



BSI Standards Publication

**Ships and marine technology — Butterfly
valves for use in low temperature applications
— Design and testing requirements**

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National foreword

This British Standard is the UK implementation of ISO 21159:2018.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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This document was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 3, *Piping and machinery*.

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Ships and marine technology — Butterfly valves for use in low temperature applications — Design and testing requirements

1 Scope

This document specifies requirements for design, manufacture, and test methods of cryogenic butterfly valves in order to have an excellent quality leakage stability in a very low temperature service (−196 °C to 80 °C).

It is applicable to valves of nominal sizes: DN: 80, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600 corresponding to nominal pipe size (NPS): 3, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 5208, *Industrial valves — Pressure testing of metallic valves*

ISO 5209, *General purpose industrial valves — Marking*

ISO 5211, *Industrial valves — Part-turn actuator attachments*

ISO 28921-1, *Industrial valves — Isolating valves for low-temperature applications — Part 1: Design, manufacturing and production testing*

ISO 10497, *Testing of valves — Fire type-testing requirements*

API 609, *Butterfly Valves: Double flanged, lug and wafer-type*

ASME B 16.5, *Pipe Flanges and Flanged Fittings*

ASME B 16.10, *Face-to-Face and End-to-End Dimensions of Valves*

ASME B 16.25, *Buttwelding Ends*

ASME B16.34:2007, *Valves — Flanged, Threaded, and Welding End*

SEC ASME V, *Non-destructive Examination*

SEC ASME VIII, *Pressure vessels*

ASTM A182/A182M, *Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings and Valves and Parts for High-temperature Service*

ASTM A193/A193M, *Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications*

ASTM A194/A194M, *Carbon and Alloy Steel Nuts and Bolts for High-Pressure and High-Temperature Service*

ASTM A276, *Standard Specification for Stainless Steel Bars and Shapes*

ASTM A312/A312M, *Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes*