

Pressure Seal Gate Valve: Class 900–2500

In a pressure seal gate valve, the bonnet seal is designed to tighten as internal pressure rises. At high pressure and temperature this gives more reliable sealing than a bolted bonnet, together with a more compact and lighter body.

Technical specifications

Pressure class	ASME Class 900, 1500, 2500
End connections	Mainly butt-weld (BW); RTJ flanged option
Materials	WCB, WC6, WC9, C12A; F22 / F91 (forged)
Trim	Hard-faced (Stellite) seats and wedge
Operation	Gear operator, multi-turn electric actuator; bypass and drain options

Key features

- Bonnet seal that tightens with pressure
- Cr-Mo materials for high temperature
- Optional bypass line and warm-up connection
- Butt-weld ends suited to power plant and boiler lines

Catalog data

- **Application:** on Class 900, 1500 and 2500 gate valves, the body-bonnet joint is usually a pressure seal design; in Class 150–600, a bolted bonnet is standard.
- **Sealing:** as internal pressure rises, the bonnet seal is compressed harder; at high pressure and temperature the joint is more reliable and more compact than a bolted flange connection.
- **Materials:** A216 WCB, A217 WC6, WC9, C12A and A351 CF8M; trim 5, 8 or 12 (hardfaced).
- **Face-to-face:** ASME B16.10; butt-weld (BW) ends are the most common option on power plant steam lines.

Trim options (API 600)

Trim is the material combination of the internal parts in contact with the fluid: wedge (or disc), seat and stem. Stating the trim number in the inquiry and the order defines the internal materials in a single line:

Trim no.	Wedge / disc face	Seat face	Stem	Typical service
1	13Cr	13Cr	13Cr (F6a)	Water, air, general service
2	304 (18Cr-8Ni)	304	304	Mildly corrosive service
5	CoCr hardfacing (Stellite)	CoCr hardfacing	13Cr	High temperature, steam, erosive fluids

Trim no.	Wedge / disc face	Seat face	Stem	Typical service
8	13Cr	CoCr hardfacing	13Cr	Hydrocarbons and steam; the most common trim for carbon steel valves
10	316 (18Cr-8Ni-Mo)	316	316	Corrosive service
12	316	CoCr hardfacing	316	Corrosive and erosive service
13	Alloy 20 (19Cr-29Ni)	Alloy 20	Alloy 20	Sulfuric acid and similar aggressive media
16	CoCr hardfacing	CoCr hardfacing	316	Severe corrosive and erosive service

The table lists the most common trims. For the full API 600 trim table (1-18) or special trims, send us your specification.