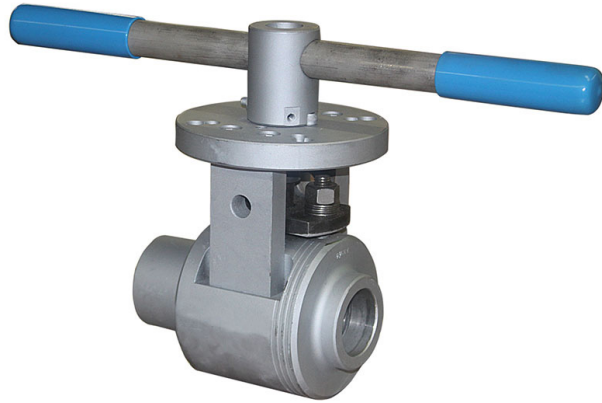


**MS11000-xxx Series Reduced Port Valve**

**Features**

- Available in ASME Class 1500 standard; 3200 limited, and 4500 standard
- ISO 5211 Mounting Pad
- Adjustable live-loaded packing
- 100% tested to MSS-SP-61 and API 598
- Floating ball
- Uni-directional sealing
- Forged Body
- Stainless Steel sealing surfaces are chrome carbide coated (HVOF process)

**MS11000 Series Metal Seated Valve**

The new Marwin Model MS11000 is a robust design to meet higher pressure and temperature applications with metal ball and seal internal trim. The Model MS11000 trim is coated with Chrome Carbide using the High Velocity Oxygen Fueled (HVOF) process. This coating provides customers with a valve highly suitable for erosive and/or corrosive service, such as found in the Power, Refining and Chemical industries.

**Industry Applications**
**Process**

Entrained Solids / Slurries  
 Steam / Hot Gases

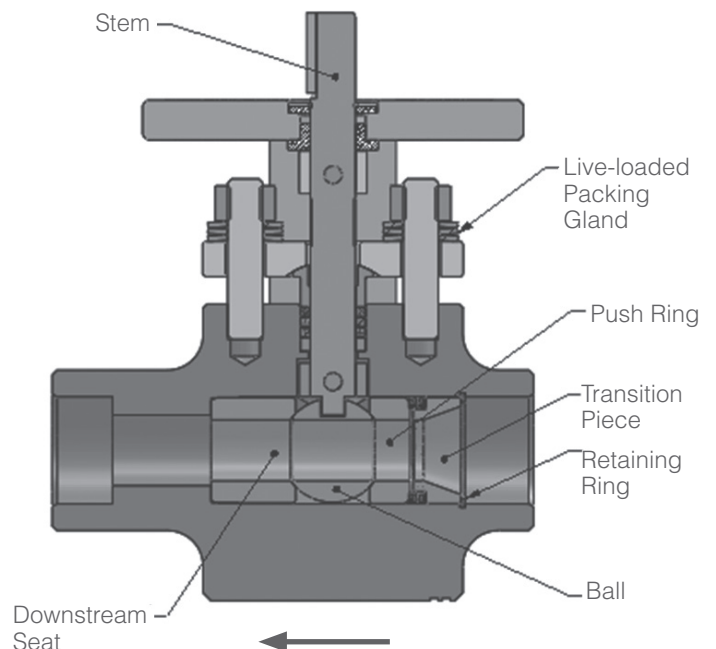
**Power Generation**

High Pressure / Temperature Drains & Vents  
 Blowdown  
 Isolation / Stop

| Quick Spec      |   |
|-----------------|---|
| Product Scope   |   |
| Size Range      | 1/2" – 2-1/2"   |
| Body Type       | One Piece   |
| End Connections | FNPT and SW   |
| Pressure Rating | ASME Class 1500, 3200 LTD, 4500   |
| Body Material   | A105 Carbon Steel, A182-F316 Gr 316SS A182-F22 2 1/4 Cr-1Mo Steel, A182-F91 9Cr-1Mo Steel |
| Trim            | 410 SS / Inconel 718  |
| Coating         | HVOF - Chrome Carbide   |
| Stem Packing    | Grafoil   |
| Operator        | Manual or Actuated  |
| Testing         | API 598 and MSS SP-61   |
| Design          | ASME B16.34   |

| Standard Trim Materials |                        |
|-------------------------|------------------------|
| Push Ring               | Type 410 SS*           |
| Spring                  | Type 286 SS            |
| Transition Piece        | Type 410 SS            |
| Ball                    | Type 410 SS*           |
| Seat                    | Type 410 SS*           |
| Retaining Ring          | Type 286 SS            |
| Stem                    | Inconel 718            |
| Coatings                | HVOF - Chrome Carbide* |
| Operator                | Manual or Actuated     |
| Testing                 | API 598 and MSS SP-61  |
| Design                  | ASME B16.34            |

