It is better for control consistency to size the automatic stop check valve on the smaller side than on the larger side.

## SIZING CHART

| 2 psi PRESSURE DROP for consistent steam volume |                                |        |         |         |               | 5 psi PRESSURE DROP for consistent steam volume |                                |        |         |         |               |
|-------------------------------------------------|--------------------------------|--------|---------|---------|---------------|-------------------------------------------------|--------------------------------|--------|---------|---------|---------------|
| STEAM VOLUME FLOW<br>lbs/hr                     | SATURATED STEAM GAUGE PRESSURE |        |         |         | VALVE<br>SIZE | STEAM VOLUME FLOW<br>lbs/hr                     | SATURATED STEAM GAUGE PRESSURE |        |         |         | VALVE<br>SIZE |
|                                                 | 10 psi                         | 50 psi | 120 psi | 250 psi |               |                                                 | 10 psi                         | 50 psi | 120 psi | 250 psi |               |
|                                                 | 1,540                          | 2,420  | 3,520   | —       |               |                                                 | 2,640                          | 3,630  | 5,720   | —       |               |
|                                                 | 2,200                          | 3,520  | 4,840   | —       |               |                                                 | 3,850                          | 6,380  | 9,350   | —       |               |
|                                                 | 3,740                          | 5,940  | 8,250   | 11,550  |               |                                                 | 7,150                          | 11,000 | 16,500  | 23,100  |               |
|                                                 | 9,900                          | 15,400 | 23,100  | 33,000  |               |                                                 | 16,500                         | 25,300 | 37,400  | 51,700  |               |
|                                                 | 16,500                         | 27,500 | 38,500  | 55,000  |               |                                                 | 29,700                         | 46,200 | 66,000  | 93,500  |               |

# F-869 Automatic Stop Check Valve Sizing Guide

| RATED<br>BOILER<br>HP | MAXIMUM<br>BOILER<br>CAPACITY<br>(LBS/HR) | OPERATING PRESSURE (PSIG) |    |    |     |     |     |     |     |     |     |
|-----------------------|-------------------------------------------|---------------------------|----|----|-----|-----|-----|-----|-----|-----|-----|
|                       |                                           | 10                        | 50 | 75 | 100 | 125 | 150 | 175 | 200 | 225 | 250 |
| 100                   | 3450                                      | 4"                        | 3" | 3" | 2½" | 2½" | 2½" | n/a | n/a |     |     |
| 125                   | 4313                                      | 4"                        | 3" | 3" | 3"  | 3"  | 2½" | n/a | n/a | n/a | n/a |
| 150                   | 5175                                      | 4"                        | 4" | 4" | 3"  | 3"  | 3"  | n/a | n/a | n/a | n/a |
| 200                   | 6900                                      | 6"                        | 4" | 4" | 4"  | 4"  | 3"  | n/a | n/a | n/a | n/a |
| 250                   | 8625                                      | 6"                        | 4" | 4" | 4"  | 4"  | 4"  | 4"  | n/a | n/a | n/a |
| 300                   | 10350                                     | 6"                        | 4" | 4" | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  |
| 350                   | 12075                                     | 6"                        | 6" | 4" | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  |
| 400                   | 13800                                     | 8"                        | 6" | 6" | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  |
| 500                   | 17250                                     | 8"                        | 6" | 6" | 6"  | 6"  | 4"  | 4"  | 4"  | 4"  | 4"  |
| 600                   | 20700                                     |                           | 8" | 6" | 6"  | 6"  | 6"  | 6"  | 4"  | 4"  | 4"  |
| 700                   | 24150                                     |                           | 8" | 6" | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  |
| 750                   | 25875                                     |                           | 8" | 8" | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  |
| 800                   | 27600                                     |                           | 8" | 8" | 8"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  |
| 900                   | 31050                                     |                           | 8" | 8" | 8"  | 8"  | 6"  | 6"  | 6"  | 6"  | 6"  |
| 1000                  | 34500                                     |                           | 8" | 8" | 8"  | 8"  | 8"  | 6"  | 6"  | 6"  | 6"  |
| 1100                  | 37950                                     |                           |    | 8" | 8"  | 8"  | 8"  | 8"  | 6"  | 6"  | 6"  |
| 1200                  | 41400                                     |                           |    | 8" | 8"  | 8"  | 8"  | 8"  | 8"  | 6"  | 6"  |
| 1300                  | 44850                                     |                           |    |    | 8"  | 8"  | 8"  | 8"  | 8"  | 8"  | 8"  |
| 1400                  | 48300                                     |                           |    |    | 8"  | 8"  | 8"  | 8"  | 8"  | 8"  | 8"  |
| 1500                  | 51750                                     |                           |    |    |     | 8"  | 8"  | 8"  | 8"  | 8"  | 8"  |
| 1600                  | 55200                                     |                           |    |    |     |     | 8"  | 8"  | 8"  | 8"  | 8"  |
| 1800                  | 62100                                     |                           |    |    |     |     |     | 8"  | 8"  | 8"  | 8"  |
| 2000                  | 69000                                     |                           |    |    |     |     |     |     | 8"  | 8"  | 8"  |

This chart assumes that the boiler will always run at maximum capacity (lbs/hr)

| RATED<br>BOILER<br>HP | @ 90%<br>BOILER<br>CAPACITY<br>(LBS/HR) | OPERATING PRESSURE (PSIG) |    |     |     |     |     |     |     |     |     |
|-----------------------|-----------------------------------------|---------------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|
|                       |                                         | 10                        | 50 | 75  | 100 | 125 | 150 | 175 | 200 | 225 | 250 |
| 100                   | 3105                                    | 4"                        | 3" | 2½" | 2½" | 2½" | 2½" | n/a | n/a |     |     |
| 125                   | 3881                                    | 4"                        | 3" | 3"  | 3"  | 2½" | 2½" | n/a | n/a | n/a | n/a |
| 150                   | 4658                                    | 4"                        | 3" | 3"  | 3"  | 3"  | 3"  | n/a | n/a | n/a | n/a |
| 200                   | 6210                                    | 4"                        | 4" | 4"  | 3"  | 3"  | 3"  | n/a | n/a | n/a | n/a |
| 250                   | 7763                                    | 6"                        | 4" | 4"  | 4"  | 4"  | 3"  | n/a | n/a | n/a | n/a |
| 300                   | 9315                                    | 6"                        | 4" | 4"  | 4"  | 4"  | 4"  | 4"  | n/a | n/a | n/a |
| 350                   | 10868                                   | 6"                        | 6" | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  |
| 400                   | 12420                                   | 6"                        | 6" | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  |
| 500                   | 15525                                   | 8"                        | 6" | 6"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  |
| 600                   | 18630                                   | 8"                        | 6" | 6"  | 6"  | 6"  | 4"  | 4"  | 4"  | 4"  | 4"  |
| 700                   | 21735                                   |                           | 8" | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  | 4"  | 4"  |
| 750                   | 23288                                   |                           | 8" | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  |
| 800                   | 24840                                   |                           | 8" | 8"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  |
| 900                   | 27945                                   |                           | 8" | 8"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  |
| 1000                  | 31050                                   |                           | 8" | 8"  | 8"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  |
| 1100                  | 34155                                   |                           | 8" | 8"  | 8"  | 8"  | 6"  | 6"  | 6"  | 6"  | 6"  |
| 1200                  | 37260                                   |                           |    | 8"  | 8"  | 8"  | 8"  | 6"  | 6"  | 6"  | 6"  |
| 1300                  | 40365                                   |                           |    | 8"  | 8"  | 8"  | 8"  | 8"  | 6"  | 6"  | 6"  |
| 1400                  | 43470                                   |                           |    | 8"  | 8"  | 8"  | 8"  | 8"  | 8"  | 6"  | 6"  |
| 1500                  | 46575                                   |                           |    |     | 8"  | 8"  | 8"  | 8"  | 8"  | 8"  | 8"  |
| 1600                  | 49680                                   |                           |    |     | 8"  | 8"  | 8"  | 8"  | 8"  | 8"  | 8"  |
| 1800                  | 55890                                   |                           |    |     |     | 8"  | 8"  | 8"  | 8"  | 8"  | 8"  |
| 2000                  | 62100                                   |                           |    |     |     |     | 8"  | 8"  | 8"  | 8"  | 8"  |

This chart assumes that the boiler will always run between 75% and 100% of maximum capacity (lbs/hr) and average an output of 90% of boiler capacity.

**NOTES:**

1. Automatic Stop Check Valve sizing must be sized only to the boiler steam demand, not the boiler nozzle outlet piping size.
2. Specific operating conditions may require slightly different Automatic Stop Check Valve sizing requirements for any given boiler system.
3. Automatic Stop Check Valve sizing is based on a target of 2 PSI pressure drop across the valve for optimum flow.
4. Please contact NIBCO Technical Services for guidance if operating conditions differ from conditions stated in #2 above.
5. This chart is to be used to assist in sizing Automatic Stop Check Valves, NIBCO assumes no liability for incorrect sizing.

# F-869 Automatic Stop Check Valve Sizing Guide

| RATED<br>BOILER<br>HP | @ 75%<br>BOILER<br>CAPACITY<br>(LBS/HR) | OPERATING PRESSURE (PSIG) |     |     |     |     |     |     |     |     |     |
|-----------------------|-----------------------------------------|---------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                       |                                         | 10                        | 50  | 75  | 100 | 125 | 150 | 175 | 200 | 225 | 250 |
| 100                   | 2588                                    | 3"                        | 2½" | 2½" | 2½" | 2½" | 2½" | n/a |     |     |     |
| 125                   | 3234                                    | 4"                        | 3"  | 2½" | 2½" | 2½" | 2½" | n/a | n/a |     |     |
| 150                   | 3881                                    | 4"                        | 3"  | 3"  | 2½" | 2½" | 2½" | n/a | n/a | n/a | n/a |
| 200                   | 5175                                    | 4"                        | 4"  | 3"  | 3"  | 3"  | 3"  | n/a | n/a | n/a | n/a |
| 250                   | 6469                                    | 4"                        | 4"  | 4"  | 3"  | 3"  | 3"  | n/a | n/a | n/a | n/a |
| 300                   | 7763                                    | 6"                        | 4"  | 4"  | 4"  | 4"  | 3"  | n/a | n/a | n/a | n/a |
| 350                   | 9056                                    | 6"                        | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | n/a | n/a | n/a |
| 400                   | 10350                                   | 6"                        | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  |
| 500                   | 12938                                   | 6"                        | 6"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  |
| 600                   | 15525                                   | 8"                        | 6"  | 6"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  |
| 700                   | 18113                                   | 8"                        | 6"  | 6"  | 6"  | 6"  | 4"  | 4"  | 4"  | 4"  | 4"  |
| 750                   | 19406                                   | 8"                        | 6"  | 6"  | 6"  | 6"  | 6"  | 4"  | 4"  | 4"  | 4"  |
| 800                   | 20700                                   |                           | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  | 4"  | 4"  |
| 900                   | 23288                                   |                           | 8"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  |
| 1000                  | 25875                                   |                           | 8"  | 8"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  |
| 1100                  | 28463                                   |                           | 8"  | 8"  | 8"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  |
| 1200                  | 31050                                   |                           | 8"  | 8"  | 8"  | 8"  | 6"  | 6"  | 6"  | 6"  | 6"  |
| 1300                  | 33638                                   |                           | 8"  | 8"  | 8"  | 8"  | 6"  | 6"  | 6"  | 6"  | 6"  |
| 1400                  | 36225                                   |                           | 8"  | 8"  | 8"  | 8"  | 8"  | 6"  | 6"  | 6"  | 6"  |
| 1500                  | 38813                                   |                           |     | 8"  | 8"  | 8"  | 8"  | 8"  | 6"  | 6"  | 6"  |
| 1600                  | 41400                                   |                           |     | 8"  | 8"  | 8"  | 8"  | 8"  | 8"  | 6"  | 6"  |
| 1800                  | 46575                                   |                           |     |     | 8"  | 8"  | 8"  | 8"  | 8"  | 8"  | 8"  |
| 2000                  | 51750                                   |                           |     |     |     | 8"  | 8"  | 8"  | 8"  | 8"  | 8"  |

This chart assumes that the boiler will always run between 50% and 100% of maximum capacity (lbs/hr) and average an output of 75% of boiler capacity.

| RATED<br>BOILER<br>HP | @ 50%<br>BOILER<br>CAPACITY<br>(LBS/HR) | OPERATING PRESSURE (PSIG) |     |     |     |     |     |     |     |     |     |
|-----------------------|-----------------------------------------|---------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                       |                                         | 10                        | 50  | 75  | 100 | 125 | 150 | 175 | 200 | 225 | 250 |
| 100                   | 1725                                    | 2½"                       |     |     |     |     |     |     |     |     |     |
| 125                   | 2156                                    | 3"                        | 2½" | 2½" |     |     |     |     |     |     |     |
| 150                   | 2588                                    | 3"                        | 2½" | 2½" | 2½" | 2½" |     |     |     |     |     |
| 200                   | 3450                                    | 4"                        | 3"  | 3"  | 2½" | 2½" | 2½" | n/a |     |     |     |
| 250                   | 4313                                    | 4"                        | 3"  | 3"  | 3"  | 3"  | 2½" | n/a | n/a | n/a | n/a |
| 300                   | 5175                                    | 4"                        | 4"  | 4"  | 3"  | 3"  | 3"  | n/a | n/a | n/a | n/a |
| 350                   | 6038                                    | 4"                        | 4"  | 4"  | 4"  | 3"  | 3"  | n/a | n/a | n/a | n/a |
| 400                   | 6900                                    | 6"                        | 4"  | 4"  | 4"  | 4"  | 3"  | n/a | n/a | n/a | n/a |
| 500                   | 8625                                    | 6"                        | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | n/a | n/a | n/a |
| 600                   | 10350                                   | 6"                        | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  |
| 700                   | 12075                                   | 6"                        | 6"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  |
| 750                   | 12938                                   | 6"                        | 6"  | 6"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  |
| 800                   | 13800                                   | 8"                        | 6"  | 6"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  |
| 900                   | 15525                                   | 8"                        | 6"  | 6"  | 6"  | 4"  | 4"  | 4"  | 4"  | 4"  | 4"  |
| 1000                  | 17250                                   | 8"                        | 6"  | 6"  | 6"  | 6"  | 4"  | 4"  | 4"  | 4"  | 4"  |
| 1100                  | 18975                                   |                           | 6"  | 6"  | 6"  | 6"  | 6"  | 4"  | 4"  | 4"  | 4"  |
| 1200                  | 20700                                   |                           | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  | 4"  | 4"  |
| 1300                  | 22425                                   |                           | 8"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  |
| 1400                  | 24150                                   |                           | 8"  | 8"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  |
| 1500                  | 25875                                   |                           | 8"  | 8"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  |
| 1600                  | 27600                                   |                           | 8"  | 8"  | 8"  | 6"  | 6"  | 6"  | 6"  | 6"  | 6"  |
| 1800                  | 31050                                   |                           | 8"  | 8"  | 8"  | 8"  | 6"  | 6"  | 6"  | 6"  | 6"  |
| 2000                  | 34500                                   |                           | 8"  | 8"  | 8"  | 8"  | 8"  | 8"  | 6"  | 6"  | 6"  |

This chart assumes that the boiler will always run between 25% & 100% of maximum capacity (lbs/hr) and average an output of 50% of boiler capacity.

- NOTES:
1. Automatic Stop Check Valve sizing must be sized only to the boiler steam demand, not the boiler nozzle outlet piping size.
  2. Specific operating conditions may require slightly different Automatic Stop Check Valve sizing requirements for any given boiler system.
  3. Automatic Stop Check Valve sizing is based on a target of 2 PSI pressure drop across the valve for optimum flow.
  4. Please contact NIBCO Technical Services for guidance if operating conditions differ from conditions stated in #2 above.
  5. This chart is to be used to assist in sizing Automatic Stop Check Valves, NIBCO assumes no liability for incorrect sizing.

# Iron Check Valves Illustrated Index

Iron Body Swing Check Valve  
Bronze Mounted or All Iron  
125 lb. SWP  
200 lb. CWP



**F-918-B/F-918-N/T-918-B**  
Bronze or Cast Iron Disc  
Sizes 2" thru 12"  
Flanged or Threaded  
Page 63, 64

Iron Body Swing Check Valve  
Bronze Mounted  
250 lb. SWP  
500 lb. CWP



**F-968-B**  
Bronze Disc  
Sizes 2½" thru 6"  
Flanged  
Page 65

Iron Body Silent Check Valve  
In-Line Lift • Wafer Style • Spring Actuated  
125 lb. Class/200 lb. CWP  
250 lb. Class/400 lb. CWP



**W-910, 125 lb. Class**  
**W-960, 250 lb. Class**  
Bronze or Buna-N Seat  
Sizes 2" thru 10"  
Wafer Style  
Page 66

Iron Body Silent Check Valve  
In-Line Lift • Globe Style • Spring Actuated  
125 lb. Class/200 lb. CWP  
250 lb. Class/400 lb. CWP



**F-910, 125 lb. Class**  
**F-960, 250 lb. Class**  
Bronze or Buna-N Seat  
Sizes 2 ½" thru 36"  
Flanged  
Page 67

Iron Body Twin Disk Check Valve  
125 lb. Class/250 lb. CWP



**W-920-W**  
Buna-N Seat  
Sizes 2" thru 36"  
Wafer Style  
Page 68, 69

Iron Body Grooved Silent Check Valve  
Bronze Disc  
250 lb. CWP



**G-920-W**  
Buna-N Seat  
Sizes 2" thru 12"  
Grooved  
Page 70

# Class 125 Iron Body Check Valves

Bolted Bonnet • Horizontal Swing • Renewable Seat and Disc\*

**125 PSI/8.6 Bar Saturated Steam to 353° F/178° C**  
**200 PSI/13.8 Bar Non-Shock Cold Working Pressure**  
**to -20° F to 150° F/-29° C to 66° C** ♦

CONFORMS TO MSS SP-71 TYPE 1

## MATERIAL LIST

| PART                       | SPECIFICATION                                                                              |
|----------------------------|--------------------------------------------------------------------------------------------|
| 1. Body Bolt               | Steel ASTM A 307                                                                           |
| 2. Identification Plate    | Aluminum                                                                                   |
| 3. Bonnet                  | Cast Iron ASTM A 126 Class B                                                               |
| 4. Body Gasket             | Synthetic Fibers                                                                           |
| 5. Body Nut                | Steel ASTM A 307                                                                           |
| 6. Side Plug               | Brass ASTM B 16 Alloy C36000                                                               |
| 7. Hanger Pin              | Brass ASTM B 16 Alloy C36000                                                               |
| 8. <sup>2</sup> Hanger     | Ductile Iron ASTM A 536                                                                    |
| 9. <sup>1</sup> Disc       | Cast Bronze ASTM B 584 Alloy C84400<br>or ASTM A 536 Ductile Iron with<br>Bronze Face Ring |
| 10. Seat Ring              | Cast Bronze ASTM B 584 Alloy C84400                                                        |
| 11. Disc Nut               | Brass ASTM B 16 Alloy C36000                                                               |
| 12. Body                   | Cast Iron ASTM A 126 Class B                                                               |
| 13. <sup>1</sup> Disc Bolt | Brass ASTM B 16 Alloy C36000                                                               |
| 14. Disc Plate**           | Cast Iron ASTM A 126 Class B                                                               |
| 15. Disc Cage**            | Cast Iron ASTM A 126 Class B                                                               |

<sup>1</sup> 2" thru 4" have Bronze ASTM B 62 Disc.  
5" thru 12" have Iron Disc with Bronze Disc Face Rings and Disc Bolt.

<sup>2</sup> 10" is Ductile Iron ASTM A 536.

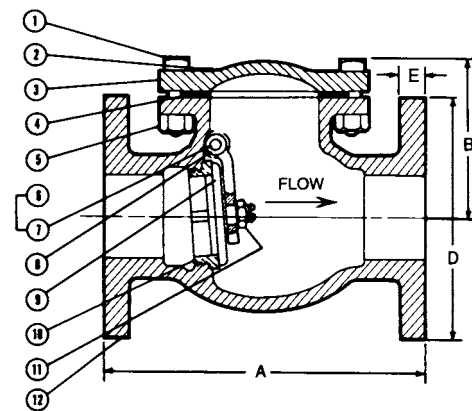
\*\* These items are not in the -B, only the -W and -Y.



**F-918-B**  
Flanged



**T-918-B**  
Threaded



**F-918-B**  
Flg x Flg

## DIMENSIONS—WEIGHTS—QUANTITIES

| Dimensions |     |         |     |         |     |       |     |       |     |      |     |          |     |          |     |
|------------|-----|---------|-----|---------|-----|-------|-----|-------|-----|------|-----|----------|-----|----------|-----|
| Size       |     | F-918-B |     | T-918-B |     | B     |     | D     |     | E    |     | F-918-B  |     | T-918-B  |     |
|            |     | A       |     | A       |     |       |     |       |     |      |     | Lbs. Kg. |     | Lbs. Kg. |     |
| In.        | mm. | In.     | mm. | In.     | mm. | In.   | mm. | In.   | mm. | In.  | mm. | Lbs.     | Kg. | Lbs.     | Kg. |
| 2          | 50  | 8.00    | 203 | 6.50    | 165 | 3.94  | 100 | 6.00  | 152 | .63  | 16  | 24       | 11  | 15       | 7   |
| 2½         | 65  | 8.50    | 216 | 7.50    | 191 | 4.50  | 114 | 7.00  | 178 | .69  | 17  | 35       | 16  | 26       | 12  |
| 3          | 80  | 9.50    | 241 | 8.00    | 203 | 5.13  | 130 | 7.50  | 191 | .75  | 19  | 47       | 21  | 31       | 14  |
| 4          | 100 | 11.50   | 292 | 9.38    | 238 | 6.13  | 156 | 9.00  | 229 | .94  | 24  | 80       | 36  | 54       | 24  |
| 5          | 125 | 13.00   | 330 | x       | x   | 6.81  | 173 | 10.00 | 254 | .94  | 24  | 100      | 45  | 80       | 36  |
| 6          | 150 | 14.00   | 356 | x       | x   | 8.00  | 203 | 11.00 | 279 | 1.00 | 25  | 146      | 66  | 121      | 54  |
| 8          | 200 | 19.50   | 495 | x       | x   | 9.44  | 240 | 13.50 | 343 | 1.13 | 29  | 274      | 124 | x        | x   |
| 10         | 250 | 24.50   | 622 | x       | x   | 12.06 | 306 | 16.00 | 406 | 1.19 | 30  | 426      | 193 | x        | x   |
| 12         | 300 | 27.50   | 699 | x       | x   | 16.13 | 410 | 19.00 | 483 | 1.25 | 32  | 675      | 306 | x        | x   |

Note: On pump discharge, the preferred check valves are:

- inline, spring assisted, center-guided, lift checks
- spring assisted twin (double) disc
- swing design with lever and weight or lever and spring

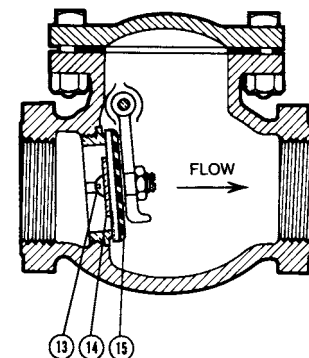
You should also install the check valve as far from the pump as possible and at a minimum length of 5 times the pipe diameter. Flow straighteners may be required.

\* Proper machining facilities required.

x Not available this size.

2½" thru 12" are available with lever and weight or lever and spring.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.



**T-918-W**  
NPT x NPT  
Buna-N Disc Shown

**WARNING:** Do not use for Reciprocating Air Compressor Service.

NIBCO Iron Body Check Valves may be installed in both horizontal and vertical lines with upward flow or in any intermediate position.

# Class 125 Iron Body Check Valves

Bolted Bonnet • Horizontal Swing • Renewable Iron Seat and Disc\*

**125 PSI/8.6 Bar Fluid Pressure to 353° F/178° C**  
**200 PSI/13.8 Bar Non-Shock Cold Working Pressure**  
**to -20° F to 150° F/-29° C to 66° C**

CONFORMS TO MSS SP-71 TYPE 1

## MATERIAL LIST

| PART                       | SPECIFICATION                                                      |
|----------------------------|--------------------------------------------------------------------|
| 1. Body Bolt               | Steel ASTM A 307                                                   |
| 2. Identification Plate    | Aluminum                                                           |
| 3. Bonnet                  | Cast Iron ASTM A 126 Class B                                       |
| 4. Body Gasket             | Synthetic Fibers                                                   |
| 5. Body Nut                | Steel ASTM A 307                                                   |
| 6. Side Plug               | Steel ASTM A 307                                                   |
| 7. Hanger Pin              | Steel ASTM A 108 1214L                                             |
| 8. Hanger                  | Ductile Iron ASTM A 536                                            |
| 9. Disc                    | Cast Iron ASTM A 126 Class B<br>or ASTM A 536 Ductile Iron (2"-4") |
| 10. Seat Ring              | Cast Iron ASTM A 126 Class B                                       |
| 11. Disc Nut               | Steel ASTM A 307                                                   |
| 12. Body                   | Cast Iron ASTM A 126 Class B                                       |
| 13. <sup>1</sup> Disc Bolt | Mild Steel (not shown)                                             |

<sup>1</sup> 5" thru 12" only.


**F-918-N**  
Flanged

## DIMENSIONS—WEIGHTS—QUANTITIES

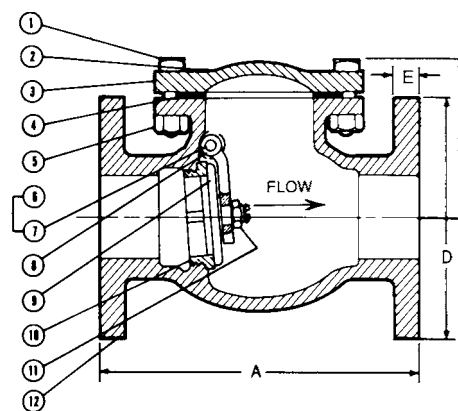
| Dimensions - Weight Conversions |     |            |     |       |     |       |     |      |     |        |     |
|---------------------------------|-----|------------|-----|-------|-----|-------|-----|------|-----|--------|-----|
| Size                            |     | Dimensions |     |       |     |       |     |      |     | Weight |     |
|                                 |     | A          |     | B     |     | D     |     | E    |     |        |     |
| In.                             | mm. | In.        | mm. | In.   | mm. | In.   | mm. | In.  | mm. | Lbs.   | Kg. |
| 2                               | 50  | 8.00       | 203 | 3.94  | 100 | 6.00  | 152 | .63  | 16  | 24     | 11  |
| 2½                              | 65  | 8.50       | 216 | 4.50  | 114 | 7.00  | 178 | .69  | 17  | 35     | 16  |
| 3                               | 80  | 9.50       | 241 | 5.13  | 130 | 7.50  | 191 | .75  | 19  | 47     | 21  |
| 4                               | 100 | 11.50      | 292 | 6.13  | 156 | 9.00  | 229 | .94  | 24  | 80     | 36  |
| 5                               | 125 | 13.00      | 330 | 6.81  | 173 | 10.00 | 254 | .94  | 24  | 99     | 45  |
| 6                               | 150 | 14.00      | 356 | 8.00  | 203 | 11.00 | 279 | 1.00 | 25  | 147    | 67  |
| 8                               | 200 | 19.50      | 495 | 9.44  | 240 | 13.50 | 343 | 1.13 | 29  | 254    | 115 |
| 10                              | 250 | 24.50      | 622 | 12.06 | 306 | 16.00 | 406 | 1.19 | 30  | 424    | 192 |
| 12                              | 300 | 27.50      | 699 | 16.13 | 410 | 19.00 | 483 | 1.25 | 32  | 646    | 293 |

\* Proper machining facilities required.

Note: On pump discharge, the preferred check valves are:

- inline, spring assisted, center-guided, lift checks
- spring assisted twin (double) disc
- swing design with lever and weight or lever and spring

You should also install the check valve as far from the pump as possible and at a minimum length of 5 times the pipe diameter. Flow straighteners may be required.



**F-918-N**  
Flg x Flg

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

**WARNING: Do not use for Reciprocating Air Compressor Service.**

NIBCO Iron Body Check Valves may be installed in both horizontal and vertical lines with upward flow or in any intermediate position.

# Class 250 Iron Body Check Valves

Bolted Bonnet • Horizontal Swing • Renewable Bronze Seat and Disc\*

**250 PSI/17.2 Bar Saturated Steam to 406° F/207° C**  
**500 PSI/34.5 Bar Non-Shock Cold Working Pressure**  
**to -20° F to 150° F/-29° C to 66° C** ♦

CONFORMS TO MSS SP-71 TYPE 1 • APPROVED BY  
 THE NEW YORK CITY B.S.A. 143-69-SA AT 350 PSI  
 NON-SHOCK COLD WATER

## MATERIAL LIST

| PART                    | SPECIFICATION                       |
|-------------------------|-------------------------------------|
| 1. Body Bolt            | Steel ASTM A 307                    |
| 2. Identification Plate | Aluminum                            |
| 3. Bonnet               | Cast Iron ASTM A 126 Class B        |
| 4. Body Gasket          | Reinforced Graphite                 |
| 5. Body Nut             | Steel ASTM A 307                    |
| 6. Side Plug            | Brass ASTM B 16 Alloy C36000        |
| 7. Hanger Pin           | Brass ASTM B 16 Alloy C36000        |
| 8. Hanger               | Cast Bronze ASTM B 584 Alloy C84400 |
| 9. Disc Nut             | Cast Bronze ASTM B 584 Alloy C84400 |
| 10. Disc                | Cast Bronze ASTM B 584 Alloy C84400 |
| 11. Seat Ring           | Cast Bronze ASTM B 584 Alloy C84400 |
| 12. Body                | Cast Iron ASTM A 126 Class B        |

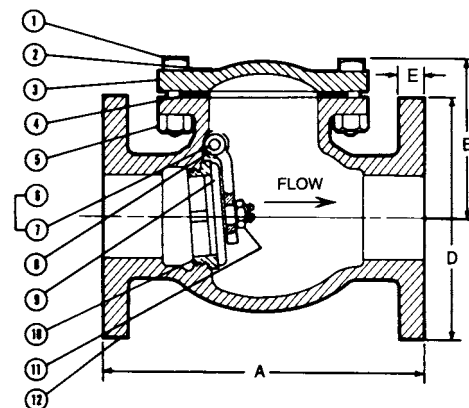


**F-968-B**  
Flanged

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |      |     |       |     |      |     | Weight |     |
|------|-----|------------|-----|------|-----|-------|-----|------|-----|--------|-----|
|      |     | A          |     | B    |     | D     |     | E    |     |        |     |
|      |     | In.        | mm. | In.  | mm. | In.   | mm. | In.  | mm. |        |     |
| 2½   | 65  | 11.50      | 292 | 5.83 | 149 | 7.50  | 191 | 1.00 | 25  | 62     | 28  |
| 3    | 80  | 12.50      | 318 | 6.31 | 160 | 8.25  | 210 | 1.13 | 29  | 77     | 35  |
| 4    | 100 | 14.00      | 356 | 7.56 | 192 | 10.00 | 254 | 1.25 | 32  | 129    | 58  |
| 6    | 150 | 17.50      | 445 | 8.50 | 216 | 12.50 | 318 | 1.44 | 37  | 225    | 102 |

\* Proper machining facilities required.



**F-968-B**  
Flg x Flg

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

**WARNING: Do not use for Reciprocating Air Compressor Service.**

NIBCO Iron Body Check Valves may be installed in both horizontal and vertical lines with upward flow or in any intermediate position.

# Class 125/250 Iron Body Silent Check Valves

Wafer Style • Renewable Seat and Disc • Spring Actuated (1/2 PSI Cracking Pressure)

**Class 125, 200 PSI/13.8 Bar Non-Shock Cold Working Pressure**

**Class 250, 400 PSI/27.6 Bar Non-Shock Cold Working Pressure**

**Maximum Temperature to 200° F/93° C**

CONFORMS TO MSS SP-125 • FM APPROVED

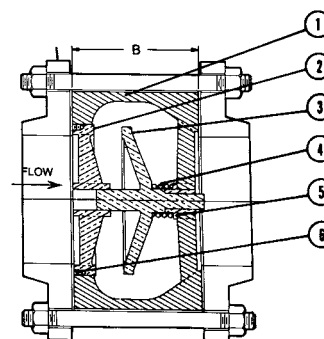
W910-B — 2" thru 10" ONLY

## MATERIAL LIST

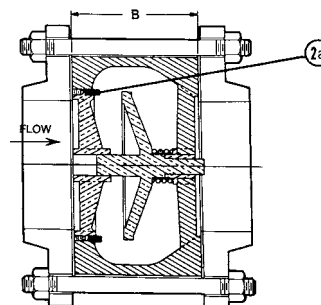
| PART          | SPECIFICATION                       |
|---------------|-------------------------------------|
| 1. Body       | Cast Iron ASTM 126 Class B          |
| 2. Seat       | Bronze ASTM B 584 Alloy C83600 (B)  |
| 2a. Seat      | Buna-N Bonded to Bronze (W)         |
| 3. Disc       | Bronze ASTM B 584 Alloy C83600      |
| 4. Spring     | Stainless Steel Type 316 ASTM A 313 |
| 5. Bushing    | ASTM B 16                           |
| 6. Set Screws | Stainless Steel Type 304 ASTM F 879 |



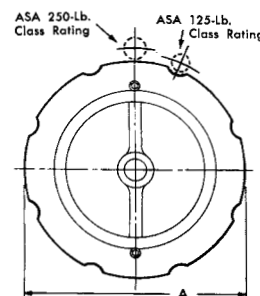
**W-910 125 lb. Class**  
**W-960 250 lb. Class**



**W-910-B/W-960-B**  
Wafer



**W-910-W/W-960-W**  
Wafer



**W-910-B/W-960-B**  
Wafer

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |      |     | W-910 |     | W-960 |     |
|------|-----|------------|-----|------|-----|-------|-----|-------|-----|
|      |     | A          |     | B    |     |       |     |       |     |
| In.  | mm. | In.        | mm. | In.  | mm. | Lbs.  | Kg. | Lbs.  | Kg. |
| *2   | 50  | 4.25       | 108 | 2.63 | 67  | 6     | 5   | 6     | 3   |
| *2½  | 65  | 5.00       | 127 | 2.88 | 73  | 7     | 3   | 7     | 3   |
| *3   | 80  | 5.75       | 146 | 3.13 | 79  | 12    | 5   | 12    | 5   |
| *4   | 100 | 7.00       | 178 | 4.00 | 102 | 18    | 8   | 18    | 8   |
| *5   | 125 | 8.38       | 213 | 4.63 | 117 | 27    | 12  | 27    | 12  |
| *6   | 150 | 9.75       | 248 | 5.50 | 140 | 42    | 19  | 42    | 19  |
| 8    | 200 | 13.38      | 340 | 6.50 | 165 | †85   | 39  | 86    | 39  |
| 10   | 250 | 16.00      | 406 | 8.25 | 210 | †146  | 66  | †137  | 62  |

\* NOTE: Sizes 2" thru 6" have dual class ratings (125 lb. and 250 lb.) resulting in W-910 and W-960 being identical. 8" and 10" have special machining in accordance with Flange Class.

