KRÜOGEENANUMAD. VOOLIKUD

Cryogenic vessels - Hoses (ISO 21012:2024)

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 21012:2024 sisaldab Euroopa standardi EN ISO 21012:2024 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 21012:2024 consists of the English text of the European standard EN ISO 21012:2024.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 25.09.2024.	Date of Availability of the European standard is 25.09.2024.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 23.020.40, 83.140.40

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 21012

September 2024

ICS 23.020.40; 83.140.40

Supersedes EN ISO 21012:2018

English Version

Cryogenic vessels - Hoses (ISO 21012:2024)

R?ipients cryog?iques - Tuyaux flexibles (ISO 21012:2024)

Kryo-Beh?ter - Schlauchleitungen (ISO 21012:2024)

This European Standard was approved by CEN on 29 March 2024.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Ref. No. EN ISO 21012:2024 E

European foreword

This document (EN ISO 21012:2024) has been prepared by Technical Committee ISO/TC 220 "Cryogenic vessels" in collaboration with Technical Committee CEN/TC 268 “Cryogenic vessels and specific hydrogen technologies applications” the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2025, and conflicting national standards shall be withdrawn at the latest by March 2025.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 21012:2018.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users’ national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Endorsement notice

The text of ISO 21012:2024 has been approved by CEN as EN ISO 21012:2024 without any modification.

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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).

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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*. in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 268, *Cryogenic vessels,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 21012:2018), which has been technically revised.

The main changes are as follows:

— Modification of the Scope;

— Modification of the normative references;

— Improvement of the link between requirements of materials (4.2) and addition of a new Annex E for materials;

— Explanations provided for austenitic stainless steel in pressure test (subclause 5.2.4).

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 — Hoses

1 Scope

This document specifies design, construction, type and production testing, and marking requirements for both non-insulated cryogenic flexible hoses and insulated vacuum jacketed hoses used for the transfer of cryogenic fluids within the following range of operating conditions:

— working temperature range: from −270 °C to +65 °C;

— nominal size (DN): from 10 to 100.

End fittings for mounting of any couplings are within the scope of this document, but the couplings are subject to other standards.

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 7369, *Pipework — Metal hoses and hose assemblies — Vocabulary*

ISO 10806, *Pipework — Fittings for corrugated metal hoses*

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

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

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 7369 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
hose
flexible leak-tight inner tube of either corrugated metal, elastomer or plastic

3.2
braid
layer, or layers, of cylindrically woven wires covering the *hose* (3.1) and permanently attached to the flexible *hose assembly* (3.5) *end fitting* (3.4) with a ferrule, serving the function of restraining the flexible hose against elongation