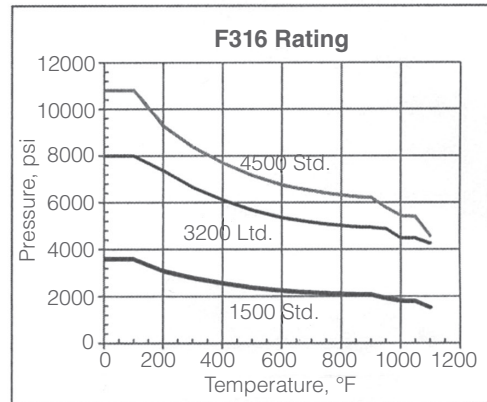
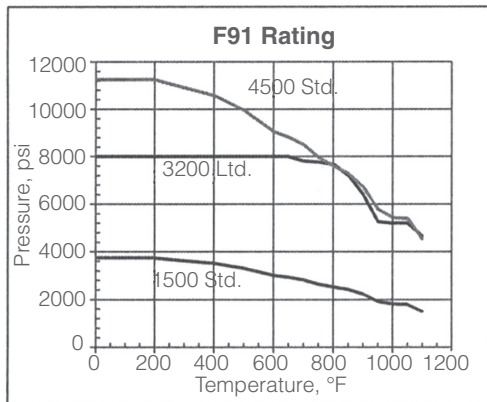
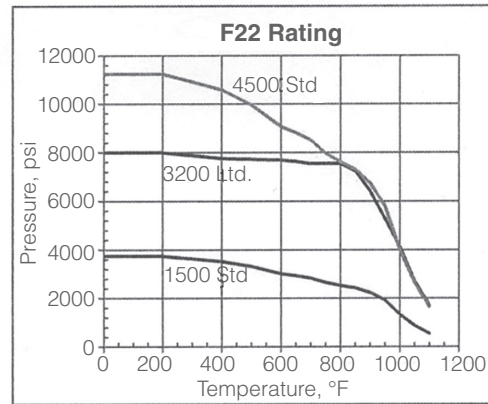
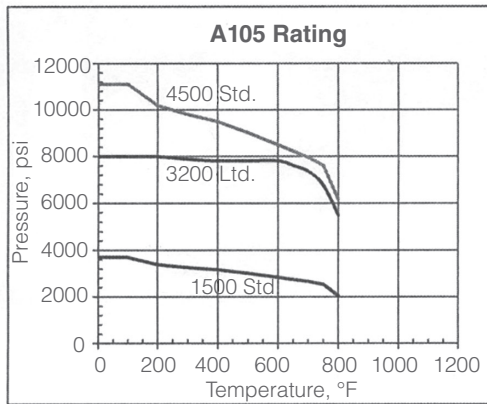
\* Consult factory for other materials

