



THREADED END FORGED STEEL GATE VALVES

Literature



Introduction:



Figure 1 Threaded End Forged Steel Gate Valve

Gate valve is a valve that is used to allow fluids to flow through or stop the fluids from flowing through the valve. This can be operated by lift up or lift down the disc. It is designed and manufactured according to ASME B16.34/API 602 standard. It also went through the inspection and testing according to API 598.

Material and Design:

Gate valve is available in forged steel A105 or stainless steel SS316 material. For stainless steel SS316 material, there are 2 available designs which are screw-in bonnet type and bolted bonnet type. While for forged steel A105 material, the design is available in bolted bonnet type only. For screw-in bonnet type design, a bonnet is screwed into the valve body to hold the internal parts that are put into the valve body, thus offering a pressure tight seal between the bonnet and valve body. Bolted bonnet design comes with a thicker cover that requires bolts and nuts to tighten with the valve body. This design is normally used for high pressure applications. The handle of both designs is designed to be wheel shaped.

Gate valve also can be available in 2 designs, rising stem design and non-rising stem design. For rising stem design, the stem will rise when the wheel handle is rotated to open position and lower when the wheel handle is rotated to close position. By looking at the amount of stem exposed, we can easily tell if the valve is in an open position or close position. However for non-rising stem design, the valve is in open position when the handle is rotated to the open position as far as possible and in closed position when the handle is rotated to close position as far as possible. Non-rising stem design gate valves are suitable to install on hydraulic systems that have limited space for the stem to raise in full, for example, underground pipe systems.

Size and Pressure Rating:

The size of the gate valve ranges from 1/2" to 2". For SS316 material, the working pressure is available in 200 PSI or 800 PSI. While for A105 material, the working pressure is only available in 800 PSI.

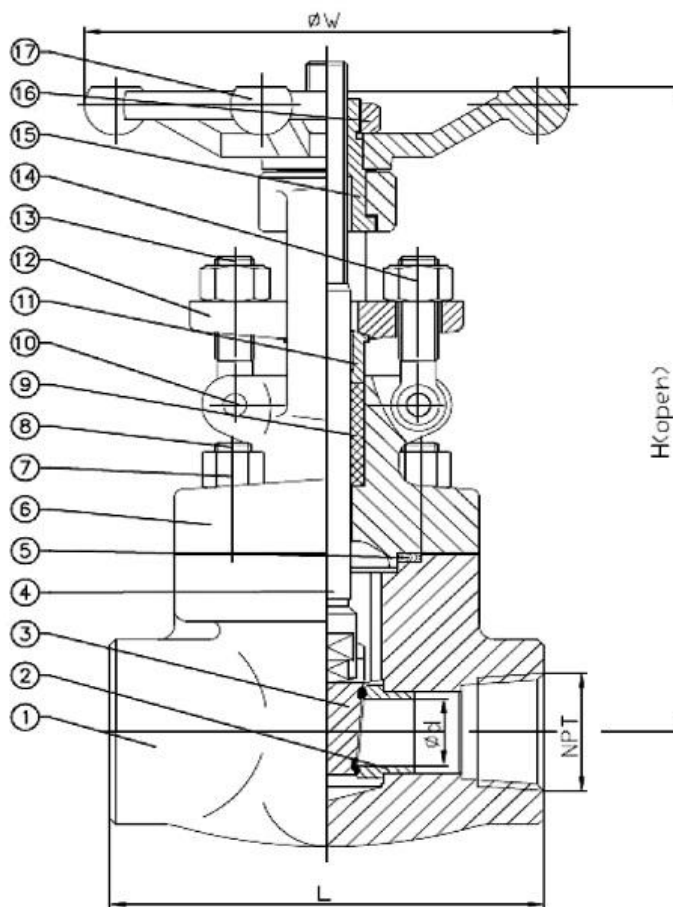
Connection Type:

For SS316 gate valve, it is only available in NPT (National Pipe Thread) female thread or BSPP (British Standard Pipe Parallel) female thread. For A105 gate valve, it is available in NPT female thread or Socket Weld connection. For the female thread gate valve, it needs a male thread of the same connection end to screw in to the gate valve. For socket weld connection, it needs a plain end pipe to connect.



Figure 2 Threaded End Forged Steel Gate Valve

Threaded End Forged Steel Gate Valve Drawing:



No	Part Name	Material
1	Body	ASTM A105
2	Seat	ASTM A276 410 + STL
3	Wedge	ASTM A276 420
4	Stem	ASTM F182 F6A
5	Gasket	SS304 + Graphite
6	Bonnet	ASTM A105
7	Bonnet Nut	ASTM A194 2H

8	Bonnet Bolt	ASTM A193 B7
9	Packing	Graphite
10	Pin	ASTM A307-A
11	Gland	ASTM A276 410
12	Gland Flange	ASTM A105
13	Gland Bolt	ASTM A193 B7
14	Gland Nut	ASTM A194 2H
15	Yoke Sleeve	ASTM A276 410
16	Lock Nut	Carbon Steel
17	Handwheel	ASTM A197

Main Technical Parameter:

Nominal Pressure	800 PSI
Shell Test Pressure	21.0 MPa
Seal Test	15.4 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. Connection screw for the valve according to ASME B1.20.1

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