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Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

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

Tuyaux de chauffage urbain - Systèmes bloqués de tuyaux préisolés pour les réseaux d'eau chaude enterrés directement - Tube de service en acier, isolation thermique en polyuréthane et tube de protection en polyéthylène

Fernwärmerohre - Werkmäßig gedämmte Verbundmantelrohrsysteme für direkt erdverlegte Fernwärmenetze - Verbund-Rohrsystem, bestehend aus Stahl-Mediumrohr, Polyurethan-Wärmedämmung und Außenmantel aus Polyethylen

This European Standard was approved by CEN on 14 December 2012 and includes Amendment 2 approved by CEN on 17 July 2015.

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

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European foreword

This document (EN 253:2009+A2:2015) 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of an identical text or by endorsement, at the latest by April 2016, and conflicting national standards shall be withdrawn at the latest by April 2016.

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 includes Amendment 1, approved by CEN on 2012-12-14, and Amendment 2, approved by CEN on 2015-07-17.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ⟨A1⟩ ⟨A1⟩ and ⟨A2⟩ ⟨A2⟩.

This document supersedes ⟨A2⟩ EN 253:2009+A1:2013 ⟨A2⟩.

Annex H provides details of significant technical changes between this European Standard and the previous editions.

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

Introduction

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

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

EN 448, *District heating pipes – Preinsulated bonded pipe systems for directly buried hot water networks – Fitting assemblies of steel service pipes, polyurethane thermal insulation and outer casing of polyethylene;*

EN 488, *District heating pipes – Preinsulated bonded pipe systems for directly buried hot water networks – Steel valve assembly for steel service pipes, 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 13941, *Design and installation of preinsulated bonded pipe systems for district heating;*

EN 14419, *District heating pipes – Preinsulated bonded pipe systems for directly buried hot water networks – Surveillance systems;*

EN 15698-1, *District heating pipes – Preinsulated bonded twin pipe systems for directly buried hot water networks – Part 1: Twin pipe assembly of steel service pipe, polyurethane thermal insulation and outer casing of polyethylene*

1 Scope

This European Standard specifies requirements and test methods for straight lengths of prefabricated thermally insulated pipe-in-pipe assemblies for directly buried hot water networks, comprising a steel service pipe from DN 15 to DN 1200, rigid polyurethane foam insulation and an outer casing of polyethylene. The pipe assembly may also include the following additional elements: measuring wires, spacers and diffusion barriers.

This standard applies only to insulated pipe assemblies, for continuous operation with hot water at various temperatures up to 120 °C and occasionally with a peak temperature up to 140 °C.

The estimation of expected thermal life with continuous operation at various temperatures is outlined in Annex B.

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 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 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 10217-1, *Welded steel tubes for pressure purposes – Technical delivery conditions - Part 1: 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 10217-5, *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, *Design and installation of preinsulated bonded pipe systems for district heating*

EN 14419, *District heating pipes – Preinsulated bonded pipe systems for directly buried hot water networks – Surveillance systems*

EN ISO 1133:2005, *Plastics – Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics (ISO 1133:2005)*

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

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

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

EN ISO 8501-1:2007, *Preparation of steel substrates before application of paints and related products – Visual assessment of surface cleanliness – Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings (ISO 8501-1:2007)*

EN ISO 9080, *Plastics piping and ducting systems – Determination of the long-term hydrostatic strength of thermoplastic materials in pipe form by extrapolation (ISO 9080:2003)*

EN ISO 9692-1, *Welding and allied processes – Recommendations for joint preparation – Part 1: Manual metal-arc welding, gas-shielded metal-arc welding, gas welding, TIG welding and beam welding of steels (ISO 9692-1:2003)*

EN ISO 12162, *Thermoplastics materials for pipes and fittings for pressure applications – Classification and designation – Overall service (design) coefficient (ISO 12162:1995)*

ISO 844, *Rigid cellular plastics – Determination of compression properties*

ISO 3127:1994, *Thermoplastics pipes – Determination of resistance to external blows – Round-the-clock method*

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

ISO 11414:1996, *Plastics pipes and fittings -- Preparation of polyethylene (PE) pipe/pipe or pipe/fitting test piece assemblies by butt fusion*

ISO 13953, *Polyethylene (PE) pipes and fittings – Determination of the tensile strength and failure mode of test pieces from a butt-fused joint*

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