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Refrigerating systems and heat pumps - Liquid level  
indicating devices - Requirements, testing and marking

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 12178:2016 sisaldab Euroopa standardi EN 12178:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 12178:2016 consists of the English text of the European standard EN 12178:2016.
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.
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English Version

## Refrigerating systems and heat pumps - Liquid level indicating devices - Requirements, testing and marking

Systèmes de réfrigération et pompes à chaleur -  
Indicateurs de liquide - Exigences, essais et marquage

Kälteanlagen und Wärmepumpen -  
Flüssigkeitsstandanzeiger - Anforderungen, Prüfung  
und Kennzeichnung

This European Standard was approved by CEN on 8 August 2016.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
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EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## European foreword

This document (EN 12178:2016) has been prepared by 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of an identical text or by endorsement, at the latest by May 2017, and conflicting national standards shall be withdrawn at the latest by May 2017.

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

This document supersedes EN 12178:2003.

EN 12178:2016 includes the following significant technical changes with respect to EN 12178:2003:

- a) Introduction of the safety factors in 7.2.1;
- b) Harmonisation of Annex ZA with Directive 2014/68/EU.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## 1 Scope

This European Standard specifies safety requirements, safety factors, test methods, test pressures and marking of liquid level indicating devices, referred to throughout this standard as “level indicators”, for use in refrigerating systems and heat pumps.

It applies to devices connected to refrigerant vessels (e.g. on high-pressure liquid receivers, intercoolers and low-pressure receivers) and to devices connected to other parts of a refrigerating system (e.g. oil-level sight glasses on a compressor).

This European Standard applies to those types of level indicators that are direct and indirect reading devices (e.g. sight glasses, frosting tubes), and includes electrical and pneumatic indicators.

This European Standard describes the procedure to be followed when designing (by calculation or by an experimental design method) level indicator parts subjected to pressure as well as the criteria to be used for the selection of materials.

This European Standard applies to the design of level indicators with respect to pressure containment and describes methods by which the reduced impact values at lower temperatures may be taken into account in a safe manner.

It also gives guidance on some aspects of application and installation.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 378-1, *Refrigerating systems and heat pumps — Safety and environmental requirements — Part 1: Basic requirements, definitions, classification and selection criteria*

EN 378-2, *Refrigerating systems and heat pumps — Safety and environmental requirements — Part 2: Design, construction, testing, marking and documentation*

EN 378-4, *Refrigerating systems and heat pumps — Safety and environmental requirements — Part 4: Operation, maintenance, repair and recovery*

EN 764-1, *Pressure equipment — Part 1: Vocabulary*

EN 12284:2003, *Refrigerating systems and heat pumps — Valves — Requirements, testing and marking*

EN 60529, *Degrees of protection provided by enclosures (IP Code) (IEC 60529)*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 378-1 and EN 764-1 and the following apply.

### 3.1

**min  $t_{0\ 100}$**

lowest temperature at which pressurized parts can be used at a load of up to 100 % of the allowable design stress at 20 °C, taking the safety factors according to EN 12284:2003, Table A.2 into account