316 Stainless Steel Trim available – Consult Factory.

316 Stainless Steel Trim w/FKM Seat available – Consult Factory

† Class 125 only.

‡ Class 250 only.

USE THIS VALVE ONLY WITH FLAT FACE FLANGE AND FULL FACE GASKET

**WARNING:** 1. Seat end of valve must be mated to a standard flat faced metal flange. Rubber flanges not acceptable.

2. These are not to be used as steam valves.

3. Valves are not to be used near a reciprocating air compressor.

4. Install 5 pipe diameters minimum downstream from pump discharge or elbows to avoid flow turbulence. Flow straighteners may be required in extreme cases.

**Note:** On pump discharge, the preferred check valves are:

- inline, spring assisted, center-guided, lift checks
- spring assisted twin (double) disc
- swing design with lever and weight or lever and spring

You should also install the check valve as far from the pump as possible and at a minimum length of 5 times the pipe diameter. Flow straighteners may be required.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 125/250 Iron Body Silent Check Valves

Flanged • Globe Style • Renewable Seat and Disc • Spring Actuated (1/2 Cracking Pressure)

**Class 125, 200 PSI/13.8 Bar Non-Shock Cold Working Pressure**

**Class 250, 400 PSI/27.6 Bar Non-Shock Cold Working Pressure**

**Maximum Temperature to 200° F/93° C**

CONFORMS TO MSS SP-125 •

CONFORMS TO MIL-V-18436F

FM APPROVED — 2½" thru 10" ONLY (F910B)

## MATERIAL LIST

| PART          | SPECIFICATION                                               |
|---------------|-------------------------------------------------------------|
| 1. Body       | Cast Iron ASTM 126 Class B                                  |
| 2. Seat       | Bronze ASTM B 584 Alloy C83600 (B)                          |
| 2a. Seat      | Buna-N Bonded to Bronze (W)                                 |
| 3. Disc       | Bronze ASTM B 584 Alloy C83600                              |
| 4. Spring     | Stainless Steel Type 316 ASTM A 313                         |
| 5. Bushing    | 6" and smaller ASTM B 16<br>8" and larger ASTM B 584 C83600 |
| 6. Set Screws | Stainless Steel Type 304                                    |



**F-910, 125 lb. Class**  
**F-960, 250 lb. Class**

Flanged

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |      | F-910 |      | F-960 |      |
|------|-----|------------|------|-------|------|-------|------|
|      |     | A          |      |       |      |       |      |
| In.  | mm. | In.        | mm.  | Lbs.  | Kg.  | Lbs.  | Kg.  |
| 2½   | 65  | 5.50       | 140  | 24    | 11   | 30    | 14   |
| 3    | 80  | 6.00       | 152  | 29    | 13   | 36    | 16   |
| 4    | 100 | 7.25       | 184  | 42    | 19   | 59    | 27   |
| 5    | 125 | 8.50       | 216  | 52    | 24   | 78    | 35   |
| 6    | 150 | 9.75       | 248  | 73    | 33   | 103   | 47   |
| 8    | 200 | 12.50      | 318  | 126   | 57   | 179   | 81   |
| 10   | 250 | 15.50      | 343  | 1205  | 93   | 253   | 115  |
| 12   | 300 | 14.25      | 362  | 306   | 139  | 401   | 182  |
| 14   | 350 | 15.75      | 400  | 350   | 172  | 511   | 232  |
| 16   | 400 | 17.63      | 448  | 501   | 227  | 697   | 316  |
| 18   | 450 | 18.75      | 476  | 724   | 328  | 959   | 435  |
| 20   | 500 | 20.63      | 524  | 890   | 404  | 1180  | 535  |
| 24   | 600 | 24.00      | 610  | 1220  | 553  | 1680  | 762  |
| 30   | 750 | 29.25      | 743  | 2000  | 907  | 2375  | 1077 |
| 36   | 900 | 45.00      | 1143 | 4421  | 2005 | 5511  | 2500 |

x Not available these sizes.

NOTE: F-910 made to 125 lb. Flange dimensions.

F-960 made to 250 lb. Flange dimensions.

A Wafer Style Butterfly Valve can be mated on the down stream side of the F-910 2½"–10" sizes without use of spacers or adapters.

316 Stainless Steel Trim available – Consult Factory.

USE THIS VALVE ONLY WITH FLAT FACE FLANGE AND FULL FACE GASKET.

WARNING: 1. Seat end of valve must be mated to a standard flat faced metal flange. Rubber flanges not acceptable.

2. These are not to be used as steam valves.

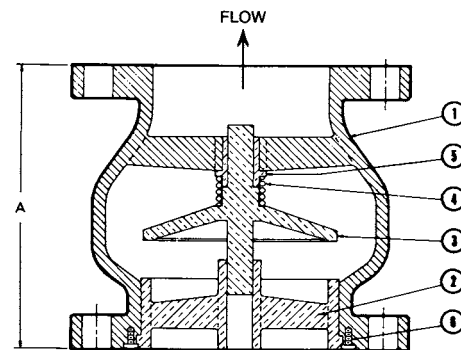
3. Valves are not to be used near a reciprocating air compressor.

4. Install 5 pipe diameters minimum downstream from pump discharge or elbows to avoid flow turbulence. Flow straighteners may be required in extreme cases.

Note: On pump discharge, the preferred check valves are:

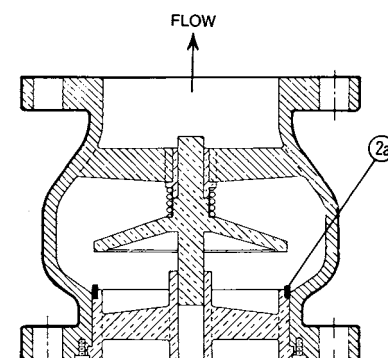
- inline, spring assisted, center-guided, lift checks
- spring assisted twin (double) disc
- swing design with lever and weight or lever and spring

You should also install the check valve as far from the pump as possible and at a minimum length of 5 times the pipe diameter. Flow straighteners may be required.



**F-910-B or F-960-B**

Flg x Flg Flg x Flg



**F-910-W or F-960-W**

Flg x Flg Flg x Flg

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 125 Iron Body Check Valves

Twin Disc • Wafer Style • Bronze Disc • Rubber Seat • Spring Actuated

**250 PSI/17.2 Bar Non-Shock Cold Working Pressure**  
**Maximum Temperature to 180° F/82° C** ♦

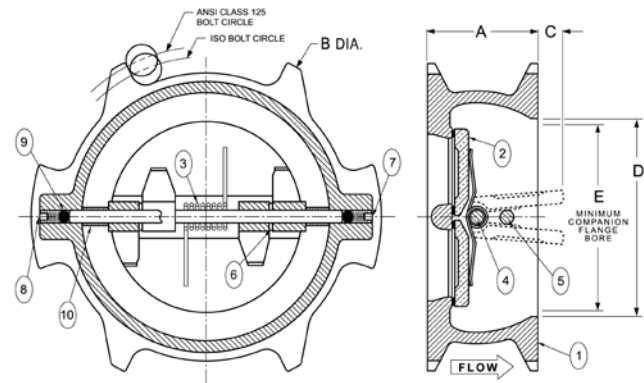
CONFORMS TO ANSI B16.1

## MATERIAL LIST

| PART                    | SPECIFICATION                                                                           |
|-------------------------|-----------------------------------------------------------------------------------------|
| 1. Body                 | Ductile Iron ASTM A 536 Grade 65-45-12 w/Buna-N (Nitrile) resilient seat molded to body |
| 2. Disc                 | Bronze ASTM B 584 UNS C83600                                                            |
| 3. Torsion Spring       | Stainless Steel ASTM A 313 UNS S31600                                                   |
| 4. Disc Thrust Bearing  | Stainless Steel ASTM A 240 UNS S31600                                                   |
| 5. Stabilization Sphere | Nitrile ASTM D 2000                                                                     |
| 6. Hinge Pin Retainer   | Steel                                                                                   |
| 7. Stop Pin Retainer    | Steel                                                                                   |
| 8. Disc Hinge Pin       | Stainless Steel ASTM A 276 UNS S31600                                                   |
| 9. Spacer               | Stainless Steel ASTM A 276 UNS S31600                                                   |
| 10. Disc Stop Pin       | Stainless Steel ASTM A 276 UNS S31600                                                   |



**W-920-W**  
Wafer



2" thru 12"

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |       |     |      |      |       |     |      |     | Weight |     |
|------|-----|------------|-----|-------|-----|------|------|-------|-----|------|-----|--------|-----|
|      |     | A          |     | B     |     | C    |      | D     |     | E    |     |        |     |
| In.  | mm. | In.        | mm. | In.   | mm. | In.  | mm.  | In.   | mm. | In.  | mm. | Lbs.   | Kg. |
| 2    | 50  | 2.13       | 54  | 5.13  | 130 | —    | —    | 2.88  | 73  | —    | —   | 4      | 2   |
| 2½   | 65  | 2.38       | 60  | 6.00  | 152 | .13  | 3.3  | 3.50  | 89  | 1.31 | 33  | 5      | 2   |
| 3    | 80  | 2.63       | 67  | 5.63  | 143 | .19  | 4.8  | 3.88  | 99  | 1.69 | 43  | 7      | 3   |
| 4    | 100 | 2.63       | 67  | 7.75  | 197 | .63  | 16.0 | 4.75  | 121 | 3.06 | 78  | 9      | 4   |
| 5    | 125 | 3.25       | 83  | 7.56  | 192 | .81  | 20.0 | 5.50  | 140 | 3.63 | 92  | 13     | 6   |
| 6    | 150 | 3.75       | 95  | 8.63  | 222 | .81  | 32.0 | 6.25  | 171 | 4.25 | 146 | 19     | 9   |
| 8    | 200 | 5.00       | 127 | 12.25 | 279 | 1.00 | 33.0 | 8.00  | 222 | 5.50 | 197 | 37     | 17  |
| 10   | 250 | 5.50       | 140 | 14.75 | 340 | 2.06 | 64.0 | 10.25 | 276 | 8.50 | 248 | 65     | 30  |
| 12   | 300 | 7.13       | 181 | 17.38 | 410 | 1.94 | 60.0 | 12.00 | 327 | 9.25 | 279 | 94     | 43  |

**NOTE:** Twin Disc Check Valves can be installed horizontally or in the vertical position with flow up.

**CAUTION:** For horizontal flow applications, the valve must be installed with disc hinge pin in the vertical position, to insure proper operation.

**WARNING:** 1. Seat end of valve must be mated to a standard flat faced metal flange. Rubber flanges not acceptable.

2. These are not to be used as steam valves.

3. Valves are not to be used near a reciprocating air compressor.

4. Install 5 pipe diameters minimum downstream from pump discharge or elbows to avoid flow turbulence. Flow straighteners may be required in extreme cases.

**Note:** On pump discharge, the preferred check valves are:

- inline, spring assisted, center-guided, lift checks
- spring assisted twin (double) disc
- swing design with lever and weight or lever and spring

You should also install the check valve as far from the pump as possible and at a minimum length of 5 times the pipe diameter. Flow straighteners may be required.

♦For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 125 Iron Body Check Valves

Twin Disc • Wafer Style • Bronze Disc • Rubber Seat • Spring Actuated

**150 PSI/10.3 Bar Non-Shock Cold Working Pressure**  
**Maximum Temperature to 180° F/82° C**

CONFORMS TO ANSI B16.1



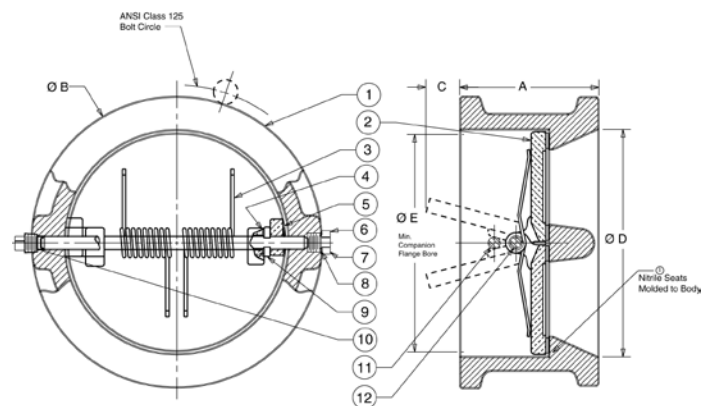
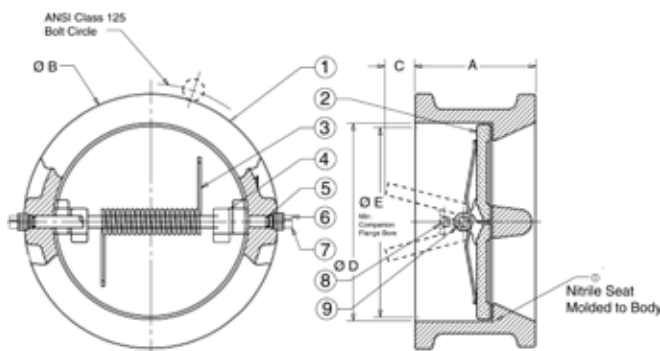
**W-920-W**  
Wafer

## MATERIAL LIST — 14" thru 30"

| PART                    | SPECIFICATION                                                                 |
|-------------------------|-------------------------------------------------------------------------------|
| 1. Body                 | Cast Iron ASTM A 126 Class B w/Buna-N (Nitrile) resilient seat molded to body |
| 2. Disc                 | Nickel Plated D.I. ASTM A 536 Grade 65-45-12                                  |
| 3. Torsion Spring       | Stainless Steel ASTM A 313 UNS S31600 or UNS S17400                           |
| 4. Disc Thrust Bearing  | Stainless Steel ASTM A 240 UNS S31600                                         |
| 5. Stabilization Sphere | Nitrile ASTM D 2000                                                           |
| 6. Hinge Pin Retainer   | Steel                                                                         |
| 7. Stop Pin Retainer    | Steel                                                                         |
| 8. Disc Stop Pin        | Stainless Steel ASTM A 276 UNS S31600                                         |
| 9. Disc Hing Pin        | Stainless Steel ASTM A 276 UNS S31600                                         |

## MATERIAL LIST — 36"

| PART                     | SPECIFICATION                                       |
|--------------------------|-----------------------------------------------------|
| 1. Body                  | Cast Iron ASTM A 126 Class B                        |
| 2. Disc                  | Nickel Plated D.I. ASTM A 536 Grade 65-45-12        |
| 3. Torsion Spring        | Stainless Steel ASTM A 313 UNS S31600 or UNS S17400 |
| 4. Inner Thrust Bearing  | Stainless Steel ASTM A 240 UNS S31600               |
| 5. Outer Thrust Bearing  | Stainless Steel ASTM A 240 UNS S31600               |
| 6. Hinge Pin Retainer    | Steel                                               |
| 7. Stop Pin Retainer     | Steel                                               |
| 8. O-Ring                | Nitrile ASTM D 2000                                 |
| 9. Shaft Collar          | Stainless Steel ASTM A 240 UNS S31600               |
| 10. Stabilization Sphere | Nitrile ASTM D 2000                                 |
| 11. Stop Pin             | Stainless Steel ASTM A 276 UNS S31600               |
| 12. Hinge Pin            | Stainless Steel ASTM A 276 UNS S31600               |



## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |       |      |       |     |       |     |       |     | Weight |     |
|------|-----|------------|-----|-------|------|-------|-----|-------|-----|-------|-----|--------|-----|
|      |     | A          |     | B     |      | C     |     | D     |     | E     |     |        |     |
| In.  | mm. | In.        | mm. | In.   | mm.  | In.   | mm. | In.   | mm. | In.   | mm. | Lbs.   | Kg. |
| 14   | 350 | 7.25       | 184 | 17.75 | 451  | 3.25  | 83  | 14.38 | 365 | 12.50 | 318 | 187    | 85  |
| 16   | 400 | 7.50       | 191 | 20.25 | 514  | 4.50  | 114 | 16.38 | 416 | 15.00 | 381 | 270    | 122 |
| 18   | 450 | 8.00       | 203 | 21.63 | 549  | 5.38  | 137 | 18.38 | 467 | 17.00 | 432 | 350    | 150 |
| 20   | 500 | 8.38       | 213 | 23.88 | 606  | 6.38  | 162 | 20.25 | 514 | 19.00 | 483 | 424    | 192 |
| 24   | 600 | 8.75       | 222 | 28.25 | 718  | 8.50  | 216 | 24.25 | 616 | 23.00 | 584 | 589    | 267 |
| 30   | 750 | 12.00      | 305 | 34.75 | 883  | 9.50  | 241 | 30.00 | 762 | 28.50 | 724 | 1112   | 504 |
| 36   | 900 | 14.50      | 368 | 41.25 | 1048 | 12.00 | 305 | 36.00 | 914 | 34.50 | 876 | 1864   | 846 |

**NOTE:** Twin Disc Check Valves can be installed horizontally or in the vertical position with flow up.

### CAUTION:

For horizontal flow applications, the valve must be installed with disc hinge pin in the vertical position, to insure proper operation.

### WARNING:

1. Seat end of valve must be mated to a standard flat faced metal flange. Rubber flanges not acceptable.
2. These are not to be used as steam valves.
3. Valves are not to be used near a reciprocating air compressor.
4. Install 5 pipe diameters minimum downstream from pump discharge or elbows to avoid flow turbulence. Flow straighteners may be required in extreme cases.

**Note:** On pump discharge, the preferred check valves are:

- inline, spring assisted, center-guided, lift checks
- spring assisted twin (double) disc
- swing design with lever and weight or lever and spring

You should also install the check valve as far from the pump as possible and at a minimum length of 5 times the pipe diameter. Flow straighteners may be required.

# 250 PSI CWP Iron Body Grooved Silent Check Valve

Twin Disc • Grooved Style • Bronze Disc • Buna-N Seat • Spring Actuated

**250 PSI/17.2 Bar Non-Shock Cold Working Pressure**  
**Maximum Temperature to 180°F/82°C @ 220 PSI/15 Bar**

CONFORMS TO ANSI/AWWA C606 FOR STEEL IPS PIPE

## MATERIAL LIST

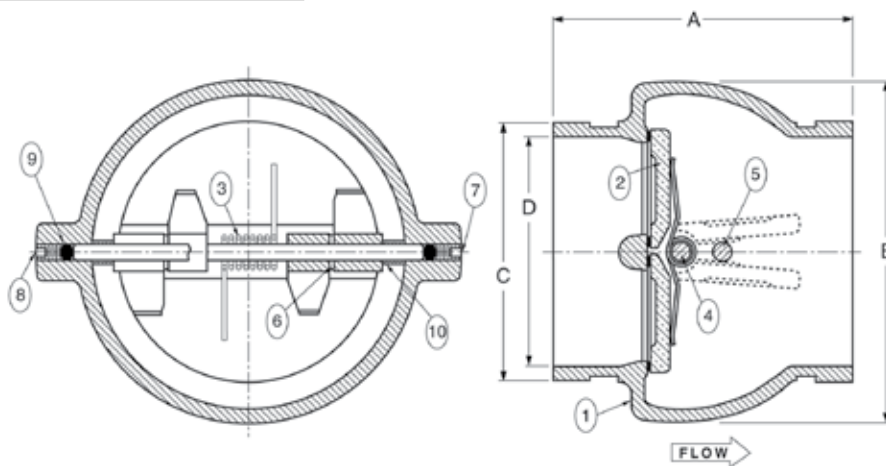
| PART                    | SPECIFICATION                                                                           |
|-------------------------|-----------------------------------------------------------------------------------------|
| 1. Body                 | Ductile Iron ASTM A 536 Grade 65-45-12 w/Buna-N (Nitrile) resilient seat molded to body |
| 2. Disc                 | Bronze ASTM B 584 Alloy C83600                                                          |
| 3. Torsion Spring       | Stainless Steel ASTM A 313 UNS S31600                                                   |
| 4. Disc Hinge Pin       | Stainless Steel ASTM A 276 UNS S31600                                                   |
| 5. Disc Stop Pin        | Stainless Steel ASTM A 276 UNS S31600                                                   |
| 6. Disc Thrust Bearing  | Stainless Steel ASTM A 240 UNS S31600                                                   |
| 7. Hinge Pin Retainer   | Steel                                                                                   |
| 8. Stop Pin Retainer    | Steel                                                                                   |
| 9. Stabilization Sphere | Buna-N                                                                                  |
| 10. Spacer              | High Density Polyethylene                                                               |

Sizes 10" and 12" furnished with lifting eyebolt



**G-920-W**

Grooved



## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |       |     |       |     |       |     | Weight |      |
|------|-----|------------|-----|-------|-----|-------|-----|-------|-----|--------|------|
|      |     | A          |     | B     |     | C     |     | D     |     |        |      |
| In.  | mm. | In.        | mm. | In.   | mm. | In.   | mm. | In.   | mm. | Lbs.   | Kg.  |
| 2    | 50  | 4.66       | 111 | 4.13  | 105 | 2.38  | 60  | 2.00  | 51  | 3.30   | 1.49 |
| 2½   | 65  | 4.91       | 125 | 4.88  | 124 | 2.88  | 73  | 2.41  | 61  | 4.50   | 2.04 |
| 3    | 80  | 5.31       | 135 | 5.38  | 137 | 3.50  | 89  | 2.94  | 75  | 7.30   | 3.31 |
| 4    | 100 | 5.38       | 137 | 6.00  | 152 | 4.50  | 114 | 3.91  | 99  | 8.60   | 3.90 |
| 5    | 125 | 5.72       | 145 | 7.06  | 179 | 5.56  | 141 | 4.89  | 124 | 13.00  | 5.90 |
| 6    | 150 | 6.00       | 152 | 8.13  | 206 | 6.63  | 168 | 5.92  | 150 | 18.00  | 8.17 |
| 8    | 200 | 6.72       | 171 | 10.03 | 255 | 8.63  | 219 | 7.91  | 201 | 30.00  | 13.6 |
| 10   | 250 | 7.78       | 198 | 12.38 | 314 | 10.75 | 273 | 10.00 | 254 | 56.00  | 25.4 |
| 12   | 300 | 8.19       | 208 | 14.38 | 365 | 12.75 | 324 | 11.94 | 303 | 81.80  | 36.7 |

Groove dimensions conform to ANSI/AWWA specification C606 Table 4  
(Cut Groove Dimensions)

**NOTE:** Twin Disc Check Valves can be installed horizontally or in the vertical position with flow up.

**CAUTION:** For horizontal flow applications, the valve must be installed with disc hinge pin in the vertical position to insure proper operation.

**WARNING:**

1. This valve is not to be used as a steam valve.
  2. Valves are not to be used near a reciprocating air compressor.
  3. Install 5 pipe diameters minimum downstream from pump discharge or elbows to avoid flow turbulence. Flow straighteners may be required in extreme cases.
- Note:** On pump discharge, the preferred check valves are:
- inline, spring assisted, center-guided, lift checks
  - spring assisted twin (double) disc
  - swing design with lever and weight or lever and spring

You should also install the check valve as far from the pump as possible and at a minimum length of 5 times the pipe diameter. Flow straighteners may be required.

# Ductile and Alloy Iron Gate Valves

## Illustrated Index

3% Nickel Iron Body Gate Valve  
Outside Screw and Yoke  
Stainless Steel Trim  
Class 125 SWP  
200 lb. CWP



**F-617-13**  
Solid Wedge  
Sizes 2" thru 12"  
Flanged Ends  
Page 72

3% Nickel Iron Body Gate Valve  
Outside Screw and Yoke  
Stainless Steel Trim  
Class 125 SWP  
150 lb. CWP



**F-617-13**  
Solid Wedge  
Sizes 14" thru 24"  
Flanged Ends  
Page 73

Ductile Iron Body Gate Valve  
Outside Screw and Yoke  
Bronze Trim  
Class 150  
285 lb. CWP



**F-637-31**  
Solid Wedge  
Sizes 2" thru 12"  
Flanged-Raised Face  
Page 74

Ductile Iron Body Gate Valve  
Outside Screw and Yoke  
Bronze Trim  
Class 150  
285 lb. CWP



**F-637-31**  
Solid Wedge  
Sizes 14" thru 24"  
Flanged-Raised Face  
Page 75

Ductile Iron Body Gate Valve  
Outside Screw and Yoke  
316SS Stainless Steel Trim  
Class 150  
285 lb. CWP



**F-637-33**  
Solid Wedge  
Sizes 2" thru 12"  
Flanged-Raised Face  
Page 76

Ductile Iron Body Gate Valve  
Outside Screw and Yoke  
316SS Stainless Steel Trim  
Class 150  
285 lb. CWP



**F-637-33**  
Solid Wedge  
Sizes 14" thru 24"  
Flanged-Raised Face  
Page 77

Ductile Iron Body Gate Valve  
Inside Screw  
Bronze Trim  
Class 150  
285 lb. CWP



**F-639-31**  
Non-Rising Stem • Solid Wedge  
Sizes 2" thru 16"  
Flanged-Raised Face  
Page 78

Ductile Iron Body Gate Valve  
Inside Screw  
316SS Stainless Steel Trim  
Class 150  
285 lb. CWP



**F-639-33**  
Non-Rising Stem • Solid Wedge  
Sizes 2" thru 16"  
Flanged-Raised Face  
Page 79

# Class 125 3% Nickel Iron Body Gate Valves

Bolted Bonnet • Outside Screw and Yoke • Solid Wedge • Stainless Steel Trim

**125 PSI/8.6 Bar Fluid Pressure to 450° F/232° C**
**200 PSI/13.8 Bar Non-Shock Cold Working Pressure to -20° F to 150° F/-29° C to 66° C◆**

CONFORMS TO MSS SP-70

## MATERIAL LIST

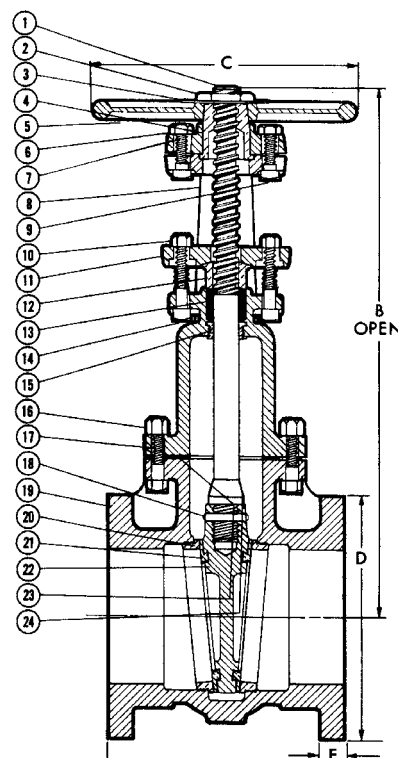
| PART                    | SPECIFICATION                     |
|-------------------------|-----------------------------------|
| 1. Stem                 | ASTM A 276 S31600SS               |
| 2. Handwheel Nut        | Ductile Iron ASTM A 536           |
| 3. Identification Plate | Aluminum                          |
| 4. Yoke Bushing         | Ductile Iron ASTM A 536           |
| 5. Handwheel            | Cast Iron ASTM A 126 Class B      |
| 6. Bonnet Cap Nut       | Steel ASTM A 307                  |
| 7. Bonnet Cap           | Ductile Iron ASTM A 536           |
| 8. <sup>1</sup> Bonnet  | ASTM A 126 3% Nickel Iron Class B |
| 9. Bonnet Cap Bolt      | Steel ASTM A 307                  |
| 10. Gland Follower Nut  | Steel ASTM A 307                  |
| 11. Gland Follower      | Ductile Iron ASTM A 536           |
| 12. Packing Gland       | ASTM A 276 S31600SS               |
| 13. Packing             | PTFE Braided                      |
| 14. Gland Follower Bolt | Steel ASTM A 307                  |
| 15. Backseat Bushing    | ASTM A 276 S31600SS               |
| 16. Body Nut            | Steel ASTM A 307                  |
| 17. Body Bolt           | Steel ASTM A 307                  |
| 18. Wedge Pin           | ASTM A 276 S31600SS               |
| 19. Body                | ASTM A 126 3% Nickel Iron Class B |
| 20. Seat Ring           | ASTM A 351 CF8M                   |
| 21. Wedge Face Ring     | ASTM A 351 CF8M                   |
| 22. <sup>2</sup> Wedge  | ASTM A 126 3% Nickel Iron Class B |
| 23. Body Gasket         | Synthetic Fibers                  |
| 24. Stem Collar         | ASTM A 276 S31600SS               |
| 25. Grease Fitting      | Alemite 1743B (not shown)         |

<sup>1</sup> Sizes thru 8" made with Yoke Integral with Bonnet. 10" and 12" sizes made with separate Yoke Bolted to Bonnet.

<sup>2</sup> Sizes 2" thru 3" have Solid ASTM A 351 CF8M Wedges. Sizes 4" thru 12" made with ASTM A 126 3% Ni-Iron Wedge with ASTM A 351 CF8M Wedge Face Rings.


**F-617-13**

Flanged


**F-617-13**

Flg x Flg

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |       |      |       |     |       |     |      |     | Weight |     |
|------|-----|------------|-----|-------|------|-------|-----|-------|-----|------|-----|--------|-----|
|      |     | A          |     | B     |      | C     |     | D     |     | E    |     |        |     |
| In.  | mm. | In.        | mm. | In.   | mm.  | In.   | mm. | In.   | mm. | In.  | mm. | Lbs.   | Kg. |
| 2    | 50  | 7.00       | 178 | 16.31 | 414  | 8.00  | 203 | 6.00  | 152 | .63  | 16  | 41     | 19  |
| 2½   | 65  | 7.50       | 191 | 17.19 | 437  | 8.00  | 203 | 7.00  | 178 | .69  | 17  | 54     | 25  |
| 3    | 80  | 8.00       | 203 | 19.50 | 495  | 8.00  | 203 | 7.50  | 191 | .75  | 19  | 66     | 30  |
| 4    | 100 | 9.00       | 229 | 24.00 | 610  | 10.00 | 254 | 9.00  | 229 | .94  | 24  | 109    | 49  |
| 6    | 150 | 10.50      | 267 | 31.06 | 789  | 12.00 | 305 | 11.00 | 279 | 1.00 | 25  | 179    | 81  |
| 8    | 200 | 11.50      | 292 | 40.19 | 1021 | 14.00 | 356 | 13.50 | 343 | 1.13 | 29  | 309    | 140 |
| 10   | 250 | 13.00      | 330 | 48.25 | 1226 | 16.00 | 406 | 16.00 | 406 | 1.19 | 30  | 481    | 218 |
| 12   | 300 | 14.00      | 356 | 56.88 | 1445 | 18.00 | 457 | 19.00 | 483 | 1.25 | 32  | 706    | 320 |

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 125 3% Nickel Iron Body Gate Valves

Bolted Bonnet • Outside Screw and Yoke • Solid Wedge • Stainless Steel Trim

**100 PSI/6.9 Bar Fluid Pressure to 450° F/232° C**
**150 PSI/10.3 Bar Non-Shock Cold Working Pressure  
to -20° F to 150° F/-29° C to 66° C ♦**

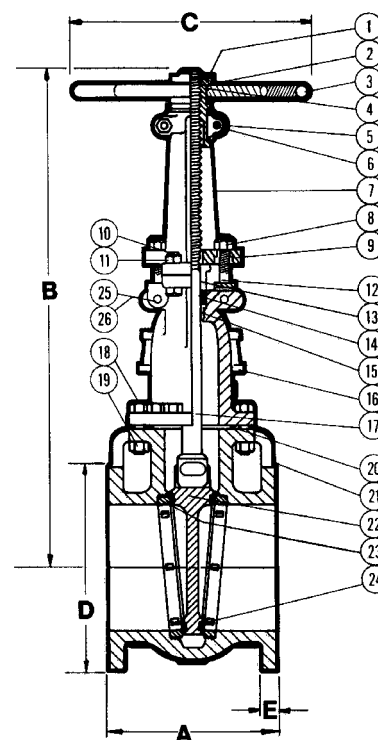
CONFORMS TO MSS SP-70

## MATERIAL LIST

| PART                    | SPECIFICATION                       |
|-------------------------|-------------------------------------|
| 1. Handwheel Nut        | Ductile Iron ASTM A 536             |
| 2. Identification Tag   | Aluminum                            |
| 3. Handwheel            | Fabricated Steel                    |
| 4. Yoke Bushing         | Ductile Iron ASTM A 536             |
| 5. Split Yoke Bolt      | Steel ASTM A 307                    |
| 6. Split Yoke Bolt Nut  | Steel ASTM A 307                    |
| 7. Yoke                 | ASTM A 126 3% Nickel Iron Class B   |
| 8. Gland Follower Nut   | Steel ASTM A 307                    |
| 9. Gland Follower       | Ductile Iron ASTM A 536             |
| 10. Yoke Bolt           | Steel ASTM A 307                    |
| 11. Yoke Bolt Nut       | Steel ASTM A 307                    |
| 12. Gland Follower Bolt | Steel ASTM A 307                    |
| 13. Packing Gland       | ASTM A 276 S31600SS                 |
| 14. Packing             | PTFE Braided                        |
| 15. Backseat Bushing    | ASTM A 351 CF8M                     |
| 16. Bonnet              | ASTM A 126 3% Nickel Iron Class B   |
| 17. Stem                | ASTM A 276 S31600SS                 |
| 18. Bonnet Bolt         | Steel ASTM A 307                    |
| 19. Bonnet Bolt Nut     | Steel ASTM A 307                    |
| 20. Bonnet Gasket       | Synthetic Fibers                    |
| 21. Body                | ASTM A 126 3% Nickel Iron Class B   |
| 22. Wedge               | ASTM A 126 3% Nickel Iron Class B   |
| 23. Seat Ring           | ASTM A 351 CF8M                     |
| 24. Wedge Ring          | ASTM A 351 CF8M                     |
| 25. Swing Nut           | Steel ASTM A 307                    |
| 26. Swing Bolt          | Steel ASTM A 307                    |
| 27. Grease Fitting      | Alemite 1743B (not shown)           |
| 28. Stem Collar         | ASTM A 276 S31600SS (not shown)     |
| 29. Wedge Pin           | ASTM A 276 S31600SS (not shown)     |
| 30. Wedge Nut           | Ductile Iron ASTM A 536 (not shown) |


**F-617-13**

Flanged


**F-617-13**

Flg x Flg

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |        |      |       |     |       |     |      |     | Weight |      |
|------|-----|------------|-----|--------|------|-------|-----|-------|-----|------|-----|--------|------|
|      |     | A          |     | B      |      | C     |     | D     |     | E    |     |        |      |
| In.  | mm. | In.        | mm. | In.    | mm.  | In.   | mm. | In.   | mm. | In.  | mm. | Lbs.   | Kg.  |
| 14   | 350 | 15.00      | 381 | 65.50  | 1664 | 24.00 | 610 | 21.00 | 533 | 1.38 | 35  | 890    | 404  |
| 16   | 400 | 16.00      | 406 | 74.50  | 1892 | 24.00 | 610 | 23.50 | 597 | 1.44 | 37  | 1252   | 568  |
| 18   | 450 | 17.00      | 432 | 82.50  | 2096 | 24.00 | 610 | 25.00 | 635 | 1.56 | 40  | 1596   | 725  |
| 20   | 500 | 18.00      | 457 | 91.00  | 2311 | 30.00 | 762 | 27.50 | 699 | 1.69 | 43  | 2023   | 918  |
| 24   | 600 | 20.00      | 508 | 107.50 | 2731 | 30.00 | 762 | 32.00 | 813 | 1.88 | 48  | 2907   | 1320 |

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 150 Ductile Iron Body Gate Valves

Raised Face Flanges • Bolted Bonnet • Outside Screw and Yoke  
• Solid Wedge • B 584 Bronze Trim

**285 PSI/19.7 Bar Non-Shock Cold Working Pressure  
to -20° F to 100° F/-29° C to 38° C.**

**185 PSI/12.8 Bar Saturated Steam to 450°F/232°C ♦**

CONFORMS TO MSS SP-128

## MATERIAL LIST

| PART                       | SPECIFICATION             |
|----------------------------|---------------------------|
| 1. Stem                    | Bronze ASTM B 371         |
| 2. Handwheel Nut           | Bronze ASTM B 584         |
| 3. Identification Plate    | Aluminum                  |
| 4. Yoke Bushing            | Bronze ASTM B 584         |
| 5. Handwheel               | Iron ASTM A 126 Class B   |
| 6. Bonnet Cap Nut          | Steel ASTM A 307          |
| 7. Bonnet Cap              | Ductile Iron ASTM A 536   |
| 8. <sup>1</sup> Bonnet     | Ductile Iron ASTM A 395   |
| 9. Bonnet Cap Bolt         | Steel ASTM A 307          |
| 10. Gland Follower Nut     | Brass ASTM B 36           |
| 11. Gland Follower         | Ductile Iron ASTM A 536   |
| 12. Packing Gland          | Brass or Iron             |
| 13. Packing                | PTFE Braided              |
| 14. Gland Follower Bolt    | Steel ASTM A 307          |
| 15. Backseat Bushing       | Bronze ASTM B 584         |
| 16. Body Nut               | Steel ASTM A 307          |
| 17. Body Bolt              | Steel ASTM A 307          |
| 18. Wedge Pin              | Bronze ASTM B 371         |
| 19. Body                   | Ductile Iron ASTM A 395   |
| 20. <sup>3</sup> Seat Ring | Bronze ASTM B 584         |
| 21. Wedge Face Ring        | Bronze ASTM B 584         |
| 22. <sup>2</sup> Wedge     | Ductile Iron ASTM A 395   |
| 23. Body Gasket            | Synthetic Fibers          |
| 24. Stem Collar            | Bronze ASTM B 371         |
| 25. Grease Fitting         | Alemite 1743B (not shown) |

<sup>1</sup> Sizes thru 8" made with Yoke Integral with Bonnet. 10" and 12" sizes made with separate Yoke Bolted to Bonnet.

