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ANSI

Valves for Cryogenic Service, including Requirements for Body/Bonnet Extensions

Standard Practice
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U.S. customary units in this Standard Practice are the standard; (SI) metric units are for reference only.

This document has been substantially revised from the previous 2010 edition. It is suggested that if the user is interested in knowing what changes have been made, that direct page by page comparison should be made of this document and that of the previous edition.

Non-toleranced dimensions in this Standard Practice are nominal and, unless otherwise specified, shall be considered "for reference only".

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VALVES FOR CRYOGENIC SERVICE, INCLUDING REQUIREMENTS FOR BODY/BONNET EXTENSIONS

1. SCOPE

1.1 This Standard Practice covers requirements for material, design, dimensions, fabrication, non-destructive examination and pressure testing of stainless steel and other alloy cryogenic service valves with body/bonnet extensions. Requirements for check valves for cryogenic service, which may not require body/bonnet extensions, are also covered. This Standard Practice applies to cryogenic gate, globe, butterfly, ball, and check valves, and may be used in conjunction with other valve-specific standards; including the following identified in this Standard Practice as a parent standard:

ASME B16.34, Valves – Flanged, Threaded, and Welding End

API 600, Steel Gate Valves – Flanged and Butt-welding Ends, Bolted Bonnets

API 602, Steel Gate, Globe, and Check Valves for Sizes NPS 4 (DN 100) and Smaller for the Petroleum and Natural Gas Industries

API 603, Corrosion-resistant, Bolted Bonnet Gate Valves – Flanged and Butt-welding Ends

API 608, Metal Ball Valves – Flanged, Threaded and Welding Ends

API 609, Butterfly Valves: Double Flanged, Lug- and Wafer-type

API 6D, Specification for Pipeline Valves (identical to ISO 14313)

1.2 The requirements in this Standard Practice are not intended to supersede or replace requirements of a parent valve standard.

1.3 This Standard Practice includes additional construction detail requirements specifically related to valves, including body/bonnet extensions essential for cryogenic applications.

2. DEFINITIONS

2.1 ***General*** Definitions given in MSS SP-96 apply to this Standard Practice.

2.2 ***Cryogenics*** The science of materials at extremely low temperatures.

2.3 ***Cryogenic Fluid*** A gas that can be changed to a liquid by removal of heat by refrigeration methods to a temperature at -100 °F (-73 °C) or lower.

2.4 ***Cryogenic Temperature*** For this Standard Practice a temperature range of -100°F (-73 °C) to -425 °F (-254 °C) is cryogenic.

2.5 ***Cold Box*** An enclosure that insulates a set of equipment from the environment without the need for insulation of the individual components inside the cold box.

2.6 ***Cold Box Extension*** A valve body/bonnet extension section that removes the operating mechanism of the valve outside the cold box and is required to be longer than a non-cold box extension.

2.7 ***Non-Cold Box Extension*** A body/bonnet extension that is used for valves that are normally individually insulated.

2.8 ***Parent Valve Standard*** Endorses the ASME B16.34 construction requirements but has additional construction detail requirements exceeding or not addressed by ASME B16.34.

2.9 ***Gas Column*** That portion of body/bonnet extension that allows for the formation of an insulating column of vapor.

2.10 ***Double Block and Bleed Valve*** Valve with two seating surfaces that when in the closed position, blocks flow from both valve ends when the cavity between the seating surfaces is vented through a bleed connection provided in the valve body.