BS EN 1555-2:2025

BSI Standards Publication

Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE)

Part 2: Pipes

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National foreword

This British Standard is the UK implementation of EN 1555-2:2025. It supersedes BS EN 1555-2:2021, which is withdrawn.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.

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Kunststoff-Rohrleitungssysteme für die Gasversorgung - Polyethylen (PE) - Teil 2: Rohre

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European foreword

This document (EN 1555-2:2025) has been prepared by 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of an identical text or by endorsement, at the latest by April 2026, and conflicting national standards shall be withdrawn at the latest by April 2026.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 1555-2:2021.

The main changes are as follows:

— reference to information related to the suitability of PE pipe systems for 100 % hydrogen and its admixtures with natural gas has been made;

— terms and definitions have been distributed over EN 1555-1, EN 1555-2 and EN 1555-3;

— subclause 5.1 about the compound for pipes has been restructured;

— the requirement for the compound used for identification stripes has been updated;

— the circumferential reversion has been moved to subclause 9.3;

— a conversion and normalisation step has been included to the requirement for the CRB;

— the performance requirements for joints have been mentioned more explicitly by adding Table 7;

— the mechanical characteristics of pipes with peelable layer have been updated;

— the requirement for the squeeze-off has been adjusted.

System Standards are based on the results of the work being undertaken in ISO/TC 138 “Plastics pipes, fittings and valves for the transport of fluids”, which is a Technical Committee of the International Organization for Standardization (ISO).

They are supported by separate standards on test methods to which references are made throughout the System Standard.

The System Standards are consistent with general standards on functional requirements and on recommended practice for installation.

EN 1555 consists of the following parts:

— EN 1555-1, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 1: General*;

— EN 1555-2, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 2: Pipes* (this document);

— EN 1555-3, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 3: Fittings*;

— EN 1555-4, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 4: Valves*;

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— EN 1555-5, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 5: Fitness for purpose of the system*;

In addition, the following document provides guidance on the assessment of conformity:

— CEN/TS 1555-7, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 7: Guidance for assessment of conformity*.

NOTE EN 12007-2 prepared by CEN/TC 234 "Gas infrastructure" deals with the recommended practice for installation of plastics pipes system in accordance with EN 1555 (all parts).

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

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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.

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Introduction

The EN 1555 series specifies the requirements for a piping system and its components made from polyethylene (PE) compounds, which is intended to be used for the supply of gaseous fuels.

This document covers the characteristics of pipes.

Requirements and test methods for materials and components, other than pipes, are specified in EN 1555-1, EN 1555-3 and EN 1555-4.

Characteristics for fitness for purpose of the system are covered in EN 1555-5. CEN/TS 1555-7 gives guidance for assessment of conformity.

Recommended practice for design, handling and installation is given in EN 12007-2.

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1 Scope

This document specifies the characteristics of pipes made from polyethylene (PE) for piping systems in the field of the supply of gaseous fuels.

NOTE 1 Additional information related to the installation of PE 100-RC systems is given in EN 1555-1:2025, Annex A.

NOTE 2 Additional information about the suitability of PE pipe systems for hydrogen and its admixtures is given in EN 1555-1:2025, Annex B.

It also specifies the test parameters for the test methods referred to in this document.

In conjunction with EN 1555-1, EN 1555-3, EN 1555-4 and EN 1555-5, this document is applicable to PE pipes, fittings and valves, their joints, and joints with components of PE and other materials intended to be used under the following conditions:

a) a maximum operating pressure, MOP, up to and including 10 bar[1] at a design reference temperature of 20 °C;

b) an operating temperature between −20 °C and 40 °C.

For operating temperatures between 20 °C and 40 °C derating coefficients are specified in EN 1555-5.

The EN 1555 series covers a range of MOPs and gives requirements concerning colours.

This document is applicable to three types of pipe:

— PE pipes (outside diameter, d_n) including any identification stripes;

— PE pipes with co-extruded layers on either or both the outside and/or inside of the pipe (total outside diameter, d_n) as specified in Annex A, where all PE layers have the same MRS rating;

— PE pipes (outside diameter, d_n) with a peelable and contiguous thermoplastics additional layer on the outside of the pipe (”coated pipe”) as specified in Annex B.

