

STN	Vedenie tepelných sietí. Bezkanálové združené konštrukcie sietí predizolovaných potrubí teplej vody. Oceľové tvarovky zostavené z oceľovej teplonosnej rúry s polyuretánovou tepelnou izoláciou a s vonkajším plášťom z polyetylénu.	STN EN 448
		38 3372

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

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

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 03/16

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Podľa zákona č. 264/1999 Z. z. v znení neskorších predpisov sa môžu slovenské technické normy rozmnožovať a rozširovať iba so súhlasom Úradu pre normalizáciu, metrológiu a skúšobníctvo SR.

English Version

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

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

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

This European Standard was approved by CEN on 5 September 2015.

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.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 448:2015) has been prepared by Technical Committee CEN/TC 107 “Prefabricated district heating and district cooling pipe system”, 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 May 2016, and conflicting national standards shall be withdrawn at the latest by May 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 supersedes EN 448:2009.

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

EN 448 has been aligned with EN 488 and other relevant European Standards.

Other standards from CEN/TC 107 are:

- EN 253, *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 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 15632 (all parts), *District heating pipes — Pre-insulated flexible pipe 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;*
- EN 15698-2, *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.*

1 Scope

This European Standard specifies requirements and test methods for fittings of prefabricated thermally insulated pipe-in-pipe assemblies comprising a steel service fitting from DN 20 to DN 1200, rigid polyurethane foam insulation and an outer casing of polyethylene for use in directly buried hot water networks with preinsulated pipe assemblies in accordance with EN 253.

This European Standard covers the following fittings: bend, tee, reducer, single use compensator and anchor.

This European Standard applies only to factory made prefabricated fitting assemblies and single use compensators for continuous operation with hot water at various temperatures in accordance with EN 253.

This European Standard applies to fitting assemblies with a minimum design pressure of 16 bar (overpressure) complying with EN 13941.

This European Standard does not include calculation rules for loads and stresses. The design and installation rules, for the system, are given in EN 13941.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 253:2009+A2:2015, *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 489:2009, *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 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 10253-2, *Butt-welding pipe fittings — Part 2: Non alloy and ferritic alloy steels with specific inspection requirements*

EN 12814-1, *Testing of welded joints of thermoplastics semi-finished products — Part 1: Bend test*

EN 13018, *Non-destructive testing — Visual testing — General principles*

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

EN 14419:2009, *District heating pipes — Preinsulated bonded pipe systems for directly buried hot water networks — Surveillance systems*

EN 14870-1, *Petroleum and natural gas industries — Induction bends, fittings and flanges for pipeline transportation systems — Part 1: Induction bends (ISO 15590-1:2009 modified)*

- EN ISO 3452-1, *Non-destructive testing — Penetrant testing — Part 1: General principles (ISO 3452-1)*
- EN ISO 5579, *Non-destructive testing — Radiographic testing of metallic materials using film and X- or gamma rays — Basic rules (ISO 5579)*
- EN ISO 5817, *Welding — Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) — Quality levels for imperfections (ISO 5817)*
- EN ISO 8501-1, *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)*
- EN ISO 9606-1, *Qualification testing of welders — Fusion welding — Part 1: Steels (ISO 9606-1)*
- EN ISO 9692-1:2013, *Welding and allied processes — Types of joint preparation — Part 1: Manual metal arc welding, gas-shielded metal arc welding, gas welding, TIG welding and beam welding of steels (ISO 9692-1:2013)*
- EN ISO 9934-1, *Non-destructive testing — Magnetic particle testing — Part 1: General principles (ISO 9934-1)*
- EN ISO 10675-1, *Non-destructive testing of welds — Acceptance levels for radiographic testing — Part 1: Steel, nickel, titanium and their alloys (ISO 10675-1)*
- EN ISO 11666, *Non-destructive testing of welds — Ultrasonic testing — Acceptance levels (ISO 11666)*
- EN ISO 14732, *Welding personnel — Qualification testing of welding operators and weld setters for mechanized and automatic welding of metallic materials (ISO 14732)*
- EN ISO 15607, *Specification and qualification of welding procedures for metallic materials — General rules (ISO 15607)*
- EN ISO 16810, *Non-destructive testing — Ultrasonic testing — General principles (ISO 16810)*
- EN ISO 17636-1, *Non-destructive testing of welds — Radiographic testing — Part 1: X- and gamma-ray techniques with film (ISO 17636-1)*
- EN ISO 17636-2, *Non-destructive testing of welds — Radiographic testing — Part 2: X- and gamma-ray techniques with digital detectors (ISO 17636-2)*
- EN ISO 17637, *Non-destructive testing of welds — Visual testing of fusion-welded joints (ISO 17637)*
- EN ISO 17638, *Non-destructive testing of welds — Magnetic particle testing (ISO 17638)*
- EN ISO 17640, *Non-destructive testing of welds — Ultrasonic testing — Techniques, testing levels, and assessment (ISO 17640)*
- EN ISO 23277, *Non-destructive testing of welds — Penetrant testing — Acceptance levels (ISO 23277)*
- EN ISO 23278, *Non-destructive testing of welds — Magnetic particle testing — Acceptance levels (ISO 23278)*

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