



BSI Standards Publication

Cryogenic vessels — Pressure-relief accessories for cryogenic service

Part 1: Reclosable pressure-relief valves

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National foreword

This British Standard is the UK implementation of ISO 21013-1:2021. It supersedes BS ISO 21013-1:2008, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PVE/18, Cryogenic vessels.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Part 1: Reclosable pressure-relief valves

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Partie 1: Soupapes de sûreté pour service cryogénique



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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 220, *Cryogenic vessels*.

This second edition cancels and replaces the first edition (ISO 21013-1:2008), which has been technically revised.

The main changes are as follows:

- update of the terms and definitions;
- revision of cryogenic tests, in particular, the test setup.

A list of all parts in the ISO 21013 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Cryogenic vessels — Pressure-relief accessories for cryogenic service —

Part 1: Reclosable pressure-relief valves

1 Scope

This document specifies the requirements for the design, manufacture and testing of pressure relief valves for cryogenic service, i.e. for operation with cryogenic fluids below -10°C in addition to operation at ambient temperatures from ambient to cryogenic.

This document is applicable to valves not exceeding a size of DN 150 designed to relieve single-phase vapours or gases. A valve can be specified, constructed and tested such that it is suitable for use with more than one gas or with mixtures of gases.

NOTE This document does not provide methods for determining the capacity of relief valve(s) for a particular cryogenic vessel. Such methods are provided in ISO 21013-3.

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 4126-1:2013, *Safety devices for protection against excessive pressure — Part 1: Safety valves*

ISO 11114-1, *Gas cylinders — Compatibility of cylinder and valve materials with gas contents — Part 1: Metallic materials*

ISO 11114-2, *Gas cylinders — Compatibility of cylinder and valve materials with gas contents — Part 2: Non-metallic materials*

ISO 15761, *Steel gate, globe and check valves for sizes DN 100 and smaller, for the petroleum and natural gas industries*

ISO 20421-1:2019, *Cryogenic vessels — Large transportable vacuum-insulated vessels — Part 1: Design, fabrication, inspection and testing*

ISO 21009-1:2008, *Cryogenic vessels — Static vacuum-insulated vessels — Part 1: Design, fabrication, inspection, and tests*

ISO 21010, *Cryogenic vessels — Gas/material compatibility*

ISO 21028-1, *Cryogenic vessels — Toughness requirements for materials at cryogenic temperature — Part 1: Temperatures below -80°C*

ISO 21028-2, *Cryogenic vessels — Toughness requirements for materials at cryogenic temperature — Part 2: Temperatures between -80°C and -20°C*

ISO 21029-1:2018, *Cryogenic vessels — Transportable vacuum insulated vessels of not more than 1 000 litres volume — Part 1: Design, fabrication, inspection and tests*

ISO 23208, *Cryogenic vessels — Cleanliness for cryogenic service*