BSI Standards Publication

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

Part 5: Fitness for purpose of the system

bsi.

National foreword

This British Standard is the UK implementation of EN 1555-5:2021. It supersedes BS EN 1555-5:2010, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PRI/88/2, Plastics piping for pressure applications.

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

NOTE 1 There is no Part 6 in the EN 1555 series. Users of this standard should refer to BS EN 12007-2, *Gas infrastructure – Pipelines for maximum operating pressure up to and including 16 bar – Part 2: Specific functional requirements for polyethylene (MOP up to and including 10 bar)*. Users of this standard are also referred to the guidance issued by Cadent, for example T/PR/ML/4, *Work procedure for pipe system construction Module 4 – PE main laying up to and including 630 mm diameter at pressures up to and including 2 bar*.

NOTE 2 Part 7 of the EN 1555 series is under development as a CEN Technical Specification to allow further development. CEN/TS 1555-7 is not mandatory under the Public Procurement Directives (2004/18/EC and 2004/17/EC).

Users should be aware of any appropriate safety precautions related to pipework for combustible gas (see T/PR/ML/4). It is assumed in the drafting of a standard that the execution of its provisions is entrusted to appropriately qualified and competent people.

National Annex NA, which is appended at the back of this document, provides additional information on the selection and installation of piping systems and components in the UK.

Attention is drawn to the statutory legislation the Health and Safety at Work etc. Act 1974 and subsequent regulations.

The UK committee emphasizes that compliance with this British Standard does not necessarily mean that products are fit for the purpose of conveying gaseous fuels in the UK. The EN 1555 series of standards are not fully compatible with existing UK practice in terms of applicable pressure tiers, preferred colours for gas pipe recognition, jointing and installation methods.

The requirements contained in the EN 1555 series of standards are not necessarily indicative of all the performance requirements, or the suitability of pipework for the service conditions, likely to be encountered in the UK.

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.

Published by BSI Standards Limited 2021

ISBN 978 0 539 05271 8

ICS 23.040.01; 91.140.40

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 August 2021.

Amendments/corrigenda issued since publication

Date	Text affected

EUROPEAN STANDARD **EN 1555-5**

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2021

ICS 23.040.01 Supersedes EN 1555-5:2010

English Version

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

Systèmes de canalisations en plastique pour la distribution de combustibles gazeux - Polyéthylène (PE) - Partie 5 : Aptitude à l'emploi du système

Kunststoff-Rohrleitungssysteme für die Gasversorgung - Polyethylen (PE) - Teil 5: Gebrauchstauglichkeit des Systems

This European Standard was approved by CEN on 7 June 2021.

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, Turkey 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

Ref. No. EN 1555-5:2021 E

Contents

Page

European foreword

This document (EN 1555-5:2021) 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 January 2022, and conflicting national standards shall be withdrawn at the latest by January 2022.

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 1555-5:2010.

In comparison with the previous version, the following technical modifications have been introduced:

— PE 100-RC type materials with enhanced resistance to slow crack growth have been added.

— Annex A in EN 1555 1:2021 now discusses the performance of this type of material and gives additional information for non-conventional installation techniques.

— Test methods have been updated.

System Standards 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;

— 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;*

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

— 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 [1], 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, Turkey and the United Kingdom.

Introduction

This document specifies the requirements of a piping system and its components made from polyethylene (PE) and which is intended to be used for the supply of gaseous fuels.

Requirements and test methods for material and components are specified in EN 1555-1:2021, EN 1555-2:2021, EN 1555-3:2021 and EN 1555-4:2021.

CEN/TS 1555-7 [2] gives guidance for assessment of conformity. Recommended practice for installation is given in EN 12007-2 [1] prepared by CEN/TC 234.

This part of EN 1555 covers the characteristics of fitness for purpose of the system.

1 Scope

This document specifies the requirements of fitness for purpose of the polyethylene (PE) piping system in the field of the supply of gaseous fuels.

It specifies the requirements for electrofusion, butt fusion and mechanical joints.

It specifies the method of preparation of test piece joints, and the tests to be carried out on these joints for assessing the fitness for purpose of the system under normal and extreme conditions.

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

NOTE 1 This document is intended only to be used by the product manufacturer to assess the performance of components according to EN 1555-2, EN 1555-3:2021, and EN 1555-4:2021 when joined together under normal and extreme conditions in accordance with this document. It is not intended for on-site testing of pipe systems.

In conjunction with Parts 1 to 4 of EN 1555, it is applicable to PE pipes, fittings, valves, their joints and to joints with components of 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 reference temperature of 20 °C for design purposes;

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

NOTE 2 For other operating temperatures between 20 °C and 40 °C, derating coefficients are defined in Annex A.

EN 1555 (all parts) covers a range of maximum operating pressures and gives requirements concerning colours.

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 1555-1:2021, *Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 1: General*

EN 1555-2:2021, *Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 2: Pipes*

EN 1555-3:2021, *Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 3: Fittings*

EN 1555-4:2021, *Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 4: Valves*

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 1167-4, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressure - Part 4: Preparation of assemblies (ISO 1167-4)*

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)*

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