



WELDED END FORGED STEEL GLOBE VALVES

Literature



Introduction:



Figure 1 Welded End Forged Steel Globe Valve

Globe valve is a valve that is used to start, stop and regulate fluids flow along the valve passage. The disc will be lifted up or lower down vertically along the seat by rotating the wheel handle to open position or close position. It is designed and manufactured according to API 602 and ASME B16.34 standard. It also inspects and tests according to API 598 standard. Globe valve is applicable to systems that require flow regulating such as cooling water system, fuel oil system and extraction drain system.

Material and Design:

Globe valve is available in stainless steel SS316 or forged steel A105 material. For stainless steel SS316 gate valve, it is available in 2 designs namely screw-in bonnet type or bolted bonnet type. While for forged steel A105 gate valve, it is only available in bolted bonnet type only. For globe valves with screw-in bonnet design, a bonnet is screwed into the valve body to hold internal parts inside the valve body, and offer a pressure tight seal between bonnet and valve body. While for globe valves with bolted bonnet design, the bonnet comes with thicker specifications and tightens to the valve body with bolts and nuts. This design is normally used for high pressure applications. The handle design of the globe valve is in wheel shape handle design.

For the stem part, which is one of the essential parts for globe valves, it is available in rising stem design and non-rising stem design. For globe valves with rising stem design, the stem will rise and be exposed when we rotate the wheel handle to open position and lower when we rotate the wheel handle to close position. This design can simply tell us if the valve is in open position or close position by looking at the amount of stem exposed. However, for globe valves that come with non-rising stem design, the valve is in open position when we rotate the handle to the open position as far as possible and in close position when we rotate the handle to the close position as far as possible. Although it is unable to check the valve in open or close position like rising stem design, non-rising stem design globe valve is more suitable to install on hydraulic piping systems that have limited space for the stem to raise in full, for example, underground hydraulic systems.

Size and Pressure Rating:

The available size for globe valve is ranged from 1/2" to 2". For the A105 material globe valve, the working pressure is available in 800 PSI. As the globe valve is mainly used to regulate the flow, the flow will result in higher pressure drop compared to the gate valve.

Connection Type:

For A105 material globe valves, the connection end is available in NPT female thread or Socket Weld. For female thread globe valve, it needs a male thread of the same connection end to screw in to the gate valve. However for socket weld connection, it only needs the pipe end connection in plain end.

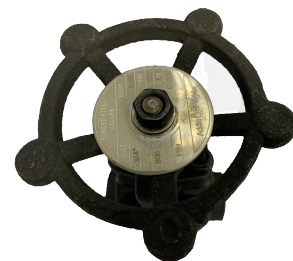
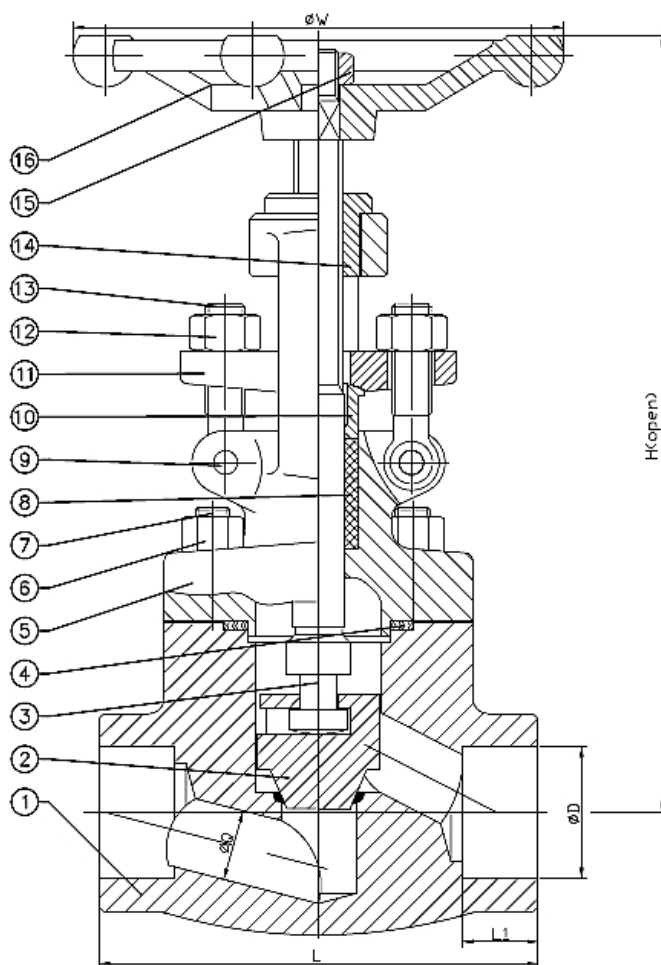


Figure 2 Welded End Forged Steel Globe Valve

Welded End Forged Steel Globe Valve Drawing:



| No | Part Name | Material |
|----|--------------|------------------|
| 1 | Body + Seat | ASTM A105 + STL |
| 2 | Disc | ASTM A276 420 |
| 3 | Stem | ASTM A182 F6A |
| 4 | Gasket | SS304 + Graphite |
| 5 | Bonnet | ASTM A105 |
| 6 | Bonnet Nut | ASTM A194 2H |
| 7 | Bonnet Bolt | ASTM A193 B7 |
| 8 | Packing | Graphite |
| 9 | Pin | ASTM A307-A |
| 10 | Gland | ASTM A276 410 |
| 11 | Gland Flange | ASTM A105 |

| | | |
|----|-------------|---------------|
| 12 | Gland Nut | ASTM A194 2H |
| 13 | Gland Bolt | ASTM A193 B7 |
| 14 | Yoke Sleeve | ASTM A276 410 |
| 15 | Lock Nut | Carbon Steel |
| 16 | Handwheel | ASTM A197 |

Main Technical Parameter:

| | |
|-----------------------------|----------------|
| Nominal Pressure | 800 PSI |
| Shell Test Pressure | 19.5 MPa |
| Seal Test | 14.3 MPa |
| Gas-Tightness Test | 0.6 MPa |
| Max Working Pressure | -29°C to 425°C |

Technical Specifications:

1. Basic design and manufacture according to API602/BS5352
2. Inspection and test for according to API 598
3. Socket weld dimension standard according to ASME B16.11

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