It is the responsibility of the purchaser or specifier to make the appropriate selections from these aspects, taking into account their particular requirements and any relevant national guidance or regulations and installation practices or codes.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1555-1:2025, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 1: General*

EN 1555-5, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 5: Fitness for purpose of the system*

EN ISO 1133-1, *Plastics — Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics — Part 1: Standard method (ISO 1133-1)*

[1] bar = 0,1 MPa. = 10^5 Pa; 1 MPa = 1 N/mm^2.

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EN ISO 1167-1:2006, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 1: General method (ISO 1167-1:2006)*

EN ISO 1167-2, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 2: Preparation of pipe test pieces (ISO 1167-2)*

EN ISO 2505, *Thermoplastics pipes — Longitudinal reversion — Test method and parameters (ISO 2505)*

EN ISO 3126, *Plastics piping systems — Plastics components — Determination of dimensions (ISO 3126)*

EN ISO 6259-1, *Thermoplastics pipes — Determination of tensile properties — Part 1: General test method (ISO 6259-1)*

EN ISO 6259-3, *Thermoplastics pipes — Determination of tensile properties — Part 3: Polyolefin pipes (ISO 6259-3)*

EN ISO 9969, *Thermoplastics pipes — Determination of ring stiffness (ISO 9969)*

EN ISO 11357-6, *Plastics — Differential scanning calorimetry (DSC) — Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT) (ISO 11357-6)*

EN ISO 13477, *Thermoplastics pipes for the conveyance of fluids — Determination of resistance to rapid crack propagation (RCP) — Small-scale steady-state test (S4 test) (ISO 13477)*

EN ISO 13478, *Thermoplastics pipes for the conveyance of fluids — Determination of resistance to rapid crack propagation (RCP) — Full-scale test (FST) (ISO 13478)*

EN ISO 13479:2022, *Polyolefin pipes for the conveyance of fluids — Determination of resistance to crack propagation — Test method for slow crack growth on notched pipes (ISO 13479:2022)*

EN ISO 13968, *Plastics piping and ducting systems — Thermoplastics pipes — Determination of ring flexibility (ISO 13968)*

ISO 11922-1:2018, *Thermoplastics pipes for the conveyance of fluids — Dimensions and tolerances — Part 1: Metric series*

ISO 18488, *Polyethylene (PE) materials for piping systems — Determination of Strain Hardening Modulus in relation to slow crack growth — Test method*

ISO 18489:2015, *Polyethylene (PE) materials for piping systems — Determination of resistance to slow crack growth under cyclic loading — Cracked Round Bar test method*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1555-1 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

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3.1 Terms related to geometry

3.1.1
nominal size
DN/OD
numerical designation of the size of a component related to the outside diameter

Note 1 to entry: It is a convenient round number approximately equal to the manufacturing dimension in millimetres (mm). It is not applicable to components designated by thread size.

3.1.2
nominal outside diameter
d_n
specified outside diameter assigned to a *nominal size* (3.1.1)

Note 1 to entry: It is expressed in millimetres (mm).

3.1.3
mean outside diameter
d_{em}
value of the measurement of the outer circumference of the pipe or spigot end of a fitting in any cross-section divided by π (= 3,142), rounded to the next greater 0,1 mm

3.1.4
minimum mean outside diameter
$d_{em,min}$
minimum value for the *mean outside diameter* (3.1.3) as specified for a given *nominal size* (3.1.1)

3.1.5
maximum mean outside diameter
$d_{em,max}$
maximum value for the *mean outside diameter* (3.1.3) as specified for a given *nominal size* (3.1.1)

3.1.6
out-of-roundness
ovality
difference between the measured maximum and the measured minimum outside diameter in the same cross section of a component

3.1.7
nominal wall thickness
e_n
numerical designation of the wall thickness of a component, which is a convenient round number, approximately equal to the manufacturing dimension in millimetres (mm)

Note 1 to entry: For thermoplastics components conforming to the EN 1555 series, the value of the nominal wall thickness, e_n, is identical to the specified *minimum wall thickness at any point* (3.1.9), e_{min}.

3.1.8
wall thickness at any point
e
wall thickness at any point around the circumference of a component rounded to the next greater 0,1 mm

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