

MSS SP-134-2012

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

Standard Practice
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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.