



BSI Standards Publication

Plastics piping systems for hot and cold water installations — Crosslinked polyethylene (PE-X)

Part 2: Pipes

National foreword

This British Standard is the UK implementation of EN ISO 15875-2:2025. It is identical to ISO 15875-2:2025. It supersedes BS EN ISO 15875-2:2003+A2:2020, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PRI/88, Plastics piping systems.

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

As the scope of this standard does not cover crosslinked polyethylene (PE-X) piping systems for installations having service conditions in excess of those in BS EN ISO 15875-1:2025, Table 1, the UK committee advises users to consult BS 7291-1:2010+A1:2023 when applying this standard.

BS 7291-1:2010+A1:2023 gives Class “S” service conditions for sealed central heating systems and indirect hot water primary circuits in which the maximum system service temperature is 105 °C and the system malfunction temperature is 114 °C. As both of these temperatures are significantly in excess of those specified in BS EN ISO 15875-1:2025, Table 1, and sealed central heating systems and indirect hot water primary circuits are therefore not covered by it, the UK committee advise that PE-X piping systems conforming to the requirements of this standard should also be subjected to the temperatures given in Table 1 of BS 7291-1:2010+A1:2023.

The UK committee also advises the following to users.

- a) That the normal maximum operating cold water supply pressure in the UK is 12,5 bar (1 bar = 100 kPa), which some categories of piping systems in the BS EN ISO 15875 series of standards do not meet.
- b) There is a disparity between the malfunction temperature quoted in BS EN ISO 15875-1:2025, Table 1 (100 °C) and the malfunction temperatures applicable to boilers conforming to the requirements of BS EN 15502-1:2021+A1:2023, BS EN 15502-2-1:2022+A1:2023 and BS EN 15502-2-2:2014 (110 °C). Consequently, piping systems used with these gas-fired central heating boilers could be subjected to temperatures in service for which they have not been tested.
- c) Piping systems conforming to the requirements of the BS EN ISO 15875 series of standards are designed for hot and cold water installations and are not suitable for waste discharge from unvented hot water systems (i.e. downstream pipe D2).
- d) Continuously operated recirculating domestic hot water systems (known as recirculating, secondary hot circulation, return or ring main systems) carry pumped hot potable water to outlets where the temperature is between 60 °C and 70 °C, and is replenished by an incoming water supply to replace the water drawn to outlets. Piping systems conforming to the requirements of the BS EN ISO 15875 series of standards are not suitable for this use.

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or

reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

© The British Standards Institution 2025
Published by BSI Standards Limited 2025

ISBN 978 0 539 22456 6

ICS 23.040.20; 91.140.60

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 October 2025.

Amendments/corrigenda issued since publication

Date	Text affected

English Version

Plastics piping systems for hot and cold water installations
- Crosslinked polyethylene (PE-X) - Part 2: Pipes (ISO
15875-2:2025)

Systèmes de canalisations en plastique pour les
installations d'eau chaude et froide - Polyéthylène
réticulé (PE-X) - Partie 2: Tubes (ISO 15875-2:2025)

Kunststoff-Rohrleitungssysteme für die Warm- und
Kaltwasserinstallation - Vernetztes Polyethylen (PE-X)
- Teil 2: Rohre (ISO 15875-2:2025)

This European Standard was approved by CEN on 23 October 2025.

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.

CEN members are the national standards bodies of 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 United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

This document (EN ISO 15875-2:2025) has been prepared by Technical Committee ISO/TC 138 "Plastics pipes, fittings and valves for the transport of fluids" in collaboration with Technical Committee CEN/TC 155 "Plastics piping systems and ducting systems" the secretariat of which is held by NEN.

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 2026, and conflicting national standards shall be withdrawn at the latest by April 2026.

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 EN ISO 15875-2:2003, EN ISO 15875-2:2003/A1:2007, EN ISO 15875-2:2003/A2:2020.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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, 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.

Endorsement notice

The text of ISO 15875-2:2025 has been approved by CEN as EN ISO 15875-2:2025 without any modification.