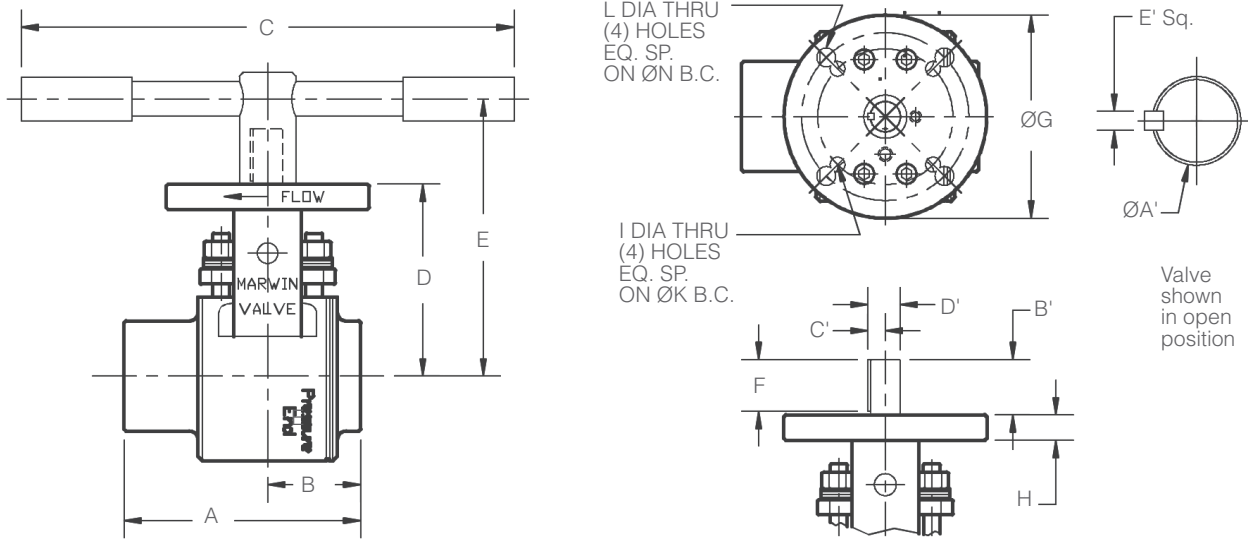


**Technical Information**

| Size   | Port | Rating             |          | Cv      |         | Operating Torque, in-lb, @ CWP <sup>2</sup> |          |       |
|--------|------|--------------------|----------|---------|---------|---|----------|-------|
|        |      | FSW                | FNPT     | Sch 160 | Sch XXS | 1500  | 3200 LTD | 4500  |
| 1/2"   | 0.56 | 1500 STD, 3200 LTD | 1500 LTD | 5.5     | 4.5     | 555   | 931      | --    |
| 1/2"   | 0.65 | 4500 STD           | --       | --      | 6       | --  | --       | 2628  |
| 3/4"   | 0.56 | 1500 STD, 3200 LTD | 1500 LTD | 19      | 13      | 555   | 931      | --    |
| 3/4"   | 0.65 | 4500 STD           | --       | --      | 7       | --  | --       | 2598  |
| 1"     | 0.56 | 1500 STD, 3200 LTD | 1500 LTD | 15      | 32      | 555   | 931      | --    |
| 1"     | 0.65 | 4500 STD           | --       | --      | 56      | --  | --       | 2598  |
| 1"     | 0.76 | 1500 STD, 3200 LTD | 1500 LTD | 55      | 35      | 721   | 1706     | --    |
| 1-1/2" | 0.65 | 4500 STD           | --       | --      | 15      | --  | --       | 2598  |
| 1-1/2" | 0.76 | 1500 STD, 3200 LTD | 1500 LTD | 21      | 27      | 721   | 1706     | --    |
| 1-1/2" | 1.12 | 1500 STD, 3200 LTD | 1500 LTD | 86      | 194     | 1812  | 3719     | --    |
| 2"     | 0.65 | 4500 STD           | --       | --      | 13      | --  | --       | 2598  |
| 2"     | 1.12 | 1500 STD, 3200 LTD | 1500 LTD | 40      | 49      | 1812  | 3719     | --    |
| 2"     | 1.25 | 4500 STD           | --       | --      | 103     | --  | --       | 10881 |
| 2"     | 1.40 | 3200 LTD           | --       | 132     | 202     | 2967  | 6588     | --    |
| 2-1/2" | 1.25 | 4500 STD           | --       | --      | 72      | --  | --       | 10881 |
| 2-1/2" | 1.40 | 1500 STD, 3200 LTD | 1500 LTD | 63      | 89      | 2967  | 6888     | --    |

Notes:  
 1) STD =ASME B16.34 Standard Class Rating; LTD = ASME B16.34 Limited Class Rating  
 2) Operating torques given at maximum CWP for each size and class; and include normal recommended service factory (generally 1.3). Consult factory for operating torques at pressures less than maximum CWP.





