

Preinsulated bonded pipe systems for underground hot water networks — Pipe assembly of steel service pipes, polyurethane thermal insulation and outer casing of polyethylene

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British Standard

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This British Standard, having been prepared under the direction of the Refrigeration, Heating and Air Conditioning Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 15 March 1995

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National foreword

This British Standard has been prepared under the direction of the Refrigeration, Heating and Air Conditioning Standards Policy Committee and is the English language version of EN 253:1994 *Preinsulated bonded pipe systems for underground hot water networks — Pipe assembly of steel service pipes, polyurethane thermal insulation and outer casing of polyethylene*, published by the European Committee for Standardization (CEN).

This standard supersedes BS EN 253:1991, which is withdrawn.

EN 253 was produced as a result of international discussion in which the UK took an active part.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 22, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Descriptors: Water pipelines, buried pipes, hot water, steel tubes, thermal insulation, polyurethane, polyethylene, specifications, tests, marking

English version

Preinsulated bonded pipe systems for underground hot
water networks —
Pipe assembly of steel service pipes, polyurethane
thermal insulation and outer casing of polyethylene

Systèmes bloqués de tuyaux préisolés pour
les réseaux enterrés d'eau chaude — Tuyau
préisolé — Tube de service en acier —
Isolation thermique en polyuréthane et
protection en polyéthylène

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

This European Standard was approved by CEN on 1994-10-14. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

This European Standard supersedes EN 253:1990 and was drawn up by the Technical Committee CEN/TC 107, Prefabricated district heating pipe systems, the secretariat of which is held by the Danish Standards Association.

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 1995, and conflicting national standards shall be withdrawn at the latest by April 1995.

The main areas of the revision are:

1. The requirements for the PE quality have been updated.
2. Any reference to CFC has been deleted and alternative blowing agents have been taken into consideration.

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

The other standards from TC 107 are:

EN 448:1994 — Fittings

EN 488:1994 — Valves

EN 489:1994 — Joints

In compiling this document TC 107 has made use of results of research carried out by system manufacturers, raw material suppliers, users, universities and research institutes.

In accordance with the CEN/CENELEC Common Rules, the following CEN members are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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1 Scope

This European Standard specifies requirements and test methods for straight lengths of prefabricated thermally insulated pipe-in-pipe assemblies for underground hot water networks, comprising a steel service pipe from DN 20 to DN 600, rigid polyurethane foam insulation and an outer casing of polyethylene. However, the quality requirements can be applied for larger dimensions.

This standard applies only to injected (poured) 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 life with continuous operation at various temperatures is outlined in Annex B.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For the undated references, the latest edition of the publication referred to applies.

ISO 844:1978, *Cellular plastics — Compression test of rigid materials*.

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

ISO 1133:1991, *Plastics — Determination of the melt flow rate of thermoplastics*.

ISO 1167:1973, *Plastics pipes for the transport of fluids — Determination of the resistance to internal pressure*.

ISO 1183:1987, *Plastics — Methods for determining the density and relative density of non-cellular plastics*.

ISO 2506:1981, *Polyethylene pipes (PE) — Longitudinal reversion — Test methods and specification*.

ISO 3126:1974, *Plastics pipes — Measurement of dimensions*.

ISO 3127:1980, *Unplasticized polyvinyl chloride (PVC) pipes for the transport of fluids*.

Determination and specification of resistance to external blows.

ISO 4200:1985, *Plain end steel tubes, welded end seamless — General tables of dimensions and masses per unit length*.

ISO 4590:1981, *Cellular plastics — Determination of volume percentage of open and closed cells of rigid materials*.

ISO 6761:1981, *Steel tubes — preparation of ends of tubes and fittings for welding*.

ISO 8501-1:1988, *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 9329-1:1989, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 1: Unalloyed steels with specified room temperature properties¹⁾*.

ISO 9330-1:1990, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 1: Unalloyed steel tubes with specified room temperature properties¹⁾*.

ISO/TR 10837:1991, *Determination of the thermal stability of polyethylene (PE) for use in gas pipes fittings*.

ISO/CD 1872-2, *Plastics — Polyethylene (PE) thermoplastics — Part 2: Preparation of test specimens and determination of properties — Revision of ISO 1872-2:1989*.

ISO/DIS 3607, *Polyethylene (PE) pipes — Tolerances on outside diameters and wall thickness — Revision of ISO 3607:1977*.

ISO/DIS 8497, *Thermal insulation — Determination of steady-state thermal transmission properties — Pipe insulation apparatus²⁾*.

¹⁾ Equivalent national standards may be used.

²⁾ ISO/DIS 8497 has been submitted for voting (April 1988). Until ISO 8497 is published, any equivalent national standard can be used.