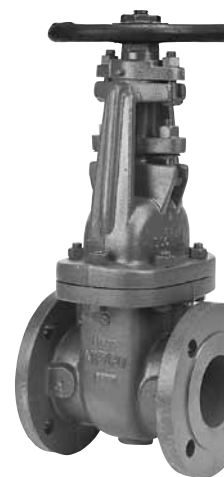
<sup>2</sup> Sizes 2" thru 6" are all Bronze (31 Trim).

Sizes 8" thru 12" Ductile Iron Wedge with Bronze Wedge Face Rings (31 Trim).

<sup>3</sup> Lugs may be removed at customer's request - POA.

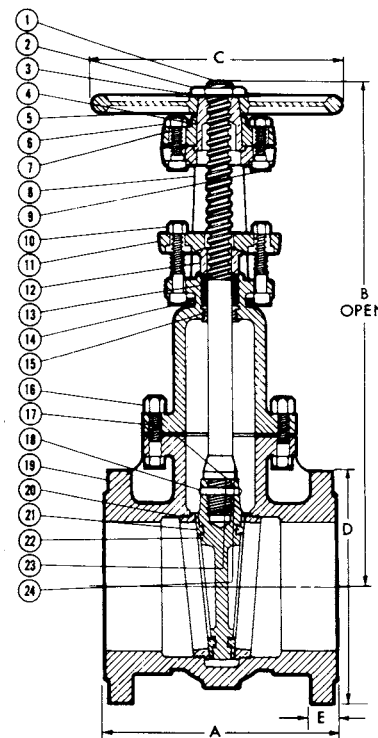
## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |       |      |       |     |       |     |      |     | Weight |     |
|------|-----|------------|-----|-------|------|-------|-----|-------|-----|------|-----|--------|-----|
|      |     | A          |     | B     |      | C     |     | D     |     | E    |     |        |     |
| In.  | mm. | In.        | mm. | In.   | mm.  | In.   | mm. | In.   | mm. | In.  | mm. | Lbs.   | Kg. |
| 2    | 50  | 7.00       | 178 | 16.31 | 414  | 8.00  | 203 | 6.00  | 152 | .63  | 16  | 41     | 19  |
| 2½   | 65  | 7.50       | 191 | 17.19 | 437  | 8.00  | 203 | 7.00  | 178 | .69  | 17  | 55     | 25  |
| 3    | 80  | 8.00       | 203 | 19.50 | 495  | 8.00  | 203 | 7.50  | 191 | .75  | 19  | 67     | 30  |
| 4    | 100 | 9.00       | 229 | 24.00 | 610  | 10.00 | 254 | 9.00  | 229 | .94  | 24  | 107    | 48  |
| 5    | 125 | 10.00      | 254 | 27.13 | 689  | 10.00 | 254 | 10.00 | 254 | .94  | 24  | 145    | 66  |
| 6    | 150 | 10.50      | 267 | 31.06 | 789  | 12.00 | 305 | 11.00 | 279 | 1.00 | 25  | 178    | 81  |
| 8    | 200 | 11.50      | 292 | 40.19 | 1021 | 14.00 | 356 | 13.50 | 343 | 1.13 | 29  | 309    | 140 |
| 10   | 250 | 13.00      | 330 | 48.25 | 1226 | 16.00 | 406 | 16.00 | 406 | 1.19 | 30  | 481    | 218 |
| 12   | 300 | 14.00      | 356 | 56.88 | 1445 | 18.00 | 457 | 19.00 | 483 | 1.25 | 32  | 706    | 320 |



**F-637-31**

Flanged-Raised Face



**F-637-31**

Flg x Flg

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 150 Ductile Iron Body Gate Valves

Raised Face Flanges • Bolted Bonnet • Outside Screw and Yoke  
• Solid Wedge • B 584 Bronze Trim

**285 PSI/19.7 Bar Non-Shock Cold Working Pressure  
to -20° F to 100° F/-29° C to 38° C**

**185 PSI/12.8 Bar Saturated Steam to 450°F/232°C ♦**

CONFORMS TO MSS SP-128

## MATERIAL LIST

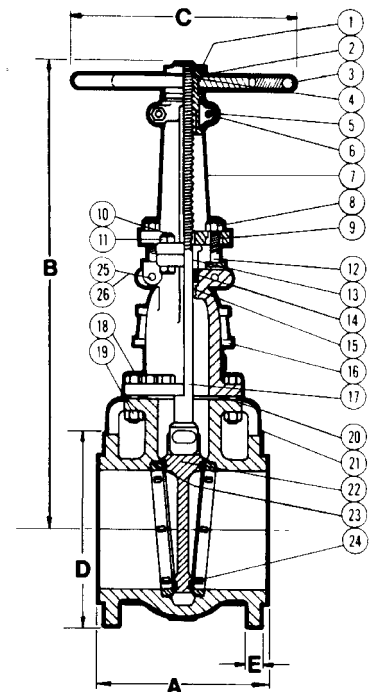
| PART                        | SPECIFICATION                 |
|-----------------------------|-------------------------------|
| 1. Handwheel Nut            | Bronze ASTM B 584             |
| 2. Identification Plate     | Aluminum                      |
| 3. Handwheel                | Fabricated Steel              |
| 4. Yoke Bushing             | Bronze ASTM B 584             |
| 5. Split Yoke Bolt          | Steel ASTM A 307              |
| 6. Split Yoke Bolt Nut      | Steel ASTM A 307              |
| 7. Yoke                     | Ductile Iron ASTM A 536       |
| 8. Eye Bolt Nut             | Brass ASTM F 467              |
| 9. Gland Follower           | Ductile Iron ASTM A 536       |
| 10. Yoke Bolt               | Steel ASTM A 307              |
| 11. Yoke Bolt Nut           | Steel ASTM A 307              |
| 12. Gland Follower Eye Bolt | Steel ASTM A 307              |
| 13. Packing Gland           | Bronze ASTM B 584             |
| 14. Packing                 | PTFE Braided                  |
| 15. Backseat Bushing        | Bronze ASTM B 371             |
| 16. Bonnet                  | Ductile Iron ASTM A 395       |
| 17. Stem                    | Bronze ASTM B 371             |
| 18. Bonnet Bolt             | Steel ASTM A 307              |
| 19. Bonnet Bolt Nut         | Steel ASTM A 307              |
| 20. Bonnet Gasket           | Synthetic Fibers              |
| 21. Body                    | Ductile Iron ASTM A 395       |
| 22. Wedge                   | Ductile Iron ASTM A 395       |
| 23. <sup>1</sup> Seat Ring  | Bronze ASTM B 584             |
| 24. Wedge Ring              | Bronze ASTM B 584             |
| 25. Swing Nut               | Steel ASTM A 307              |
| 26. Swing Bolt              | Steel ASTM A 307              |
| 27. Grease Fitting          | Alemite 1743B (not shown)     |
| 28. Stem Collar             | Bronze ASTM B 371 (not shown) |
| 29. Wedge Pin               | Bronze ASTM B 371 (not shown) |
| 30. Wedge Nut               | Bronze ASTM B 584 (not shown) |

<sup>1</sup> Lugs may be removed at customer's request – POA.



**F-637-31**

Flanged-Raised Face



**F-637-31**

Flg x Flg

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |        |      |       |     |       |     |      |     | Turns to<br>Open | Weight<br>Lbs. Kg. |      |
|------|-----|------------|-----|--------|------|-------|-----|-------|-----|------|-----|------------------|--------------------|------|
|      |     | A          |     | B      |      | C     |     | D     |     | E    |     |                  |                    |      |
| In.  | mm. | In.        | mm. | In.    | mm.  | In.   | mm. | In.   | mm. | In.  | mm. |                  |                    |      |
| 14   | 350 | 15.00      | 381 | 65.50  | 1664 | 24.00 | 610 | 21.00 | 533 | 1.38 | 35  | 29.38            | 892                | 405  |
| 16   | 400 | 16.00      | 406 | 74.50  | 1892 | 24.00 | 610 | 23.50 | 597 | 1.44 | 37  | 33.50            | 1253               | 568  |
| 18   | 450 | 17.00      | 432 | 82.50  | 2096 | 24.00 | 610 | 25.00 | 635 | 1.56 | 40  | 37.63            | 1592               | 722  |
| 20   | 500 | 18.00      | 457 | 91.00  | 2311 | 30.00 | 762 | 27.50 | 699 | 1.69 | 43  | 41.88            | 2008               | 911  |
| 24   | 600 | 20.00      | 508 | 107.50 | 2731 | 30.00 | 762 | 32.00 | 813 | 1.88 | 48  | 50.06            | 2907               | 1318 |

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 150 Ductile Iron Body Gate Valves

Raised Face Flanges • Bolted Bonnet • Outside Screw and Yoke  
• Solid Wedge • 316 SS Trim

**285 PSI/19.7 Bar Non-Shock Working Pressure**  
**to -20° F to 100° F/-29° F to 38° C**

**185 PSI/12.8 Bar Saturated Steam to 450°F/232°C** ♦

CONFORMS TO MSS SP-128

## MATERIAL LIST

| PART                       | SPECIFICATION                    |
|----------------------------|----------------------------------|
| 1. Stem                    | Stainless Steel ASTM A 276       |
| 2. Handwheel Nut           | Steel or Ductile Iron ASTM A 395 |
| 3. Identification Plate    | Aluminum                         |
| 4. Yoke Bushing            | Ductile Iron ASTM A 536          |
| 5. Handwheel               | Iron ASTM A 126 Class B          |
| 6. Bonnet Cap Nut          | Steel ASTM A 307                 |
| 7. Bonnet Cap              | Ductile Iron ASTM A 536          |
| 8. <sup>1</sup> Bonnet     | Ductile Iron ASTM A 395          |
| 9. Bonnet Cap Bolt         | Steel ASTM A 307                 |
| 10. Gland Follower Nut     | Steel ASTM A 307                 |
| 11. Gland Follower         | Ductile Iron ASTM A 536          |
| 12. Packing Gland          | Stainless Steel ASTM A 276       |
| 13. Packing                | PTFE Braided                     |
| 14. Gland Follower Bolt    | Steel ASTM A 307                 |
| 15. Backseat Bushing       | Stainless Steel ASTM A 276       |
| 16. Body Nut               | Steel ASTM A 307                 |
| 17. Body Bolt              | Steel ASTM A 307                 |
| 18. Wedge Pin              | Stainless Steel ASTM A 276       |
| 19. Body                   | Ductile Iron ASTM A 395          |
| 20. <sup>2</sup> Seat Ring | Stainless Steel ASTM A 351 CF8M  |
| 21. Wedge Face Ring        | Stainless Steel ASTM A 351 CF8M  |
| 22. <sup>2</sup> Wedge     | Ductile Iron ASTM A 395          |
| 23. Body Gasket            | Synthetic Fibers                 |
| 24. Stem Collar            | Stainless Steel ASTM A 276       |
| 25. Grease Fitting         | Alemite 1743B (not shown)        |

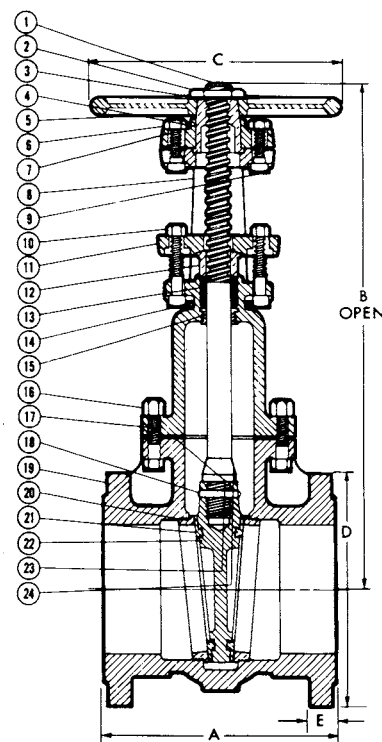
<sup>1</sup> Sizes 2" thru 8" made with Yoke Integral with Bonnet. 10" and 12" sizes made with separate Yoke Bolted to Bonnet.

<sup>2</sup> Lugs may be removed at customer's request - POA.



**F-637-33**

Flanged-Raised Face



**F-637-33**

Flg x Flg

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size    | Dimensions    |            |           |           |         |     | Weight |     |
|---------|---------------|------------|-----------|-----------|---------|-----|--------|-----|
|         | A             | B          | C         | D         | E       |     |        |     |
| In. mm. | In. mm.       | In. mm.    | In. mm.   | In. mm.   | In. mm. |     | Lbs.   | Kg. |
| 2       | 50 7.00 178   | 16.31 414  | 8.00 203  | 6.00 152  | .63 16  | 40  | 18     |     |
| 2½      | 65 7.50 191   | 17.19 437  | 8.00 203  | 7.00 178  | .69 17  | 54  | 25     |     |
| 3       | 80 8.00 203   | 19.50 495  | 8.00 203  | 7.50 191  | .75 19  | 66  | 30     |     |
| 4       | 100 9.00 229  | 24.00 610  | 10.00 254 | 9.00 229  | .94 24  | 107 | 48     |     |
| 5       | 125 10.00 254 | 27.13 689  | 10.00 254 | 10.00 254 | .94 24  | 144 | 66     |     |
| 6       | 150 10.50 267 | 31.06 789  | 12.00 305 | 11.00 279 | 1.00 25 | 178 | 81     |     |
| 8       | 200 11.50 292 | 40.19 1021 | 14.00 356 | 13.50 343 | 1.13 29 | 309 | 140    |     |
| 10      | 250 13.00 330 | 48.25 1226 | 16.00 406 | 16.00 406 | 1.19 30 | 479 | 217    |     |
| 12      | 300 14.00 356 | 56.88 1445 | 18.00 457 | 19.00 483 | 1.25 32 | 706 | 320    |     |

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 150 Ductile Iron Body Gate Valves

Raised Face Flanges • Bolted Bonnet • Outside Screw and Yoke  
• Solid Wedge • 316 SS Trim

**285 PSI/19.7 Bar Non-Shock Cold Working Pressure  
to -20° F to 100° F/-29° C to 38° C** ♦

**185 PSI/12.8 Bar Saturated Steam to 450°F/232°C** ♦

CONFORMS TO MSS SP-128

## MATERIAL LIST

| PART                        | SPECIFICATION                          |
|-----------------------------|----------------------------------------|
| 1. Handwheel Nut            | Ductile Iron ASTM A 536                |
| 2. Identification Plate     | Aluminum                               |
| 3. Handwheel                | Fabricated Steel                       |
| 4. Yoke Bushing             | Ductile Iron ASTM A 536                |
| 5. Split Yoke Bolt          | Steel ASTM A 307                       |
| 6. Split Yoke Bolt Nut      | Steel ASTM A 307                       |
| 7. Yoke                     | Ductile Iron ASTM A 536                |
| 8. Eye Bolt Nut             | STEEL ASTM A 307                       |
| 9. Gland Follower           | Ductile Iron ASTM A 536                |
| 10. Yoke Bolt               | Steel ASTM A 307                       |
| 11. Yoke Bolt Nut           | Steel ASTM A 307                       |
| 12. Gland Follower Eye Bolt | Steel ASTM A 307                       |
| 13. Packing Gland           | Stainless Steel ASTM A 276             |
| 14. Packing                 | PTFE Braided                           |
| 15. Backseat Bushing        | Stainless Steel ASTM A 276             |
| 16. Bonnet                  | Ductile Iron ASTM A 395                |
| 17. Stem                    | Stainless Steel ASTM A 276             |
| 18. Bonnet Bolt             | Steel ASTM A 307                       |
| 19. Bonnet Bolt Nut         | Steel ASTM A 307                       |
| 20. Bonnet Gasket           | Synthetic Fibers                       |
| 21. Body                    | Ductile Iron ASTM A 395                |
| 22. Wedge                   | Ductile Iron ASTM A 395                |
| 23. <sup>1</sup> Seat Ring  | Stainless Steel ASTM A 351 CF8M        |
| 24. Wedge Ring              | Stainless Steel ASTM A 351 CF8M        |
| 25. Swing Nut               | Steel ASTM A 307                       |
| 26. Swing Bolt              | Steel ASTM A 307                       |
| 27. Grease Fitting          | Alemite 1743B (not shown)              |
| 28. Stem Collar             | Stainless Steel ASTM A 276 (not shown) |
| 29. Wedge Pin               | Stainless Steel ASTM A 276 (not shown) |
| 30. Wedge Nut               | Stainless Steel ASTM A 276 (not shown) |

<sup>1</sup> Lugs may be removed at customer's request – POA.

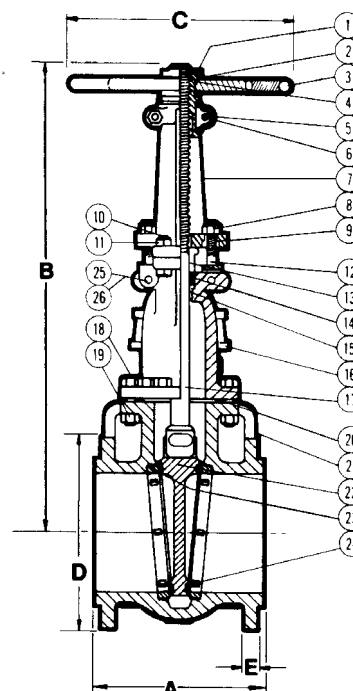
## DIMENSIONS—WEIGHTS—QUANTITIES

| Size    | Dimensions |             |           |           |         |       |      |      |  |  | Turns to Open | Weight |     |
|---------|------------|-------------|-----------|-----------|---------|-------|------|------|--|--|---------------|--------|-----|
|         | A          | B           | C         | D         | E       |       |      |      |  |  |               |        |     |
| In. mm. | In. mm.    | In. mm.     | In. mm.   | In. mm.   | In. mm. |       |      |      |  |  |               | Lbs.   | Kg. |
| 14 350  | 15.00 381  | 65.50 1664  | 24.00 610 | 21.00 533 | 1.38 35 | 29.38 | 890  | 405  |  |  |               |        |     |
| 16 400  | 16.00 406  | 74.50 1892  | 24.00 610 | 23.50 597 | 1.44 37 | 33.50 | 1253 | 570  |  |  |               |        |     |
| 18 450  | 17.00 432  | 82.50 2096  | 24.00 610 | 25.00 635 | 1.56 40 | 37.63 | 1598 | 726  |  |  |               |        |     |
| 20 500  | 18.00 457  | 91.00 2311  | 30.00 762 | 27.50 699 | 1.69 43 | 41.88 | 2000 | 909  |  |  |               |        |     |
| 24 600  | 20.00 508  | 107.50 2731 | 30.00 762 | 32.00 813 | 1.88 48 | 50.06 | 2908 | 1322 |  |  |               |        |     |



**F-637-33**

Flanged-Raised Face



**F-637-33**  
Flg x Flg

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 150 Ductile Iron Body Gate Valves

Raised Face Flanges • Bolted Bonnet • Non-Rising Stem  
• Solid Wedge • B 584 Bronze Trim

**285 PSI/19.7 Bar Non-Shock Cold Working Pressure  
to -20° F to 100° F/-29° C to 38° C**

**185 PSI/12.8 Bar Saturated Steam to 450°F/232°C ♦**

CONFORMS TO MSS SP-128

## MATERIAL LIST

| PART                       | SPECIFICATION                |
|----------------------------|------------------------------|
| 1. Handwheel Nut           | Steel ASTM A 307             |
| 2. Identification Plate    | Aluminum                     |
| 3. Handwheel               | Iron ASTM A 126 Class B      |
| 4. Stem                    | Bronze ASTM B 371            |
| 5. Gland Follower Nut      | Brass ASTM F 467             |
| 6. Gland Follower          | Ductile Iron ASTM A 536      |
| 7. Gland Follower Bolt     | Steel ASTM A 307             |
| 8. Packing Gland           | Brass or Iron                |
| 9. Stuffing Box            | Ductile Iron ASTM A 536      |
| 10. Packing                | PTFE Braided                 |
| 11. Stuffing Box Gasket    | Synthetic Fibers             |
| 12. Bonnet                 | Ductile Iron ASTM A 395      |
| 13. Body Bolt              | Steel ASTM A 307             |
| 14. Body Gasket            | Synthetic Fibers             |
| 15. Body Nut               | Steel ASTM A 307             |
| 16. <sup>2</sup> Seat Ring | Bronze ASTM B 584            |
| 17. Wedge Face Ring        | Bronze ASTM B 584            |
| 18. <sup>1</sup> Wedge     | Ductile Iron ASTM A 395      |
| 19. Body                   | Ductile Iron ASTM A 395      |
| 20. Stuffing Box Nut       | Steel ASTM A 307 (not shown) |

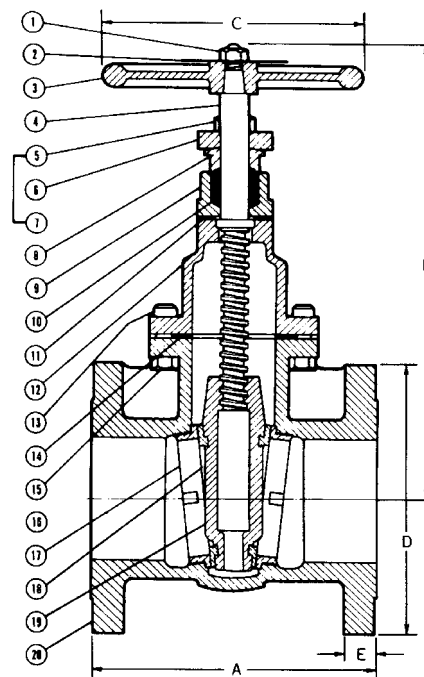
<sup>1</sup> Sizes thru 4" made with Bronze Wedges. Sizes 5" thru 12" made with Ductile Iron Wedge with Bronze Face Rings (31 Trim).

<sup>2</sup> Lugs may be removed at customer's request – POA.



**F-639-31**

Flanged-Raised Face



**F-639-31**

Flg x Flg

## DIMENSIONS—WEIGHTS—QUANTITIES

| Dimensions |     |            |     |       |      |       |     |       |     |      |     |        |     |
|------------|-----|------------|-----|-------|------|-------|-----|-------|-----|------|-----|--------|-----|
| Size       |     | Dimensions |     |       |      |       |     |       |     |      |     | Weight |     |
| In.        | mm. | A          |     | B     |      | C     |     | D     |     | E    |     | Lbs.   | Kg. |
|            |     | In.        | mm. | In.   | mm.  | In.   | mm. | In.   | mm. | In.  | mm. |        |     |
| 2          | 50  | 7.00       | 178 | 11.00 | 279  | 7.00  | 178 | 6.00  | 152 | .63  | 16  | 35     | 16  |
| 2½         | 65  | 7.50       | 191 | 12.50 | 318  | 7.00  | 178 | 7.00  | 178 | .69  | 17  | 49     | 22  |
| 3          | 80  | 8.00       | 203 | 13.50 | 343  | 8.00  | 203 | 7.50  | 191 | .75  | 19  | 60     | 27  |
| 4          | 100 | 9.00       | 229 | 15.75 | 400  | 10.00 | 254 | 9.00  | 229 | .94  | 24  | 90     | 41  |
| 5          | 125 | 10.00      | 254 | 17.00 | 432  | 10.00 | 254 | 10.00 | 254 | .94  | 24  | 129    | 59  |
| 6          | 150 | 10.50      | 267 | 21.00 | 533  | 12.00 | 305 | 11.00 | 279 | 1.00 | 25  | 161    | 73  |
| 8          | 200 | 11.50      | 292 | 25.00 | 635  | 14.00 | 356 | 13.50 | 343 | 1.13 | 29  | 278    | 126 |
| 10         | 250 | 13.00      | 330 | 29.00 | 737  | 16.00 | 406 | 16.00 | 406 | 1.19 | 30  | 419    | 190 |
| 12         | 300 | 14.00      | 356 | 34.50 | 876  | 18.00 | 457 | 19.00 | 483 | 1.25 | 32  | 631    | 286 |
| 14         | 350 | 15.00      | 381 | 40.38 | 1026 | 20.00 | 508 | 21.00 | 533 | 1.38 | 35  | 869    | 394 |
| 16         | 400 | 16.00      | 407 | 45.75 | 1162 | 22.00 | 559 | 23.50 | 597 | 1.44 | 37  | 1223   | 555 |

Position indicators available.

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 150 Ductile Iron Body Gate Valves

Raised Face Flanges • Bolted Bonnet • Non-Rising Stem  
• Solid Wedge • 316 SS Trim

**285 PSI/19.7 Bar Non-Shock Cold Working Pressure  
to -20° F to 100° F/-29° C to 38° C**

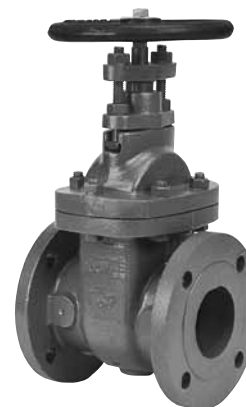
**185 PSI/12.8 Bar Saturated Steam to 450°F/232°C ♦**

CONFORMS TO MSS SP-128

## MATERIAL LIST

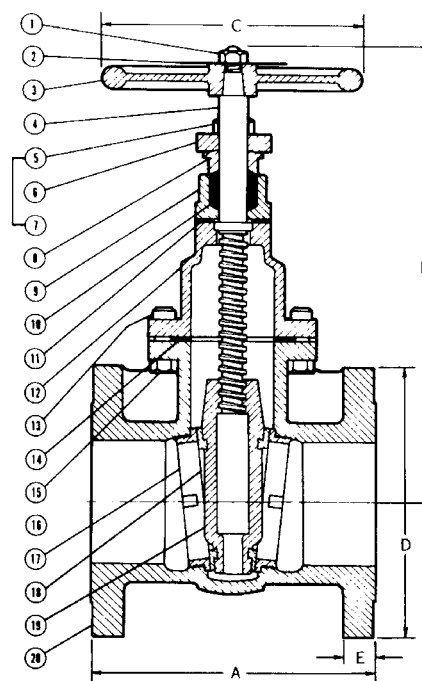
| PART                       | SPECIFICATION                   |
|----------------------------|---------------------------------|
| 1. Handwheel Nut           | Steel ASTM A 307                |
| 2. Identification Plate    | Aluminum                        |
| 3. Handwheel               | Iron ASTM A 126 Class B         |
| 4. Stem                    | Stainless Steel ASTM A 276      |
| 5. Gland Follower Nut      | Steel ASTM A 307                |
| 6. Gland Follower          | Ductile Iron ASTM A 536         |
| 7. Gland Follower Bolt     | Steel ASTM A 307                |
| 8. Packing Gland           | Stainless Steel ASTM A 276      |
| 9. Stuffing Box            | Ductile Iron ASTM A 536         |
| 10. Packing                | PTFE Braided                    |
| 11. Stuffing Box Gasket    | Synthetic Fibers                |
| 12. Bonnet                 | Ductile Iron ASTM A 395         |
| 13. Body Bolt              | Steel ASTM A 307                |
| 14. Body Gasket            | Synthetic Fibers                |
| 15. Body Nut               | Steel ASTM A 307                |
| 16. <sup>1</sup> Seat Ring | Stainless Steel ASTM A 351 CF8M |
| 17. Wedge Face Ring        | Stainless Steel ASTM A 351 CF8M |
| 18. Wedge                  | Ductile Iron ASTM A 395         |
| 19. Body                   | Ductile Iron ASTM A 395         |
| 20. Stuffing Box Nut       | Steel ASTM A 307 (not shown)    |

<sup>1</sup> Lugs may be removed at customer's request – POA.



**F-639-33**

Flanged-Raised Face



**F-639-33**

Flg x Flg

## DIMENSIONS—WEIGHTS—QUANTITIES

| Dimensions |     |            |     |       |      |       |     |       |     |      |     |        |     |
|------------|-----|------------|-----|-------|------|-------|-----|-------|-----|------|-----|--------|-----|
| Size       |     | Dimensions |     |       |      |       |     |       |     |      |     | Weight |     |
| In.        | mm. | A          |     | B     |      | C     |     | D     |     | E    |     |        |     |
|            |     | In.        | mm. | In.   | mm.  | In.   | mm. | In.   | mm. | In.  | mm. | Lbs.   | Kg. |
| 2          | 50  | 7.00       | 178 | 11.00 | 279  | 7.00  | 178 | 6.00  | 152 | .63  | 16  | 35     | 16  |
| 2½         | 65  | 7.50       | 191 | 12.50 | 318  | 7.00  | 178 | 7.00  | 178 | .69  | 17  | 49     | 22  |
| 3          | 80  | 8.00       | 203 | 13.50 | 343  | 8.00  | 203 | 7.50  | 191 | .75  | 19  | 60     | 27  |
| 4          | 100 | 9.00       | 229 | 15.75 | 400  | 10.00 | 254 | 9.00  | 229 | .94  | 24  | 90     | 41  |
| 5          | 125 | 10.00      | 254 | 17.00 | 432  | 10.00 | 254 | 10.00 | 254 | .94  | 24  | 129    | 59  |
| 6          | 150 | 10.50      | 267 | 21.00 | 533  | 12.00 | 305 | 11.00 | 279 | 1.00 | 25  | 161    | 73  |
| 8          | 200 | 11.50      | 292 | 25.00 | 635  | 14.00 | 356 | 13.50 | 343 | 1.13 | 29  | 278    | 126 |
| 10         | 250 | 13.00      | 330 | 29.00 | 737  | 16.00 | 406 | 16.00 | 406 | 1.19 | 30  | 419    | 190 |
| 12         | 300 | 14.00      | 356 | 34.50 | 876  | 18.00 | 457 | 19.00 | 483 | 1.25 | 32  | 631    | 286 |
| 14         | 350 | 15.00      | 381 | 40.38 | 1026 | 20.00 | 508 | 21.00 | 533 | 1.38 | 35  | 869    | 394 |
| 16         | 400 | 16.00      | 407 | 45.75 | 1162 | 22.00 | 559 | 23.50 | 597 | 1.44 | 37  | 1223   | 555 |

Position indicators available.

