

**District heating pipes - Pre-insulated flexible pipe  
systems - Part 1: Classification, general  
requirements and test methods**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 15632-1:2009 sisaldab Euroopa standardi EN 15632-1:2009 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 23.02.2009 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 14.01.2009.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 15632-1:2009 consists of the English text of the European standard EN 15632-1:2009.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 23.02.2009 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 14.01.2009.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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English Version

District heating pipes - Pre-insulated flexible pipe systems - Part  
1: Classification, general requirements and test methods

Tuyaux de chauffage urbain - Systèmes de tuyaux flexibles  
préisolés - Partie 1: Classification, prescriptions générales  
et méthodes d'essai

Fernwärmerohre - Werkmäßig gedämmte flexible  
Rohrsysteme - Teil 1: Klassifikation, allgemeine  
Anforderungen und Prüfungen

This European Standard was approved by CEN on 5 December 2008.

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## Foreword

This document (EN 15632-1:2009) has been prepared by Technical Committee CEN/TC 107 “Prefabricated district heating pipe systems”, the secretariat of which is held by DS.

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of an identical text or by endorsement, at the latest by July 2009, and conflicting national standards shall be withdrawn at the latest by July 2009.

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 is one of a series of standards which form several parts of EN 15632, *District heating pipes — Pre-insulated flexible pipe systems*:

Part 1: *Classification, general requirements and test methods*;

Part 2: *Bonded system with plastic service pipes; requirements and test methods*;

Part 3: *Non bonded system with plastic service pipes; requirements and test methods*;

Part 4: *Bonded system with metal service pipes; requirements and test methods*.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

## Introduction

Flexible pipe systems in district heating networks are of common technical usage. In order to assure quality including product-related lifetime, to assure safety in use, economical energy usage and to facilitate comparability in the market, CEN/TC 107 decided to set up standards for these products.

## 1 Scope

This European Standard provides classification, general requirements and test methods for flexible, pre-insulated, directly buried district heating pipe systems.

It is intended to be used in conjunction with parts 2, 3, 4, and 5.

Depending on the pipe assembly (see Table 4), this European Standard is valid for maximum operating temperatures of 95 °C to 140 °C and operating pressures of 6 bar to 25 bar.

The pipe systems are designed for a lifetime of 30 years. For pipe systems with plastic service pipes, the respective temperature profiles are defined in EN 15632-2 and EN 15632-3.

NOTE For the transport of other liquids, for example potable water, additional requirements may be applicable.

## 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.

EN 253:2008, *District heating pipes — Preinsulated bonded pipe systems for directly buried hot water networks — Pipe assembly of steel service pipe, polyurethane thermal insulation and outer casing of polyethylene*

EN 489, *District heating pipes — Preinsulated bonded pipe systems for directly buried hot water networks — Joint assembly for steel service pipes, polyurethane thermal insulation and outer casing of polyethylene*

EN 728, *Plastics piping and ducting systems — Polyolefin pipes and fittings — Determination of oxidation induction time*

EN 744, *Plastics piping and ducting systems — Thermoplastics pipes — Test method for resistance to external blows by the round-the-clock-method*

EN 1605, *Thermal insulating products for building applications — Determination of deformation under specified compressive load and temperature conditions*

EN 1606, *Thermal insulating products for building applications — Determination of compressive creep*

EN 12085, *Thermal insulating products for building applications — Determination of linear dimensions of test specimens*

EN 12667, *Thermal performance of building materials and products — Determination of thermal resistance by means of guarded hot plate and heat flow meter methods — Products of high and medium thermal resistance*

EN 13941, *Design and installation of preinsulated bonded pipe systems for district heating*

EN 14419:2003, *District heating pipes — Pre-insulated bonded pipe systems for directly buried hot water networks — Surveillance systems*

EN 60811-4-1:2004, *Insulating and sheathing of electric and optical cables — Common test methods — Part 4-1: Methods specific to polyethylene and polypropylene compounds - Resistance to environmental stress cracking - Measurement of the melt flow index - Carbon black and/or mineral filler content measurement in*



*polyethylene by direct combustion - Measurement of carbon black content by thermogravimetric analysis (TGA) – Assessment of carbon black dispersion in polyethylene using a microscope (IEC 60811-4-1:2004)*

EN ISO 8497, *Thermal insulation — Determination of steady-state thermal transmission properties of thermal insulation for circular pipes (ISO 8497:1994)*

EN ISO 9967, *Thermoplastics pipes — Determination of creep ratio (ISO 9967:2007)*

EN ISO 9969, *Thermoplastics pipes — Determination of ring stiffness (ISO 9969:2007)*

EN ISO 16871, *Plastics piping and ducting systems — Plastics pipes and fittings — Method for exposure to direct (natural) weathering (ISO 16871:2003)*

EN ISO 23993, *Thermal insulation products for building equipment and industrial installations — Determination of design thermal conductivity (ISO 23993:2008)*

ISO 6964, *Polyolefin pipes and fittings — Determination of carbon black content by calcination and pyrolysis — Test method and basic specification*

ISO 16770, *Plastics — Determination of environmental stress cracking (ESC) of polyethylene — Full-notch creep test (FNCT)*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 253:2008, EN 14419:2003 and the following apply.

#### 3.1

##### **lifetime**

time during which the flexible pipe system operates without failure at the designated operating temperature

#### 3.2

##### **continuous operating temperature**

temperature of the heat medium for which the system has been designed to operate continuously

NOTE See Table 4

#### 3.3

##### **maximum operating temperature**

exceptionally high operating temperature occurring for short periods only

#### 3.4

##### **operating pressure**

pressure at which the hot water network is designed to operate continuously

#### 3.5

##### **service pipe**

medium carrying pipe which is in contact with warm water

#### 3.6

##### **outer casing**

separately applied outer layer of the pipe assembly, protecting the construction during installation and protecting the construction against external influences (after installation)

#### 3.7

##### **insulation layer**

layer which provides the designated thermal characteristics of the pipe assembly