Metal Plug Valves—Flanged, Threaded, and Welding Ends

API STANDARD 599
SEVENTH EDITION, JANUARY 2013

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AMERICAN PETROLEUM INSTITUTE

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Downstream Segment

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Foreword

This standard is a purchase specification that covers requirements for metal plug valves, including flanged, threaded, socket-weld, and butt-weld valves in steel and alloy materials, and flanged valves in ductile iron.

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Metal Plug Valves—Flanged, Threaded, and Welding Ends

1 Scope

This standard covers design, materials, face-to-face dimensions, pressure-temperature ratings, and examination, inspection, and test requirements for metallic plug valves as follows.

— Steel, nickel base, and other alloy plug valves with flanged or butt-welding ends and ductile iron plug valves with flanged ends in sizes $15 \le DN \le 600$ ($1/2 \le NPS \le 24$).

— Threaded or socket-welding ends for sizes $15 \le DN \le 50$ ($1/2 \le NPS \le 2$). Valve bodies conforming to ASME B16.34 may have one flange and one butt-welding end, or one threaded and one socket-welding end.

— Lubricated and nonlubricated valves that have two-way coaxial ports. Three-way and four-way plug valves do not fall under the scope of this standard.

— Tandem plug valves which have two independent operating plugs in a single body.

This standard includes requirements for valves fitted with internal body, plug, and port linings or applied hard facings on the body, body ports, plug, and plug port. The extent of linings and the facing materials of which they are made are not covered in this standard.

This standard also provides additional requirements for plug valves that are in full conformance to the requirements of ASME B16.34 for Standard Class 150 through 2500. Ductile iron valves, Class 150 and 300, shall follow the additional requirements of ASME B16.42 for pressure-temperature ratings, wall thickness, flange dimensions, and material grade.

Plug valves covered in this standard belong to one of four general design groups that in many cases have different face-to-face and end-to-end dimensions. Some types of plug valves are not made to all patterns. The four groups of valve design are described below.

— Short pattern design found only in Class 150 and 300 where flanged plug valves match the face-to-face dimensions of steel-flanged gate valves in sizes $40 \le DN \le 300$ ($1\ 1/2 \le NPS \le 12$).

— Regular pattern design with a plug port area that is greater than the venturi pattern.

— Venturi pattern designed for minimum pressure loss consistent with the reduced port area used in this type of valve. Venturi valves have a configuration of body and plug ports that approximate a venturi throat.

— Round-port full bore pattern design with a circular port through both the plug and the body that is not smaller than that specified in Appendix A of ASME B16.34 for the applicable valve size and pressure class.

It covers valves of the nominal pipe sizes NPS:

— 1/2, 3/4, 1, 1 1/4, 1 1/2, 2, 2 1/2, 3, 4, 6, 8, 10, 12, 14, 16, 18, 20, 24.

Corresponding to nominal pipe sizes DN;

— 15, 20, 25, 32, 40, 50, 65, 80, 100, 150, 200, 250, 300, 350, 400, 450, 500, 600.

Information to be specified by the purchaser is shown in Annex A.