

Refrigeration systems and heat pumps - Flexible pipe elements, vibration isolators, expansion joints and non-metallic tubes - Requirements and classification (ISO 13971:2012)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>See Eesti standard EVS-EN ISO 13971:2025 sisaldab Euroopa standardi EN ISO 13971:2025 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 24.09.2025.</p> <p>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.</p>	<p>This Estonian standard EVS-EN ISO 13971:2025 consists of the English text of the European standard EN ISO 13971:2025.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>Date of Availability of the European standard is 24.09.2025.</p> <p>The standard is available from the Estonian Centre for Standardisation and Accreditation.</p>
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ICS 27.080, 27.200

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EUROPEAN STANDARD

EN ISO 13971

NORME EUROPÉENNE

EUROPÄISCHE NORM

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ICS 27.080; 27.200

Supersedes EN 1736:2008

English Version

Refrigeration systems and heat pumps - Flexible pipe elements, vibration isolators, expansion joints and non-metallic tubes - Requirements and classification (ISO 13971:2012)

Systèmes de réfrigération et pompes à chaleur -
Éléments flexibles de tuyauterie, isolateurs de
vibration, joints de dilatation et tubes non métalliques -
Exigences et classification (ISO 13971:2012)

Kälteanlagen und Wärmepumpen - Flexible
Rohrleitungsteile, Schwingungsabsorber,
Kompensatoren und Nichtmetall-Schläuche -
Anforderungen und Klassifikation (ISO 13971:2012)

This European Standard was approved by CEN on 22 September 2025.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of ISO 13971:2012 has been prepared by Technical Committee ISO/TC 86 "Refrigeration and air-conditioning" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 13971:2025 by Technical Committee CEN/TC 182 "Refrigerating systems, safety and environmental requirements" the secretariat of which is held by DIN.

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 2026, and conflicting national standards shall be withdrawn at the latest by March 2026.

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 1736:2008.

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

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Endorsement notice

The text of ISO 13971:2012 has been approved by CEN as EN ISO 13971:2025 without any modification.

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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ISO 13971 was prepared by Technical Committee ISO/TC 86, *Refrigeration and air-conditioning*, Subcommittee SC 1, *Safety and environmental requirements for refrigerating systems*.

Introduction

Flexible pipe elements are used to eliminate impermissible stresses from refrigerating circuits and absorb pipe expansion or relative movements of components.

Flexible pipe elements are often the weakest part of a refrigerating system and the part most likely to suffer from fatigue or stress corrosion cracking.

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Refrigeration systems and heat pumps — Flexible pipe elements, vibration isolators, expansion joints and non-metallic tubes — Requirements and classification

1 Scope

This International standard describes requirements, design and installation of flexible pipe elements (e.g., metallic flexible pipe, metallic flexible tube, vibration isolator, expansion joint) and non-metallic tube used in the refrigerant circuits of refrigerating systems and heat pumps.

It also describes the requirements to qualify the tightness and permeability of non-metallic tubes (e.g., plastic) used in evaporating and/or condensing sides of refrigerating systems and heat pumps.

This International standard does not apply to flexible pipes that are only occasionally stressed beyond the elastic limit (e.g., during repair work), or to joints that are free to rotate or hinge.

2 Normative references

The following referenced documents are indispensable for the application 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 175, *Plastics — Methods of test for the determination of the effects of immersion in liquid chemicals*

ISO 5149-2, *Refrigerating systems and heat pumps — Safety and environmental requirements — Part 2: Design, construction, testing, marking and documentation*

ISO 6605:2002, *Hydraulic fluid power — Hoses and hose assemblies — Test methods*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

expansion joint

tubular pipe element shaped in such a way that it provides limited movement to accommodate thermal expansion without reaching its elastic limit

3.2

flexible pipe element

pipe or tube of non-permanent shape linking two parts that are moveable with respect to each other

See Figure 1.

NOTE 1 This generic term includes all types, as defined in 3.1, 3.3 to 3.5, and 3.8 to 3.11.

NOTE 2 Flexible pipe elements may include a plastic barrier in the construction, either as a liner on the inner surface or as a sandwich in the pipe wall. The main purpose of such a barrier is to reduce the permeation of refrigerant gas.

NOTE 3 This type of pipe is flexible by virtue of the shape into which the tube is bent (e. g., coiled capillary tube).

3.3

flexible pipe element, fixed installed

element used to minimize assembly difficulty by accommodating slight misalignments or relative movement between components of the refrigerating system