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Ductile and Alloy Iron Globe, Angle and Check Valves

## Illustrated Index

Ductile Iron Body Globe Valve  
Outside Screw and Yoke  
Bronze Trim  
Class 150  
285 lb. CWP



**F-738-31**  
Bronze Disc  
Sizes 2" thru 10"  
Flanged-Raised Face  
**Page 81**

Ductile Iron Body Angle Valve  
Outside Screw and Yoke  
Bronze Trim  
Class 150  
285 lb. CWP



**F-838-31**  
Bronze Disc  
Sizes 2" thru 8"  
Flanged-Raised Face  
**Page 82**

3% Nickel Iron Body Check Valve  
Stainless Steel Trim  
Class 125 SWP  
200 lb. CWP



**F-918-13**  
Stainless Steel Disc  
Sizes 2" thru 12"  
Flanged Ends  
**Page 83**

Ductile Iron Body Swing Check Valve  
Bronze Trim  
Class 150  
285 lb. CWP



**F-938-31**  
Bronze Disc  
Sizes 2" thru 12"  
Flanged-Raised Face  
**Page 84**

Ductile Iron Body Swing Check Valve  
316SS Stainless Steel Trim  
Class 150  
285 lb. CWP



**F-938-33**  
Stainless Steel Disc  
Sizes 2" thru 12"  
Flanged-Raised Face  
**Page 85**

Why Ductile Iron? . . . . . **Page 86**

How Ductile Iron Compares  
to Cast Iron and Cast Steel. . . . . **Page 87**

Construction Features. . . . . **Page 88**

Ductile Iron Valve Specifications . . **Page 89**

# Class 150 Ductile Iron Body Globe Valves

Raised Face Flanges • Bolted Bonnet • Outside Screw and Yoke  
• B 584 Bronze Trim

**285 PSI/19.7 Bar Non-Shock Cold Working Pressure  
to -20° F to 100° F/-29° C to 38° C**

**185 PSI/12.8 Bar Saturated Steam to 450°F/232°C ♦**

TESTING SPECIFICATION TO MSS SP-85

## MATERIAL LIST

| PART                       | SPECIFICATION                                                      |
|----------------------------|--------------------------------------------------------------------|
| 1. Handwheel Nut           | Steel ASTM A 307                                                   |
| 2. Identification Plate    | Aluminum                                                           |
| 3. Handwheel               | Iron ASTM A 126 Class B                                            |
| 4. Yoke Bushing            | Cast Bronze ASTM B 584                                             |
| 5. Bonnet                  | Ductile Iron ASTM A 395                                            |
| 6. Stem                    | Brass ASTM B 371 Alloy C69400                                      |
| 7. Gland Follower Nut      | Brass ASTM F 467 Alloy C27000                                      |
| 8. Gland Follower          | Ductile Iron ASTM A 536                                            |
| 9. Packing Gland           | Zinc Plated Powdered Iron ASTM B 310<br>or Brass ASTM B 372 C69400 |
| 10. Gland Follower Stud    | Steel ASTM A 307                                                   |
| 11. Packing                | PTFE Braided                                                       |
| 12. <sup>1</sup> Body Bolt | Steel ASTM A 307                                                   |
| 13. Body Gasket            | Synthetic Fibers                                                   |
| 14. <sup>2</sup> Body Nut  | Steel ASTM A 307                                                   |
| 15. Swivel Nut             | Cast Bronze ASTM B 584 Alloy C84400                                |
| 16. <sup>2</sup> Disc      | Cast Bronze ASTM B 584 Alloy C84400                                |
| 17. Seat Ring              | Cast Bronze ASTM B 584 Alloy C84400                                |
| 18. Body                   | Ductile Iron ASTM A 395                                            |

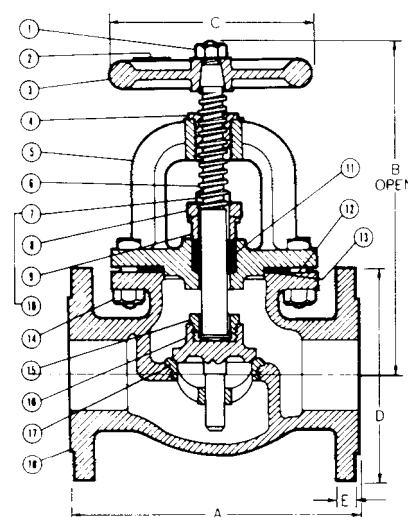
<sup>1</sup> 2" and 10" have hex head steel capscrew.

<sup>2</sup> 2" thru 6" have Bronze ASTM B 584 Disc. 8" thru 10" have Ductile Iron Disc with Bronze ASTM B 584 Disc Face Rings and Brass Pilots.



**F-738-31**

Flanged-Raised Face



**F-738-31**

Flg x Flg

## DIMENSIONS—WEIGHTS—QUANTITIES

| Dimensions Weights Quantities |     |            |     |       |     |       |     |       |     |      |     |        |     |
|-------------------------------|-----|------------|-----|-------|-----|-------|-----|-------|-----|------|-----|--------|-----|
| Size                          |     | Dimensions |     |       |     |       |     |       |     |      |     | Weight |     |
|                               |     | A          |     | B     |     | C     |     | D     |     | E    |     |        |     |
| In.                           | mm. | In.        | mm. | In.   | mm. | In.   | mm. | In.   | mm. | In.  | mm. | Lbs.   | Kg. |
| 2                             | 50  | 8.00       | 203 | 10.19 | 259 | 7.00  | 178 | 6.00  | 152 | .63  | 16  | 32     | 15  |
| 2½                            | 65  | 8.50       | 216 | 11.81 | 300 | 8.00  | 203 | 7.00  | 178 | .69  | 17  | 49     | 22  |
| 3                             | 80  | 9.50       | 241 | 12.50 | 318 | 8.00  | 203 | 7.50  | 191 | .75  | 19  | 66     | 30  |
| 4                             | 100 | 11.50      | 292 | 15.81 | 402 | 10.00 | 254 | 9.00  | 229 | .94  | 24  | 98     | 45  |
| 5                             | 125 | 13.00      | 330 | 16.50 | 419 | 10.00 | 254 | 10.00 | 254 | .94  | 24  | 139    | 63  |
| 6                             | 150 | 14.00      | 356 | 18.88 | 479 | 12.00 | 305 | 11.00 | 279 | 1.00 | 25  | 183    | 83  |
| 8                             | 200 | 19.50      | 495 | 21.13 | 537 | 16.00 | 406 | 13.50 | 343 | 1.13 | 29  | 362    | 164 |
| 10                            | 250 | 24.50      | 622 | 25.19 | 640 | 18.00 | 457 | 16.00 | 406 | 1.19 | 30  | 582    | 264 |

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 150 Ductile Iron Body Angle Valves

Raised Face Flanges • Bolted Bonnet • Outside Screw and Yoke  
• B 584 Bronze Trim

**285 PSI/19.7 Bar Non-Shock Cold Working Pressure  
to -20° F to 100° F/-29° C to 38° C**

**185 PSI/12.8 Bar Saturated Steam to 450°F/232°C ♦**

TESTING SPECIFICATION TO MSS SP-85

## MATERIAL LIST

| PART                       | SPECIFICATION                                                      |
|----------------------------|--------------------------------------------------------------------|
| 1. Handwheel Nut           | Steel ASTM A 307                                                   |
| 2. Identification Plate    | Aluminum                                                           |
| 3. Handwheel               | Iron ASTM A 126 Class B                                            |
| 4. Yoke Bushing            | Cast Bronze ASTM B 584                                             |
| 5. Bonnet                  | Ductile Iron ASTM A 395                                            |
| 6. Stem                    | Brass ASTM B 371 Alloy C69400                                      |
| 7. Gland Follower Nut      | Brass ASTM F 467 Alloy C27000                                      |
| 8. Gland Follower Stud     | Steel ASTM A 307                                                   |
| 9. Gland Follower          | Ductile Iron ASTM A 536                                            |
| 10. Packing Gland          | Zinc Plated Powdered Iron ASTM B 310<br>or Brass ASTM B 372 C69400 |
| 11. Packing                | PTFE Braided                                                       |
| 12. <sup>1</sup> Body Bolt | Steel ASTM A 307                                                   |
| 13. Body Gasket            | Synthetic Fibers                                                   |
| 14. <sup>1</sup> Body Nut  | Steel ASTM A 307                                                   |
| 15. Swivel Nut             | Cast Bronze ASTM B 584 Alloy C84400                                |
| 16. <sup>2</sup> Disc      | Cast Bronze ASTM B 584 Alloy C84400                                |
| 17. Seat Ring              | Cast Bronze ASTM B 584 Alloy C84400                                |
| 18. Body                   | Ductile Iron ASTM A 395                                            |

<sup>1</sup> 2" have hex head steel capscrew.

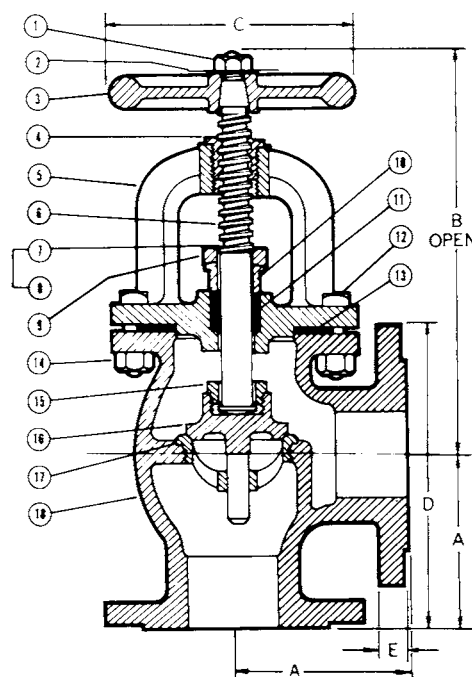
<sup>2</sup> For Disc 2" thru 6" have Bronze ASTM B 584 Disc. 8" thru 10" have Ductile Iron Disc with Bronze ASTM B 584 Disc Face Rings and Brass Pilots.

Consult Factory for non-return feature. Fig. No. F-838-31NR.



**F-838-31**

Flanged-Raised Face



**F-838-31**

Flg x Flg

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |       |     |       |     |       |     |      |     | Weight |     |
|------|-----|------------|-----|-------|-----|-------|-----|-------|-----|------|-----|--------|-----|
|      |     | A          |     | B     |     | C     |     | D     |     | E    |     |        |     |
| In.  | mm. | In.        | mm. | In.   | mm. | In.   | mm. | In.   | mm. | In.  | mm. | Lbs.   | Kg. |
| 2    | 50  | 4.00       | 102 | 10.00 | 254 | 7.00  | 178 | 6.00  | 152 | .63  | 16  | 30     | 14  |
| 2½   | 65  | 4.25       | 108 | 11.50 | 292 | 8.00  | 203 | 7.00  | 178 | .69  | 17  | 51     | 23  |
| 3    | 80  | 4.75       | 121 | 12.25 | 311 | 8.00  | 203 | 7.50  | 191 | .75  | 19  | 60     | 27  |
| 4    | 100 | 5.75       | 146 | 15.00 | 381 | 10.00 | 254 | 9.00  | 229 | .94  | 24  | 99     | 45  |
| 5    | 125 | 6.50       | 171 | 16.50 | 419 | 10.00 | 254 | 10.00 | 254 | .94  | 24  | 132    | 60  |
| 6    | 150 | 7.00       | 178 | 18.88 | 479 | 12.00 | 305 | 11.00 | 279 | 1.00 | 25  | 188    | 85  |
| 8    | 200 | 9.75       | 248 | 20.75 | 527 | 16.00 | 406 | 13.50 | 343 | 1.13 | 29  | 349    | 158 |

**FREEZING WEATHER PRECAUTION:** Subsequent to testing a piping system, valves should be left in an open position to allow complete drainage.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 125 3% Nickel Iron Body Check Valves

Bolted Bonnet • Renewable Seat and Disc\* • Stainless Steel Trim

**125 PSI/8.6 Bar Fluid Pressure to 450° F/232° C**  
**200 PSI/13.8 Bar Non-Shock Cold Working Pressure**  
**to -20° F to 150° F/-29° C to 66° C** ♦

CONFORMS TO MSS SP-71

## MATERIAL LIST

| PART                    | SPECIFICATION                     |
|-------------------------|-----------------------------------|
| 1. 1" Body Bolt         | Steel ASTM A 307                  |
| 2. Identification Plate | Aluminum                          |
| 3. Bonnet               | ASTM A 126 3% Nickel Iron Class B |
| 4. Body Gasket          | Synthetic Fibers                  |
| 5. Nut                  | Steel ASTM A 307                  |
| 6. Side Plug            | ASTM A 193 B8M S31600SS           |
| 7. Hanger Pin           | ASTM A 276 S31600SS               |
| 8. Hanger               | ASTM A 351 CF8M                   |
| 9. Disc                 | ASTM A 351 CF8M                   |
| 10. Seat Ring           | ASTM A 351 CF8M                   |
| 11. Disc Nut            | ASTM A 194 8M S31600 SS           |
| 12. Body                | ASTM A 126 3% Nickel Iron Class B |

1 2" and 10" have hex head steel capscrew.



**F-918-13**  
Flanged

## DIMENSIONS—WEIGHTS—QUANTITIES

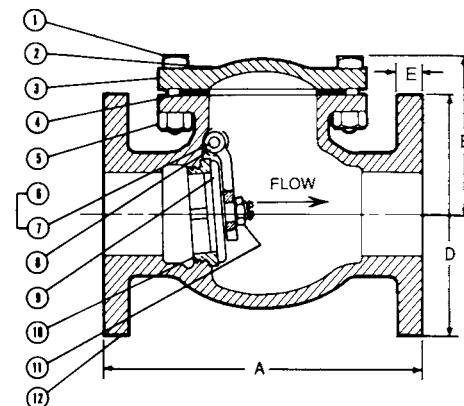
| Dimensions |     |       |     |       |     |       |     |      |     |        |     |
|------------|-----|-------|-----|-------|-----|-------|-----|------|-----|--------|-----|
| Size       |     | A     |     | B     |     | D     |     | E    |     | Weight |     |
| In.        | mm. | In.   | mm. | In.   | mm. | In.   | mm. | In.  | mm. | Lbs.   | Kg. |
| 2          | 50  | 8.00  | 203 | 3.94  | 100 | 6.00  | 152 | .63  | 16  | 24     | 11  |
| 2½         | 65  | 8.50  | 216 | 4.50  | 114 | 7.00  | 178 | .69  | 17  | 35     | 16  |
| 3          | 80  | 9.50  | 241 | 5.13  | 130 | 7.50  | 191 | .75  | 19  | 47     | 21  |
| 4          | 100 | 11.50 | 292 | 6.13  | 156 | 9.00  | 229 | .94  | 24  | 80     | 36  |
| 6          | 150 | 14.00 | 356 | 8.00  | 203 | 11.00 | 279 | 1.00 | 25  | 146    | 66  |
| 8          | 200 | 19.50 | 495 | 9.44  | 240 | 13.50 | 343 | 1.13 | 29  | 255    | 116 |
| 10         | 250 | 24.50 | 622 | 12.06 | 306 | 16.00 | 406 | 1.19 | 30  | 426    | 193 |
| 12         | 300 | 27.50 | 699 | 16.13 | 410 | 19.00 | 483 | 1.25 | 32  | 657    | 298 |

\* Proper machining facilities required.

Note: On pump discharge, the preferred check valves are:

- inline, spring assisted, center-guided, lift checks
- spring assisted twin (double) disc
- swing design with lever and weight or lever and spring

You should also install the check valve as far from the pump as possible and at a minimum length of 5 times the pipe diameter. Flow straighteners may be required.



**F-918-13**  
Flg x Flg

NIBCO check valves may be installed in both horizontal and vertical lines with upward flow or in any intermediate position.

Warning: Do not use for Reciprocating Air Compressor Service.

♦ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 150 Ductile Iron Body Swing Check Valves

Raised Face Flanges • Bolted Bonnet • B 584 Bronze Trim

**285 PSI/19.7 Bar Non-Shock Cold Working Pressure  
to -20° F to 100° F/-29° C to 38° C**

**185 PSI/12.8 Bar Saturated Steam to 450°F/232°C ♦**

TESTING SPECIFICATION TO MSS SP-136

## MATERIAL LIST

| PART                    | SPECIFICATION                                   |
|-------------------------|-------------------------------------------------|
| 1. Bolt                 | Steel ASTM A 307                                |
| 2. Identification Plate | Aluminum                                        |
| 3. Bonnet               | Ductile Iron ASTM A 395                         |
| 4. Body Gasket          | Synthetic Fibers                                |
| 5. Nut                  | Steel ASTM A 307                                |
| 6. Side Plug            | Bronze ASTM B 584                               |
| 7. Hanger Pin           | Bronze ASTM B 371                               |
| 8. Hanger               | Bronze ASTM B 584<br>or Ductile Iron ASTM A 536 |
| 9. Disc                 | Bronze ASTM B 584                               |
| 10. Seat Ring           | Bronze ASTM B 584                               |
| 11. Disc Nut            | Bronze ASTM B 371                               |
| 12. Body                | Ductile Iron ASTM A 395                         |



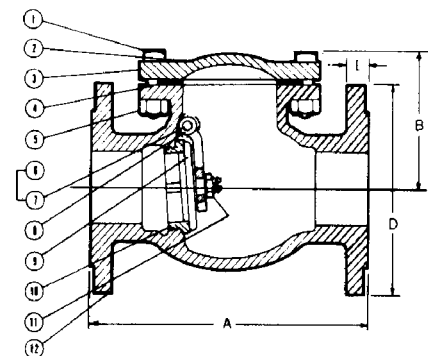
**F-938-31**

Flanged-Raised Face

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |       |     |       |     |      |     | Weight |     |
|------|-----|------------|-----|-------|-----|-------|-----|------|-----|--------|-----|
|      |     | A          |     | B     |     | D     |     | E    |     |        |     |
| In.  | mm. | In.        | mm. | In.   | mm. | In.   | mm. | In.  | mm. | Lbs.   | Kg. |
| 2    | 50  | 8.00       | 203 | 3.94  | 100 | 6.00  | 152 | .63  | 16  | 24     | 11  |
| 2½   | 65  | 8.50       | 216 | 4.50  | 114 | 7.00  | 178 | .69  | 17  | 35     | 16  |
| 3    | 80  | 9.50       | 241 | 5.13  | 130 | 7.50  | 191 | .75  | 19  | 47     | 21  |
| 4    | 100 | 11.50      | 292 | 6.13  | 156 | 9.00  | 229 | .94  | 24  | 81     | 37  |
| 5    | 125 | 13.00      | 330 | 6.81  | 173 | 10.00 | 254 | .94  | 24  | 100    | 45  |
| 6    | 150 | 14.00      | 356 | 8.00  | 203 | 11.00 | 279 | 1.00 | 25  | 146    | 66  |
| 8    | 200 | 19.50      | 495 | 9.44  | 240 | 13.50 | 343 | 1.13 | 29  | 255    | 116 |
| 10   | 250 | 24.50      | 622 | 12.06 | 306 | 16.00 | 406 | 1.19 | 30  | 426    | 193 |
| 12   | 300 | 27.50      | 699 | 16.13 | 410 | 19.00 | 483 | 1.25 | 32  | 660    | 299 |

Lever and Weight/Spring Options available. (see page 99)



**F-938-31**

Flg x Flg

NIBCO Check Valves may be installed in both horizontal and vertical lines with upward flow or in any intermediate position.

**WARNING:** Do not use for Reciprocating Air Compressor Service.

♦For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

# Class 150 Ductile Iron Body Swing Check Valves

Raised Face Flanges • Bolted Bonnet • 316 SS Trim

**285 PSI/19.7 Bar Non-Shock Cold Working Pressure  
to -20° F to 100° F/-29° C to 38° C**

**185 PSI/12.8 Bar Saturated Steam to 450°F/232°C ◆**

TESTING SPECIFICATION TO MSS SP-136

## MATERIAL LIST

| PART                    | SPECIFICATION                   |
|-------------------------|---------------------------------|
| 1. Bolt                 | Steel ASTM A 307                |
| 2. Identification Plate | Aluminum                        |
| 3. Bonnet               | Ductile Iron ASTM A 395         |
| 4. Body Gasket          | Synthetic Fibres                |
| 5. Nut                  | Steel ASTM A 307                |
| 6. Side Plug            | Stainless Steel ASTM A 193 B8M  |
| 7. Hanger Pin           | Stainless Steel ASTM A 276      |
| 8. Hanger               | Stainless Steel ASTM A 351 CF8M |
| 9. Disc                 | Stainless Steel ASTM A 351 CF8M |
| 10. Seat Ring           | Stainless Steel ASTM A 351 CF8M |
| 11. Disc Nut            | Stainless Steel ASTM A 194 8M   |
| 12. Body                | Ductile Iron ASTM A 395         |



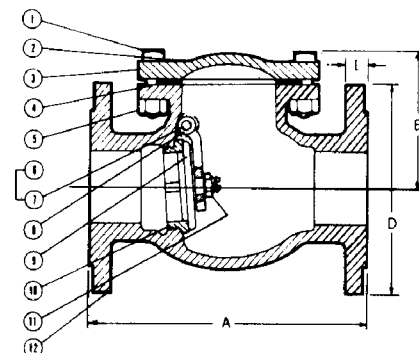
**F-938-33**

Flanged-Raised Face

## DIMENSIONS—WEIGHTS—QUANTITIES

| Size |     | Dimensions |     |       |     |       |     |      |     | Weight |     |
|------|-----|------------|-----|-------|-----|-------|-----|------|-----|--------|-----|
|      |     | A          |     | B     |     | D     |     | E    |     |        |     |
| In.  | mm. | In.        | mm. | In.   | mm. | In.   | mm. | In.  | mm. | Lbs.   | Kg. |
| 2    | 50  | 8.00       | 203 | 3.94  | 100 | 6.00  | 152 | .63  | 16  | 24     | 11  |
| 2½   | 65  | 8.50       | 216 | 4.50  | 114 | 7.00  | 178 | .69  | 17  | 35     | 16  |
| 3    | 80  | 9.50       | 241 | 5.13  | 130 | 7.50  | 191 | .75  | 19  | 47     | 21  |
| 4    | 100 | 11.50      | 292 | 6.13  | 156 | 9.00  | 229 | .94  | 24  | 80     | 36  |
| 5    | 125 | 13.00      | 330 | 6.81  | 173 | 10.00 | 254 | .94  | 24  | 100    | 46  |
| 6    | 150 | 14.00      | 356 | 8.00  | 203 | 11.00 | 279 | 1.00 | 25  | 146    | 66  |
| 8    | 200 | 19.50      | 495 | 9.44  | 240 | 13.50 | 343 | 1.13 | 29  | 274    | 125 |
| 10   | 250 | 24.50      | 622 | 12.06 | 306 | 16.00 | 406 | 1.19 | 30  | 426    | 194 |
| 12   | 300 | 27.50      | 699 | 16.13 | 410 | 19.00 | 483 | 1.25 | 32  | 655    | 298 |

Lever and Weight/Spring Options available. (see page 99)



**F-938-33**

Flg x Flg

NIBCO Check Valves may be installed in both horizontal and vertical lines with upward flow or in any intermediate position.

**WARNING:** Do not use for Reciprocating Air Compressor Service.

◆ For detailed Operating Pressure, refer to Pressure Temperature Chart on page 111.

## Why Ductile Iron?

NIBCO is the largest United States manufacturer of pressure rated Ductile Iron Valves. NIBCO's Ductile Iron multi-turn valves are ideal for a wide variety of services: hydrocarbons, chemical, marine, fire protection services, pulp and paper applications where cast iron and/or cast steel valves could be installed.

Ductile Iron, also known as nodular iron, was developed in 1949 as a substitute for steel. Cast steel contains carbon of less than .3% by weight, while cast and ductile irons have at least 3% total carbon. This low carbon content in cast steel does not allow the carbon to form as free graphite resulting in a laminate type of structure. The natural form of carbon in cast iron is the free graphite flake form. In Ductile Iron, this graphite flake is modified by a specialized treatment process to form tiny spheres or nodules. These modified graphite nodules provide Ductile Iron with physical properties greater than cast iron and comparable to steel. It is this nodular microstructure of carbon in Ductile Iron which produces high ductility and shock resistance while the flake form of cast iron results in no malleability. Optimum ductility is obtained with a ferritic matrix, therefore, all NIBCO's Ductile Iron pressure containing parts are treated with a ferritizing annealing cycle. In Ductile Iron spheroidal nodules also eliminate the crack effect of flake graphite which is exhibited in cast iron. In microscopic photos of Ductile Iron, cracks can be seen traveling to a graphite nodule and stopping. These graphite spheroids are known as "crack arresters" in the Ductile Iron industry because of their ability to stop cracks in their tracks.

In some circles, Ductile Iron is known as the metal that is the "best of both worlds" meaning that Ductile Iron combines the superior strength of cast steel with the excellent corrosion resistance of cast iron.

### Ductile Iron vs. Cast (Gray) Iron

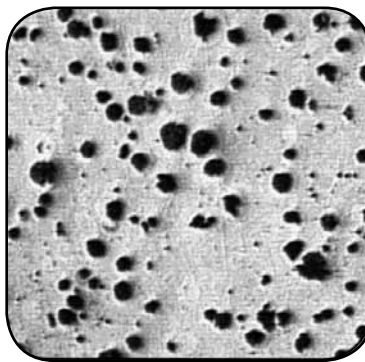
The strength of Ductile Iron when compared to cast iron is overwhelming. Ductile Iron tensile strength is 60k versus cast iron at 31k. Ductile Iron has a yield strength of 40k, whereas cast iron exhibits no yield, only ultimate fracture. Ductile Iron strength-to-cost ratio offers greater value for a marginal increase in cost over cast iron. (See page 87 for a complete comparison of mechanicals.) Ductile Iron offers excellent corrosion resistance that is equivalent to cast iron.

### Ductile Iron vs. Cast Steel

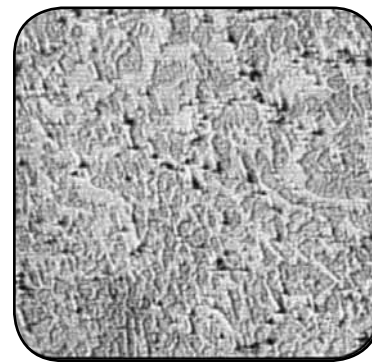
The strengths of Ductile Iron and cast steel are comparable. Ductile Iron has a higher minimum yield strength at 40k versus cast steel at 36k. (See page 87 for a more complete comparison of mechanicals.) Ductile Iron has corrosion and oxidation resistance that surpasses cast steel in most general utility service applications, i.e. water, saltwater, steam. Because of Ductile Iron's spheroidal graphite microstructure, Ductile Iron is superior to steel in its ability to deaden vibration and therefore reduce stresses. An important factor in selecting Ductile Iron over cast steel is cost. The lower expense of Ductile Iron results from readily available materials, foundry operation efficiencies and reduced machining costs of Ductile Iron.



Cast (Gray) Iron  
Flake Form



Ductile Iron  
Spheroidal Graphite Nodules

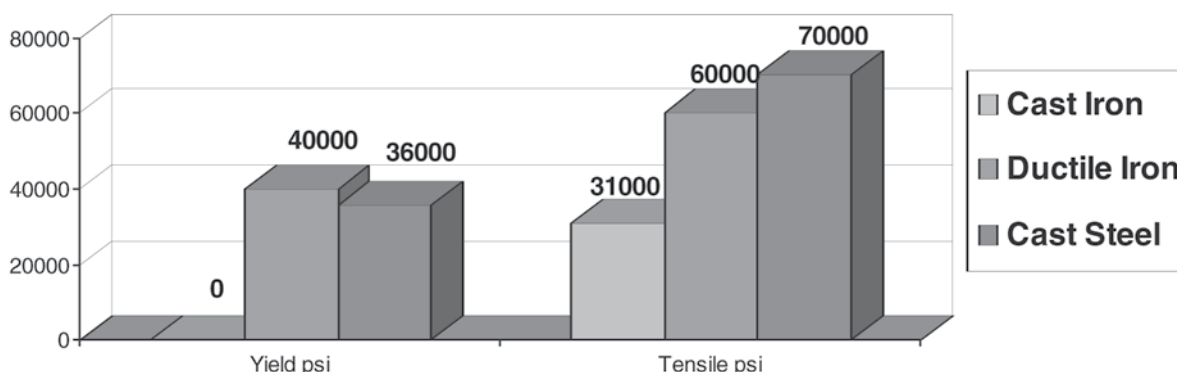


Cast Steel Form

**NOTE:** For our metal comparison, NIBCO has chosen to use ASTM A 395 Ductile Iron, ASTM A 126 Cast Iron and ASTM A 216 WCB Cast Steel. Wherever Cast Iron is listed, we are referring to Gray Iron.

# How Ductile Iron Compares to Cast Iron and Cast Steel

## Minimum Mechanical Properties



## Chemical Analysis

|                     | Cast Iron ASTM A 126<br>Class B* | Ductile Iron<br>ASTM A 395 | Cast Steel<br>ASTM A 216 WCB |
|---------------------|----------------------------------|----------------------------|------------------------------|
| Iron and Residuals% | 94.0                             | 94.5                       | 98.1                         |
| Carbon%             | 3.3                              | 3.0                        | 0.3                          |
| Silicon%            | 2.0                              | 2.5                        | 0.6                          |
| Manganese%          | 0.7                              |                            | 1.0                          |

\* Typical composition, ASTM Standard does not specify materials to this detail.

## Pressure/Temperature Ratings Comparing Cast Iron, Ductile Iron and Cast Steel

|                   | ASTM A 126<br>Cast Iron |         | ASTM A 395<br>*Ductile Iron | ASTM A 216 WCB<br>Cast Steel |
|-------------------|-------------------------|---------|-----------------------------|------------------------------|
|                   | Class 125               |         | Class 150                   | Class 150                    |
| °F/°C Temperature | 2"-12"                  | 14"-24" | 2"-24"                      | 2"-24"                       |
| -20°F-100°F       | 200 psi                 | 150 psi | **285 psi                   | 285 psi                      |
| 150°F/66°C        | 200 psi                 | 150 psi | 243 psi                     |                              |
| 200°F/93°C        | 190 psi                 | 135 psi | 235 psi                     | 260 psi                      |
| 250°F/121°C       | 175 psi                 | 125 psi | 225 psi                     |                              |
| 300°F/149°C       | 165 psi                 | 110 psi | 215 psi                     | 230 psi                      |
| 350°F/177°C       | 150 psi                 | 100 psi | 210 psi                     |                              |
| 400°F/204°C       | 140 psi                 |         | 200 psi                     | 200 psi                      |
| 450°F/232°C       | 125 psi                 |         | 185 psi                     |                              |
| 500°F/260°C       |                         |         | 170 psi                     | 170 psi                      |
| 550°F/288°C       |                         |         | 155 psi                     |                              |
| 600°F/316°C       |                         |         | 140 psi                     | 140 psi                      |
| 650°F/343°C       |                         |         | 125 psi                     | 125 psi                      |

\* These ratings apply when temperature exceeds 450°F and the valve has 316 SS trim.  
When ASTM B 584 trim is used, maximum temperature limit is 450°F.

\*\* Engineering Note: Ductile Iron flanges are rated at 250 psi in accordance with ANSI B16.42.  
However, NIBCO's rating is intended to show that the valve is capable of sustained operation at 285 psi, in between Class 150 steel flanges.

## Construction Features

|                       |                                                                                                                                                                                                                                                                                                                              |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Flanges</b>        | NIBCO Ductile Iron Valves come standard ANSI B16.42 Class 150 flanges and the same end-to-end dimensions as Class 125 iron or Class 150 steel valves. Thus Ductile Iron valves can easily replace cast iron or steel valves. NIBCO also offers PN10/16 flanges per BS 4504 and compliant to BS 5150 face-to-face dimensions. |
| <b>Trim</b>           | Bronze ASTM B 584, 316 Stainless Steel                                                                                                                                                                                                                                                                                       |
| <b>Test Pressures</b> | All NIBCO Ductile Iron Valves are tested to MSS requirements in our ISO 9002 quality certified manufacturing plant in Blytheville, Arkansas.                                                                                                                                                                                 |
| <b>Color</b>          | NIBCO Ductile Iron valves are painted green in compliance with API 604.                                                                                                                                                                                                                                                      |

## Features and Benefits

|                             |                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Strength</b>             | Ductile Iron is a very strong material when compared to cast iron and comparable to cast steel. Ductile Iron has a higher yield strength than cast steel 40K vs. 30K. The strength of Ductile Iron when compared to cast iron is overwhelming. Ductile Iron tensile strength is 60K vs Cast Iron at 31K. Ductile Iron has yield strength of 40K and cast iron has none. |
| <b>Corrosion Resistance</b> | Ductile Iron has a corrosion and oxidation resistance in most cases that surpasses cast steel and is slightly better than cast iron. Oxide penetration can severely affect the strength and performance of valves.                                                                                                                                                      |
| <b>Low Transition Temps</b> | Ferrous metals are subject to brittle fractures with severe temperature changes. The chemical composition of NIBCO's Ductile Iron provides transition temperatures to -20°F. This property is important if physical shock loading is present in cold weather applications.                                                                                              |
| <b>Cost Effective</b>       | These unique characteristics make Ductile Iron a cost-effective option for 150 psi steam service as well as hydrocarbon processing up to 650°F/343°C.                                                                                                                                                                                                                   |

## Applications

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Steam Service</b>       | Ductile Iron gate, globe and check valves are excellent choices for 150 psi steam service. Available with ASTM B 584 bronze trim and CF8M SS trim.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Hydrocarbon Service</b> | Ductile Iron is an acceptable substitute for cast steel in a wide range of processing services both on the production and refining side up to 650°F/343°C.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>General Service</b>     | <p>Ductile Iron can substitute for standard Class 125 cast iron where there may be concerns with potential stresses and a stronger material is desired, i.e. in situations of unusual pipe movement due to the system or external forces, such as cold weather, earthquakes, etc.</p> <p>Can substitute for Class 250 cast iron for intermediate pressure services using Class 150 flanges up to 285 psi wwp. (Should save on valve and flange costs.)</p> <p>Ductile Iron is a good choice for general service, fire protection and Hi-rise applications.</p> <p>Has a higher application temperature than PTFE seated flanged ball valves.</p> |
| <b>Marine Service</b>      | For shipboard application and tanker piping, many marine agencies recommend the use of Ductile Iron Valves because of its resistance to shock, vibration and superior corrosion-resistant properties. Approved by DOT and Certificate of Approval from Lloyds Register of Shipping. ABS approval available, consult factory.                                                                                                                                                                                                                                                                                                                     |

# Ductile Iron Valve Specifications

## VALVES 2 1/2" AND LARGER — 285 PSI CWP APPLICATION

### Gate Valves

Valves to be Class 150 and 285 PSI CWP, tested in accordance with Manufacturers Standardization Society, flanged, bolted bonnet, OS&Y or Non-Rising, Ductile Iron body, bronze trimmed, with body and bonnet conforming to ASTM A 395 Ductile Iron. Packing and gaskets to be non-asbestos.

ACCEPTABLE VALVES: NIBCO F-637-31 (OS&Y) or F-639-31 (Non-Rising).

### Globe/Angle Valves

Valves to be Class 150 and 285 PSI CWP, tested in accordance with Manufacturers Standardization Society, flanged, bolted bonnet, OS&Y, Ductile Iron body, bronze trimmed, with body and bonnet conforming to ASTM A 395 Ductile Iron. Packing and gaskets to be non-asbestos.

ACCEPTABLE VALVES: Straight Globe NIBCO F-738-31; Angle Globe NIBCO F-838-31.

### Check Valves

Valves to be Class 150 and 285 PSI CWP, shall be swing-type tested in accordance with Manufacturers Standardization Society, flanged, bolted bonnet, Ductile Iron body, bronze trimmed, with body and bonnet conforming to ASTM A 395 Ductile Iron, non-asbestos gasket.

ACCEPTABLE VALVES: Swing-type NIBCO F-938-31; Swing-type with outside lever and spring/weight NIBCO F-938-31-BL&S (BL&W).

## VALVES 2 1/2" AND LARGER — HIGH PRESSURE STEAM/HYDROCARBON

### Gate Valves

Valves to be Class 150 and 285 PSI CWP, tested in accordance with Manufacturers Standardization Society, flanged, bolted bonnet, OS&Y, Ductile Iron body, 316 SS trimmed, with body and bonnet conforming to ASTM A 395 Ductile Iron. Packing and gaskets to be non-asbestos.

ACCEPTABLE VALVES: NIBCO F-637-33 (31 Trim—alternative for steam applications).

### Globe/Angle Valves

Valves to be Class 150 and 285 PSI CWP, tested in accordance with Manufacturers Standardization Society, flanged, bolted bonnet, OS&Y, Ductile Iron body, bronze trimmed, with body and bonnet conforming to ASTM A 395 Ductile Iron. Packing and gaskets to be non-asbestos.