Art 1154

| Valve Overall Dimensions, Inches |      |       |      |      |      |      |      |    |
|----------------------------------|------|-------|------|------|------|------|------|----|
| Size                             | Port | Class | A    | B    | C    | D    | E    | Wt |
| 1/2", 3/4", 1" SW; 1" NPT        | 0.56 | 1500  | 6.00 | 2.25 | 15.0 | 4.36 | 6.16 | 19 |
| 1/2", 3/4", 1", 1-1/2", 2" SW    | 0.65 | 4500  | 7.25 | 2.63 | 18.0 | 5.38 | 7.18 | 35 |
| 1", 1-1/2" SW; 1-1/2" NPT        | 0.76 | 1500  | 6.00 | 2.50 | 15.0 | 4.36 | 6.16 | 16 |
| 1", 1-1/2" SW                    |      | 3200  | 6.00 | 2.50 | 18.0 | 4.45 | 6.25 | 18 |
| 1-1/2", 2" SW; 2" NPT            | 1.12 | 1500  | 7.25 | 2.75 | 18.0 | 5.43 | 7.23 | 31 |
| 1-1/2", 2" SW                    |      | 3200  | 7.25 | 2.75 | 18.0 | 5.66 | 7.86 | 35 |
| 2", 2-1/2" SW                    | 1.25 | 4500  | 8.25 | 3.25 | *    | 7.15 | *    | 69 |
| 2", 2-1/2" SW; 2-1/2" NPT        | 1.40 | 1500  | 8.25 | 3.25 | 18.0 | 6.07 | 8.27 | 45 |
| 2", 2-1/2" SW                    |      | 3200  | 8.25 | 3.25 | 18.0 | 6.53 | 8.73 | 58 |

\* Requires Worm Gear

| Actuator Mounting Dimensions (inches) |      |           |             |      |       |       |             |      |      |      |     |      |      |     |      |      |
|---------------------------------------|------|-----------|-------------|------|-------|-------|-------------|------|------|------|-----|------|------|-----|------|------|
| Size                                  | Port | Class     | A'          | B'   | C'    | D'    | E' (Sq)     | F    | G    | H    | ISO | I    | K    | ISO | L    | N    |
| 1/2", 3/4", 1"                        | 0.56 | 1500/3200 | 0.563/0.561 | 1.09 | 0.337 | 0.618 | 0.125/0.123 | 1.00 | 5.00 | 0.50 | F07 | 0.38 | 2.76 | F10 | 0.44 | 4.02 |
| 1/2", 3/4", 1", 1-1/2", 2"            | 0.65 | 4500      | 0.750/0.748 | 1.31 | 0.457 | 0.832 | 0.188/0.186 | 1.19 | 6.00 | 0.75 | F10 | 0.44 | 4.02 | F12 | 0.56 | 4.92 |
| 1", 1-1/2"                            | 0.76 | 1500      | 0.563/0.561 | 1.09 | 0.337 | 0.618 | 0.125/0.123 | 1.00 | 5.00 | 0.50 | F07 | 0.38 | 2.76 | F10 | 0.44 | 4.02 |
|                                       |      | 3200      | 0.688/0.686 | 1.31 | 0.425 | 0.769 | 0.188/0.186 | 1.19 | 5.00 | 0.50 | F07 | 0.38 | 2.76 | F10 | 0.44 | 4.02 |
| 1-1/2", 2"                            | 1.12 | 1500      | 0.750/0.748 | 1.31 | 0.457 | 0.832 | 0.188/0.186 | 1.19 | 6.00 | 0.75 | F10 | 0.44 | 4.02 | F12 | 0.56 | 4.92 |
|                                       |      | 3200      | 0.875/0.873 | 1.63 | 0.521 | 0.959 | 0.188/0.186 | 1.50 | 6.00 | 0.75 | F10 | 0.44 | 4.02 | F12 | 0.56 | 4.92 |
| 2", 2-1/2"                            | 1.25 | 4500      | 1.188/1.186 | 1.66 | 0.705 | 1.299 | 0.250/0.248 | 1.50 | 6.50 | 1.00 | F12 | 0.56 | 4.92 | -   | -    | -    |
| 2", 2-1/2"                            | 1.40 | 1500      | 0.875/0.873 | 1.63 | 0.521 | 0.959 | 0.188/0.186 | 1.50 | 6.00 | 0.75 | F10 | 0.44 | 4.02 | F12 | 0.56 | 4.92 |
|                                       |      | 3200      | 1.063/1.061 | 1.66 | 0.642 | 1.173 | 0.250/0.248 | 1.50 | 6.50 | 1.00 | F12 | 0.56 | 4.92 | -   | -    | -    |

