

Steel Gate, Globe, and Check Valves for Sizes NPS 4 (DN 100) and Smaller for the Petroleum and Natural Gas Industries

Downstream Segment

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1 Scope

This international standard specifies the requirements for a series of compact steel gate, globe and check valves for petroleum and natural gas industry applications.

It is applicable to valves of:

- nominal pipe sizes NPS $1/4$, NPS $3/8$, NPS $1/2$, NPS $3/4$, NPS 1, NPS $1\ 1/4$, NPS $1\ 1/2$, NPS 2, NPS $2\ 1/2$, NPS 3, and NPS 4;
- corresponding to nominal sizes DN 8, DN 10, DN 15, DN 20, DN 25, DN 32, DN 40, DN 50, DN 65, DN 80, and DN 100.

It is also applicable to pressure designations of Class 150, Class 300, Class 600, Class 800 and Class 1500.

Class 800 is not a listed class designation, but is an intermediate class number widely used for socket welding and threaded end compact valves.

It includes provisions for the following valve characteristics.

- Outside screw with rising stems (OS & Y), in sizes $1/4 \leq \text{NPS} \leq 4$ ($8 \leq \text{DN} \leq 100$) and pressure designations including Class 800.
- Inside screw with rising stems (ISRS), in sizes $1/4 \leq \text{NPS} \leq 2\ 1/2$ ($8 \leq \text{DN} \leq 65$) and pressure designations of classes ≤ 800 .
- Socket welding or threaded ends, in sizes $1/4 \leq \text{NPS} \leq 2\ 1/2$ ($8 \leq \text{DN} \leq 65$) and pressure designations of Class 800 and Class 1500.
- Flanged or butt-welding ends, in sizes $1/2 \leq \text{NPS} \leq 4$ ($15 \leq \text{DN} \leq 100$) and pressure designations of Class 150 through Class 1500, excluding flanged end Class 800.
- Bonnet Joint Construction: Bolted, welded and threaded with seal weld for classes ≤ 1500 and union nut for classes ≤ 800 .
- Standard and full bore body seat openings.
- Materials, as specified.
- Testing and inspection.

This publication is applicable to valve end flanges in accordance with ASME B16.5, valve body ends having tapered pipe threads to ASME B1.20.1 or ISO 7-1, valve body ends having socket weld ends to ASME B16.11 and butt-weld connections per the requirements described within this standard. It is applicable to extended body construction in sizes $1/2 \leq \text{NPS} \leq 2$ ($15 \leq \text{DN} \leq 50$) and pressure designations of Class 800 and Class 1500, and to bellows and bellows assembly construction as may be adaptable to gate or globe valves in sizes $1/4 \leq \text{NPS} \leq 2$ ($8 \leq \text{DN} \leq 50$). It covers bellows stem seal type testing requirements.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

API Standard 598, *Valve Inspection and Testing*

ASME B1.1¹, *Unified Inch Screw Threads (UN and UNR Thread Form)*

ASME B1.5, *Acme Screw Threads*

ASME B1.8, *Stub Acme Screw Threads*

ASME B1.13M, *Metric Screw Threads: M Profile*

ASME B1.20.1, *Pipe Threads, General Purpose (Inch)*

ASME B16.5, *Pipe Flanges and Flanged Fittings*

ASME B16.10, *Face-to-Face and End-to-End Dimensions of Valves*

ASME B16.11, *Forged Fittings, Socket-welding and Threaded*

ASME B16.34, *Valves—Flanged, Threaded, and Welding End*

ASME B31.3, *Process Piping*

ASME Boiler and Pressure Vessel Code (BPVC), Section IX: *Welding and Brazing Qualifications*

ASTM A193², *Standard Specification for Alloy-steel and Stainless Steel Bolting Materials for High-temperature Service*

ASTM A194, *Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure and High-Temperature Service, or Both*

ASTM A307, *Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength*

EN 10269³, *Steels and nickel alloys for fasteners with specified elevated and/or low temperature properties*

ISO 7-1⁴, *Pipe threads where pressure-tight joints are made on the threads—Part 1: Dimensions, tolerances and designation*

ISO 7-2, *Pipe threads where pressure-tight joints are made on the threads—Part 2: Verification by means of limit gauges*

ISO 2902, *ISO metric trapezoidal screw threads—General plan*

¹ ASME International, 3 Park Avenue, New York, New York 10016, www.asme.org.

² ASTM International, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428, www.astm.org.

³ European Committee for Standardization, Avenue Marnix 17, B-1000, Brussels, Belgium, www.cen.eu.

⁴ International Organization for Standardization, 1, ch. de la Voie-Creuse, Case postale 56, CH-1211, Geneva, Switzerland, www.iso.org.