APPLICABLE VALVES: Straight Globe NIBCO F-738-31; Angle Globe NIBCO F-838-31 Bronze Trim for Steam Application ONLY.

### Check Valves

Valves to be Class 150 and 285 PSI CWP, shall be swing-type tested in accordance with Manufacturers Standardization Society, flanged, bolted bonnet, Ductile Iron body, 316 SS trimmed, with body and bonnet conforming to ASTM A 395 Ductile Iron, non-asbestos gasket.

ACCEPTABLE VALVES: Swing-type NIBCO F-938-33; Swing-type with outside lever and spring/weight NIBCO F-938-33-BL&S (BL&W) (31 Trim—alternative for steam applications).

## GLOSSARY OF TERMS

### Ductility:

The ability of a material to become permanently deformed—stretched, drawn, or hammered without failure while maintaining an appreciable load.

### Tensile Strength:

Measures in force per unit area [i.e. pounds per square inch (PSI)] the ultimate stress that can be withstood by a material in tension prior to failure.

### Yield Strength:

Measures in force per unit area, the stress at which a material will undergo a permanent change in shape (plastic deformation) in response to an applied force.

### Elongation:

Measures by percentage, the amount of plastic deformation a material will exhibit in response to a force applied in tension.

### Oxide Penetration:

The depth of material deterioration or loss displayed along the surface of a metal that is exposed to highly corrosive (oxidizing) environment.

# Bronze and Iron Valves

## Options and Accessories Index

### Bronze Valve

#### Options and Accessories

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### Iron Valve

#### Options and Accessories

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# Bronze Valve Options and Accessories - Handles

**Matrix of Bronze Valve Handwheel Diameters**

| Valve | T062142 PP<br>2½" Dia. | T062459 PP<br>2½" Dia. | T062143 PP<br>3¼" Dia. | T065573 PP<br>3¼" Dia. | T062144 PP<br>4½" Dia. | T065574 PP<br>4½" Dia. | T062145 PP<br>5⅝" Dia. | T065575 PP<br>5⅝" Dia. | T062146 PP<br>7" Dia. | Valve |
|-------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-----------------------|-------|
| 111   | 1/4 - 3/8              | 1/2 - 3/4              | 1                      | 1¼ - 1½                |                        | 2 - 2½                 |                        | 3                      |                       | GATE  |
| 113   | 1/4 - 3/8              | 1/2 - 3/4              | 1                      | 1¼ - 1½                |                        | 2 - 2½                 |                        | 3                      |                       |       |
| 124   | 1/4 - 3/8              | 1/2                    | 3/4 - 1                | 1¼                     | 1½                     | 2                      | 2½                     | 3                      |                       |       |
| 131   | 1/4 - 3/8              | 1/2                    | 3/4 - 1                | 1¼                     | 1½                     | 2                      | 2½                     | 3                      |                       |       |
| 133   | 1/4 - 3/8              | 1/2                    | 3/4 - 1                | 1¼                     | 1½                     | 2                      | 2½                     | 3                      |                       |       |
| 134   | 1/4 - 3/8              | 1/2                    | 3/4 - 1                | 1¼                     | 1½                     | 2                      | 2½                     | 3                      |                       |       |
| 136   | 1/4 - 3/8              | 1/2                    | 3/4 - 1                | 1¼                     | 1½                     | 2                      | 2½                     | 3                      |                       |       |
| 154A  | 1/4 - 3/8              | 1/2                    | 3/4 - 1                | 1¼                     | 1½                     | 2                      |                        |                        |                       |       |
| 174A  | 1/4 - 3/8              | 1/2                    | 3/4 - 1                | 1¼                     | 1½                     | 2                      |                        |                        |                       |       |
| 174SS |                        | 1/2                    | 3/4 - 1                | 1¼                     | 1½                     | 2                      |                        |                        |                       |       |
| 176A  | 1/4 - 3/8              | 1/2                    | 3/4 - 1                | 1¼                     | 1½                     | 2                      |                        |                        |                       |       |
| 176SS |                        | 1/2                    | 3/4 - 1                | 1¼                     | 1½                     | 2                      |                        |                        |                       |       |
| 211   | 1/8 - 1/2              | 3/4                    | 1 - 1¼                 |                        | 1½                     | 2                      |                        | 2½ - 3                 |                       | GLOBE |
| 235   | 1/8 - 3/8              | 1/2                    | 3/4                    | 1                      | 1¼                     | 1½ - 2                 | 2                      | 2½                     | 3                     |       |
| 256AP |                        | 1/4 - 1/2              |                        | 3/4                    | 1                      | 1¼ - 1½                | 2                      | 2½                     | 3                     |       |
| 275B  |                        | 1/8 - 3/8              | 1/2                    | 3/4 - 1                | 1                      | 1¼ - 1½                | 2                      | 2½                     | 3                     |       |
| 275Y  |                        | 1/4 - 3/8              | 1/2                    | 3/4 - 1                |                        | 1¼ - 1½                | 2                      | 2½                     | 3                     |       |
| 276AP |                        | 1/4 - 3/8              | 1/2                    | 3/4                    | 1                      | 1¼ - 1½                | 2                      | 2½                     | 3                     |       |
| 311   | 1/4 - 1/2              | 3/4                    | 1 - 1¼                 |                        |                        | 2                      |                        | 2½ - 3                 |                       | ANGLE |
| 335   | 1/8 - 3/8              | 1/2                    | 3/4                    | 1                      | 1¼                     | 1½ - 2                 |                        |                        | 3                     |       |
| 375B  |                        | 1/4 - 3/8              | 1/2                    | 3/4                    | 1                      | 1¼ - 1½                | 2                      |                        | 3                     |       |
| 376AP |                        | 1/4 - 3/8              | 1/2                    | 3/4                    | 1                      | 1¼ - 1½                | 2                      |                        |                       |       |

**Malleable Iron ASTM A 47**

Available as standard for NIBCO Bronze Gate and Globe Valves. Class 125, 150, 200, 300 lb. SWP Bronze Body Valves. ¼" thru Square Stem only.

**Malleable**

**Red Bronze 85-5-5-5% ASTM B 62**

Available for some NIBCO 125 lb. SWP Bronze Body Valves ⅝" thru 3". Used where standard handwheel would be out of reach or hand space is restricted. Specify by adding (K) to Fig. No., i.e. T-000-K. For field replacement, specify valve type and size. Square Stem Only.

**Cross**

**Red Bronze 85-5-5-5% ASTM B 62**

Available for some NIBCO 125 lb. SWP Bronze Body Valves ⅝" thru 2". Used where code requirements or personal preference dictate a bronze handwheel. Specify by adding (BHW) to Fig. No., i.e. T-000-BHW. For field replacement, specify valve type and size. Square Stem Only.

**Bronze**

**Red Bronze 85-5-5-5% ASTM B 62**

Available for some NIBCO 125 lb. SWP Bronze Body Valves. Used where standard handwheel would be out of reach or hand space is restricted. For field replacement, specify valve type and size. Square Stem only.

**Solid Tee**

**Red Bronze 85-5-5-5% ASTM B 62 or ASTM B 16**

Available for some NIBCO 125 lb. SWP Bronze Body Valves thru 3". Use where valve might be subject to unauthorized use or tampering. Specify by adding (L) to Fig. No., i.e. T-000-L. For field replacement, specify valve type and size. Square Stem Only.

**Lockshield**

**Red Bronze 85-5-5-5% ASTM B 62**

Available for some NIBCO 125 lb. SWP Bronze Body Valves thru 3". Used as handle for lockshields. Specify – "Lockshield Key." For field replacement, specify valve type and size. Square Stem Only.

**Lockshield Key**


NIBCO INC. reserves the right to change materials, options and accessories without notice.

# Bronze Valve Options and Accessories

## Seating and Packing

| Seating Material                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Material:</b> PTFE<br>Max. Pressure: 300 SWP/600 CWP<br>Max. Temperature: -20° F to 400° F<br>Service: Oxygen, steam, and all services where the media being handled is not corrosive to the metallic parts of the valve. Available for some NIBCO valves. Specify by adding (Y) to Fig. No., i.e. T-000-Y |                                                                                             |
| <b>Material:</b> FKM<br>Max. Pressure: 125 SWP/200 CWP<br>Max. Temperature: -20° F to 300° F<br>Service: Hydrocarbon service, mineral acids and salt solutions that are not corrosive to the metallic parts of the valve. Available for some NIBCO valves. Specify by adding (V) to Fig. No., i.e. T-000-V    |                                                                                                                                                                                |
| <b>Material:</b> Buna-N<br>Max. Pressure: 200 CWP<br>Max. Temperature: -40° F to 180° F<br>Service: Water, Oil, Gas. Available for some NIBCO valves. Specify by adding (W) to Fig. No., i.e. T-000-W                                                                                                         |                                                                                             |
| <b>Material:</b> Bronze ASTM B 62<br>Max. Pressure: 150 SWP/300 CWP<br>Max. Temperature: 406° F<br>Service: Provides good seating properties for clean moderate service. Should not be used for close throttling or for handling material containing abrasive or corrosive particles.                         | <br> |
| <b>Material:</b> Bronze ASTM B 61<br>Max. Pressure: 300 SWP/600 CWP<br>Max. Temperature: 550° F<br>Service: Provides good seating properties for clean moderate service. Should not be used for close throttling or for handling material containing abrasive or corrosive particles.                         |                                                                                                                                                                                |
| <b>Material:</b> Nickel Alloy, Semi Plug Only<br>Max. Pressure: 300 SWP/600 CWP<br>Max. Temperature: 550° F<br>Service: General service, nickel alloy material is durable and resists wear and the corrosive action of some dilute acids and alkalis. Available for 300 SWP Globe Valves.                     |                                                                                                                                                                                |
| <b>Material:</b> Hardened Stainless Steel, Full Plug Only<br>Max. Pressure: 300 SWP/600 CWP<br>Max. Temperature: 550° F<br>Service: Recommended for close throttling and most all severe conditions, not to exceed the valve ratings. Available for 200 and 300 SWP Globe and Angle Valves.                   |                                                                                                                                                                                |
| <b>Packing Material</b>                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                |
| <b>Aramid Fibers with Graphite.</b><br>Offered as standard on NIBCO Bronze Valves.                                                                                                                                                                                                                            | <br> |
| <b>Solid PTFE Packing</b><br>Offered as a field retrofit option on NIBCO Bronze Valves. Consult factory for price and availability.                                                                                                                                                                           |                                                                                                                                                                                |

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# Bronze Valves Options and Accessories

## Drain Cap, Oxygen Service, Stem Extensions

### 1/8" Drain Cap

A fast and convenient means for draining sections of line between valves.

Specify by adding (D) to Fig. No., i.e. T-111-D.

(Applicable to figure numbers 111, 113 and 211 only.)



### Optional Squared Stem Extension

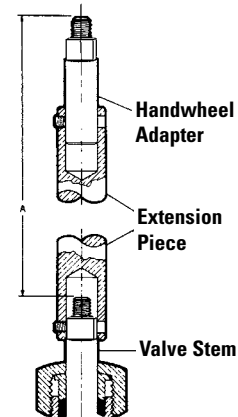
Available for all NIBCO Bronze Valves.

Made from ASTM B 371 62 Alloy C69400 (rod).

Used when valves must be operated from a distance.

Adequate and rigid support must be provided for long stem extension units.

Specify valve size, figure number and length to be added to existing stem length (dimension A). 3" minimum length, 18" maximum length.



### Oxygen Service; Bronze Gate, Globe and Check

The following valves are offered as oxygen cleaned and bagged. NIBCO figure number:

S/T-134-X

S/T-235-YX

S/T-413-YX

S/T-433-YX

Except for PTFE disc and packing, and identification tag, all parts are identical to standard valves.

Valves are thoroughly cleaned and degreased and individually packed in sealed polyethylene bags.

Consult with factory on availability for other bronze valves to be oxygen cleaned.



### Silicone Lubricants in Nacogdoches Plant

Below lists the two ways in which NIBCO bronze gate, globe, check and ball valves are manufactured in our Nacogdoches plant:

#### 1. Standard valves:

All pressure rated bronze gate, globe, check and bronze ball valves are manufactured in NIBCO's Nacogdoches, Texas plant.

Silicone is **NOT** used in this plant in the production of valves or assembly of any component parts of the above listed products.

#### 2. Valves can be cleaned for oxygen service:

- The steps involved are as follows:
- Clean ultrasonically all component parts with a degreaser in a warm water solution
- Rinse with warm water in an ultrasonic bath
- Rinse again in cold water
- Put all component parts under black light for inspection of any carbon. If carbon found, repeat steps above.
- Assemble and test valves
- Package the valves in a sealed plastic bag to avoid contamination

**NOTE:** Valves that are assembled and tested without silicone lubricants in this plant have a potential exposure to air-born silicone as well as during shipping after they leave the plant. Therefore, NIBCO cannot certify valves produced in the Nacogdoches plant to be 100% silicone free.

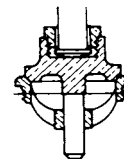
NIBCO INC. reserves the right to change materials, options and accessories without notice.

# Iron Valve Options and Accessories

## Seating, Packing and Gasket Materials

### Iron Valve Seating Material

**Material:** **Bronze**  
Max. Pressure: 250 SWP/500 CWP  
Max. Temperature: 450° F  
Service: Steam-Water, Oil, and Gas. Standard on all NIBCO Iron Body Valves unless otherwise specified.

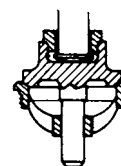


**Material:** **PTFE**  
Max. Pressure: 250 SWP/500CWP  
Max. Temperature: 450° F  
Service: Oxygen, steam, and all services where the media being handled is not corrosive to the metallic parts of the valve. Standard on 2½" and 3" Automatic Stop Check.



**NOTE: ASME B 31.1 Boiler and Pressure Vessel Code limits non-metallic seats to 150 PSI steam service.**

**Material:** **Iron**  
Max. Pressure: 200 CWP  
Max. Temperature: 250° F  
Service: Used where bronze trim is not permitted. Specify by adding (N) to Fig. No., i.e. F-000-N. Available for some NIBCO Gate, Globe, Angle and Check Valves.



### Packing and Gasket Materials

1. Standard NIBCO iron valves are furnished with Synthetic Fibers and Graphite packing, along with Synthetic Fibre gaskets. Temperature rated to 550° F. Class 250 iron valves are furnished with PTFE Braided packing and Reinforced Graphite gaskets. For other special packing and gaskets, consult factory.
2. Alloy Iron Valves are furnished with PTFE Braided packing and Synthetic Fibre gaskets.
3. Graphite Packing and Gaskets optional on some NIBCO Iron Valves. Consult factory.



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# Iron Valve Options and Accessories

## Operating Nut, Position Indicator, Sprocket Rims

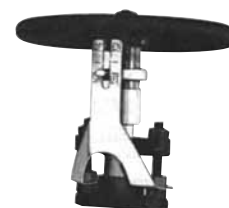
### Square Operating Nut

The square operating nut can be substituted for the regular handwheel when an NRS (619 & 639) valve is to be installed in an inaccessible location. It may be operated by a key or a wrench. A directional arrow indicating "open" is cast on top of the nut. All square operating nuts have a standard 2" square which facilitates opening and closing the valve with a square socket wrench as used by the Water Works. Material: Cast Iron ASTM A 126 Class B. Field retrofit is standard. Some factory installed versions are available.



### Position Indicator

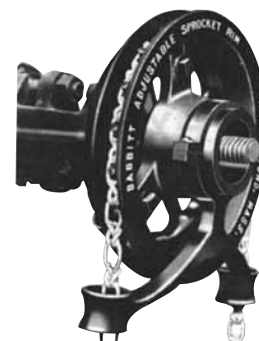
For non-rising stem (2"-12") metal seated iron body gate valves. Indicates whether it is open, partly open or closed by the position of the needle which moves as the valve is operated. Field installed. Ordering Information: Specify size and figure number of the valve to be fitted.



### Adjustable Sprocket

The Adjustable Sprocket Rim will provide for remote operation of gate, globe and angle valves in high, normally out-of-reach locations. Attaches to valve wheel for instant valve open/close response. Sprocket rim made from cast iron, chain guide is malleable iron. When ordering, specify either the sprocket and chain number, or the NIBCO valve figure number and size. The chain length must also be specified.

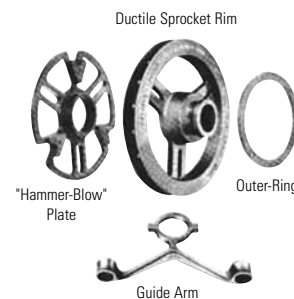
| Size  | Diameter of Sprocket Wheel (In.) | Weight (Lbs.) | Diameter of Valve Wheels Rim Will Fit | Chain Size | Chain Weight per 100' (Lbs.) |
|-------|----------------------------------|---------------|---------------------------------------|------------|------------------------------|
| 0     | 4.00                             | 2             | 2-4                                   |            | 10.00                        |
| 1     | 5.88                             | 4             | 4 1/8-5 7/8                           | 1/0        | 17.50                        |
| 1 1/2 | 7.50                             | 5             | 6-7 1/2                               | 1/0        | 17.50                        |
| 2     | 9.00                             | 8             | 7 3/4-9                               | 1/0        | 17.50                        |
| 2 1/2 | 12.50                            | 15            | 9 1/4-12 1/2                          | 4/0        | 30.00                        |
| 3     | 15.50                            | 21            | 12 3/4-15 1/2                         | 4/0        | 30.00                        |
| 3 1/2 | 19.00                            | 25            | 15 3/4-19                             | 4/0        | 30.00                        |
| 4     | 22.00                            | 34            | 19 1/4-22                             | 5/0        | 35.00                        |
| 4 1/2 | 26.00                            | 38            | 22 1/4-26                             | 5/0        | 35.00                        |
| 5     | 30.00                            | 46            | 26 1/4-30                             | 5/0        | 35.00                        |



### Hammer-Blow Sprocket

The Adjustable Hammer-Blow Sprocket Rim is for use with hard-to-operate gate, globe and angle valves in overhead locations. The Hammer-Blow plate and rim are made of tough, shock resistant ductile iron to withstand heavy, valve releasing impact. The chain guide is malleable iron. When ordering, specify the sprocket number, chain number and length, or the NIBCO valve figure number, size and the chain length.

| Ductile Rim Guide with Hammer Blow Complete | Diameter of Sprocket Wheel (In.) | Weight (Lbs.) | Diameter of Valve Wheels Rim Will Fit | Chain Size | Chain Weight per 100' (Lbs.) |
|---------------------------------------------|----------------------------------|---------------|---------------------------------------|------------|------------------------------|
| 2                                           | 9.00                             | 13            | 7 3/4-9                               | 1/0        | 17.50                        |
| 2 1/2                                       | 12.50                            | 22            | 9 1/4-12 1/2                          | 4/0        | 30.00                        |
| 3                                           | 15.50                            | 30            | 12 3/4-15 1/2                         | 4/0        | 30.00                        |
| 3 1/2                                       | 19.00                            | 35            | 15 3/4-19                             | 4/0        | 30.00                        |
| 4                                           | 22.00                            | 55            | 19 1/4-22                             | 5/0        | 35.00                        |
| 4 1/2                                       | 26.00                            | 78            | 22 1/4-26                             | 5/0        | 35.00                        |
| 5                                           | 30.00                            | 78            | 26 1/4-30                             | 5/0        | 35.00                        |



### Sprocket Rim Selection Guide

|                                      | #1 1/2   | #2          | #2 1/2  | #3 | #3 1/2   | #4     | #4 1/2     | #5     |
|--------------------------------------|----------|-------------|---------|----|----------|--------|------------|--------|
| Fig. F-617-O Size Valve Rim will fit |          | 2, 2 1/2, 3 | 4, 5, 6 | 8  | 10, 12   |        | 14, 16, 18 | 20, 24 |
| Fig. F-619 Size Valve Rim will fit   | 2, 2 1/2 | 3           | 4, 5, 6 | 8  | 10, 12   |        | 14, 16     |        |
| Fig. F-667-O Size Valve Rim will fit |          | 2, 2 1/2, 3 | 3, 4, 5 |    | 6, 8     | 10, 12 |            |        |
| Fig. F-669 Size Valve Rim will fit   | 2        | 2 1/2       | 3, 4, 5 |    | 6, 8, 10 | 12     |            |        |

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# Iron Valve Options and Accessories

## Stem Extensions

### Stem Extension

Stem Extensions are designed to permit remote operation of gate, globe or angle valves by providing an extension to the valve stem long enough to reach from the valve to the desired remote operating location.

The Extension consists of a length of steel tube with a coupling on one end to attach to the valve, and a coupling on the other end to attach to a handwheel or some other type of operating device.

The Stem Extension is made to accept the handwheel from the valve to which it is being attached. Therefore, Extensions are not supplied with a handwheel unless it is special ordered.

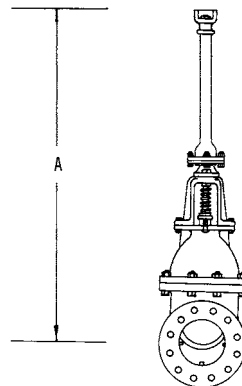
Orders or inquiries for Stem Extensions to be attached to a NIBCO valve must include the dimension from the center line of the valve waterway to the top of the handwheel. This dimension is the "A" distance as shown below. Please specify separately coupling sets for iron valve extensions.

Adequate support must be provided for Long Stem Extensions exceeding 12 ft. of "A" dimension. This support should be rigid and of sufficient strength to prevent "wind-up," deflection or transfer of abnormal loads to the valve. This is a custom-built requirement provided by the customer.

#### Minimum "A" dimensions:

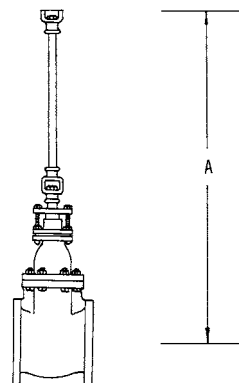
#### Rising Stem Valve

| Valve Size | "A"   |       |
|------------|-------|-------|
|            | In.   | mm.   |
| 2"         | 21.00 | 533   |
| 2½"        | 21.50 | 546   |
| 3"         | 23.50 | 597   |
| 4"         | 28.00 | 711   |
| 5"         | 31.00 | 787   |
| 6"         | 35.00 | 889   |
| 8"         | 45.00 | 1,143 |
| 10"        | 53.50 | 1,359 |
| 12"        | 63.00 | 1,600 |



#### Non-Rising Stem Valve

| Valve Size | "A"   |       |
|------------|-------|-------|
|            | In.   | mm.   |
| 2"         | 19.56 | 497   |
| 2½"        | 21.06 | 535   |
| 3"         | 21.94 | 557   |
| 4"         | 24.25 | 616   |
| 5"         | 25.50 | 648   |
| 6"         | 29.50 | 749   |
| 8"         | 35.06 | 891   |
| 10"        | 38.88 | 988   |
| 12"        | 44.56 | 1,132 |



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# Iron Valve Options and Accessories

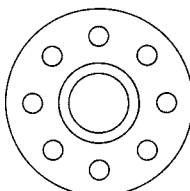
## Floor Stands

### Floor Stands

Floor stands are designed for operating gate, globe and angle valves that are installed in inaccessible places under a floor. For your convenience, they are available in two heights (20" and 32"). They are also available with an indicator so the position of the disc (wedge) can be read at a glance.

Floor Stand Base  
Template

9" outside diameter  
7½" bolt circle diameter  
¾" hole diameter

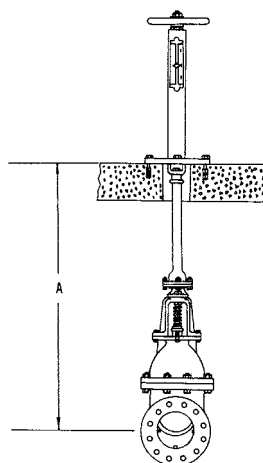


When ordering a floor stand – the dimension from the centerline of the valve waterway to the top of the floor must be furnished. This dimension is the "A" dimension pictured below. The NIBCO valve figure number and size must also be furnished and specify valve stem coupling for use with floor stand. Nothing extra is needed, except the floor mounting bolts which will vary depending on the floor construction.

#### Minimum "A" dimensions:

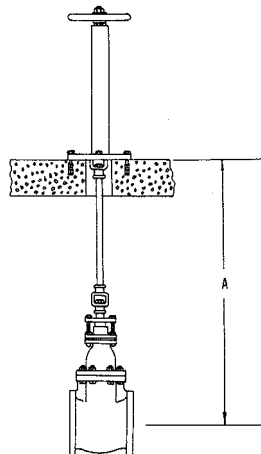
#### Rising Stem Valve

| Valve Size | "A"   |       |
|------------|-------|-------|
|            | In.   | mm.   |
| 2"         | 28.50 | 724   |
| 2½"        | 29.00 | 737   |
| 3"         | 31.00 | 787   |
| 4"         | 36.00 | 914   |
| 5"         | 39.00 | 991   |
| 6"         | 43.00 | 1,092 |
| 8"         | 53.00 | 1,346 |
| 10"        | 60.50 | 1,537 |
| 12"        | 70.00 | 1,778 |



#### Non-Rising Stem Valve

| Valve Size | "A"   |       |
|------------|-------|-------|
|            | In.   | mm.   |
| 2"         | 26.56 | 675   |
| 2½"        | 28.06 | 713   |
| 3"         | 28.75 | 730   |
| 4"         | 31.19 | 792   |
| 5"         | 32.44 | 824   |
| 6"         | 36.31 | 922   |
| 8"         | 42.69 | 1,084 |
| 10"        | 45.88 | 1,165 |
| 12"        | 52.06 | 1,322 |



Without  
Indicator



With  
Indicator

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# Iron Valve Options and Accessories

## Wall Tapping, Boss Locations, By-Passes

### Wall Tapping

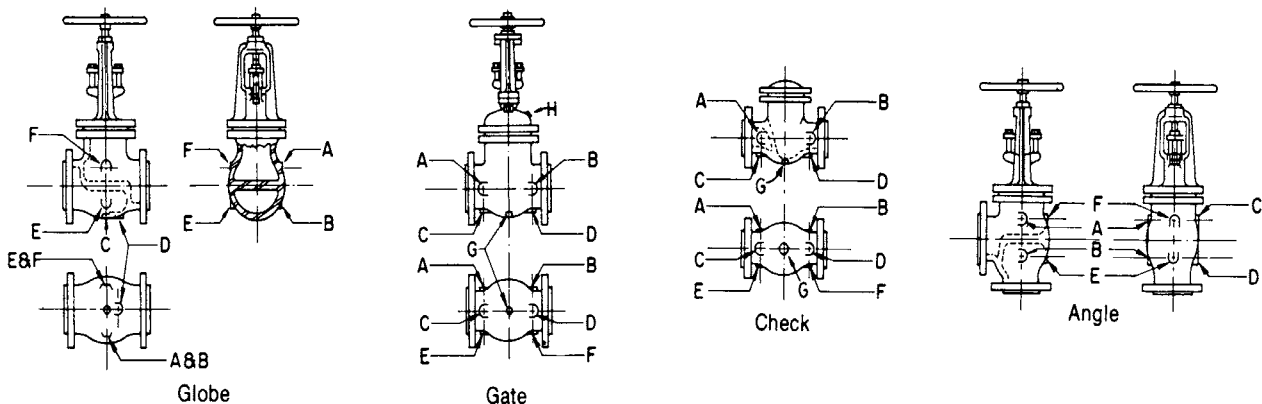
Maximum pipe size that may be tapped in valve wall without adding special bosses.

| Size of Valve (In.)   | 2" | 2½" | 3" | 4" | 5" | 6" | 8" | 10" | 12" | 14" | 16" | 18" | 20" | 24" |
|-----------------------|----|-----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| Size of Tapping (In.) | ¾" | ¾"  | ¾" | ½" | ¾" | ¾" | ¾" | 1¼" | 1½" | 2"  | 2"  | 2"  | 2"  | 2"  |

### Boss Locations

All NIBCO iron valves are available with tapping for drain and special tapping. Boss locations and symbols and tapping procedures are in accordance with MSS By-Pass and Drain Connection Standard SP-45. (When tapplings are needed at any other than the standard boss locations, a sketch must be provided clearly showing the exact location on the valve. NIBCO will review the request and advise if request can be met.) All tapplings are plugged at no extra charge. When Bosses are ordered tapped, the standard size of tapping is in accordance with the following table taken from MSS Specification SP-45, table 1.

| Size of valve (In.)         | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 |
|-----------------------------|---|---|---|---|---|---|----|----|----|----|----|----|----|
| Size of Drain Tapping (In.) |   |   |   |   |   |   |    |    |    |    |    |    |    |
| Series A (steam)            | ½ | ½ | ½ | ¾ | ¾ | ¾ | 1  | 1  | 1  | 1  | 1  | 1  | 1  |

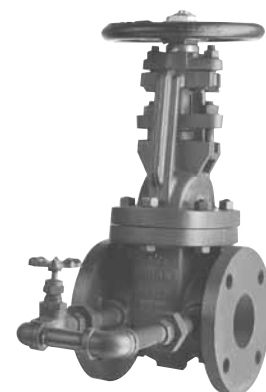


### By-Passes

A By-Pass can be used to equalize pressure at inlet and outlet before opening main valve; facilitates easy valve operation. Can also be used for preheating outlet lines and eliminate damage from too fast expansion. The built up type By-Pass is available on all NIBCO iron valves and is attached in accordance with MSS By-Pass and Drain Connection Standard SP-45. The By-Pass valve used on standard iron valves is a globe valve. Specify by adding (Z) to Fig. No, i.e. F-000-Z.

| Main Valve Size (In.)    | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 |
|--------------------------|---|---|---|---|----|----|----|----|----|----|----|
| By-Pass Valve Size (In.) | ½ | ¾ | ¾ | ¾ | 1  | 1  | 1  | 1  | 1  | 1  | 1  |

Sizes of By-Pass valves on NIBCO Iron Gate, Globe, Angle and regular Swing Check Valves conform to MSS Specification SP-45, Table II, Series A for steam service.



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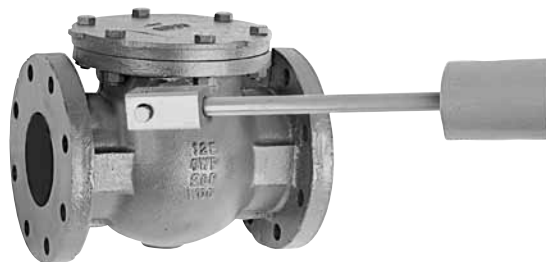
# Iron Check Valve Options and Accessories

## Lever and Weight/Spring (factory installed only)

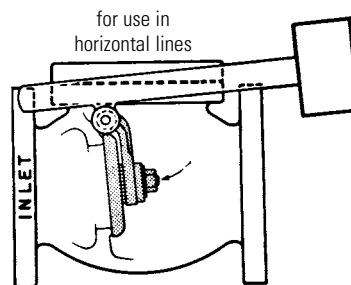
### Iron Body Swing Check Valves are available with Outside Lever and Weight or Lever and Spring

The lever and weight arrangement is used to maintain exterior control over disc movement. It is possible to assist the disc to close rapidly where quick action is necessary to avoid a sudden reversal of flow or set the lever and weight at any position to get desired operating performance.

Illustrated below are some commonly accepted positions of the lever and weight.

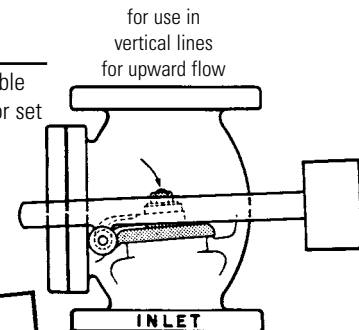


Lever and weight mounted to assist the disc in closing.



The lever and weight is mounted on

the right side of the valve when facing the inlet.  
Available on Figure no. F-918 in sizes 2½"–12".



Lever and Spring provides more positive control in closing the disc.  
Tension of the spring may be adjusted to control the pressure against the disc.

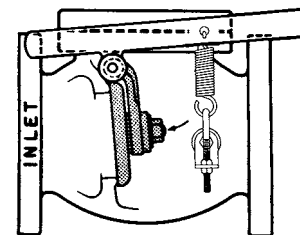


Fig. No. F-918-BL&S

### Silicone lubricant usage in Iron Valves at the Blytheville, Arkansas Plant

Multi-turn Iron Valves: Gate, Globe, Angle and Check

Of the valves that are produced at the Blytheville plant, the check valve is the only type that uses silicone during assembly. The silicone used is in the form of grease, and is applied to the seat.

**NOTE:** Valves that are assembled and tested without silicone lubricants in this plant have a potential exposure to air-born silicone as well as during shipping after they leave the plant. Therefore, NIBCO cannot certify valves produced in the Blytheville plant to be 100% silicone free.

### Special Ordered Check Valves:

We will, upon request, assemble check valves that are described as "Assembled-Dry". These valves are assembled **NOT** using the silicone grease.

NIBCO check valves may be installed in both horizontal and vertical lines with upward flow or in any intermediate position. They will operate satisfactorily in a declining plane (no more than 15°).

**WARNING:** Do not use for reciprocating air compressor service.

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# Iron Check Valve Options and Accessories

## Lever and Weight/Spring Parts • Gear Operators

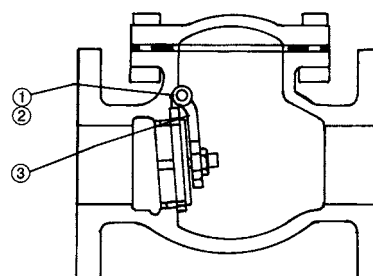
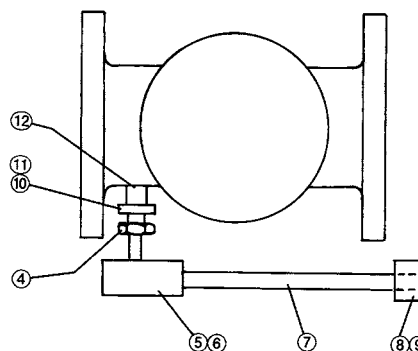
(factory installed only)

### Parts for Iron Body Swing Check Valves with Outside Lever and Weight or Lever and Spring

| Parts for Lever and Weight (F-918-BL&W) |                               |                       | Qty. |
|-----------------------------------------|-------------------------------|-----------------------|------|
| *1                                      | Hanger and Spindle Key        | Steel                 | 1    |
| *2                                      | Hanger Pin                    | Brass ASTM B 16       | 1    |
| *3                                      | Hanger                        | Cast Bronze ASTM B 62 | 1    |
| *4                                      | Pack Nut                      | Brass                 | 1    |
| *5                                      | Coupling                      | Steel                 | 1    |
| *6                                      | Coupling Set Screw            | Steel                 | 2    |
| 7                                       | Lever                         | Steel                 | 1    |
| 8                                       | Weight                        | Steel                 | 1    |
| 9                                       | Weight Set Screw              | Steel                 | 2    |
| *10                                     | Pack Gland                    | Cast Bronze ASTM B 62 | 1    |
| *11                                     | Packing Rope                  | Non-Asbestos Fibers   | 1    |
| *12                                     | Stuffing Box                  | Cast Bronze ASTM B 62 | 1    |
| *13                                     | Coupling and Lever Spring Pin | Steel                 | 1    |

\*Parts common to both F-918-BL&W and F-918-BL&S.

| Parts for Lever and Spring (F-918-BL&S) (not pictured) |                        |            | Qty. |
|--------------------------------------------------------|------------------------|------------|------|
|                                                        | Bracket Spacer         | Steel 1020 | 1    |
|                                                        | Bracket                | Steel      | 1    |
|                                                        | Bracket Bolt           | Steel      | 2    |
|                                                        | Eye Bolt               | Steel      | 1    |
|                                                        | Eye Bolt Nut           | Steel      | 2    |
|                                                        | Hanger and Spindle Key | Steel      | 1    |
|                                                        | Lever                  | Steel      | 1    |
|                                                        | Spring                 | Steel      | 1    |



### Gear Operators

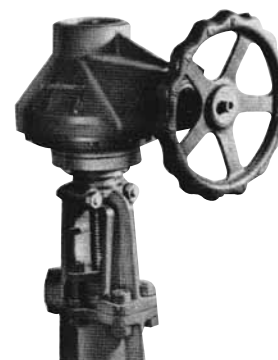
Gearing is applied to valves to provide ease of operation.