Contents

Page

Foreword	v
Introduction	vii
1 Scope	1
2 Normative references	1
3 Terms, definitions and symbols	2
3.1 Terms and definitions	2
3.2 Symbols	4
4 Generic requirements, instructions and explanations	5
4.1 Designation PE-X	5
4.2 Application classes, design pressures and pipe dimension classes restrictions	5
4.3 Application classes — Responsibility of the purchaser or specifier	5
4.4 Use of the parts of the ISO 15875 series	5
4.5 PE-X pipes provided with a thin barrier layer	5
4.6 Completeness of tests	5
4.7 Test result interchangeability restriction	5
5 Material	6
5.1 Pipe material	6
5.2 Evaluation of σ_{LPL} -curves	6
5.3 Reference lines	7
5.4 Influence on water intended for human consumption	9
5.5 Barrier layer material	9
5.5.1 General	9
5.5.2 Thermal stability of the barrier layer material	9
5.5.3 Thermal stability of the adhesive layer material	9
5.5.4 Thermal stability of the outer layer material	9
6 General characteristics	10
6.1 Pipe construction	10
6.2 Appearance	10
6.3 Opacity	10
6.4 Oxygen permeability	10
7 Geometrical characteristics	10
7.1 Pipes without barrier layer(s) - General	10
7.2 Pipes without barrier layer - Dimensions of pipes	11
7.2.1 Outside diameters	11
7.2.2 Wall thicknesses and their tolerances	11
7.3 Pipes with barrier layer — Dimensions of pipes	14
7.3.1 General	14
7.3.2 Option I - Dimensional integration of the barrier layer	14
7.3.3 Option II - Barrier layer on top	14
8 Mechanical characteristics	15
9 Physical and chemical characteristics	16
10 Performance requirements	17
11 Marking	17
11.1 General requirements	17
11.2 Minimum required marking	17
Annex A (normative) Pipe construction	18
Annex B (normative) Derivation of $S_{calc,max}$ values	21
Annex C (normative) Proof of the thermal stability of the barrier layer material resp. adhesive layer material resp. outer layer material — Test procedure	23

Bibliography	26
---------------------------	-----------

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 2, *Plastics pipes and fittings for water supplies*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 155, *Plastics piping systems and ducting systems*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 15875-2:2003), which has been technically revised. It also incorporates the Amendments ISO 15875-2:2003/Amd 1:2007 and ISO 15875-2:2003/Amd 2:2020.

The main changes are as follows:

- the normative references have been updated;
- a new [Clause 4](#) "Generic requirements, instructions and explanations" has been added and subsequent clauses have been renumbered;
- pipe material has been specified more precisely;
- [Formula \(2\)](#) for the 110 °C reference curve has been added;
- a new [subclause 5.3](#) "Reference lines" has been added;
- a new [subclause 5.5](#) "Barrier layer material" has been added;
- a new [subclause 5.5.1](#) "General" has been added;
- a new [subclause 5.5.2](#) "Thermal stability of the barrier layer material" with requirements on the thermal stability of the material has been added;
- a new [subclause 5.5.3](#) "Thermal stability of the adhesive layer material" with requirements on the thermal stability of the material has been added;

- a new [subclause 5.5.4](#) "Thermal stability of the outer layer material" with requirements on the thermal stability of the material has been added;
- a new [subclause 6.4](#) "Oxygen permeability" has been added;
- in [subclause 7.2](#), the diameter range has been extended up to 250 mm;
- a new [subclause 7.3](#) "Pipes with barrier layer - Dimensions of pipes" has been added;
- [Clause 8](#), [Table 12](#), mechanical characteristics of pipes, characteristic: resistance to internal pressure, new test parameters have been added: 20 °C / 22 hours and 95 °C / 2 500 hours;
- in [Clause 9](#), a requirement defining the point in time at which the minimum degree of crosslinking is to be reached has been added;
- in [Table 13](#), a new crosslinking method has been added: PE-Xe - UV light initiated crosslinking;
- a new [Annex A](#) "Pipe construction" has been added;
- [Annex B](#) (formerly Annex A) "Derivation of $S_{\text{calc,max}}$ values" has been changed from informative to normative;
- a new [Annex C](#) for the proof of the thermal stability of materials has been added;
- editorial modifications have been made to facilitate the readability of the document and to bring it in line with the ISO/IEC Directives Part 2.

A list of all parts in the ISO 15875 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The ISO 15875 series specifies the requirements for a piping system consisting of pipe, fitting and the jointing made of it, when the pipe is made from crosslinked polyethylene (PE-X). The ISO 15875 series consists of ISO 15875-1, ISO 15875-2, ISO 15875-3 and ISO 15875-5, and covers the requirements and related test methods for all components used in the system (e. g. pipes and fittings). In addition, the ISO 15875 series includes requirements and related test methods to verify the performance and compatibility of the jointing of components.

The piping system is intended to be used for hot and cold water installations.

In respect of potential adverse effects on the quality of water intended for human consumption, caused by the product covered by ISO 15875 (all parts):

- ISO 15875 (all parts) provides no information as to whether the product may be used without restriction in any of the Member States of the EU or EFTA;
- it should be noted that, while awaiting the adoption of verifiable European criteria, existing national regulations concerning the use and/or the characteristics of this product remain in force.

Requirements and test methods for material and components, other than pipes, are specified in ISO 15875-1 and ISO 15875-3. Characteristics for fitness for purpose (mainly for joints) are covered in ISO 15875-5. ISO/TS 15875-7 gives guidance for the assessment of conformity.

This document specifies the characteristics of pipes.

At the date of publication of this document, standards for piping systems of other plastics materials used for the same application include:

- the ISO 15874 series,
- the ISO 15875 series,
- the ISO 15876 series,
- the ISO 15877 series,
- the ISO 21003 series, and
- the ISO 22391 series.

