BS EN 253:2019+A1:2023

BSI Standards Publication

District heating pipes — Bonded single pipe systems for directly buried hot water networks — Factory made pipe assembly of steel service pipe, polyurethane thermal insulation and a casing of polyethylene

National foreword

This British Standard is the UK implementation of EN 253:2019+A1:2023. It supersedes BS EN 253:2019, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A1 is indicated by ⟨A1⟩ ⟨A1⟩.

The UK participation in its preparation was entrusted to Technical Committee RHE/9, Insulated underground pipelines.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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31 January 2024	Implementation of CEN amendment A1:2023

EUROPEAN STANDARD

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EN 253:2019+A1

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Supersedes EN 253:2019

English Version

District heating pipes - Bonded single pipe systems for directly buried hot water networks - Factory made pipe assembly of steel service pipe, polyurethane thermal insulation and a casing of polyethylene

Tuyaux de chauffage urbain - Systèmes bloqués de tuyaux pour les réseaux d'eau chaude enterrées directement - Assemblages de tubes de service en acier manufacturés, isolation thermique en polyuréthane et tube de protection en polyéthylène

Fernwärmerohre - Einzelrohr-Verbundsysteme für direkt erdverlegte Fernwärmenetze - Werkmäßig gefertigte Verbundrohrsysteme, bestehend aus Stahl-Mediumrohr, einer Wärmedämmung aus Polyurethan und einer Ummantelung aus Polyethylen

This European Standard was approved by CEN on 26 August 2019 and includes Amendment approved by CEN on 1 October 2023.

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

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European foreword

This document (EN 253:2019+A1:2023) 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 June 2024, and conflicting national standards shall be withdrawn at the latest by June 2024.

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 ▌A1⟩ EN 253:2019 ⟨A1▌.

This document includes Amendment 1 approved by CEN on 01 October 2023.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ▌A1⟩ ⟨A1▌.

In comparison with the previous edition, the main changes in this new edition of EN 253 are:

— editorial changes to the new structure of standards prepared by the Technical Committee CEN/TC 107;

— specification of steel grade moved into EN 13941-1;

— added thermal insulation series;

— added linear water tightness: requirements and test method;

— revised description of expected thermal life and long term temperature resistance in balance with EN 13941-1;

— revised description on shear strength: requirements and test method;

— removed Tangential shear strength and long-term creep resistance and modulus;

— revised Annex A, “Relation between actual continuous operating condition and accelerated ageing test conditions”;

— removed Annex C, “Calculated Continuous Operating Temperature (CCOT)”.

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, Türkiye and the United Kingdom.

Introduction

This specification is part of the standards for bonded pipe systems for district heating using polyurethane (PUR) foam thermal insulation applied to bond to a steel service pipe and a polyethylene (PE) casing.

The other standards from CEN/TC 107 covering this subject are:

— EN 448, *District heating pipes – Bonded single pipe systems for directly buried hot water networks – Factory made fitting assemblies of steel service pipes, polyurethane thermal insulation and a casing of polyethylene*;

— EN 488, *District heating pipes – Bonded single pipe systems for directly buried hot water networks – Factory made steel valve assembly for steel service pipes, polyurethane thermal insulation and a casing of polyethylene*;

— EN 489-1, *District heating pipes – Bonded single and twin pipe systems for directly buried hot water networks – Part 1: Joint casing assemblies and thermal insulation for hot water networks in accordance with EN 13941-1*;

— EN 13941-1, *District heating pipes – Design and installation of thermal insulated bonded single and twin pipe systems for directly buried hot water networks – Part 1: Design*;

— EN 13941-2, *District heating pipes – Design and installation of thermal insulated bonded single and twin pipe systems for directly buried hot water networks – Part 2: Installation*;

— EN 14419, *District heating pipes – Bonded single and twin pipe systems for directly buried hot water networks – Surveillance systems*;

— EN 15698-1, *District heating pipes – Bonded twin pipe systems for directly buried hot water networks – Part 1: Factory made twin pipe assembly of steel service pipes, polyurethane thermal insulation and one casing of polyethylene*;

— EN 15698-2, *District heating pipes – Bonded twin pipe systems for directly buried hot water networks – Part 2: Factory made fitting and valve assemblies of steel service pipes, polyurethane thermal insulation and one casing of polyethylene***;**

— EN 17248, *District heating and district cooling pipe systems – Terms and definitions*.

1 Scope

This document specifies requirements and test methods for straight lengths of factory made thermally insulated bonded single pipe assemblies for hot water networks in accordance with EN 13941-1, comprising a steel service pipe, polyurethane foam thermal insulation and a casing of polyethylene.

The pipe assembly can also include the following additional elements: measuring wires, spacers and diffusion barriers.

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 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 10217-5, *Welded steel tubes for pressure purposes - Technical delivery conditions - Part 5: Submerged arc welded non-alloy and alloy steel tubes with specified elevated temperature properties*

EN 10220, *Seamless and welded steel tubes - Dimensions and masses per unit length*

EN 13941-1, *District heating pipes — Design and installation of thermal insulated bonded single and twin pipe systems for directly buried hot water networks — Part 1: Design*

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

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

EN ISO 845, *Cellular plastics and rubbers - Determination of apparent density (ISO 845:2006)*

EN ISO 1133 (all parts), *Plastics — Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastic (ISO 1133 series)*

〚A1〛 EN ISO 1923, *Cellular plastics and rubbers - Determination of linear dimensions (ISO 1923:1981)* 〚A1〛

EN ISO 2505, *Thermoplastics pipes - Longitudinal reversion - Test method and parameters (ISO 2505:2005)*

EN ISO 3126, *Plastics piping systems - Plastics components - Determination of dimensions (ISO 3126:2005)*

EN ISO 4590, *Rigid cellular plastics - Determination of the volume percentage of open cells and of closed cells (ISO 4590:2016)*

EN ISO 6259-1, *Thermoplastics pipes - Determination of tensile properties - Part 1: General test method (ISO 6259-1:2015)*

EN ISO 8497:1996, *Thermal insulation - Determination of steady-state thermal transmission properties of thermal insulation for circular pipes (ISO 8497:1994)*