



EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 15632-2**

May 2022

ICS 23.040.07

Supersedes EN 15632-2:2010+A1:2014

English Version

**District heating pipes - Factory made flexible pipe systems  
- Part 2: Bonded system with plastic service pipes;  
requirements and test methods**

Tuyaux de chauffage urbain - Systèmes de tuyaux  
flexibles manufacturés - Partie 2 : Système bloqué avec  
tubes de service en plastique ; exigences et méthodes  
d'essai

Fernwärmerohre - Werkmäßig gedämmte flexible  
Rohrsysteme - Teil 2: Verbundrohrsysteme mit  
Mediumrohren aus Kunststoff; Anforderungen und  
Prüfungen

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

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.

CEN members are the national standards bodies of 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 United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

**EN 15632-2:2022 (E)****Contents**

Page

<b>European foreword.....</b>	<b>3</b>
<b>Introduction .....</b>	<b>4</b>
<b>1 Scope.....</b>	<b>5</b>
<b>2 Normative references.....</b>	<b>5</b>
<b>3 Terms and definitions .....</b>	<b>7</b>
<b>4 Classification.....</b>	<b>7</b>
<b>4.1 Operating temperatures and service life.....</b>	<b>7</b>
<b>4.2 Design pressures.....</b>	<b>7</b>
<b>5 Requirements.....</b>	<b>8</b>
<b>5.1 General requirements .....</b>	<b>8</b>
<b>5.2 Service pipes, fittings and their connections .....</b>	<b>8</b>
<b>5.2.1 Quality of service pipes, fittings and their connections .....</b>	<b>8</b>
<b>5.2.2 Oxygen tightness of service pipes .....</b>	<b>11</b>
<b>5.3 Axial shear strength of pipe assemblies .....</b>	<b>11</b>
<b>5.4 Linear water tightness of pipe assemblies.....</b>	<b>11</b>
<b>5.5 Water vapour permeation of pipe assemblies .....</b>	<b>11</b>
<b>6 Test procedures.....</b>	<b>11</b>
<b>6.1 General.....</b>	<b>11</b>
<b>6.2 Thermal cycling test.....</b>	<b>12</b>
<b>6.3 Axial shear strength of pipe assemblies .....</b>	<b>12</b>
<b>6.4 Linear water tightness of pipe assemblies.....</b>	<b>14</b>
<b>Annex A (informative) Application of Miner's Rule - Calculation of the calculated design life of PB-H, PE-X and Multilayer piping systems.....</b>	<b>15</b>
<b>A.1 General.....</b>	<b>15</b>
<b>A.2 Considerations for multilayer piping systems .....</b>	<b>17</b>
<b>Annex B (informative) Guideline for inspection and testing.....</b>	<b>18</b>
<b>Bibliography.....</b>	<b>20</b>

## European foreword

This document (EN 15632-2:2022) 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 15632-2:2010+A1:2014.

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 15632-2:2010+A1:2014, the following changes have been made:

- a) revised temperature profile in Clause 4 with explicitly stated (unchanged) safety factors;
- b) introduction of an alternative option of thermal stability testing at 115 °C in 5.2;
- c) improved specification of a service pipe according to EN ISO 21003 in 5.2;
- d) completely revised informative Annex A “Application of Miner’s rule”;
- e) completely revised “guideline for testing” in the informative Annex B.

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.

**EN 15632-2:2022 (E)****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 plastic service pipes and bonding between the layers of the pipe assemblies.

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 maximum operating temperature of 95 °C and maximum operating design pressure up to 1,0 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 485-2, *Aluminium and aluminium alloys - Sheet, strip and plate - Part 2: Mechanical properties*

EN 573-3, *Aluminium and aluminium alloys - Chemical composition and form of wrought products - Part 3: Chemical composition and form of products*

EN 10025-2, *Hot rolled products of structural steels - Part 2: Technical delivery conditions for non-alloy structural steels*

EN 10025-3, *Hot rolled products of structural steels - Part 3: Technical delivery conditions for normalized/normalized rolled weldable fine grain structural steels*

EN 10025-4, *Hot rolled products of structural steels - Part 4: Technical delivery conditions for thermomechanical rolled weldable fine grain structural steels*

EN 10216-1, *Seamless steel tubes for pressure purposes - Technical delivery conditions - Part 1: Non-alloy steel tubes with specified room temperature properties*

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 10216-3, *Seamless steel tubes for pressure purposes - Technical delivery conditions - Part 3: Alloy fine grain steel tubes*

EN 10217-1, *Welded steel tubes for pressure purposes - Technical delivery conditions - Part 1: Electric welded and submerged arc welded non-alloy steel tubes with specified room 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 10217-3, *Welded steel tubes for pressure purposes - Technical delivery conditions - Part 3: Electric welded and submerged arc welded alloy fine grain steel tubes with specified room, elevated and low temperature properties*

**EN 15632-2:2022 (E)**

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

EN ISO 15875-1, *Plastics piping systems for hot and cold water installations - Crosslinked polyethylene (PE-X) - Part 1: General (ISO 15875-1)*

EN ISO 15875-2, *Plastics piping systems for hot and cold water installations - Crosslinked polyethylene (PE-X) - Part 2: Pipes (ISO 15875-2)*

EN ISO 15875-3, *Plastics piping systems for hot and cold water installations - Crosslinked polyethylene (PE-X) - Part 3: Fittings (ISO 15875-3)*

EN ISO 15875-5, *Plastics piping systems for hot and cold water installations - Crosslinked polyethylene (PE-X) - Part 5: Fitness for purpose of the system (ISO 15875-5)*

EN ISO 15876-1, *Plastics piping systems for hot and cold water installations - Polybutene (PB) - Part 1: General (ISO 15876-1)*

EN ISO 15876-2, *Plastics piping systems for hot and cold water installations - Polybutene (PB) - Part 2: Pipes (ISO 15876-2)*

EN ISO 15876-3, *Plastics piping systems for hot and cold water installations - Polybutene (PB) - Part 3: Fittings (ISO 15876-3)*

EN ISO 15876-5, *Plastics piping systems for hot and cold water installations - Polybutene (PB) - Part 5: Fitness for purpose of the system (ISO 15876-5)*

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

EN ISO 19893, *Plastics piping systems - Thermoplastics pipes and fittings for hot and cold water - Test method for the resistance of mounted assemblies to temperature cycling (ISO 19893)*

EN ISO 21003-1, *Multilayer piping systems for hot and cold water installations inside buildings - Part 1: General (ISO 21003-1)*

EN ISO 21003-2, *Multilayer piping systems for hot and cold water installations inside buildings - Part 2: Pipes (ISO 21003-2)*

EN ISO 21003-3, *Multilayer piping systems for hot and cold water installations inside buildings - Part 3: Fittings (ISO 21003-3)*

EN ISO 21003-5, *Multilayer piping systems for hot and cold water installations inside buildings - Part 5: Fitness for purpose of the system (ISO 21003-5)*

EN ISO 22391 (all parts), *Plastics piping systems for hot and cold water installations - Polyethylene of raised temperature resistance (PE-RT) (ISO 22391)*

ISO 17455, *Plastics piping systems — Multilayer pipes — Determination of the oxygen permeability of the barrier pipe*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**