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Standards

Irish Standard
I.S. 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

I.S. EN 489:2009

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English Version

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

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

Fernwärmerohre - Werkmäßig gedämmte Verbundmantelrohrsysteme für direkt erdverlegte Fernwärmenetze - Rohrverbindungen für Stahlmediumrohre mit Polyurethan-Wärmedämmung und Außenmantel aus Polyethylen

This European Standard was approved by CEN on 31 January 2009.

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Contents

	page
Foreword.....	4
Introduction.....	5
1 Scope	7
2 Normative references	7
3 Terms and definitions	8
4 Requirements	8
4.1 General requirements.....	8
4.1.1 General requirements for the joint.....	8
4.1.2 Installation of the joint	9
4.1.3 Competence of the welder and fitter.....	9
4.1.4 Expected thermal life and long term temperature resistance.....	9
4.1.5 Steel service pipe weld	9
4.1.6 Polyurethane rigid foam insulation (PUR)	9
4.1.7 Joint casing	9
4.2 Type test requirements	10
4.2.1 Water tightness	10
4.2.2 Soil stress test	10
4.2.3 Polyurethane rigid foam insulation (PUR) properties.....	10
4.2.4 Weld joint stress crack resistance.....	10
4.3 Installation instructions	11
4.3.1 General.....	11
4.3.2 Work environment	11
4.3.3 Cleaning.....	11
4.3.4 Surveillance system	11
4.3.5 Steel site weld	11
4.3.6 Joint casing	11
4.3.7 Joint insulation	11
5 Methods for type tests	12
5.1 Soil stress test	12
5.2 Water impermeability test	15
5.3 Weld joint stress crack resistance test	15
5.4 Polyurethane rigid foam insulation (PUR)	15
5.4.1 General.....	15
5.4.2 Test specimens	15
5.4.3 Sampling.....	16
5.4.4 Ageing resistance	16
5.4.5 Cell structure.....	16
5.4.6 Foam density.....	16
5.4.7 Water absorption at elevated temperature.....	17
6 Marking	17
6.1 General.....	17
6.2 Joint casing	17
6.3 Plugs	17
6.4 Joint insulation system.....	18
Annex A (normative) Fusion welding of steel service pipes on site	19
A.1 General.....	19
A.2 Material	19
A.3 Welding process	19

A.4	Preparation for welding and lining up	19
A.5	Qualification of welders	19
A.6	Steel weld inspection	20
A.6.1	General	20
A.6.2	Leak-tightness test with air/gas	20
A.6.3	Leak-tightness test with water	20
A.6.4	Radiographic examination	20
A.6.5	Ultrasonic examination	20
Annex B	(informative) General guidelines for inspection of the joint on site	21
Annex C	(informative) Qualification of fitters installing joints in preinsulated bonded pipe networks	23
C.1	Knowledge and skills	23
C.2	Background for training and testing	23
C.3	Subjects for training and testing	23
C.3.1	General	23
C.3.2	Casing of polyethylene (PE)	24
C.3.3	Surveillance	25
C.3.4	PUR-foam system	25
C.3.5	Joint types/jointing systems	26
C.3.6	Installation of joints	27
Bibliography	31

Foreword

This document (EN 489:2009) 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 September 2009, and conflicting national standards shall be withdrawn at the latest by September 2009.

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 489:2003.

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

Introduction

The first edition of EN 489 was approved in 1994 and updated in 2003. The main areas of this revision are the following:

- Requirements for welded joints have been added;
- Requirements for joints insulated with prefabricated joint insulation have been added;
- Requirements and test methods for PUR foam properties have been lifted from EN 253 into this standard;
- Requirements for marking of joints have been added.

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

For information on the minimum expected thermal life with operation at various temperatures with respect to PUR foam performance see EN 253:2009, Annex B.

The other standards from TC 107 are:

- EN 253:2009, *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 448:2009, *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 488:2003, *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 13941:2003, *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*.

As information to the users of this standard CEN/TC 107 has decided to mention that at the time of publication of this European Standard CEN/TC 107 had already concluded on the investigation and further preparation of the following topics:

- appropriate short- and long-term type tests for all jointing systems;
- incorporation of the findings of running research activities to introduce new test procedures and requirements;
- further preparation of Annex C aiming at making this annex normative;
- further preparations of Annex B concerning on site joint inspection and establish suitable methods for field tests;
- requirements and test methods regarding the closure of foaming hole plugs.

I.S. EN 489:2009

EN 489:2009 (E)

The abovementioned items should be dealt with and the intention is to include the results in the next revision of this European Standard.

1 Scope

This European Standard specifies requirements for joints made under field conditions between adjacent preinsulated pipes and/or fittings in district heating networks. The specified general requirements are also valid for field-made T-branches, bends, reducers, caps, etc.

This European Standard covers jointing of steel service pipes by means of fusion welding, the connecting of casing ends with joint casings and the thermal insulation with poured rigid PUR foam or prefabricated PUR-foam insulation.

This European Standard specifies methods for type tests of complete joints and PUR-foam for joints under laboratory conditions.

The requirements of this European Standard can also be applied to casing pipe weldings/connections of on site made fittings.

The requirements of this European Standard aim to obtain a technical life of the joints of at least 30 years.

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 253:2009, *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 287-1, *Qualification test of welders – Fusion welding – Part 1: Steels*

EN 444, *Non-destructive testing – General principles for radiographic examination of metallic materials by X- and gamma-rays*

EN 1435, *Non-destructive examination of welds – Radiographic examination of welded joints*

EN 12517-1:2006, *Non-destructive testing of welds – Part 1: Evaluation of welded joints in steel, nickel, titanium and their alloys by radiography – Acceptance levels*

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 845, *Cellular plastics and rubbers – Determination of apparent (bulk) density (ISO 845:1988)*

EN ISO 4590:2003, *Rigid cellular plastics – Determination of the volume percentage of open cells and of closed cells (ISO 4590:2002)*

EN ISO 5817:2007, *Welding – Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) – Quality levels for imperfections (ISO 5817:2003, corrected version:2005, including Technical Corrigendum 1:2006)*

EN ISO 6520-1, *Welding and allied processes – Classification of geometric imperfections in metallic materials – Part 1: Fusion welding (ISO 6520-1:2007)*

EN ISO 9692 (all parts), *Welding and allied processes – Recommendations for joint preparation (ISO 9692)*

EN ISO 15607:2003, *Specification and qualification of welding procedures for metallic materials – General rules (ISO 15607:2003)*

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