Bevel Gears are the most versatile in that they have good efficiency.

Gears are weatherproofed and Babbitt sprockets may be applied.

When ordering gear operators, always provide the following information:

1. Valve size
2. Figure number
3. Pressure of media
4. Temperature of media



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# Valve Terms and Piping Symbols

## These are common industry terms and abbreviations

|          |                                       |         |                                       |        |                                       |
|----------|---------------------------------------|---------|---------------------------------------|--------|---------------------------------------|
| AC       | Alternating Current                   | EXP VLV | Expansion Valve                       | PSIA   | Pounds Per Square Inch Absolute       |
| ALL IRON | All-Iron Construction                 | F       | Degree Fahrenheit                     | PSIG   | Pounds Per Square Inch Gage           |
| AMER STD | American Standard                     | FF      | Flat Face                             | RECIRC | Recirculate(d)                        |
| AMS      | Aeronautical Material                 | FtoF    | Face to Face                          | RF     | Raised Face                           |
|          | Specifications of the Society         | FLG     | Flanged End                           | RPM    | Revolutions per Minute                |
|          | of Automotive Engineers               | FM      | Indicates product has been approved   | RS     | Rising Stem                           |
| APPROX   | Approximate                           |         | by Factory Mutual Laboratories        | S.A.E. | Society of Automotive Engineers       |
| ASME     | American Society of Mechanical        | F/S     | Factor of Safety                      | SB     | Screw-in Bonnet                       |
|          | Engineers                             | FSPS    | Female Standard Pipe Size             | SE     | Screwed (Threaded) End                |
| ASTM     | American Society of Testing Materials | FT LB   | Foot Pound                            | SJ     | Solder Joint                          |
| ATM      | Atmosphere                            | GPH     | Gallons Per Hour                      | SPEC   | Specification                         |
| BB       | Bolted Bonnet                         | GPM     | Gallons Per Minute                    | STD    | Standard                              |
| BLR      | Boiler                                | IBBM    | Iron Body, Bronze Mounted             | SWP    | Steam Working Pressure                |
| B/M      | Bill of Material                      | IN LB   | Inch-pound                            | TEMP   | Temperature                           |
| BTU      | British Thermal Unit(s)               | IPS     | Iron Pipe Size                        | TRIM   | Term designating certain valve parts  |
| C        | Degree Centigrade                     | MSS     | Manufacturers Standardization Society |        | such as discs, seat rings, stems, and |
| CxC      | Copper to Copper                      |         | of the Valve and Fitting Industry     |        | repacking seat bushings               |
| CDA      | Copper Development Association        | NEC     | National Electrical Code              | UB     | Union Bonnet                          |
| COND     | Condenser                             | NPT     | American Standard Taper Pipe Thread   | UL     | Indicates product has been approved   |
| COP      | Copper                                | NRS     | Non-Rising Stem                       |        | by Underwriter's Laboratories, Inc.   |
| CSA      | Canadian Standards Association        | OD      | Outside Diameter                      | VAC    | Vacuum                                |
| CV       | Check Valve                           | OS&Y    | Outside Screw and Yoke                | VOL    | Volume                                |
| CWP      | Cold Working Pressure                 | PNEU    | Pneumatic                             | WOG    | Water, Oil, Gas Working Pressure      |
| CYL      | Cylinder                              | PRESS   | Pressure                              | WWP    | Water Working Pressure                |
| DC       | Direct Current                        | PRV     | Pressure Reducing Valve               |        |                                       |
| DD       | Double Disc                           | PSI     | Pounds Per Square Inch                |        |                                       |

## Piping Symbols

|                       | Flanged            | Threaded | Bell & Spigot | Welded | Soldered |                         | Flanged                   | Threaded | Bell & Spigot | Welded | Soldered |
|-----------------------|--------------------|----------|---------------|--------|----------|-------------------------|---------------------------|----------|---------------|--------|----------|
| 1. Angle Valve        |                    |          |               |        |          | 8. Globe Valve          |                           |          |               |        |          |
| 1.1 Check             |                    |          |               |        |          | 8.1                     |                           |          |               |        |          |
| 1.4 Globe (elevation) |                    |          |               |        |          | 8.2 Angle Globe         | Same as Symbols 1.4 & 1.5 |          |               |        |          |
| 1.5 Globe (plan)      |                    |          |               |        |          | 8.3 Hose Globe          | Same as Symbol 9.3        |          |               |        |          |
| 1.6 Hose Angle        | Same as Symbol 9.1 |          |               |        |          | 8.4 Motor-Operated      |                           |          |               |        |          |
| 2. Automatic Valve    |                    |          |               |        |          | 9. Hose Valve           |                           |          |               |        |          |
| 2.1 By-Pass           |                    |          |               |        |          | 9.1 Angle               |                           |          |               |        |          |
| 2.2 Governor-Operated |                    |          |               |        |          | 9.2 Gate                |                           |          |               |        |          |
| 2.3 Reducing          |                    |          |               |        |          | 9.3 Globe               |                           |          |               |        |          |
| 3. Check Valve        |                    |          |               |        |          | 10. Lockshield Valve    |                           |          |               |        |          |
| 3.1 Angle Check       | Same as symbol 1.1 |          |               |        |          | 11. Quick-Opening Valve |                           |          |               |        |          |
| 3.2 (straight way)    |                    |          |               |        |          | 12. Safety Valve        |                           |          |               |        |          |
| 4. Cock               |                    |          |               |        |          | 13. Stop Valve          | Same as Symbol 7.1        |          |               |        |          |
| 5. Diaphragm Valve    |                    |          |               |        |          | 14. Tee                 |                           |          |               |        |          |
| 6. Float Valve        |                    |          |               |        |          | 14.7 Side Outlet        |                           |          |               |        |          |
| 7. Gate Valve         |                    |          |               |        |          | (outlet down)           |                           |          |               |        |          |
| 7*.1                  |                    |          |               |        |          | 14.8 Side Outlet        |                           |          |               |        |          |
| 7.4 Motor-Operated    |                    |          |               |        |          | (outlet up)             |                           |          |               |        |          |
|                       |                    |          |               |        |          | 15. Union               |                           |          |               |        |          |

\*Also used for general STOP VALVE symbol when amplified by specification.

# Reference Specifications

NIBCO valves are designed and manufactured to give maximum performance on recommended service at the lowest possible initial and upkeep cost. They also meet or exceed the following specifications developed through years of experience, research and many thousands of laboratory tests by technical researchers, producers, consumers, government agencies and universities.

**NOTE: WW-V-51, WW-V-54, WW-V-58 have been cancelled and replaced by the corresponding MSS Specifications.**

## BRONZE

Federal Specification WW-V-51e Class A, Type I Covers 125 lb. S.W.P. Globe Valves (MSS SP-80).  
Federal Specification WW-V-51e Class A, Type II Covers 125 lb. S.W.P. Angle Valves (MSS SP-80).  
Federal Specification WW-V-51e Class A, Type IV Covers 125 lb. S.W.P. Swing Check Valves (MSS SP-80).  
Federal Specification WW-V-51e Class B, Type I Covers 150 lb. S.W.P. Globe Valves (MSS SP-80).  
Federal Specification WW-V-51e Class B, Type II Covers 150 lb. S.W.P. Angle Valves (MSS SP-80).  
Federal Specification WW-V-51e Class B, Type IV Covers 150 lb. S.W.P. Swing Check Valves (MSS SP-80).  
Federal Specification WW-V-51e Class C, Type I Covers 200 lb. S.W.P. Globe Valves (MSS SP-80).  
Federal Specification WW-V-54d Class A, Type I Covers 125 lb. S.W.P. Wedge Disc, Non-Rising Stem Gate Valves (MSS SP-80).  
Federal Specification WW-V-51e Class C, Type II Covers 200 lb. S.W.P. Angle Valves (MSS SP-80).  
Federal Specification WW-V-51e Class C, Type IV Covers 200 lb. S.W.P. Swing Check Valves (MSS SP-80).  
Federal Specification WW-V-54d Class A, Type II Covers 125 lb. S.W.P. Wedge Disc, Rising Stem, Inside Screw Gate Valves (MSS SP-80).  
Federal Specification WW-V-54d Class A, Type III Covers 125 lb. S.W.P. Double Disc, Rising Stem, Inside Screw Gate Valves (MSS SP-80).  
Federal Specification WW-V-54d Class B, Type I Covers 150 lb. S.W.P. Wedge Disc, Non-Rising Stem Gate Valves (MSS SP-80).  
Federal Specification WW-V-54d Class B, Type II Covers 150 lb. S.W.P. Wedge Disc, Rising Stem, Inside Screw Gate Valves (MSS SP-80).  
Federal Specification WW-V-54d Class B, Type III Covers 150 lb. S.W.P. Double Disc, Rising Stem, Inside Screw Gate Valves (MSS SP-80).  
Federal Specification WW-V-54d Class C, Type I Covers 200 lb. S.W.P. Wedge Disc, Non-Rising Stem Gate Valves (MSS SP-80).  
Federal Specification WW-V-54d Class C, Type II Covers 200 lb. S.W.P. Wedge Disc, Rising Stem, Inside Screw Gate Valves (MSS SP-80).  
Federal Specification WW-V-35b Covers 150 lb. S.W.P. Ball Valves.

## IRON

Federal Specification WW-V-58b Class 1, Type I Covers 125 lb. S.W.P. Wedge Disc, OS&Y, Screwed End, Cast Iron Gate Valves (MSS SP-70).  
Federal Specification WW-V-58b Class 2, Type I Covers 250 lb. S.W.P. Wedge Disc, OS&Y, Screwed End, Cast Iron Gate Valves (MSS SP-70).  
Federal Specification WW-V-58b Class 1, Type I Covers 125 lb. S.W.P. Non-Rising Stem, Inside Screw, Screwed End, Cast Iron Gate Valves (MSS SP-70).

Federal Specification WW-V-58b Class 2, Type I Covers 250 lb. S.W.P. Non-Rising Stem, Inside Screw, Screwed End, Cast Iron Gate Valves (MSS SP-70).

Federal Specification WW-V-58b Class 1, Type I Covers 125 lb. S.W.P. OS&Y, Flanged End, Cast Iron Gate Valves (MSS SP-70).

Federal Specification WW-V-58b Class 2, Type I Covers 250 lb. S.W.P. OS&Y, Flanged End, Cast Iron Gate Valves (MSS SP-70).

Federal Specification WW-V-58b Class 1, Type I Covers 125 lb. S.W.P. Non-Rising Stem, Inside Screw, Flanged End, Cast Iron Gate Valves (MSS SP-70).

Federal Specification WW-V-58b Class 2, Type I Covers 250 lb. S.W.P. Non-Rising Stem, Inside Screw, Flanged End, Cast Iron Gate Valves (MSS SP-70).

## STANDARDS—FOR INFORMATION PURPOSES ONLY

MSS SP-25 Standard Marking System for Valves, Fittings, Flanges and Unions.

MSS SP-45 Covers By-Pass and Drain Connections.

MSS SP-67 Covers Butterfly Valves of the Single Flange Type (Lug Wafer).

MSS SP-67 Covers Butterfly Valves of the Flangeless Type (Wafer).

MSS SP-70 Covers Cast Iron Gate Valves, Flanged and Threaded Ends.

MSS SP-71 Covers Cast Iron Swing Check Valves, Flanged and Threaded Ends.

MSS SP-72 Covers Ball Valves with Flanged or Butt-Welding Ends for general service.

MSS SP-80 Covers Bronze Gate, Globe, Angle and Check Valves.

MSS SP-85 Covers Cast Iron Globe and Angle Valves, Flanged and Threaded Ends.

MSS SP-110 Covers Ball Valves, Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.

A.N.S.I. Standard B1.1—The Unified Screw Threads Standard that covers manufacturing tolerances of screw threads.

A.N.S.I. Standard B1.20.1—This standard controls NIBCO pipe threads.

A.N.S.I. Standard B2.4—This standard controls NIBCO hose coupling screw threads.

A.N.S.I. Standard B16.18—This standard controls NIBCO valve solder cups.

A.N.S.I. Standard B16.1—Covers cast iron pipe flanges and flanged fittings (Class 125 and 250).

A.N.S.I. Standard B16.10—Covers face-to-face and end-to-end dimensions of ferrous valves.

MILITARY Standard MIL-V-18436—Applies to bronze and iron check valves sizes 1/2" thru 12".

NIBCO Federal code No. is 12168. It has been assigned to NIBCO by the Defense Logistics Service Center, Battle Creek, Michigan. Used for coding NIBCO as spare parts for valves used on other equipment.

# Properties of Valve Materials

|                |                                                         |                                               | NOMINAL OR MAXIMUM CHEMICAL COMPOSITION |        |        |        |        |      |      |            |             |
|----------------|---------------------------------------------------------|-----------------------------------------------|-----------------------------------------|--------|--------|--------|--------|------|------|------------|-------------|
|                |                                                         |                                               |                                         | CARBON | CHROME | COBALT | COPPER | IRON | LEAD | MANGA-NESE | MOLYB-DENUM |
|                | ASTM NO.                                                | OTHER ALLOY DESIGNATION                       | AL                                      | C      | Cr     | Co     | Cu     | Fe   | Pb   | Mn         | Mo          |
| Bronze & Brass | Commercial Aluminum 380                                 | SC 84 A (modified)                            | UNS A38000                              | 87.0   |        |        |        | 1.0  | 1.3  |            | .35         |
|                | Free Cutting Brass                                      | B 16                                          | UNS C36000                              |        |        |        |        | 61.5 |      | 3.0        |             |
|                | Navy "M" (Steam Bronze)                                 | B 61                                          | UNS C92200                              | .005   |        |        |        | 88.0 | .25  | 1.5        |             |
|                | Composition Bronze (Ounce Metal)                        | B 62                                          | UNS C83600                              | .005   |        |        |        | 85.0 | .30  | 5.0        |             |
|                | Copper-Silicon Alloy B                                  | B 98/B 99                                     | UNS C65100                              |        |        |        |        | 96.0 | .8   | .05        | .7          |
|                | Forging Brass                                           | B 124                                         | UNS C37700                              |        |        |        |        | 60.0 | .3   | 2.0        |             |
|                | Forging Brass                                           | B 283                                         | UNS C37700                              |        |        |        |        | 58.0 | .3   | 2.5        |             |
|                | Brass Wire (Red Brass)                                  | B 134                                         | UNS C23000                              |        |        |        |        | 85.0 | .05  | .05        |             |
|                | Leaded Red Brass                                        | B 140                                         | UNS C31400                              |        |        |        |        | 89.0 | .10  | 1.9        |             |
|                | Aluminum Bronze (Cast)                                  | B 148                                         | UNS C95400                              | 11.0   |        |        |        | 85.0 | 4.0  |            |             |
|                | Aluminum Bronze (Rod)                                   | B 150                                         | UNS C64200                              | 7.0    |        |        |        | 91.0 | .30  | .05        | .10         |
|                | Silicon Red Brass                                       | B 371                                         | UNS C69400                              |        |        |        |        | 81.5 | .20  | .30        |             |
| Copper         | Leaded Semi-Red Brass                                   | B 584                                         | UNS C84400                              | .005   |        |        |        | 81.0 | .40  | 7.0        |             |
|                | Leaded Red Brass                                        |                                               | UNS C84500                              | .005   |        |        |        | 78.0 | .40  | 7.0        |             |
|                | Leaded Nickel Bronze                                    | B 584                                         | UNS C97600                              |        |        |        |        | 64.0 |      | 4.0        |             |
|                | Copper (Wrot)                                           | B 75                                          | UNS C12200                              |        |        |        |        | 99.9 |      |            |             |
| Iron           | Gray Iron                                               | A 126                                         | Class B                                 |        |        |        |        |      |      |            |             |
|                | 3% Ni Gray Iron                                         | A 126 (modified)                              | Class B                                 |        |        |        |        |      |      |            |             |
|                | Austenitic Gray Iron (Ni-Resist)                        | A 436                                         | Type 2                                  |        | 3.00   | 2.0    |        | .5   |      | 1.0        |             |
|                | Ductile Iron (Ferritic)                                 | A 395                                         |                                         |        | 3.20   |        |        |      |      |            |             |
|                | Austenitic Ductile Iron (Ductile) (Ductile) (Ni-Resist) | A 536 65-45-12<br>A 536 80-55-06<br>A 439 D2C |                                         |        | 2.9    | .5     |        |      |      | 2.4        | 1.0         |

| NOMINAL OR MAXIMUM CHEMICAL COMPOSITION |           |               |             |           |                     |                    | NOMINAL PHYSICAL PROPERTIES |                            |                          |                 |                    |
|-----------------------------------------|-----------|---------------|-------------|-----------|---------------------|--------------------|-----------------------------|----------------------------|--------------------------|-----------------|--------------------|
| NICKEL<br>Ni                            | PHOS<br>P | SILICON<br>Si | SULFUR<br>S | TIN<br>Sn | TITAN-<br>IUM<br>Ti | TUNG-<br>STEN<br>W | ZINC<br>Zn                  | TENSILE<br>STRENGTH<br>Psi | YIELD<br>STRENGTH<br>Psi | %<br>ELONGATION | HARDNESS           |
| .50                                     |           | 12.0          |             | .15       |                     |                    | .50                         | 42,000                     | 19,000                   | 3.5             |                    |
|                                         |           |               |             |           |                     |                    | 35.5                        | 50,000                     | 20,000                   | 15              | 75 HRB             |
| 1.0                                     | .05       | .005          | .05         | 6.0       |                     |                    | 4.5                         | 34,000                     | 16,000                   | 22              | 65 HB<br>*500 kg   |
| 1.0                                     | .05       | .005          | .08         | 5.0       |                     |                    | 5.0                         | 30,000                     | 14,000                   | 20              | 60 HB<br>500 kg    |
|                                         |           | 1.6           |             |           |                     |                    | 1.5                         | 86,000**                   | 20,000                   | 11              | 65 HRB             |
|                                         |           |               |             |           |                     |                    | 38.0                        | 52,000                     | 20,000                   | 45              | 80 HRB             |
|                                         |           |               |             |           |                     |                    | 38.0                        | 52,000                     | 20,000                   | 45              | 78 HRB             |
|                                         |           |               |             |           |                     |                    | 15.0                        | 56,000                     |                          |                 | 60 HRB             |
| .7                                      |           |               |             |           |                     |                    | 9.1                         | 50,000                     | 30,000                   | 7               | 60 HRB             |
|                                         |           |               |             |           |                     |                    |                             | 75,000                     | 30,000                   | 12              | 170 HB<br>*3000 kg |
| .25                                     |           | 2.0           |             | .20       |                     |                    | .50                         | 90,000                     | 45,000                   | 9               | 80 HRB             |
|                                         |           | 4.0           |             |           |                     |                    | 14.5                        | 80,000                     | 40,000                   | 15              | 85 HRB             |
|                                         | .02       | .005          | .08         | 3.0       |                     |                    | 9.0                         | 29,000                     | 13,000                   | 18              | 55 HB<br>*500 kg   |
| 1.0                                     | .02       | .005          | .08         | 3.0       |                     |                    | 12.0                        | 29,000                     | 13,000                   | 16              | 55 HB<br>*500 kg   |
| 20.0                                    |           |               |             | 4.0       |                     |                    | 8.0                         | 40,000                     | 17,000                   | 10              | 80 HB              |
|                                         | .02       |               |             |           |                     |                    |                             | 36,000                     | 30,000                   | 25              | 45 T               |
|                                         | .75       |               | .15         |           |                     |                    |                             | 31,000                     |                          |                 | 195 HB             |
| 3.00                                    | .75       |               | .15         |           |                     |                    |                             | 31,000                     |                          |                 | 195 HB             |
| 20.0                                    |           | 2.0           | .12         |           |                     |                    |                             | 25,000                     |                          |                 | 118 HB             |
|                                         | .08       | 2.50          |             |           |                     |                    |                             | 60,000                     | 40,000                   | 18              | 167 HB             |
|                                         | .08       | 2.50          |             |           |                     |                    |                             | 65,000                     | 45,000                   | 12              | 160 HB             |
|                                         | .08       | 2.50          |             |           |                     |                    |                             | 80,000                     | 55,000                   | 6               | 160 HB             |
| 24.0                                    | .08       | 3.0           |             |           |                     |                    |                             | 58,000                     | 28,000                   | 20              | 146 HB             |

\*Load Applied During Testing  
 \*\*Allowable Range is 75,000 to 95,000

# Properties of Valve Materials

|                    | ALLOY                                                           | ASTM NO.    | OTHER ALLOY DESIGNATION | NOMINAL OR MAXIMUM CHEMICAL COMPOSITION |              |              |              |            |            |     |      | MANGANESE<br>Mn | MOLYBDENUM<br>Mo |
|--------------------|-----------------------------------------------------------------|-------------|-------------------------|-----------------------------------------|--------------|--------------|--------------|------------|------------|-----|------|-----------------|------------------|
|                    |                                                                 |             |                         | CARBON<br>AL<br>C                       | CHROME<br>Cr | COBALT<br>Co | COPPER<br>Cu | IRON<br>Fe | LEAD<br>Pb |     |      |                 |                  |
|                    |                                                                 |             |                         |                                         |              |              |              |            |            |     |      |                 |                  |
| Stainless Steel    | Wrot 304                                                        | A 167 304   | UNS S30400              | .08                                     | 19           |              |              |            |            |     | 2    |                 |                  |
|                    | Cast 316                                                        | A 351 CF8M  | UNS S31600              | .08                                     | 20           |              |              |            |            |     | 1.5  | 2.5             |                  |
|                    | Cast 316                                                        | A 743 CF16F |                         | .16                                     | 20           |              |              |            |            |     | 1.5  | 1.5             |                  |
|                    | Cast 316                                                        | A 743 CF8M  |                         | .08                                     | 20           |              |              |            |            |     | 1.5  | 2.5             |                  |
|                    | Wrot 316                                                        | A 276 316   | UNS S31600              | .08                                     | 17           |              |              |            |            |     | 2    |                 |                  |
|                    | Cast 410                                                        | A 217 CA 15 |                         | .15                                     | 13           |              |              |            |            |     | 1    | 2.5             |                  |
|                    | Forged 410                                                      | A 182 F6A2  |                         | .15                                     | 13           |              |              |            |            |     | 1    |                 |                  |
|                    | Wrot 410                                                        | A 276 410   | UNS S41000              | .15                                     | 13           |              |              |            |            |     | 1    |                 |                  |
|                    | Wrot 416                                                        | A 582       | UNS S41600              | .15                                     | 13           |              |              |            |            |     | 1.25 |                 |                  |
|                    | Wrot 420                                                        | A 276 420   | UNS S42000              | .15                                     | 13           |              |              |            |            |     | 1    |                 |                  |
|                    | Cast Alloy 20                                                   | A 743 CN7M  |                         | .07                                     | 20           |              | 3.5          |            |            |     | 1.5  | 2.5             |                  |
|                    | Wrot Alloy 20                                                   | B 473 20C63 | UNS N08020              | .07                                     | 20           |              | 3.5          |            |            |     | 2    | 2.5             |                  |
| Wrot 17-4PH        | A 564 630                                                       | UNS S17400  | .07                     | 16                                      |              | 3.5          |              |            |            | 1   |      |                 |                  |
| Steels             | Forged Carbon Steel                                             | A 105       |                         | .35                                     |              |              |              |            |            |     | 1    |                 |                  |
|                    | Cast Carbon Steel                                               | A 216 WCB   |                         | .3                                      |              |              |              |            |            |     | 1.1  |                 |                  |
|                    | Cast Carbon Steel                                               | A 216 WCC   |                         | .25                                     |              |              |              |            |            |     | 1.2  |                 |                  |
|                    | 1¼ Cast Cr. Moly Steel                                          | A 217 WC6   |                         | .2                                      | 1.2          |              |              |            |            |     | .7   | .55             |                  |
|                    | Cast Cr. Moly Steel                                             | A 217 C5    |                         | .2                                      | 5            |              |              |            |            |     | .55  | .55             |                  |
|                    | Cast Low Carbon Steel                                           | A 352 LCB   |                         | .3                                      |              |              |              |            |            |     | 1.0  |                 |                  |
|                    | Nickel-Low Carbon Steel                                         | A 352 LC2   |                         | .25                                     |              |              |              |            |            |     | .65  |                 |                  |
|                    | B-7 Alloy Steel Studs                                           | A 193 B7    |                         | .4                                      | 1            |              |              |            |            |     | .85  | .2              |                  |
|                    | 304 SS Nuts                                                     | A 194 GR8   |                         | .08                                     | 19           |              |              |            |            |     | 2    |                 |                  |
|                    | 2-H Alloy Steel Nuts                                            | A 194 2H    |                         | .4                                      |              |              |              |            |            |     |      |                 |                  |
| Reg. Steel Bolting | A 307 Gr. A                                                     |             | .29                     |                                         |              |              |              |            |            | 1.2 |      |                 |                  |
| Trim Steels        | Steel Bolting                                                   | A 449       |                         | .4                                      |              |              |              |            |            |     | .6   |                 |                  |
|                    | 304SS Bolting                                                   | A 493 304   | UNS S30400              | .08                                     | 19           |              |              |            |            |     | 2    |                 |                  |
|                    | Eyebolts                                                        | A 489       |                         | .48                                     |              |              |              |            |            |     | 1.0  |                 |                  |
|                    | Gland Nuts                                                      | A 563 Gr. A |                         | .37                                     | .55          |              | .35          |            |            |     | 1.0  |                 |                  |
|                    | H/W Nuts                                                        | A 108 1020  | UNS G10200              | .20                                     |              |              |              |            |            |     | .45  |                 |                  |
|                    | Swing Bolt Pin                                                  | A 108 1212  | UNS G12120              | .13                                     |              |              |              |            |            |     | .85  |                 |                  |
| Monel H.F.         | Yoke Bushing Caps                                               | A108 12L14  |                         | .15                                     |              |              |              |            | .25        |     | 1.0  |                 |                  |
|                    | Seat Ring Base                                                  | A 519 1026  |                         | .25                                     |              |              |              |            |            |     | .75  |                 |                  |
|                    | (Trademark Materials like, Stellite 6*, Stoddy 6, and Wallex 6) |             | AWS 5.13                | 1.25                                    | 29           | 55           |              | 2.5        |            |     |      |                 |                  |
|                    | Cast Monel                                                      |             | QQ-N-288-E              | .5                                      | .3           |              | 30           | 3.5        |            |     | 1.5  |                 |                  |
|                    | Wrought Monel (K-500)                                           |             | QQ-N-286-C1B            | 3.0                                     | .1           |              | 24           | 2.0        |            |     | 1.5  |                 |                  |

\*Trademark by Cabot Corp.

| NOMINAL OR MAXIMUM CHEMICAL COMPOSITION |           |               |             |           |                     |                    |            | NOMINAL PHYSICAL PROPERTIES |                          |                 |            |
|-----------------------------------------|-----------|---------------|-------------|-----------|---------------------|--------------------|------------|-----------------------------|--------------------------|-----------------|------------|
| NICKEL<br>Ni                            | PHOS<br>P | SILICON<br>Si | SULFUR<br>S | TIN<br>Sn | TITAN-<br>IUM<br>Ti | TUNG-<br>STEN<br>W | ZINC<br>Zn | TENSILE<br>STRENGTH<br>Psi  | YIELD<br>STRENGTH<br>Psi | %<br>ELONGATION | HARDNESS   |
| 9                                       | .045      | 1.0           | .03         |           |                     |                    |            | 75,000                      | 30,000                   | 40              | 202 HB     |
| 11                                      | .04       | 2.0           | .04         |           |                     |                    |            | 70,000                      | 30,000                   | 25              |            |
| 11                                      | .04       | 2.0           | .04         |           |                     |                    |            | 70,000                      | 30,000                   | 30              |            |
| 12                                      | .045      | 1.0           | .03         |           |                     |                    |            | 75,000                      | 30,000                   | 30              |            |
| 12                                      | .045      | 1.0           | .03         |           |                     |                    |            | 75,000                      | 30,000                   | 30              |            |
| 1                                       | .04       | 1.5           | .04         |           |                     |                    |            | 90,000                      | 65,000                   | 18              |            |
|                                         | .04       | 1.0           | .03         |           |                     |                    |            | 85,000                      | 55,000                   | 18              | 200/225 HB |
| .5                                      | .04       | 1.0           | .03         |           |                     |                    |            | 100,000                     | 80,000                   | 15              |            |
|                                         | .06       | 1.0           | .15         |           |                     |                    |            | 114,000                     | 95,000                   | 17              | 235 HB     |
|                                         | .04       | 1.0           | .03         |           |                     |                    |            |                             |                          |                 | 250/450 HB |
| 28                                      | .04       | 1.5           | .04         |           |                     |                    |            | 62,000                      | 25,000                   | 35              |            |
| 35                                      | .045      | 1.0           | .035        |           |                     |                    |            | 85,000                      | 35,000                   | 30              |            |
| 4                                       | .04       | 1.0           | .03         |           |                     |                    |            | 115,000                     | 75,000                   | 18              | 255 HB     |
|                                         | .04       | .035          | .05         |           |                     |                    |            | 70,000                      | 36,000                   | 22              | 187 HB     |
|                                         | .04       | .6            | .045        |           |                     |                    |            | 70,000                      | 36,000                   | 22              |            |
|                                         | .04       | .6            | .04         |           |                     |                    |            | 70,000                      | 40,000                   | 22              |            |
|                                         | .04       | .06           | .045        |           |                     |                    |            |                             |                          |                 |            |
|                                         | .04       | .75           | .045        |           |                     |                    |            |                             |                          |                 |            |
|                                         | .04       | .6            | .045        |           |                     |                    |            | 65,000                      | 35,000                   | 24              |            |
| 2.5                                     | .04       | .6            | .045        |           |                     |                    |            | 70,000                      | 40,000                   | 24              |            |
|                                         | .035      | .25           | .04         |           |                     |                    |            | 125,000                     | 105,000                  | 16              |            |
| 9                                       | .045      | 1.0           | .03         |           |                     |                    |            |                             |                          |                 | 126/300 HB |
|                                         | .04       |               | .05         |           |                     |                    |            |                             |                          |                 | 250/300 HB |
|                                         | .04       |               | .15         |           |                     |                    |            | 60,000                      |                          | 18              | 121/241 HB |
|                                         | .04       |               | .05         |           |                     |                    |            | 120,000                     | 92,000                   | 14              |            |
| 9                                       | .045      | 1.0           | .03         |           |                     |                    |            | 90,000                      |                          |                 |            |
|                                         | .04       | .25           | .05         |           |                     |                    |            | 75,000                      | 30,000                   | 30              |            |
| .35                                     | .04       | .2            | .05         |           |                     |                    |            |                             |                          |                 |            |
|                                         | .04       |               | .05         |           |                     |                    |            |                             |                          |                 | 120/300 HB |
|                                         | .10       |               | .20         |           |                     |                    |            |                             |                          |                 |            |
|                                         | .07       |               | .3          |           |                     |                    |            | 55,000                      | 35,000                   | 25              |            |
|                                         | .04       |               | .05         |           |                     |                    |            |                             |                          |                 |            |
| 3                                       |           |               |             |           |                     | 5                  |            | 105,000                     |                          | 10              | 350 HB     |
| 60                                      |           | 1.5           |             |           |                     |                    |            | 65,000                      | 32,500                   | 25              | 125/150 HB |
| 67                                      |           | .5            | .01         |           | .5                  |                    |            | 135,000                     | 95,000                   | 20              | 255 HB     |

# Flow Data

## Cv Values for Valves

### Liquid Flow:

$$Q = C_v \sqrt{\frac{\Delta P}{S}} \quad \text{or} \quad \Delta P = S \left( \frac{Q}{C_v} \right)^2$$

where... Q = flow rate (gallons per minute)  
 ΔP = pressure drop across valve (psi)  
 S = specific gravity of media

This equation is good for turbulent flow and for liquids with viscosities near that of water.

