LEKKE AVASTAMISE SÜSTEEMID. OSA 3: NÕUDED JA KATSE-/HINDAMISMEETODID TSISTERNIDE VEDELIKUSÜSTEEMIDELE

Leak detection systems - Part 3: Requirements and test/assessment methods for liquid systems for tanks

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 13160-3:2016 sisaldab Euroopa standardi EN 13160-3:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 13160-3:2016 consists of the English text of the European standard EN 13160-3:2016.
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.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 06.07.2016.	Date of Availability of the European standard is 06.07.2016.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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

ICS 23.020.01, 23.040.99

EUROPEAN STANDARD

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English Version

Leak detection systems - Part 3: Requirements and test/assessment methods for liquid systems for tanks

Systèmes de détection de fuites - Partie 3: Exigences et méthodes d'essai/d'évaluation des systèmes à liquide pour des réservoirs

Leckanzeigesysteme - Teil 3: Anforderungen und Prüf-/Bewertungsverfahren für Flüssigkeitssysteme für Tanks

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

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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 13160-3:2016) has been prepared by Technical Committee CEN/TC 393 "Equipment for storage tanks and for filling stations", 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 January 2017, and conflicting national standards shall be withdrawn at the latest by April 2018.

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 13160-3:2003.

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.

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

According to edition 2003 the following fundamental changes are given:

— requirements and test methods for the leak detection liquids revised;

— consideration of the Construction Product Regulation 305/2011/EU;

— new structure — technical requirements for the system provided consisting of sensing device, evaluation device, alarm device;);

— including of environmental aspects;

— requirements from EN 13160-1:2003 included, which are no longer contained in EN 13160-1:2016;

— requirements for software included;

— reference to REACH — Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency and GHS — Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

— using of temperature types;

— crevice test pieces and test method changed.

This European Standard *Leak detection systems* consists of 7 parts:

— *Part 1: General principles*

— *Part 2: Requirements and test/assessment methods for pressure and vacuum systems*

— *Part 3: Requirements and test/assessment methods for liquid systems for tanks*

— *Part 4: Requirements and test/assessment methods for sensor based leak detection systems*

— *Part 5: Requirements and test/assessment methods for in-tank gauge systems and pressurized pipework systems*

— *Part 6: Sensors in monitoring wells*

— *Part 7: Requirements and test/assessment methods for interstitial spaces, leak detection linings and leak detection jackets*

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 gives requirements and the corresponding test/assessment methods applicable to leak detection kits based on the drop of the liquid level in the leak detection liquid reservoir. Leak detection kits are intended to be used with double skin, underground or above ground, non-pressurized, tanks designed for water polluting liquids.

The liquid leak detection kits are usually composed of:

— sensing device (liquid sensor);

— evaluation device;

— alarm device.

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 981:1996+A1:2008, *Safety of machinery — System of auditory and visual danger and information signals*

EN 1412, *Copper and copper alloys — European numbering system*

EN 1652, *Copper and copper alloys — Plate, sheet, strip and circles for general purposes*

EN 10027–1, *Designation systems for steels — Part 1: Steel names*

EN 12285-1, *Workshop fabricated steel tanks — Part 1: Horizontal cylindrical single skin and double skin tanks for the underground storage of flammable and non-flammable water polluting liquids*

EN 12285-2, *Workshop fabricated steel tanks — Part 2: Horizontal cylindrical single skin and double skin tanks for the aboveground storage of flammable and non-flammable water polluting liquids*

EN 13160–1:2016, *Leak detection systems — Part 1: General Principles*

EN 13160–7, *Leak detection systems — Part 7: Requirements and test/assessment methods for interstitial spaces, leak detection linings and leak detection jackets*

EN 13341:2005+A1:2011, *Static thermoplastic tanks for above ground storage of domestic heating oils, kerosene and diesel fuels — Blow moulded and rotationally moulded polyethylene tanks and rotationally moulded tanks made of anionically polymerized polyamide 6 — Requirements and test methods*

EN 27888, *Water quality — Determination of electrical conductivity (ISO 7888)*

EN 60079-0:2012, *Explosive atmospheres — Part 0: Equipment — General requirements (IEC 60079-0:2011, modified + Cor.:2012)*

EN 61672-1, *Electroacoustics — Sound level meters — Part 1: Specifications (IEC 61672-1)*

EN ISO 175:2010, *Plastics — Methods of test for the determination of the effects of immersion in liquid chemicals (ISO 175:2010)*

EN ISO 2719, *Determination of flash point — Pensky-Martens closed cup method (ISO 2719)*

EN ISO 3104, *Petroleum products — Transparent and opaque liquids — Determination of kinematic viscosity and calculation of dynamic viscosity (ISO 3104)*

EN ISO 12185, *Crude petroleum and petroleum products — Determination of density — Oscillating U-tube method (ISO 12185)*

ISO 431, *Copper refinery shapes*

ISO 7619-1, *Rubber, vulcanized or thermoplastic — Determination of indentation hardness — Part 1: Durometer method (Shore hardness)*

ASTM D 1177, *Standard Test Method for Freezing Point of Aqueous Engine Coolants*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13160-1:2016 apply.

4 Requirements

4.1 Effectiveness

4.1.1 General

This type of leak detection kit is classified according to EN 13160-1:2016 as class II.

The general requirements on leak detection systems according to Clause 5 of EN 13160-1:2016 shall be met.

The interstitial space shall fulfil the requirements according to EN 13160-7, EN 12285-1 or EN 12285-2.

NOTE To ensure the effectiveness of the system a liquid leak detection kit can only serve one tank.

A complete documentation shall be provided by the manufacturer. The documentation shall contain the technical values according to 4.1.3 to 4.1.4 and 4.2 as well as a statement about the reaction of the leak detection kit by over and under power supply voltage and current.

4.1.2 Leak detection kit

The leak detection kit shall consist of:

— sensing device (liquid sensor);

— evaluation device;

— alarm device.

4.1.3 Measure the level change (Sensing device)

4.1.3.1 Leak detection liquid reservoir

The leak detection liquid reservoir shall have a useable volume of:

— at least 1 l/100 l of leak detection liquid in the interstitial space of tanks with at least 0,3 m earth cover;

— at least 1 l/35 l of leak detection liquid in the interstitial space for all other tanks.