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**Refrigerating systems and heat  
pumps — Qualification of tightness of  
components and joints**

*Systèmes de réfrigération et pompes à chaleur — Qualification de  
l'étanchéité des composants et des joints*



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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](http://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](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on 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 the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 182, *Refrigerating systems, safety and environmental requirements*, in collaboration with ISO Technical Committee TC 86, *Refrigeration and air-conditioning*, Subcommittee SC 1, *Safety and environmental requirements for refrigerating systems*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 14903:2012), which has been technically revised.

# Refrigerating systems and heat pumps — Qualification of tightness of components and joints

## 1 Scope

This document provides the qualification procedure for type approval of the tightness of hermetically sealed and closed components, joints and parts used in refrigerating systems and heat pumps as described in relevant parts of ISO 5149. The sealed and closed components, joints and parts concerned are, in particular, fittings, bursting discs, flanged or fitted assemblies. The tightness of flexible piping made from non-metallic materials is dealt with in ISO 13971. Metal flexible piping are covered by this document.

The requirements contained in this document are applicable to joints of maximum DN 50 and components of internal volume of maximum 5 l and maximum weight of 50 kg.

This document is intended to characterize their tightness stresses met during their operations, following the fitting procedure specified by the manufacturer, and to specify the minimal list of necessary information to be provided by the supplier of a component to the person in charge of carrying out this procedure.

It specifies the level of tightness of the component, as a whole, and its assembly as specified by its manufacturer.

It applies to the hermetically sealed and closed components, joints and parts used in the refrigerating installations, including those with seals, whatever their material and their design are.

This document specifies additional requirements for mechanical joints that can be recognized as hermetically sealed joints.

## 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 175, *Plastics — Methods of test for the determination of the effects of immersion in liquid chemicals*

ISO 1817, *Rubber, vulcanized or thermoplastic — Determination of the effect of liquids*

ISO 5149-1, *Refrigerating systems and heat pumps — Safety and environmental requirements — Part 1: Definitions, classification and selection criteria*

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

ISO 13971, *Refrigeration systems and heat pumps — Flexible pipe elements, vibration isolators, expansion joints and non-metallic tubes — Requirements and classification*

IEC 60068-2-64, *Environmental testing — Part 2-64: Tests — Test Fh: Vibration, broadband random and guidance*

EN 1593, *Non-destructive testing — Leak testing — Bubble emission techniques*

EN 13185:2001, *Non-destructive testing — Leak testing — Tracer gas method*