(Cv is defined as the flow in GPM that a valve will carry with a pressure drop of 1.0 psi when the media is water at 60°F.) (The specific gravity of water is 1 (one). )

### VALVE SIZE

| Size (mm.)                                           | 4   | 8    | 10   | 15   | 20   | 25   | 32    | 40    | 50    | 65    | 80    | 90    | 100   | 125   | 150   |
|------------------------------------------------------|-----|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Size (In.)                                           | 1/8 | 1/4  | 3/8  | 1/2  | 3/4  | 1    | 1 1/4 | 1 1/2 | 2     | 2 1/2 | 3     | 3 1/2 | 4     | 5     | 6     |
| <b>GATES</b>                                         |     |      |      |      |      |      |       |       |       |       |       |       |       |       |       |
| S/T-29                                               | .5  | 2    | 4.9  | 9.1  | 22   | 40   | 65    | 95    | 175   |       |       |       |       |       |       |
| S/T-111, 113, 131, 133<br>134, 136, 154,<br>174, 176 | —   | 5.6  | 10.7 | 17.6 | 32   | 54   | 97    | 135   | 230   | 337   | 536   | 710   | 960   | 1,525 | 2,250 |
| T/F-617, 619, 667,<br>669, 607, 609<br>F-637, 639    |     |      |      |      |      |      |       |       | 215   | 335   | 510   | 710   | 945   | 1,525 | 2,250 |
| <b>GLOBES</b>                                        |     |      |      |      |      |      |       |       |       |       |       |       |       |       |       |
| S/T-211, 235, 256<br>275-Y                           | .61 | 1.16 | 2.2  | 3.64 | 6.65 | 11.1 | 20    | 28    | 48    | 70    | 111   | —     | 198   |       |       |
| T-275-B                                              | —   | 1.16 | 2.21 | 3.64 | 6.65 | 11.1 | 20    | 28    | 48    | 70    | 111   |       |       |       |       |
| F-718, F-738                                         |     |      |      |      |      |      |       |       | 45    | 70    | 105   | —     | 195   | 315   | 465   |
| <b>CHECKS</b>                                        |     |      |      |      |      |      |       |       |       |       |       |       |       |       |       |
| S/T-413, 433, 473 (Swing)                            | —   | 1.3  | 2.5  | 4.8  | 14.3 | 24   | 43    | 60    | 102   | 150   | 238   | 315   | 435   | 675   | 1,000 |
| S/T-480 (Poppet)                                     | —   | —    | 3.70 | 6.86 | 16.3 | 30   | 49    | 72    | 130   |       |       |       |       |       |       |
| F-908 (Swing)                                        |     |      |      |      |      |      |       |       |       | 243   | 356   | —     | 665   | 1,073 | 1,584 |
| T/F-918, 968, 938 (Swing)                            |     |      |      |      |      |      |       |       | 137   | 221   | 327   | —     | 605   | 975   | 1,440 |
| KW-900-W                                             |     |      |      |      |      |      |       |       | 60    | 105   | 184   | —     | 354   | 577   | 801   |
| F-910, 960 (Poppet)                                  |     |      |      |      |      |      |       |       |       | 110   | 155   | —     | 278   | 431   | 625   |
| W-910, 960 (Poppet)                                  |     |      |      |      |      |      |       |       | 66    | 88    | 130   | —     | 228   | 350   | 520   |
| G-920-W                                              |     |      |      |      |      |      |       |       | 77    | 129   | 209   | —     | 358   | 573   | 898   |
| W-920-W                                              |     |      |      |      |      |      |       |       | 71    | 108   | 178   | —     | 330   | 560   | 840   |
| <b>BALL</b>                                          |     |      |      |      |      |      |       |       |       |       |       |       |       |       |       |
| F-510, 530                                           | —   | —    | —    | 11   | 25   | 45   | —     | 137   | 217   | —     | 482   | —     | 790   | —     | 1,144 |
| F-515, 535                                           | —   | —    | —    | 25   | 50   | 85   | —     | 259   | 440   | 840   | 1,400 | —     | 2,350 | —     | 5,200 |
| F-565                                                | —   | —    | —    | —    | —    | 75   | —     | 235   | 400   | —     | 1,180 | —     | 2,040 | —     | —     |
| T-560-BR/CS/S6                                       | —   | 4.0  | 4.0  | 5    | 12   | 22   | 35    | 52    | 95    | —     | —     |       |       |       |       |
| T-570                                                | —   | —    | —    | 7    | 12   | 25   | 38    | 52    | 95    | —     | —     |       |       |       |       |
| T/S-580                                              | —   | —    | —    | 5.8  | 13.9 | 27   | 44    | 64    | 100   | —     | —     |       |       |       |       |
| T/S-580-70                                           | —   | —    | —    | —    | —    | —    | 38.5  | 76    | 101.4 | 183   | 390   |       |       |       |       |
| T/S-585-70                                           | —   | 4.2  | 6.2  | 15.3 | 30.4 | 48.8 | 103   | 143   | 245   | —     | —     |       |       |       |       |
| TM-585-70-66                                         | —   | —    | —    | 15.3 | 30.4 | 48.8 | 103   | 143   | 245   | —     | —     |       |       |       |       |
| AT-585-70-66                                         | —   | —    | —    | —    | —    | —    | —     | —     | 183   | —     | —     |       |       |       |       |
| T-580-70-W3                                          | —   | —    | —    | —    | —    | —    | 21.6  | 38    | 48.5  | —     | —     |       |       |       |       |
| T/S-585-70-W3                                        | —   | —    | —    | 6    | 12   | 19.5 | —     | —     | —     | —     | —     |       |       |       |       |
| T-580 (CS-S6)                                        | —   | 6    | 12   | 15   | 23   | 36   | 44    | 64    | 114   | —     | —     |       |       |       |       |
| T/S-590-Y                                            | —   | —    | —    | —    | —    | —    | 44    | 64    | 100   | 183   | 390   |       |       |       |       |
| T/S-595-Y                                            | —   | 5.9  | 11.4 | 18.7 | 34   | 57   | 103   | 143   | 245   | 310   | —     |       |       |       |       |
| TM/KM-595 (CS-S6)                                    | —   | 6    | 12   | 19   | 37   | 64   | 103   | 143   | 245   | —     | —     |       |       |       |       |
| T/K-595 (CS-S6)                                      | —   | 6    | 12   | 19   | 37   | 64   | 103   | 143   | 245   | —     | —     |       |       |       |       |
| <b>BUTTERFLY</b>                                     |     |      |      |      |      |      |       |       |       |       |       |       |       |       |       |
| LD/WD-2000, 3000                                     |     |      |      |      |      |      |       |       | 166   | 247   | 340   | —     | 660   | 1,080 | 1,613 |
| GD-4765, 4775 FC-2700, FD-5700                       |     |      |      |      |      |      |       |       | 145   | 195   | 290   | —     | 600   | 930   | 1,600 |

NOTE: Flow data for angle valves use globe Cv times 1.25:

Bronze Angles – 311, 335, 375, 376-AP  
 Iron Angles – 818, 869, 831

## Gas Flow:

$$Q = 1360 C_v \sqrt{\frac{\Delta P \times P_1}{S T}}$$

where . . . Q = gas flow (SCFH—std. cu. ft/hr)  
 S = specific gravity of gas (air = 1.0)  
 T = temp—degrees Rankine (°F + 460)  
 ΔP = pressure drop across valve (psi)  
 P<sub>1</sub> = upstream pressure (psia) absolute

**NOTE:** ΔP must be less than .5 P<sub>1</sub>. (Flow is critical when ΔP is greater than .5 P<sub>1</sub>.)

|        |        |        |        |        |        |        |        |        |        |   | (THROTTLING FACTORS)                                                                                                                                                                                                                                                                                                                                                   |     |      |     |     |     |     |     |      |      |      |      |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------|-----|-----|-----|-----|-----|------|------|------|------|
|        |        |        |        |        |        |        |        |        |        |   | For throttling use with disc partially open. Multiply Cv by factor.                                                                                                                                                                                                                                                                                                    |     |      |     |     |     |     |     |      |      |      |      |
|        |        |        |        |        |        |        |        |        |        |   | NOTE: Gate valves are not throttled.                                                                                                                                                                                                                                                                                                                                   |     |      |     |     |     |     |     |      |      |      |      |
| 200    | 250    | 300    | 350    | 400    | 450    | 500    | 600    | 750    | 900    |   | 0                                                                                                                                                                                                                                                                                                                                                                      | 10  | 20   | 30  | 40  | 50  | 60  | 70  | 80   | 90   | 100  |      |
| 8      | 10     | 12     | 14     | 16     | 18     | 20     | 24     | 30     | 36     |   |                                                                                                                                                                                                                                                                                                                                                                        |     |      |     |     |     |     |     |      |      |      |      |
|        |        |        |        |        |        |        |        |        |        |   |                                                                                                                                                                                                                                                                                                                                                                        |     |      |     |     |     |     |     |      |      |      |      |
|        |        |        |        |        |        |        |        |        |        |   |                                                                                                                                                                                                                                                                                                                                                                        |     |      |     |     |     |     |     |      |      |      |      |
|        |        |        |        |        |        |        |        |        |        |   |                                                                                                                                                                                                                                                                                                                                                                        |     |      |     |     |     |     |     |      |      |      |      |
| 4,150  | 6,700  | 9,925  | 13,800 | 18,375 | 23,600 | 29,600 | 43,570 |        |        |   |                                                                                                                                                                                                                                                                                                                                                                        |     |      |     |     |     |     |     |      |      |      |      |
|        |        |        |        |        |        |        |        |        |        |   |                                                                                                                                                                                                                                                                                                                                                                        |     |      |     |     |     |     |     |      |      |      |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .35 | .65  | .90 | .93 | .96 | .98 | .99 | 1.00 | 1.00 | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .03 | .035 | .06 | .1  | .16 | .24 | .32 | .47  | .68  | 1.00 |      |
| 860    | 1,390  |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .35 | .65  | .90 | .93 | .96 | .98 | .99 | 1.00 | 1.00 | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | WARNING                                                                                                                                                                                                                                                                                                                                                                |     |      |     |     |     |     |     |      |      |      |      |
|        |        |        |        |        |        |        |        |        |        |   | The Fluid Flow factors contained herein are calculated values. They are, therefore, approximations and cannot be used for highly critical flow or pressure drop calculations. For very precise flow measurements, tests must be conducted on any valve mentioned within this catalog. Throttling of ball valves is not recommended when valves are less than 45° open. |     |      |     |     |     |     |     |      |      |      |      |
| 2,937  | 4,730  | 6,985  |        |        |        |        |        |        |        |   |                                                                                                                                                                                                                                                                                                                                                                        | 0   | 10   | 20  | 30  | 40  | 45  | 50  | 60   | 70   | 80   | 90   |
| 2,670  | 4,300  | 6,350  |        |        |        |        |        |        |        |   |                                                                                                                                                                                                                                                                                                                                                                        | 0   | .01  | .05 | .16 | .30 | .37 | .45 | .58  | .71  | .87  | 1.00 |
| 1,500  | 2,357  | 3,742  |        |        |        |        |        |        |        |   |                                                                                                                                                                                                                                                                                                                                                                        | 0   | .01  | .05 | .16 | .30 | .37 | .45 | .58  | .71  | .87  | 1.00 |
| 1,115  | 1,770  | 2,500  | 3,400  | 4,400  | 5,600  | 6,900  | 10,000 | 15,400 | 22,400 | 0 | .01                                                                                                                                                                                                                                                                                                                                                                    | .05 | .16  | .30 | .37 | .45 | .58 | .71 | .87  | 1.00 |      |      |
| 900    | 1,450  |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
| 1,740  | 3,180  | 5,270  |        |        |        |        |        |        |        |   |                                                                                                                                                                                                                                                                                                                                                                        | 0   | .01  | .05 | .16 | .30 | .37 | .45 | .58  | .71  | .87  | 1.00 |
| 1,600  | 2,700  | 4,000  |        |        |        |        |        |        |        |   |                                                                                                                                                                                                                                                                                                                                                                        | 0   | .01  | .05 | .16 | .30 | .37 | .45 | .58  | .71  | .87  | 1.00 |
| 2,164  | 3,507  | 5,516  |        |        |        |        |        |        |        |   |                                                                                                                                                                                                                                                                                                                                                                        | 0   | .01  | .05 | .16 | .30 | .37 | .45 | .58  | .71  | .87  | 1.00 |
| 10,200 | 14,400 | 25,300 |        |        |        |        |        |        |        |   |                                                                                                                                                                                                                                                                                                                                                                        | 0   | .01  | .05 | .16 | .30 | .37 | .45 | .58  | .71  | .87  | 1.00 |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   | 0                                                                                                                                                                                                                                                                                                                                                                      | .01 | .05  | .16 | .30 | .37 | .45 | .58 | .71  | .87  | 1.00 |      |
|        |        |        |        |        |        |        |        |        |        |   |                                                                                                                                                                                                                                                                                                                                                                        |     |      |     |     |     |     |     |      |      |      |      |

# Marine Applications

## **CG190 COAST GUARD**

Now called "CIMDTINST - M16714.3"

"Equipment Lists"

"Items approved, certified or accepted under Marine Inspection and Navigation Laws."

NIBCO Valves, Fittings and Flanges are listed in this document.

## **Code of Federal Regulations Title 46 Shipping Parts 41 to 69**

The Code of Federal Regulations is a codification of the general and permanent rules published in the Federal Regulations by the Executive Departments and Agencies of the Federal Government.

This regulation is constantly revised to reference the latest ANSI, ASTM & MSS Standards to which NIBCO conforms to when building products.

## **APL, CID, NSN NAVY**

"Department of the Navy"

"Navy Ships Parts Control Center"

Mechanicsburg, PA

The Department of the Navy, when using standard commodity type valves, assigns APL-CID numbers to each individual valve manufactured by a company. Valves of the same figure number, but of different size get different CID numbers.

The (APL) Allowance Parts List, (CID) Code Identification Numbers and (NSN) National Stock Numbers are used by the Navy in the Parts Control Center to order replacement valves or parts for valves that are installed on board United States Navy vessels.

When a Navy vessel is being built, the ship yard doing the construction must apply to the Parts Control Center for CID numbers on all valves before the Navy will accept delivery of the vessel.

On many NIBCO valves, the CID and NSN numbers have been assigned. Consult NIBCO for more information.

## **Rules for Building AMERICAN BUREAU OF SHIPPING**

The American Bureau of Shipping states in Article 36.15.1; All valves are to be constructed and tested in accordance with a recognized standard, such as ANSI, MSS or other, acceptable to the Bureau. They are to bear the trademark of the manufacturer legibly stamped or cast on the exterior of the valve, as well as the pressure rating class for which the manufacturer guarantees the valve will meet the requirements of the standards.

The following iron gate, globe and check valves are approved by ABS for marine service: F-617, F-619, F-637, F-639, F-718, F-738, F-918, and F-938 series.

**Manufacturers Federal Code: NIBCO - 12168**

## **LLOYD'S REGISTER OF SHIPPING**

NIBCO iron valves are approved by Lloyd's Register.

**Certificate No. NOS 9603021**

# Temperature Limits of Materials

## Rated Internal Working Pressures of Joints made with Copper Water Tube and Solder Type Fittings, PSI (Bar)

| Solder or Brazing<br>Alloy Used in Joints                  | Service Temperature<br>° F      (° C) |                    | Copper Water Tube K, L and M Nominal Sizes, In Inches (mm) |           |           |          |            | Saturated<br>Steam LB (kg)           |
|------------------------------------------------------------|---------------------------------------|--------------------|------------------------------------------------------------|-----------|-----------|----------|------------|--------------------------------------|
|                                                            |                                       |                    | Water A                                                    |           |           |          |            | All Sizes                            |
|                                                            |                                       |                    | ¼" to 1"                                                   | 1¼" to 2" | 2½" to 4" | 5" to 8" | 10" to 12" |                                      |
| 50- 50 Tin-Lead <sup>B, G</sup>                            | 100                                   | (38)               | 200 (14)                                                   | 175 (12)  | 150 (10)  | 135 (9)  | 100 (7)    | 15 <sup>D</sup> (6.8) <sup>D</sup>   |
|                                                            | 150                                   | (66)               | 150 (19)                                                   | 125 (8)   | 100 (7)   | 90 (6)   | 70 (4)     |                                      |
|                                                            | 200                                   | (93)               | 100 (9)                                                    | 90 (6)    | 75 (5)    | 70 (40)  | 50 (3)     |                                      |
|                                                            | 250                                   | (121)              | 85 (6)                                                     | 75 (5)    | 50 (3)    | 45 (3)   | 40 (2)     |                                      |
| 95-5 Tin-Antimony <sup>C</sup>                             | 100                                   | (38)               | 635 (43)                                                   | 560 (39)  | 375 (26)  | 340 (23) | 150 (10)   | 15 <sup>D</sup> (6.8) <sup>D</sup>   |
|                                                            | 150                                   | (66)               | 635 (43)                                                   | 560 (39)  | 375 (26)  | 340 (23) | 150 (10)   |                                      |
|                                                            | 200                                   | (93)               | 630 (43)                                                   | 480 (33)  | 375 (26)  | 340 (23) | 140 (10)   |                                      |
|                                                            | 250                                   | (121)              | 435 (30)                                                   | 330 (23)  | 265 (18)  | 245 (16) | 110 (7)    |                                      |
| Brazing Alloys,<br>Melting at or above<br>1000° F (538° C) | 100-150-200                           | (32-66-93)         | H                                                          | H         | H         | H        | H          | 120 <sup>E</sup> (54.4) <sup>E</sup> |
|                                                            | 250 <sup>F</sup>                      | (121) <sup>F</sup> | H                                                          | H         | H         | H        | H          |                                      |
|                                                            | 350                                   | (177)              | H                                                          | H         | H         | H        | H          |                                      |

The values in the above table are based on data in the National Bureau of Standards publications, "Building Materials and Structures Reports" BMS 58 and BMS 83.

<sup>A</sup>Including other non-corrosive liquids and gases.

<sup>B</sup>ASTM B 32, Alloy Grade Sn50.

<sup>C</sup>ASTM B 32, Alloy Grade Sb5.

<sup>D</sup>This pressure is determined by the temperature of saturated steam at 15 lb. (6.8 kg) pressure at 250° F (121° C).

<sup>E</sup>This pressure is determined by the temperature of saturated steam at 120 lb. (54.4 kg) pressure at 350° F (177° C).

<sup>F</sup>For service temperatures lower than 250° F (121° C), the solders as above may be used.

<sup>G</sup>The Safe Drinking Water Act Amendment of 1986 prohibits the use in potable water systems of any solder having a lead content in excess of 0.2%.

<sup>H</sup>Rated internal pressure is that of the tube being joined. While solders can be used, brazing alloys are recommended.

## Pressure/Temperature Ratings for NIBCO Gray Iron and Ductile Iron Valves

### Pressure/Temperature Ratings for Threaded Bronze Pressure Rated Valves†

| Press. Class | 125 <sup>2,3</sup> | 150 <sup>3</sup> | 200 <sup>3</sup> | 300 <sup>3</sup> |
|--------------|--------------------|------------------|------------------|------------------|
| Temperature  | Thd.               | Thd.             | Thd.             | Thd.             |
| °F           | °C                 | ASTM B 62        | ASTM B 61        |                  |
| -20 to 150   | -28.8 to 65.5      | 200              | 300              | 400 600          |
| 200          | 93.3               | 185              | 270              | 375 560          |
| 250          | 121.1              | 170              | 240              | 350 525          |
| 300          | 148.8              | 155              | 210              | 325 490          |
| 350          | 176.6              | 140              | 180              | 300 450          |
| 400          | 204.4              | —                | —                | 275 410          |
| 406          | 207.7              | 125              | 150              | — —              |
| 450          | 232.2              | 120 <sup>1</sup> | 145 <sup>1</sup> | 250 375          |
| 500          | 260.0              | —                | —                | 225 340          |
| 550          | 287.7              | —                | —                | 200 300          |

<sup>1</sup>Some codes (i.e. ASME BPVC, SECTION 1) limit the rating temperatures of the indicated material to 406° F temperatures.

<sup>2</sup>Buna-N disc valves limited to 180° F temperatures.

<sup>3</sup>PTFE disc valves limited to 450° F temperatures.

<sup>4</sup>Solder end valves are limited by temperatures which affect the strength of the solder joint.

†Tables from MSS SP-80

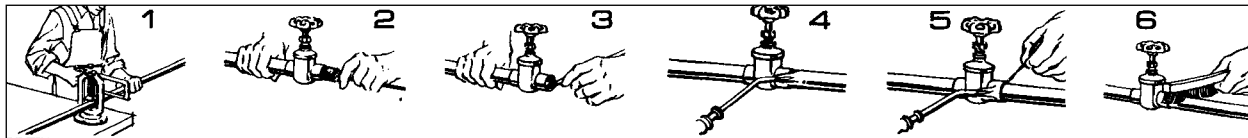
| <sup>1</sup> Temperature |               | Gray Iron         |                 |                   |         | Ductile Iron |
|--------------------------|---------------|-------------------|-----------------|-------------------|---------|--------------|
|                          |               | Class 125 200 WOG |                 | Class 250 500 WOG |         | Class 150    |
| °F                       | °C            | 2"-12"            | 14"-24" 30"-48" | 2"-12"            | 14"-24" | 2"-12"       |
| -20 to 100               | -28.8 to 37.7 | 200 150 150       | 500 300         | 285               |         |              |
| 150                      | 65.5          | 200 150 —         | 500 300         | 243               |         |              |
| 200                      | 93.3          | 190 135 115       | 460 280         | 235               |         |              |
| 225                      | 107.2         | 180 130 100       | 440 270         | —                 |         |              |
| 250                      | 121.1         | 175 125 85        | 415 260         | 225               |         |              |
| 275                      | 135.0         | 170 120 65        | 395 250         | —                 |         |              |
| 300                      | 148.8         | 165 110 50        | 375 240         | 215               |         |              |
| 325                      | 162.7         | 155 105           | 355 230         | —                 |         |              |
| 350                      | 176.6         | 150 100           | 335 220         | 210               |         |              |
| 375                      | 190.5         | 145               | 315 210         | —                 |         |              |
| 400                      | 204.4         | 140               | 290 200         | 200               |         |              |
| 425                      | 218.3         | 130               | 270             | —                 |         |              |
| *450                     | 232.2         | 125               | 250             | 185               |         |              |
| 500                      | 260.0         |                   |                 | 170               |         |              |
| 550                      | 287.7         |                   |                 | 155               |         |              |
| 600                      | 315.5         |                   |                 | 140               |         |              |
| 650                      | 343.3         |                   |                 | 125               |         |              |

The temperature shown for the corresponding rating shall be the metal temperature of the pressure retaining parts. It shall be assumed that the metal temperature will be the temperature of the contained fluid. Use of a pressure rating at a metal temperature other than that of the contained fluid shall be the responsibility of the user.

<sup>1</sup>Buna-N Disc Valves limited to 180° F or EPDM Disc Valves limited to 250° F.

\*Maximum temperature for bronze trim or PTFE

# Valve Installation Tips



## SOLDERING AND SILVER BRAZING

Analyze the application to determine which valve is best suited for installations, keeping in mind the service for which the valve is recommended. Before installing the correct valve, review the installation instructions to prevent damage to the valve and to assure its maximum efficiency.

1. Cut tube end square. Ream, burr and size.
2. Use sand cloth or steel wire brush to clean both ends to a bright metal finish. Steel wool is *not* recommended.
3. Apply flux to outside of tube and inside of solder cup. Surfaces to be joined must be completely covered. Use flux sparingly.
4. Be sure that valve is fully open. Apply heat to tube first. Transfer as much heat as possible through tube into valve. Avoid prolonged heating of valve itself.
- 4a. Silver Brazing Method: Assemble parts to be brazed. If fluxed parts are allowed to stand, the water in the flux will evaporate, and dried flux is liable to flake off, exposing metal surfaces to oxidation. Assemble joint by inserting tube into socket hard against the stop. The assembly should be firmly supported so that it will remain in alignment during the brazing operation.

**NOTE:** On one-inch and larger valves, it is difficult to bring the whole joint up to temperature at one time. It will frequently be found desirable to use a double-tip torch to maintain the proper temperature over the larger area. A mild pre-heating of the whole socket area is recommended. Apply heat to parts to be joined. The preferred method is by oxy-acetylene flame. Heat tube first, beginning one inch from edge of valve. Sweep flame around tube in short strokes up and down at right angles to run of tube. To avoid burning through tube, the flame should be in continuous motion and not allowed to remain on any one point.

Apply flame to valve at base of socket. Heat uniformly, sweeping flame from valve to tube until flux on valve becomes quiet. Avoid excessive heating of valve.

When flux appears liquid and transparent on both tube and valve, start sweeping flame back and forth along axis of joint to maintain heat on parts to be joined, especially toward base of valve socket.

5. Use just enough solder: with wire solder, use 3/4" for a 3/4" valve, etc. If too much solder is used, it may flow past tube stop and clog sealing area. When joint is filled, a continuous run of solder or brazing alloy will be visible.
- 5a. Silver Brazing Method: Apply brazing wire or rod at point where tube enters valve socket. Keep flame away from rod or wire as it is fed into the joint. Move flame back and forth as alloy is drawn into joint. When the proper temperature is reached alloy will flow readily

into space between tube outer wall and valve socket. When joint is filled, a continuous rim of brazing alloy will be visible.

6. Remove excess solder with small brush while plastic, leaving a fillet around end of valve as it cools.

## SILVER BRAZING

The strength of a brazed joint does not vary appreciably with the different brazing materials, but depends to a large extent upon the maintenance of proper clearance between the outside of the tube and the valve socket. The interior dimensions of silver brazing valve sockets are machined to the closest tolerances and finished smooth to promote full capillary attraction.

**NOTE:** Care should be observed in cleaning and in removing residues of the cleaning medium. Attempting to braze a contaminated or improperly cleaned surface will result in an unsatisfactory joint. Silver brazing alloys will not flow over or bond to oxides. Oily or greasy surfaces repel fluxes, leaving bare spots which oxidize and result in voids and inclusions.

## THREADING

Grit, dirt or any foreign matter accumulated in the pipe can hinder efficient valve operation and seriously damage vital valve parts. Thoroughly clean pipe internally with air or steam.

When threading pipe, gauge pipe threads for size and length to avoid jamming pipe against seat and disc. Thoroughly clean threaded end to remove any harmful steel or iron deposits. For a good joint, use PTFE tape or pipe dope. If pipe dope is used, apply sparingly on pipe threads, *never* on valve threads. Do not allow any pipe dope into valve body in order to avoid damage to disc and seat.

Before installation, check line of flow through valve so that valve will function properly. Close valve completely before installation. Apply wrench to hex next to pipe and guard against possible distortion. After installation of valve, support line; a sagging pipe line can distort valve and cause failure.

## FLANGED

There are several steps to follow to make sure that a flanged joint will be properly assembled. First, clean the joint carefully. Then loosely assemble the joint by putting in the bottom two or three bolts. Then carefully insert the gasket into place. The bottom bolts will help locate the gasket and hold it in position. Then insert the rest of the bolts into place and tighten all of the bolts evenly—not in rotation, but by the cross-over method to load the bolts evenly and eliminate concentrated stresses. The bolts should be checked for tightness after an appropriate interval of use and retightened if necessary.

# Engineering Data

## Flange Dimensions

### Class 125 Bronze Flange Dimensions

Meets 125 lb. A.S.M.E. Standard

| Nominal Size | Dim. A<br>Flange O.D. | Dim. B<br>Bolt Circle | Dim. C<br>Thickness of Flange | Dia. Bolt Hole | Dia. Bolt | No. Bolt Holes |
|--------------|-----------------------|-----------------------|-------------------------------|----------------|-----------|----------------|
| 1/2          | 3.50                  | 2.38                  | .19                           | .63            | .50       | 4              |
| 3/4          | 3.88                  | 2.75                  | .19                           | .63            | .50       | 4              |
| 1            | 4.25                  | 3.13                  | .25                           | .63            | .50       | 4              |
| 1 1/4        | 4.63                  | 3.50                  | .25                           | .63            | .50       | 4              |
| 1 1/2        | 5.00                  | 3.88                  | .31                           | .63            | .50       | 4              |
| 2            | 6.00                  | 4.75                  | .38                           | .75            | .63       | 4              |
| 2 1/2        | 7.00                  | 5.50                  | .38                           | .75            | .63       | 4              |
| 3            | 7.50                  | 6.00                  | .44                           | .75            | .63       | 4              |
| 3 1/2        | 8.50                  | 7.00                  | .44                           | .75            | .63       | 8              |
| 4            | 9.00                  | 7.50                  | .44                           | .75            | .63       | 8              |
| 5            | 10.00                 | 8.50                  | .44                           | .88            | .75       | 8              |
| 6            | 11.00                 | 9.50                  | .50                           | .88            | .75       | 8              |
| 8            | 13.50                 | 11.75                 | .63                           | .88            | .75       | 8              |
| 10           | 16.00                 | 14.25                 | .63                           | 1.00           | .88       | 12             |
| 12           | 19.00                 | 17.00                 | .69                           | 1.00           | .88       | 12             |

### Class 150 Bronze Flange Dimensions

Meets ANSI STD B16.24 and Federal Spec. WW-F-406

| Nominal Size | Dim. A<br>Flange O.D. | Dim. B<br>Bolt Circle | Dim. C<br>Thickness of Flange | Dia. Bolt Hole | Dia. Bolt | No. Bolt Holes |
|--------------|-----------------------|-----------------------|-------------------------------|----------------|-----------|----------------|
| 1/2          | 3.50                  | 2.38                  | .31                           | .63            | .50       | 4              |
| 3/4          | 3.88                  | 2.75                  | .34                           | .63            | .50       | 4              |
| 1            | 4.25                  | 3.13                  | .38                           | .63            | .50       | 4              |
| 1 1/4        | 4.63                  | 3.50                  | .40                           | .63            | .50       | 4              |
| 1 1/2        | 5.00                  | 3.88                  | .44                           | .63            | .50       | 4              |
| 2            | 6.00                  | 4.75                  | .50                           | .75            | .63       | 4              |
| 2 1/2        | 7.00                  | 5.50                  | .56                           | .75            | .63       | 4              |
| 3            | 7.50                  | 6.00                  | .63                           | .75            | .63       | 4              |
| 3 1/2        | 8.50                  | 7.00                  | .69                           | .75            | .63       | 8              |
| 4            | 9.00                  | 7.50                  | .69                           | .75            | .63       | 8              |
| 5            | 10.00                 | 8.50                  | .75                           | .88            | .75       | 8              |
| 6            | 11.00                 | 9.50                  | .81                           | .88            | .75       | 8              |
| 8            | 13.50                 | 11.75                 | .94                           | .88            | .75       | 8              |

Corresponding sizes of class 150 (ANSI B16.24) flange diameters and drilling templates are the same as those of the American Class 125 Cast Iron Flange Standard (ANSI B16.1) and of the American Class 150 Steel Flange Standard (ANSI B16.5). Class 300 (ANSI B16.24) flange diameters and drilling templates are the same as those of the American Class 250 Cast Iron Flange Standard (ANSI B16.1) and of the American Class 300 Steel Flange Standard (ANSI B16.5).

Full face gaskets extending to the flange face edge as given in American Standard Non-Metal Gaskets for Pipe Flanges ANSI B16.21 are required. Metal gaskets should not be used.

### Class 300 Bronze Flange Dimensions

Meets ANSI STD B16.24

| Nominal Size | Dim. A<br>Flange Diam. | Dim. B<br>Min. Flange Thickness | Dim. C<br>Bolt Circle | Dim. F<br>Bolt Hole Diam. | Bolt Diam. | No. of <sup>1</sup> Bolts |
|--------------|------------------------|---------------------------------|-----------------------|---------------------------|------------|---------------------------|
| 1/2          | 3.75                   | .50                             | 2.63                  | .63                       | .50        | 4                         |
| 3/4          | 4.63                   | .53                             | 3.25                  | .75                       | .63        | 4                         |
| 1            | 4.88                   | .59                             | 3.50                  | .75                       | .63        | 4                         |
| 1 1/4        | 5.25                   | .63                             | 3.88                  | .75                       | .63        | 4                         |
| 1 1/2        | 6.13                   | .69                             | 4.50                  | .88                       | .75        | 4                         |
| 2            | 6.50                   | .75                             | 5.00                  | .75                       | .63        | 8                         |
| 2 1/2        | 7.50                   | .81                             | 5.88                  | .88                       | .75        | 8                         |
| 3            | 8.25                   | .91                             | 6.63                  | .88                       | .75        | 8                         |
| 3 1/2        | 9.00                   | .97                             | 7.25                  | .88                       | .75        | 8                         |
| 4            | 10.00                  | 1.06                            | 7.88                  | .88                       | .75        | 8                         |
| 5            | 11.00                  | 1.13                            | 9.25                  | .88                       | .75        | 8                         |
| 6            | 12.50                  | 1.19                            | 10.63                 | .88                       | .75        | 12                        |
| 8            | 15.00                  | 1.38                            | 13.00                 | 1.00                      | .88        | 12                        |

<sup>1</sup>When flanges are integral with fittings or valves, holes for bolts are drilled to straddle the center line.

# Flange Dimensions

## Class 125 Cast Iron Flanges - ANSI Standard B16.1

Mates with 150-lb. Steel Flanges ANSI Standard B16.5

### Dimension in Inches

| Size | Diameter of Flange | Thickness of Flange | Diameter of Bolt Circle | Bolt Hole Diameter | Number of Bolts | Diameter of Bolts | *Length of Bolts |
|------|--------------------|---------------------|-------------------------|--------------------|-----------------|-------------------|------------------|
| 2    | 6.00               | .63                 | 4.75                    | .75                | 4               | .63               | 2.25             |
| 2½   | 7.00               | .69                 | 5.50                    | .75                | 4               | .63               | 2.50             |
| 3    | 7.50               | .75                 | 6.00                    | .75                | 4               | .63               | 2.50             |
| 3½   | 8.50               | .81                 | 7.00                    | .75                | 8               | .63               | 2.75             |
| 4    | 9.00               | .94                 | 7.50                    | .75                | 8               | .63               | 3.00             |
| 5    | 10.00              | .94                 | 8.50                    | .88                | 8               | .75               | 3.00             |
| 6    | 11.00              | 1.00                | 9.50                    | .88                | 8               | .75               | 3.25             |
| 8    | 13.50              | 1.13                | 11.75                   | .88                | 8               | .75               | 3.50             |
| 10   | 16.00              | 1.19                | 14.25                   | 1.00               | 12              | .88               | 3.75             |
| 12   | 19.00              | 1.25                | 17.00                   | 1.00               | 12              | .88               | 3.75             |
| 14   | 21.00              | 1.38                | 18.75                   | 1.13               | 12              | 1.00              | 4.25             |
| 16   | 23.50              | 1.44                | 21.25                   | 1.13               | 16              | 1.00              | 4.50             |
| 18   | 25.00              | 1.56                | 22.75                   | 1.25               | 16              | 1.13              | 4.75             |
| 20   | 27.50              | 1.69                | 25.00                   | 1.25               | 20              | 1.13              | 5.00             |
| 24   | 32.00              | 1.88                | 29.50                   | 1.38               | 20              | 1.25              | 5.50             |

\*When bolting to steel flanges, longer bolts or stud may be required.

