District heating pipes - Factory made flexible pipe systems - Part 4: Bonded system with metal service pipes; requirements and test methods

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 15632-4:2022 sisaldab Euroopa standardi EN 15632-4:2022 ingliskeelset teksti.	This Estonian standard EVS-EN 15632-4:2022 consists of the English text of the European standard EN 15632-4:2022.
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 and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 04.05.2022.	Date of Availability of the European standard is 04.05.2022.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

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

ICS 23.040.07

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 15632-4

May 2022

ICS 23.040.07

Supersedes EN 15632-4:2009

English Version

District heating pipes - Factory made flexible pipe systems - Part 4: Bonded system with metal service pipes; requirements and test methods

Tuyaux de chauffage urbain - Systèmes de tuyaux flexibles manufacturés - Partie 4 : Système bloqué avec tubes de service en métal ; exigences et méthodes d'essai

Fernwärmerohre - Werkmäßig gedämmte flexible Rohrsysteme - Teil 4: Verbundmediumrohre aus Metall; Anforderungen und Prüfungen

This European Standard was approved by CEN on 27 March 2022.

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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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Ref. No. EN 15632-4:2022 E

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European foreword

This document (EN 15632-4:2022) has been prepared by Technical Committee CEN/TC 107 "Prefabricated district heating and district cooling 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 November 2022, and conflicting national standards shall be withdrawn at the latest by November 2022.

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

This document supersedes EN 15632-4:2009.

This document is one of a series of standards which form several parts of EN 15632, *District heating pipes — Factory made 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*.

In comparison with EN 15632-4:2009, the following changes have been made:

a) change in the temperature in the scope;

b) changes in the steel qualities, including the referenced standards;

c) completely revised "guideline for testing" in the informative Annex A.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

District heating technology has developed rapidly since its origin and especially in recent times. Today, there are different generations of district heating networks. The technologies of these generations are driven by the different heat sources and operating temperatures used.

CEN/TC 107 provides a set of European standard series for rigid and flexible piping systems in district heating to suit all generations and requirements of district heating networks in the market.

The standard documents ensure quality for pre-fabricated piping systems in district heating.

This standard series covers flexible, pre-fabricated piping systems for operation conditions as described in the scope of part 1.

1 Scope

This document specifies requirements and test methods for flexible, factory made, buried district heating pipe systems with metallic service pipes and bonding between the layers of the pipe assemblies and thermal insulation materials of polyurethane or polyisocyanurate foam, the casing being made of polyethylene.

It is only applicable in conjunction with part 1.

This document is applicable to pipes, fittings, their joints and to joints with components made of non-plastics materials intended to be used for district heating installations.

This document is applicable to a continuous operating temperature up to 120 °C and a maximum operating temperature of 140 °C for maximum 300 h/a, and a design pressure up to 2,5 MPa for a design service life of at least 30 years.

This document does not apply to cover surveillance systems.

NOTE For higher temperatures or for the transport of other fluids, for example potable water, additional requirements and testing is needed. Such requirements are not specified in this document.

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.

EN 1057, *Copper and copper alloys - Seamless, round copper tubes for water and gas in sanitary and heating applications*

EN 10088-2, *Stainless steels - Part 2: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes*

EN 10204, *Metallic products - Types of inspection documents*

EN 10216-2, *Seamless steel tubes for pressure purposes - Technical delivery conditions - Part 2: Non-alloy and alloy steel tubes with specified elevated temperature properties*

EN 10217-2, *Welded steel tubes for pressure purposes - Technical delivery conditions - Part 2: Electric welded non-alloy and alloy steel tubes with specified elevated temperature properties*

EN 10305-1, *Steel tubes for precision applications - Technical delivery conditions - Part 1: Seamless cold drawn tubes*

EN 10305-2, *Steel tubes for precision applications - Technical delivery conditions - Part 2: Welded cold drawn tubes*

EN 10305-3, *Steel tubes for precision applications - Technical delivery conditions - Part 3: Welded cold sized tubes*

EN 12449, *Copper and copper alloys - Seamless, round tubes for general purposes*

EN 14419, *District heating pipes - Bonded single and twin pipe systems for buried hot water networks - Surveillance systems*

EN 15632-1, *District heating pipes - Pre-insulated flexible pipe systems - Part 1: Classification, general requirements and test methods*

EN 17248, *District heating and district cooling pipe systems - Terms and definitions*

EN ISO 3834-2, *Quality requirements for fusion welding of metallic materials - Part 2: Comprehensive quality requirements (ISO 3834-2)*

EN ISO 10893-1, *Non-destructive testing of steel tubes - Part 1: Automated electromagnetic testing of seamless and welded (except submerged arc-welded) steel tubes for the verification of hydraulic leaktightness (ISO 10893-1)*

EN ISO 15607, *Specification and qualification of welding procedures for metallic materials - General rules (ISO 15607)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 17248 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

4 Operating conditions

Pipe systems according to this document shall have a lifetime of at least 30 years at a continuous operating temperature of 120 °C and a maximum operating temperature of 140 °C for maximum 300 h/a (see Table 1).

Table 1 — Design pressures

Service pipe	Design Pressure	
	1,6 MPa	2,5 MPa
Copper	X	-
Steel	X	X
Corrugated stainless steel	X	X

5 Requirements

5.1 General requirements

In addition to the general requirements specified in EN 15632-1, the following product specific requirements apply.

5.2 Service pipes, fittings and their connections

The service pipes shall fulfil the requirements of diameter and wall thickness in Table 2.