Metal Plug Valves—Flanged, Threaded, and Welding Ends

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1 Scope

1.1 This standard specifies the requirements for quarter turn metal plug valves, including the lift plug type, for the petroleum, petrochemical, and industrial applications.

1.2 This standard is applicable to:

— 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 ≤ DN ≤ 900 ($1/2$ ≤ NPS ≤ 36);

— threaded or socket-welding end plug valves for sizes 15 ≤ DN ≤ 50 ($1/2$ ≤ NPS ≤ 2);

— plug valve bodies conforming to ASME B16.34, which may have any combination of flanged, threaded, socket welding, or butt-welding ends;

— lubricated and nonlubricated plug valves that have two-way coaxial ports.

NOTE Three-way and four-way plug valves do not fall under the scope of this standard.

— tandem plug valves that have two independent operating plugs in a single body.

1.3 This standard covers plug valves of the nominal diameter sizes DN:

— 15, 20, 25, 32, 40, 50, 65, 80, 100, 150, 200, 250, 300, 350, 400, 450, 500, 600, 650, 700, 750, 800, 850, 900;

corresponding to 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, 26, 28, 30, 32, 34, 36;

and applies to pressure class designations:

— 150, 300, 600, 900, 1500, 2500.

1.4 This standard includes requirements for plug 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.

1.5 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 and Class 150 and 300 shall follow the additional requirements of ASME B16.42 for pressure/temperature ratings, wall thickness, flange dimensions, and material grade.

1.6 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 ≤ DN ≤ 300 ($1\,1/2$ ≤ NPS ≤ 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.