## Class 250 Cast Iron Flanges - ANSI Standard B16.1

Mates with 300 lb. Steel Flanges ANSI Standard B16.5

### Dimension in Inches

| Size | Diameter of Flange | Thickness of Flange | Diameter of Bolt Circle | Bolt Hole Diameter | Number of Bolts | Diameter of Bolts | *Length of Bolts |
|------|--------------------|---------------------|-------------------------|--------------------|-----------------|-------------------|------------------|
| 2    | 6.50               | .88                 | 5.00                    | .75                | 8               | .63               | 2.75             |
| 2½   | 7.50               | 1.00                | 5.88                    | .88                | 8               | .75               | 3.25             |
| 3    | 8.25               | 1.13                | 6.63                    | .88                | 8               | .75               | 3.50             |
| 3½   | 9.00               | 1.19                | 7.25                    | .88                | 8               | .75               | 3.50             |
| 4    | 10.00              | 1.25                | 7.88                    | .88                | 8               | .75               | 3.75             |
| 5    | 11.00              | 1.38                | 9.25                    | .88                | 8               | .75               | 4.00             |
| 6    | 12.50              | 1.44                | 10.63                   | .88                | 12              | .75               | 4.00             |
| 8    | 15.00              | 1.63                | 13.00                   | 1.00               | 12              | .88               | 4.50             |
| 10   | 17.50              | 1.88                | 15.25                   | 1.13               | 16              | 1.00              | 5.25             |
| 12   | 20.50              | 2.00                | 17.75                   | 1.25               | 16              | 1.13              | 5.50             |
| 14   | 23.00              | 2.13                | 20.25                   | 1.25               | 20              | 1.13              | 6.00             |
| 16   | 25.50              | 2.25                | 22.50                   | 1.38               | 20              | 1.25              | 6.25             |
| 18   | 28.00              | 2.38                | 24.75                   | 1.38               | 24              | 1.25              | 6.50             |
| 20   | 30.50              | 2.50                | 27.00                   | 1.38               | 24              | 1.25              | 6.75             |
| 24   | 36.00              | 2.75                | 32.00                   | 1.38               | 24              | 1.50              | 7.50             |

\*When bolting to steel flanges, longer bolts or stud may be required

## Steam Tables

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| Abs. Press.<br>Lb./Sq. In.<br>p | Gage<br>Pressure | Temp.<br>Fahr.<br>t | SPECIFIC VOLUME                  |                          |                                 | ENTHALPY                         |                          |                                 | ENTROPY                          |                          |                                 | Gage<br>Pressure | Abs. Press.<br>Lb./Sq. In.<br>p |
|---------------------------------|------------------|---------------------|----------------------------------|--------------------------|---------------------------------|----------------------------------|--------------------------|---------------------------------|----------------------------------|--------------------------|---------------------------------|------------------|---------------------------------|
|                                 |                  |                     | Sat.<br>Liquid<br>v <sub>f</sub> | Evap.<br>v <sub>fg</sub> | Sat.<br>Vapor<br>v <sub>g</sub> | Sat.<br>Liquid<br>h <sub>f</sub> | Evap.<br>h <sub>fg</sub> | Sat.<br>Vapor<br>h <sub>g</sub> | Sat.<br>Liquid<br>s <sub>f</sub> | Evap.<br>s <sub>fg</sub> | Sat.<br>Vapor<br>s <sub>g</sub> |                  |                                 |
| 0.0886                          |                  | 32.00               | 0.01602                          | 3305.7                   | 3305.7                          | 0                                | 1075.1                   | 1075.1                          | 0                                | 2.1865                   | 2.1865                          |                  | 0.0886                          |
| 0.125                           |                  | 40.69               | 0.01602                          | 2383.7                   | 2383.7                          | 8.74                             | 1070.2                   | 1078.9                          | 0.0176                           | 2.1388                   | 2.1564                          |                  | 0.125                           |
| 0.250                           |                  | 59.31               | 0.01603                          | 1235.8                   | 1235.8                          | 27.38                            | 1059.5                   | 1086.9                          | 0.0542                           | 2.0414                   | 2.0956                          |                  | 0.250                           |
| 0.500                           |                  | 79.58               | 0.01607                          | 641.71                   | 641.73                          | 47.60                            | 1048.0                   | 1095.6                          | 0.0924                           | 1.9434                   | 2.0358                          |                  | 0.500                           |
| 1                               |                  | 101.76              | 0.01614                          | 333.77                   | 333.79                          | 69.72                            | 1035.5                   | 1105.2                          | 0.1326                           | 1.8443                   | 1.9769                          |                  | 1                               |
| 5                               |                  | 162.25              | 0.01641                          | 73.584                   | 73.600                          | 130.13                           | 1000.7                   | 1130.8                          | 0.2347                           | 1.6090                   | 1.8437                          |                  | 5                               |
| 10                              |                  | 193.21              | 0.01659                          | 38.445                   | 38.462                          | 161.17                           | 982.1                    | 1143.3                          | 0.2834                           | 1.5042                   | 1.7876                          |                  | 10                              |
| 14.696                          | 0                | 212.00              | 0.01672                          | 26.811                   | 26.828                          | 180.07                           | 970.3                    | 1150.4                          | 0.3120                           | 1.4446                   | 1.7566                          | 0                | 14.696                          |
| 15                              | .3               | 213.03              | 0.01672                          | 26.303                   | 26.320                          | 181.11                           | 969.6                    | 1150.7                          | 0.3135                           | 1.4413                   | 1.7548                          | .3               | 15                              |
| 20                              | 5.3              | 227.96              | 0.01683                          | 20.093                   | 20.110                          | 196.16                           | 959.9                    | 1156.1                          | 0.3356                           | 1.3959                   | 1.7315                          | 5.3              | 20                              |
| 30                              | 15.3             | 250.34              | 0.01700                          | 13.748                   | 13.763                          | 218.83                           | 945.2                    | 1164.0                          | 0.3680                           | 1.3312                   | 1.6992                          | 15.3             | 30                              |
| 40                              | 25.3             | 267.24              | 0.01715                          | 10.489                   | 10.506                          | 236.02                           | 933.7                    | 1169.7                          | 0.3919                           | 1.2844                   | 1.6763                          | 25.3             | 40                              |
| 50                              | 35.3             | 281.01              | 0.01727                          | 8.505                    | 8.522                           | 250.09                           | 923.9                    | 1174.0                          | 0.4110                           | 1.2473                   | 1.6583                          | 35.3             | 50                              |
| 60                              | 45.3             | 292.71              | 0.01738                          | 7.162                    | 7.179                           | 262.10                           | 915.4                    | 1177.5                          | 0.4271                           | 1.2166                   | 1.6437                          | 45.3             | 60                              |
| 70                              | 55.3             | 302.92              | 0.01748                          | 6.193                    | 6.210                           | 272.61                           | 907.9                    | 1180.5                          | 0.4409                           | 1.1905                   | 1.6314                          | 55.3             | 70                              |
| 80                              | 65.3             | 312.03              | 0.01757                          | 5.458                    | 5.476                           | 282.02                           | 901.1                    | 1183.1                          | 0.4532                           | 1.1677                   | 1.6209                          | 65.3             | 80                              |
| 90                              | 75.3             | 320.27              | 0.01766                          | 4.880                    | 4.898                           | 290.57                           | 894.8                    | 1185.4                          | 0.4641                           | 1.1472                   | 1.6113                          | 75.3             | 90                              |
| 100                             | 85.3             | 327.83              | 0.01774                          | 4.415                    | 4.433                           | 298.43                           | 888.9                    | 1187.3                          | 0.4741                           | 1.1287                   | 1.6028                          | 85.3             | 100                             |
| 110                             | 95.3             | 334.79              | 0.01782                          | 4.032                    | 4.050                           | 305.69                           | 883.3                    | 1189.0                          | 0.4832                           | 1.1118                   | 1.5950                          | 95.3             | 110                             |
| 120                             | 105.3            | 341.26              | 0.01789                          | 3.710                    | 3.728                           | 312.46                           | 878.1                    | 1190.6                          | 0.4916                           | 1.0963                   | 1.5879                          | 105.3            | 120                             |
| 130                             | 115.3            | 347.31              | 0.01796                          | 3.437                    | 3.455                           | 318.81                           | 873.2                    | 1192.0                          | 0.4995                           | 1.0820                   | 1.5815                          | 115.3            | 130                             |
| 140                             | 125.3            | 353.03              | 0.01803                          | 3.202                    | 3.220                           | 324.83                           | 868.5                    | 1193.3                          | 0.5089                           | 1.0686                   | 1.5755                          | 125.3            | 140                             |
| 150                             | 135.3            | 358.43              | 0.01809                          | 2.998                    | 3.016                           | 330.53                           | 863.9                    | 1194.4                          | 0.5138                           | 1.0560                   | 1.5698                          | 135.3            | 150                             |
| 160                             | 145.3            | 363.55              | 0.01815                          | 2.834                    | 2.852                           | 335.95                           | 859.6                    | 1195.5                          | 0.5204                           | 1.0442                   | 1.5646                          | 145.3            | 160                             |
| 170                             | 155.3            | 368.42              | 0.01821                          | 2.656                    | 2.674                           | 341.11                           | 855.2                    | 1196.3                          | 0.5266                           | 1.0327                   | 1.5593                          | 155.3            | 170                             |
| 180                             | 165.3            | 373.08              | 0.01827                          | 2.564                    | 2.582                           | 346.07                           | 851.1                    | 1197.2                          | 0.5325                           | 1.0220                   | 1.5545                          | 165.3            | 180                             |
| 190                             | 175.3            | 377.55              | 0.01833                          | 2.386                    | 2.404                           | 350.83                           | 847.2                    | 1198.0                          | 0.5382                           | 1.0119                   | 1.5501                          | 175.3            | 190                             |
| 200                             | 185.3            | 381.82              | 0.01839                          | 2.270                    | 2.288                           | 355.40                           | 843.3                    | 1198.7                          | 0.5436                           | 1.0021                   | 1.5457                          | 185.3            | 200                             |
| 210                             | 195.3            | 385.93              | 0.01844                          | 2.165                    | 2.183                           | 359.80                           | 839.6                    | 1199.4                          | 0.5488                           | 0.9929                   | 1.5417                          | 195.3            | 210                             |
| 220                             | 205.3            | 389.89              | 0.01849                          | 2.067                    | 2.085                           | 364.05                           | 835.8                    | 1199.9                          | 0.5538                           | 0.9838                   | 1.5376                          | 205.3            | 220                             |
| 230                             | 215.3            | 393.70              | 0.01855                          | 1.9803                   | 1.9989                          | 368.16                           | 832.2                    | 1200.4                          | 0.5585                           | 0.9752                   | 1.5337                          | 215.3            | 230                             |
| 240                             | 225.3            | 397.40              | 0.01860                          | 1.8990                   | 1.9176                          | 372.16                           | 828.7                    | 1200.9                          | 0.5632                           | 0.9669                   | 1.5301                          | 225.3            | 240                             |
| 250                             | 235.3            | 400.97              | 0.01866                          | 1.8244                   | 1.8431                          | 376.04                           | 825.4                    | 1201.4                          | 0.5677                           | 0.9590                   | 1.5267                          | 235.3            | 250                             |
| 260                             | 245.3            | 404.43              | 0.01870                          | 1.7555                   | 1.7742                          | 379.78                           | 822.0                    | 1201.8                          | 0.5720                           | 0.9513                   | 1.5233                          | 245.3            | 260                             |
| 270                             | 255.3            | 407.79              | 0.01875                          | 1.6913                   | 1.7101                          | 383.43                           | 818.8                    | 1202.2                          | 0.5761                           | 0.9439                   | 1.5200                          | 255.3            | 270                             |
| 280                             | 265.3            | 411.06              | 0.01880                          | 1.6316                   | 1.6504                          | 386.99                           | 815.5                    | 1202.5                          | 0.5802                           | 0.9365                   | 1.5167                          | 265.3            | 280                             |
| 290                             | 275.3            | 414.24              | 0.01885                          | 1.5758                   | 1.5947                          | 390.47                           | 812.4                    | 1202.9                          | 0.5841                           | 0.9296                   | 1.5137                          | 275.3            | 290                             |
| 300                             | 285.3            | 417.33              | 0.01890                          | 1.5237                   | 1.5426                          | 393.85                           | 809.3                    | 1203.2                          | 0.5879                           | 0.9228                   | 1.5107                          | 285.3            | 300                             |
| 350                             | 335.3            | 431.71              | 0.01912                          | 1.3064                   | 1.3255                          | 409.70                           | 794.7                    | 1204.4                          | 0.6057                           | 0.8915                   | 1.4972                          | 335.3            | 350                             |
| 400                             | 385.3            | 444.58              | 0.0193                           | 1.1416                   | 1.1609                          | 424.02                           | 780.9                    | 1204.9                          | 0.6215                           | 0.8635                   | 1.4850                          | 385.3            | 400                             |
| 450                             | 435.3            | 456.27              | 0.0195                           | 1.0123                   | 1.0318                          | 437.18                           | 767.8                    | 1205.0                          | 0.6357                           | 0.8382                   | 1.4739                          | 435.3            | 450                             |
| 500                             | 485.3            | 467.00              | 0.0197                           | 0.9077                   | 0.9274                          | 449.40                           | 755.5                    | 1204.9                          | 0.6488                           | 0.8153                   | 1.4641                          | 485.3            | 500                             |
| 550                             | 535.3            | 476.94              | 0.0199                           | 0.8217                   | 0.8416                          | 460.83                           | 743.6                    | 1204.4                          | 0.6609                           | 0.7939                   | 1.4548                          | 535.3            | 550                             |
| 600                             | 585.3            | 486.21              | 0.0201                           | 0.7494                   | 0.7695                          | 471.59                           | 732.0                    | 1203.6                          | 0.6721                           | 0.7739                   | 1.4460                          | 585.3            | 600                             |
| 650                             | 635.3            | 494.90              | 0.0203                           | 0.6879                   | 0.7082                          | 481.73                           | 721.0                    | 1202.7                          | 0.6826                           | 0.7563                   | 1.4379                          | 635.3            | 650                             |
| 700                             | 685.3            | 503.09              | 0.0205                           | 0.6347                   | 0.6552                          | 491.49                           | 710.1                    | 1201.6                          | 0.6925                           | 0.7376                   | 1.4301                          | 685.3            | 700                             |
| 750                             | 735.3            | 510.83              | 0.0207                           | 0.5884                   | 0.6091                          | 500.8                            | 699.4                    | 1200.2                          | 0.7019                           | 0.7206                   | 1.4225                          | 735.3            | 750                             |
| 800                             | 785.3            | 518.20              | 0.0209                           | 0.5476                   | 0.5685                          | 509.7                            | 689.1                    | 1198.8                          | 0.7108                           | 0.7047                   | 1.4155                          | 785.3            | 800                             |
| 850                             | 835.3            | 525.23              | 0.0210                           | 0.5116                   | 0.5326                          | 518.3                            | 678.9                    | 1197.2                          | 0.7194                           | 0.6893                   | 1.4087                          | 835.3            | 850                             |
| 900                             | 885.3            | 531.94              | 0.0212                           | 0.4799                   | 0.5006                          | 526.6                            | 669.0                    | 1195.6                          | 0.7276                           | 0.6746                   | 1.4022                          | 885.3            | 900                             |
| 950                             | 935.3            | 538.38              | 0.0214                           | 0.4503                   | 0.4717                          | 534.6                            | 659.2                    | 1193.8                          | 0.7355                           | 0.6605                   | 1.3960                          | 935.3            | 950                             |
| 1000                            | 985.3            | 544.56              | 0.0216                           | 0.4240                   | 0.4456                          | 542.4                            | 649.5                    | 1191.9                          | 0.7431                           | 0.6468                   | 1.3899                          | 985.3            | 1000                            |
| 1050                            | 1035.3           | 550.52              | 0.0218                           | 0.4001                   | 0.4219                          | 550.0                            | 640.0                    | 1190.0                          | 0.7504                           | 0.6335                   | 1.3839                          | 1035.3           | 1050                            |
| 1100                            | 1085.3           | 556.26              | 0.0219                           | 0.3783                   | 0.4002                          | 557.4                            | 630.4                    | 1187.8                          | 0.7575                           | 0.6205                   | 1.3780                          | 1085.3           | 1100                            |
| 1150                            | 1135.3           | 561.81              | 0.0221                           | 0.3583                   | 0.3804                          | 564.6                            | 621.0                    | 1185.6                          | 0.7644                           | 0.6079                   | 1.3723                          | 1135.3           | 1150                            |
| 1200                            | 1185.3           | 567.19              | 0.0223                           | 0.3397                   | 0.3620                          | 571.7                            | 611.5                    | 1183.2                          | 0.7712                           | 0.5955                   | 1.3667                          | 1185.3           | 1200                            |
| 1250                            | 1235.3           | 572.39              | 0.0225                           | 0.3228                   | 0.3453                          | 578.6                            | 602.2                    | 1180.8                          | 0.7777                           | 0.5835                   | 1.3612                          | 1235.3           | 1250                            |
| 1300                            | 1285.3           | 577.43              | 0.0227                           | 0.3067                   | 0.3294                          | 585.4                            | 592.9                    | 1178.3                          | 0.7840                           | 0.5717                   | 1.3557                          | 1285.3           | 1300                            |
| 1350                            | 1335.3           | 582.32              | 0.0229                           | 0.2918                   | 0.3147                          | 592.1                            | 583.7                    | 1175.8                          | 0.7902                           | 0.5602                   | 1.3504                          | 1335.3           | 1350                            |
| 1400                            | 1385.3           | 587.07              | 0.0231                           | 0.2780                   | 0.3011                          | 598.6                            | 574.6                    | 1173.2                          | 0.7963                           | 0.5489                   | 1.3452                          | 1385.3           | 1400                            |
| 1450                            | 1435.3           | 591.70              | 0.0233                           | 0.2652                   | 0.2885                          | 605.0                            | 565.5                    | 1170.5                          | 0.8022                           | 0.5379                   | 1.3401                          | 1435.3           | 1450                            |
| 1500                            | 1485.3           | 596.20              | 0.0235                           | 0.2530                   | 0.2765                          | 611.4                            | 556.3                    | 1167.7                          | 0.8081                           | 0.5269                   | 1.3350                          | 1485.3           | 1500                            |
| 1550                            | 1535.3           | 600.59              | 0.0237                           | 0.2416                   | 0.2653                          | 617.7                            | 547.1                    | 1164.8                          | 0.8138                           | 0.5160                   | 1.3298                          | 1535.3           | 1550                            |
| 1600                            | 1585.3           | 604.87              | 0.0239                           | 0.2309                   | 0.2548                          | 623.9                            | 538.0                    | 1161.9                          | 0.8195                           | 0.5054                   | 1.3249                          | 1585.3           | 1600                            |
| 1650                            | 1635.3           | 609.05              | 0.0241                           | 0.2207                   | 0.2448                          | 630.0                            | 528.8                    | 1158.8                          | 0.8250                           | 0.4948                   | 1.3198                          | 1635.3           | 1650                            |
| 1700                            | 1685.3           | 613.12              | 0.0243                           | 0.2111                   | 0.2354                          | 636.1                            | 519.6                    | 1155.7                          | 0.8304                           | 0.4843                   | 1.3147                          | 1685.3           | 1700                            |
| 1750                            | 1735.3           | 617.11              | 0.0245                           | 0.2020                   | 0.2265                          | 642.1                            | 510.4                    | 1152.5                          | 0.8359                           | 0.4740                   | 1.3099                          | 1735.3           | 1750                            |
| 1800                            | 1785.3           | 621.00              | 0.0247                           | 0.1933                   | 0.2180                          | 648.0                            | 501.3                    | 1149.3                          | 0.8412                           | 0.4639                   | 1.3051                          | 1785.3           | 1800                            |
| 1850                            | 1835.3           | 624.82              | 0.0249                           | 0.1850                   | 0.2099                          | 653.9                            | 492.0                    | 1145.9                          | 0.8465                           | 0.4537                   | 1.3002                          | 1835.3           | 1850                            |
| 1900                            | 1885.3           | 628.55              | 0.0252                           | 0.1770                   | 0.2022                          | 659.9                            | 482.5                    | 1142.4                          | 0.8517                           | 0.4434                   | 1.2951                          | 1885.3           | 1900                            |
| 1950                            | 1935.3           | 632.20              | 0.0254                           | 0.1695                   | 0.1949                          | 665.8                            | 473.0                    | 1138.8                          | 0.8569                           | 0.4332                   | 1.2901                          | 1935.3           | 1950                            |
| 2000                            | 1985.3           | 635.78              | 0.0257                           | 0.1622                   | 0.1879                          | 671.7                            | 463.5                    | 1135.2                          | 0.8620                           | 0.4231                   | 1.2851                          | 1985.3           | 2000                            |
| 2100                            | 2085.3           | 642.73              | 0.0262                           | 0.1486                   | 0.1748                          | 683.4                            | 444.2                    | 1127.6                          | 0.8722                           | 0.4029                   | 1.2751                          | 2035.3           | 2100                            |
| 2200                            | 2185.3           | 649.42              | 0.0267                           | 0.1359                   | 0.1626                          | 695.0                            | 424.4                    | 1119.4                          | 0.8823                           | 0.3826                   | 1.2649                          | 2185.3           | 2200                            |
| 2300                            | 2285.3           | 655.87              | 0.0274                           | 0.1240                   | 0.1514                          | 706.7                            | 404.3                    | 1111.0                          | 0.8923                           | 0.3624                   | 1.2547                          | 2285.3           | 2300                            |
| 2400                            | 2385.3           | 662.09              | 0.0280                           | 0.1130                   | 0.1410                          | 718.5                            | 383.9                    | 1102.4                          | 0.9025                           | 0.3413                   | 1.2438                          | 2385.3           | 2400                            |
| 2500                            | 2435.3           | 668.10              | 0.0287                           | 0.1026                   | 0.1313                          | 730.7                            | 363.3                    | 1093.0                          | 0.9127                           | 0.3195                   | 1.2322                          | 2485.3           | 2500                            |
| 2600                            | 2585.3           | 673.91              | 0.0295                           | 0.0924                   | 0.1219                          | 743.1                            | 337.0                    | 1080.1                          | 0.9232                           | 0.2973                   | 1.2205                          | 2585.3           | 260                             |

# Bronze Valve

## Figure Number Comparisons

| NIBCO           | Milwaukee | Stockham | Crane | Jenkins | Powell | Hammond | Walworth | NIBCO           |
|-----------------|-----------|----------|-------|---------|--------|---------|----------|-----------------|
| <b>S-111</b>    | 149       | B-109    | 1334  | 991     | 1821   | IB635   | 55SJ     | <b>S-111</b>    |
| <b>S-113</b>    | 115       | B-104    | 1324  | 993     | 1822   | IB647   | 4SJ      | <b>S-113</b>    |
| <b>S-134</b>    | 1169      | B-124    |       | 1242    |        | IB648   |          | <b>S-134</b>    |
| <b>S-136</b>    |           |          |       | 1240    |        |         |          | <b>S-136</b>    |
| <b>S-211-B</b>  | 1502      | B-17     |       | 995     |        | IB418   | 3058SJ   | <b>S-211-B</b>  |
| <b>S-211-Y</b>  |           | B-14-T   | 1310  |         |        |         |          | <b>S-211-Y</b>  |
| <b>S-235-Y</b>  | 1590-T    | B-24-T   |       | 1200    | 1823   | IB423   |          | <b>S-235-Y</b>  |
| <b>S-311-Y</b>  |           |          |       |         |        |         |          | <b>S-311-Y</b>  |
| <b>S-413-B</b>  | 1509      | B-309    | 1342  | 997     | 1825   | IB912   | 3406SJ   | <b>S-413-B</b>  |
| <b>S-413-W</b>  |           | B-310-B  |       |         |        |         |          | <b>S-413-W</b>  |
| <b>S-413-Y</b>  | 1509-T    | B-310-T  |       |         |        |         |          | <b>S-413-Y</b>  |
| <b>S-433-B</b>  |           |          |       | 1222    |        |         |          | <b>S-433-B</b>  |
| <b>S-433-Y</b>  | 1510-T    |          |       |         |        | IB945   |          | <b>S-433-Y</b>  |
| <b>T-104-O</b>  |           | B-133    | 459   | 275U    |        |         |          | <b>T-104-O</b>  |
| <b>T-111</b>    | 148       | B-100    | 428   | 990     | 500    | IB640   | 55       | <b>T-111</b>    |
| <b>T-113</b>    | 105       | B-103    | 438   | 992     | 507    | IB645   | 4        | <b>T-113</b>    |
| <b>T-124</b>    | 1152      |          |       | 47U     | 2700   | IB617   |          | <b>T-124</b>    |
| <b>T-131</b>    | 1150      | B-122    | 431   | 47      | 514    | IB641   | 56       | <b>T-131</b>    |
| <b>T-133</b>    | 1140      | B-128    | 437   | 670     | 512    | IB646   | 14       | <b>T-133</b>    |
| <b>T-134</b>    | 1151      | B-120    | 431UB | 49U     | 2714   | IB629   | 11       | <b>T-134</b>    |
| <b>T-136</b>    | 1141      | B-130    |       |         | 2712   | IB638   |          | <b>T-136</b>    |
| <b>T-154-A</b>  | 1156      | B-135    |       |         | 375    | IB650   | 37       | <b>T-154-A</b>  |
| <b>T-174-A</b>  | 1182      | B-144    |       |         | 377    | IB652   | 3048     | <b>T-174-A</b>  |
| <b>T-174-SS</b> | 1184      | B-145    | 634E  |         | 2377   | IB654   |          | <b>T-174-SS</b> |
| <b>T-176-A</b>  |           |          |       |         |        |         |          | <b>T-176-A</b>  |
| <b>T-176-SS</b> | 1186      | B-147    | 636E  |         | 2382   | IB656   |          | <b>T-176-SS</b> |
| <b>T-211-B</b>  | 502       | B-16     | 1     | 746     | 650    | IB440   | 3058     | <b>T-211-B</b>  |
| <b>T-211-Y</b>  |           | B-13-T   |       |         |        |         |          | <b>T-211-Y</b>  |
| <b>T-235-Y</b>  | 590-T     | B-22     | 7TF   | 106-A   | 150    | IB413T  | 3095     | <b>T-235-Y</b>  |
| <b>T-256-AP</b> | 592-A     | B-62     | 212P  |         | 2608   | IB434   | 3160     | <b>T-256-AP</b> |
| <b>T-275-B</b>  | 572       | B-66     |       | 750     | 120    | IB412   | 3205     | <b>T-275-B</b>  |
| <b>T-275-Y</b>  |           |          |       |         |        |         |          | <b>T-275-Y</b>  |
| <b>T-276-A</b>  |           |          |       | 576     | 1202   |         |          | <b>T-276-A</b>  |
| <b>T-276-AP</b> | 593-A     | B-74     | 382P  | 576-P   | 2612   | IB444   | 3260P    | <b>T-276-AP</b> |
| <b>T-311-Y</b>  | 504       | B-216    | 2     |         |        | IB463   |          | <b>T-311-Y</b>  |
| <b>T-335-Y</b>  | 595-T     | B-222-T  | 17TF  | 108A    | 151    | IB454-T | 3096     | <b>T-335-Y</b>  |
| <b>T-375-B</b>  | 582       | B-237    |       |         |        | IB469   |          | <b>T-375-B</b>  |
| <b>T-376-AP</b> |           | B-274    | 384P  | 578-P   | 2614   | IB471   |          | <b>T-376-AP</b> |
| <b>T-413-B</b>  | 509       | B-319    | 37    | 92A     | 578    | IB904   | 3406     | <b>T-413-B</b>  |
| <b>T-413-W</b>  | 511       | B-320-B  |       |         |        |         |          | <b>T-413-W</b>  |
| <b>T-413-Y</b>  | 509-T     | B-320-T  |       |         |        | IB940   |          | <b>T-413-Y</b>  |
| <b>T-433-B</b>  | 508       | B-321    | 137   |         |        |         |          | <b>T-433-B</b>  |
| <b>T-433-Y</b>  | 510-T     |          |       | 352     | 596    | IB946   | 3412     | <b>T-433-Y</b>  |
| <b>T-453-B</b>  | 508       | B-345    | 36    | 762A    | 560Y   | IB944   | 3420     | <b>T-453-B</b>  |
| <b>T-473-B</b>  | 507       | B-375    | 76E   | 962B    | 563Y   | IB949   | 3428     | <b>T-473-B</b>  |
| <b>T-473-Y</b>  |           |          |       |         |        |         |          | <b>T-473-Y</b>  |
| <b>T-480-Y</b>  |           |          |       |         |        |         |          | <b>T-480-Y</b>  |

To be used as a guide only. Some variations in detail are possible.

# Iron Valve

## Figure Number Comparisons

| NIBCO            | Milwaukee | Stockham | Crane   | Jenkins | Powell | Hammond     | Walworth  | NIBCO            |
|------------------|-----------|----------|---------|---------|--------|-------------|-----------|------------------|
| <b>F-617-O</b>   | F2885-A   | G-623    | 465-1/2 | 651A    | 1793   | IR1140      | 8726F     | <b>F-617-O</b>   |
| <b>F-617-ON</b>  | F2891-A   | G-624    | 475-1/2 | 100A    | 1816   | IR1146HI    | 8727F     | <b>F-617-ON</b>  |
| <b>F-619</b>     | F2882-A   | G-612    | 461     | 326     | 1787   | IR1138      | 8719F     | <b>F-619</b>     |
| <b>F-619-N</b>   | F2890     | G-613    | 473     | 98      | 1799   | IR1144HI    | 8720F     | <b>F-619-N</b>   |
| <b>F-667-O</b>   | F2894-A   | F-667    | 7-1/2E  | 204     | 1797   | IR330       | 8786F     | <b>F-667-O</b>   |
| <b>F-669</b>     |           | F-661    | 3E      | 203     |        |             | 8775F     | <b>F-669</b>     |
| <b>F-718-B</b>   | F2981-A   | G-512    | 351     | 613     | 241    | IR116       | 8906F     | <b>F-718-B</b>   |
| <b>F-718-N</b>   | F2892     |          | 351-1/4 |         | 457    |             | 8906-1/2F | <b>F-718-N</b>   |
| <b>F-768-B</b>   | F2983     | F-532    | 21E     | 923     | 256    | IR313       | 8955F     | <b>F-768-B</b>   |
| <b>F-818-B</b>   | F2988     | G-515    | 353     | 614     | 243    |             | 8907F     | <b>F-818-B</b>   |
| <b>F-869-B</b>   |           | F-541    | 30E     | 293     | 368    |             |           | <b>F-869-B</b>   |
| <b>F-918-B</b>   | F2974-A   | G-931    | 373     | 624     | 559    | IR1124      | 8928F     | <b>F-918-B</b>   |
| <b>F-918-N</b>   | F2971     | G-933    | 373-1/2 | 85      | 1259   | IR1126HI    | 8928-1/2F | <b>F-918-N</b>   |
| <b>F-968-B</b>   | F2970     | F-947    | 39E     | 339R    | 576    | IR322       | 8970F     | <b>F-968-B</b>   |
| Wafer Checks     |           |          |         |         |        |             |           |                  |
| <b>F-910</b>     | 1800      |          |         |         |        | IR9354      |           | <b>F-910</b>     |
| <b>F-960</b>     |           |          |         |         |        | IR9355      |           | <b>F-960</b>     |
| <b>W-910/960</b> | 1400      |          |         |         |        | IR9253/9255 |           | <b>W-910/960</b> |
| <b>W-920-W</b>   |           | WG-970   |         |         |        |             |           | <b>W-920-W</b>   |
| Alloy Iron       |           |          |         |         |        |             |           |                  |
| <b>F-617-13</b>  | F2885-13  | AG-642   | 14477   | 7651N   | 1893   | IR1913HI    | 725FS     | <b>F-617-13</b>  |
| <b>F-918-13</b>  | F2974-13  | AG-931   | 14493   | 7624N   | 559P   | IR1937HI    | 928FS     | <b>F-918-13</b>  |

### Comparing Ductile Iron Valves to Cast Steel Valves

| Ductile Iron                                          | Cast Steel    |               |               |               |               |
|-------------------------------------------------------|---------------|---------------|---------------|---------------|---------------|
| NIBCO                                                 | Crane         | Powell        | Stockham      | Kitz          | Velan         |
| <b>OS &amp; Y Gate</b><br><b>F-637-31 or F-637-33</b> | 47            | 1503          | 15-OF         | K150-SCL      | F-006C-02     |
| <b>NRS Gate</b><br><b>F-639-31 or F-639-33</b>        | Not Available | Not Available | Not Available | Not Available | Not Available |
| <b>Globe</b><br><b>F-738-31</b>                       | 143           | 1531          | 15-GSF        | K-150-SCJ     | F-007C-02     |
| <b>Angle Globe</b><br><b>F-838-31</b>                 | 145           | 1533          | 15-APF        | Not Available | Not Available |
| <b>Swing Check</b><br><b>F-938-31 or F-938-33</b>     | 147           | 1561          | 15-SF         | K150-SCO      | F-001C-02     |

NOTE: -31 is B584 Bronze Trim -33 is CF8M Stainless Steel Trim.

When determining valve selection, care should be taken regarding the capabilities of the materials used.

To be used as a guide only. Some variations in detail are possible.

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NIBCO INC. warrants each NIBCO pressure rated metal valve to be free from defects in materials and workmanship under normal use and service for a period of five (5) years from date put into service.

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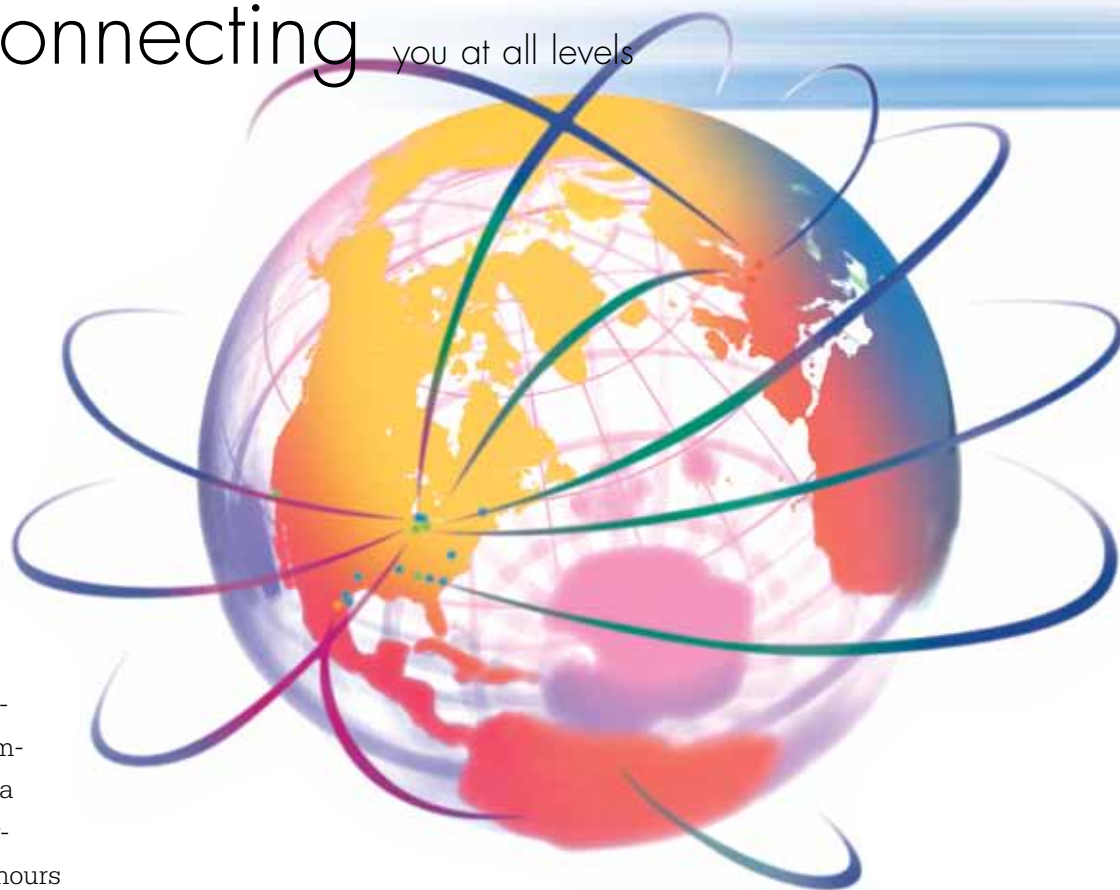
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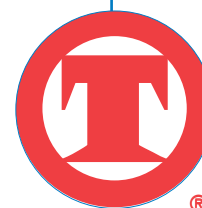


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