| Series  |                    | Port |                | Size (Ends) NPS |                |
|---------|--------------------|------|----------------|-----------------|----------------|
| MS11001 | Class 1500         | A    | 0.56 in.       | 050             | 1/2" SW        |
|         |                    |      |                | 075             | 3/4" SW        |
|         |                    |      |                | 100             | 1" NPT         |
|         |                    | C    | 0.76 in.       | 100             | 1" SW          |
|         |                    |      |                | 150             | 1-1/2" SW, NPT |
|         |                    |      |                | 150             | 1-1/2" SW      |
|         |                    | D    | 1.12 in.       | 200             | 2" SW, NPT     |
|         |                    |      |                | 200             | 2" SW          |
| H       | 1.40 in.           | 250  | 2-1/2" SW, NPT |                 |                |
|         |                    | 250  | 2-1/2" SW, NPT |                 |                |
| MS11002 | Class 3200 Limited | A    | 0.56 in.       | 050             | 1/2" SW        |
|         |                    |      |                | 075             | 3/4" SW        |
|         |                    |      |                | 100             | 1" SW          |
|         |                    | C    | 0.76 in.       | 100             | 1" SW          |
|         |                    |      |                | 150             | 1-1/2" SW      |
|         |                    | D    | 1.12 in.       | 150             | 1-1/2" SW      |
|         |                    |      |                | 200             | 2" SW          |
|         |                    | H    | 1.40 in.       | 200             | 2" SW          |
| 250     | 2-1/2" SW          |      |                |                 |                |
| 250     | 2-1/2" SW          |      |                |                 |                |
| MS11003 | Class 4500         | B    | 0.65 in.       | 050             | 1/2" SW        |
|         |                    |      |                | 075             | 3/4" SW        |
|         |                    |      |                | 100             | 1" SW          |
|         |                    |      |                | 150             | 1-1/2" SW      |
|         |                    |      |                | 200             | 2" SW          |
|         |                    | E    | 1.25 in.       | 200             | 2" SW          |
|         |                    |      |                | 250             | 2-1/2" SW      |
|         |                    |      |                | 250             | 2-1/2" SW      |

Notes:  
1) ZZ non-standard options must be specified on purchase order or inquiry

| How to Order |           |              |                |   |                                      |
|--------------|-----------|--------------|----------------|---|--------------------------------------|
| Series       | Port      | Size (NPS)   | Body Material  | Ends/Seat/Trim/Packing  | Operator                             |
| MS11001      | A = 0.56" | 050 = 1/2"   | CS = A105      | SW= FSW (Std) (410 / Ch-Cr Ball & Seat, Inconel Stem, Grafoil)  | HL (Std)                             |
| MS11002      | B = 0.65" | 075 = 3/4"   | S6 = 316SS     |   | NN = None                            |
| MS11003      | C = 0.76" | 100 = 1"     | F2 = F22 Cr Mo | PT = (non-std) (410 / Ch-Cr Ball & Seat, Inconel Stem, Grafoil) | ZZ = Gear Op. or Automated (specify) |
|              | D = 1.12" | 150 = 1-1/2" | F9 = F91 Cr Mo |   |                                      |
|              | E = 1.25" | 200 = 2"     |                |   |                                      |
|              | H = 1.40" | 250 = 2-1/2" |                |   |                                      |

**Sample Ordering Schematic**

| Series  | Port | Size (NPS) | Body Material | Ends/Seat/Trim/Packing | Operator |
|---------|------|------------|---------------|------------------------|----------|
| MS11001 | C    | 100        | CS            | SW                     | HL       |

1" SW x 0.76 Port, Class 1500, A105 body, 410 SS Ball & Seats Ch Cr Coated, Inconel 718 Stem, Graphoil Packing, Lever Op.

| Series  | Port | Size (NPS) | Body Material | Ends/Seat/Trim/Packing | Operator |
|---------|------|------------|---------------|------------------------|----------|
| MS11002 | D    | 150        | S6            | SW                     | HL       |

1-1/2" SW x 1.12 Port, Class 3200 LTD, A182 F316 Body, 410 SS Ball & Seats Ch Cr Coated, Inconel 718 Stem, Graphoil Packing, Lever Op.

| Series  | Port | Size (NPS) | Body Material | Ends/Seat/Trim/Packing | Operator   |
|---------|------|------------|---------------|------------------------|------------|
| MS11003 | E    | 250        | F2            | SW                     | ZZ Gear Op |

2-1/2" SW x 1.25 Port, Class 4500, A182 F22 Body, 410 SS Ball & Seats Ch Cr Coated, Inconel 718 Stem, Graphoil Packing, Gear Op.