

Plastics piping systems - Piping systems for underground drainage and sewerage - Test method for resistance to combined temperature cycling and external loading

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 1437:2002 sisaldab Euroopa standardi EN 1437:2002 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.10.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 1437:2002 consists of the English text of the European standard EN 1437:2002.</p> <p>This document is endorsed on 18.10.2002 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala: This standard specifies two methods for testing pipes and fittings or joints for plastics piping systems intended for use in underground drainage and sewerage systems for their resistance to deformation and leakage when subjected to sustained external loading in conjunction with the passage of hot water.</p>	<p>Scope: This standard specifies two methods for testing pipes and fittings or joints for plastics piping systems intended for use in underground drainage and sewerage systems for their resistance to deformation and leakage when subjected to sustained external loading in conjunction with the passage of hot water.</p>
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ICS 93.030

Võtmesõnad: pipelines, pipes, piping system, plastic pipelines, plastics, resistance, resistors, sewage, sewers, temperature, temperature fluctuations, test reports, testing, thermal cycling, tubes, underground, water

ICS 93.030

English version

Plastics piping systems - Piping systems for underground drainage and sewerage - Test method for resistance to combined temperature cycling and external loading

Systèmes de canalisations en plastique - Systèmes de canalisations pour assainissement enterré - Méthode d'essai pour la résistance à un cycle de températures et de charge externe combinés

Kunststoff-Rohrleitungssysteme - Erdverlegte Abwasserkanäle und -leitungen - Prüfverfahren zur Bestimmung der Widerstandsfähigkeit gegen Temperaturwechsel und gleichzeitige äußere Belastung

This European Standard was approved by CEN on 12 March 2002.

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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 Management Centre has the same status as the official versions.

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Foreword

This document (EN 1437:2002) has been prepared by Technical Committee CEN/TC 155 "Plastics piping systems and ducting systems", the secretariat of which is held by NEN.

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 February 2003, and conflicting national standards shall be withdrawn at the latest by February 2003.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

This standard is based on clause 12 "Box loading test (BLT)" of section four "Prevailing test methods" of the Technical Report ISO/TR 7074:1986 ^[1] published by the International Organisation for Standardisation (ISO).

The modifications are:

- test parameters, except those common to all plastics, are omitted;
- editorial changes have been introduced;
- changes in box loading procedure;
- changes in box design.

The material-dependent parameters and/or performance requirements are incorporated in the System Standard(s) concerned.

Annex A, which is informative, gives recommended requirements.

This standard includes a Bibliography.

This standard is one of a series of standards on test methods that support System Standards for plastics piping systems and ducting systems.

1 Scope

This standard specifies two methods for testing pipes and fittings or joints for plastics piping systems intended for use in underground drainage and sewerage systems for their resistance to deformation and leakage when subjected to sustained external loading in conjunction with the passage of hot water.

Method A involves temperature cycling, by passing hot water and cold water alternately, and is applicable to pipes and associated fittings having a mean outside diameter $d_{em} \leq 190$ mm.

Method B involves passing hot water only, except at intervals specified for measurement of internal deflection, and is applicable to pipes and associated fittings having a mean outside diameter $190 \text{ mm} < d_{em} \leq 510$ mm.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

ISO 48 *Rubber, vulcanized or thermoplastic — Determination of hardness (Hardness between 10 IRHD and 100 IRHD) (including ISO 48:1994/Amd 1:1999)*

3 Principle

A test piece comprising a pipe or an assembly of pipe(s) and fitting(s) is placed on a 100 mm gravel bed and covered with gravel to 600 mm above the crown of the pipe confined by a box of specified dimensions. Depending on the nominal size of the largest pipe or joint under test, a constant vertical load is applied via the gravel and either a specified number of cycles of hot and cold water or just hot water is passed through the test piece. The deformation of the test piece as indicated by vertical deflection or internal diametric compression is measured.

For sizes having a mean outside diameter $d_{em} \leq 190$ mm, hot and cold water is passed through the test piece and air may be blown through the test piece during the intervals between stages (Method A).

For pipes with a mean outside diameter $190 < d_{em} \leq 510$ mm a constant flow of hot water is passed through the test piece (Method B).

Vertical deflection of the test piece is measured. The test piece is checked at the end of the test for cracking, for local deflection in the bottom of the main channel and for leakage at the joints.

NOTE It is assumed that the following parameters are set by the standard making reference to this standard:

- a) if appropriate, the limits of the temperature of the water flowing out (see 7.2.2);
- b) if appropriate, the duration of the flow (see 7.2.2);
- c) the percentage, x , of d_f for the calculation of the diameter of the hard ball, in accordance with 7.3.3.