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BSI Standards Publication

Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Polypropylene (PP)

Part 1: Specifications for pipes, fittings and the system

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National foreword

This British Standard is the UK implementation of EN 1451-1:2017, incorporating corrigendum June 2018. It supersedes BS EN 1451-1:2000, which is withdrawn.

The start and finish of text introduced or altered by corrigendum is indicated in the text by tags. Text altered by CEN corrigendum June 2018 is indicated in the text by AC AC.

Products conforming to BS EN 1451-1 are compatible with those of the same size in accordance with BS 5254:1976 (withdrawn). The nominal sizes DN/OD 34, 41 and 54 correspond with the 1¼, 1½ and 2 sizes respectively in BS 5254:1976.

The UK participation in its preparation was entrusted to Technical Committee PRI/88/1, Plastics piping for non-pressure applications.

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

The UK committee gives the following advice concerning the specification of piping components used with piping systems conforming to this British Standard but not detailed in EN 1451-1:2017.

- See BS 4514:2001 for the UK requirements for the minimum opening dimensions of access fittings, design of swept fittings, connectors to WC pans, stand-off dimensions of pipe and fitting brackets, and requirements for adaptors and plugs. Reference should also be made to the following design requirements of BS 4514:2001, **5.3.1**, **5.3.3**, **5.3.5**, **5.3.7**, **5.3.8** and **5.3.9** and Figures 6, 8 and 9.

The UK committee gives the following advice concerning the use of piping systems conforming to this British Standard in application areas not detailed in EN 1451-1:2017.

- For external above ground installation, which is commonplace and remains allowed in the UK, EN 1451-1:2017 does not include any additional requirements. If the product is to be installed externally, it may require protection by painting or some other means. The advice of the manufacturer of products conforming to BS EN 1451-1 should be sought accordingly.
- For external underground installations, see BSEN 1852-1 or equivalent product specifications for such situations and take account of current national installation practices, e.g. BS EN 1610 and BS EN 752.

The UK committee gives the following advice concerning the selection and installation of piping systems and components conforming to this British Standard BS EN 1451-1.

- The products should only be used in application area B, i.e. suspended from brackets above ground and installed in accordance with BS EN 12056-2 using the Type N (normal type) socket as specified.
- EN 1451-1:2017 provides a choice of three pipe wall thicknesses (Table 4, Wall thickness (metric series)). When installing piping in above ground situations, it is strongly recommended that series S 16 is specified and used.
- In respect of fire regulations (see **5.7**), for England The Building Regulations 2010, Approved Document B, Volume 1 and Volume 2 give

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details of the suitable means of sealing pipes passing through a fire-separating element, unless in a protected shaft. Analogous provisions apply in Wales, Scotland and Northern Ireland respectively.

EDITORIAL NOTE: REFERENCE TO REGULATIONS In 5.7 the only "requirement" is that "pipes and fittings... shall conform to any relevant requirements on fire regulations". Since the authority for such requirements lies with national regulators and not with standards organizations, which do not have the power to waive regulations even should they so wish, this type of information in standards should be presented as a note, or as a statement in a foreword or introduction. As information it can refer in general or specific terms to the existence of current regulations/legislation/directives applicable to the products or the conditions of their use. The expression here as part of the normative text is inappropriate and should not be considered an acceptable precedent for other standards to follow.

WARNING This British Standard, which is identical to EN 1451-1:2017, does not necessarily detail all the precautions necessary to meet the requirements of the Health and Safety at Work etc. Act 1974. Attention should be paid to any appropriate safety precautions and the test methods referred to in EN 1451-1 should be operated only by trained personnel.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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

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Amendments/corrigenda issued since publication

Date	Text affected
30 June 2018	Implementation of CEN corrigendum June 2018
31 December 2019	Additional national foreword text added

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EUROPÄISCHE NORM

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English Version

Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Polypropylene (PP) - Part 1: Specifications for pipes, fittings and the system

Systèmes de canalisations en plastiques pour l'évacuation des eaux-vannes et des eaux usées (à basse et à haute température) à l'intérieur de la structure des bâtiments - Polypropylène (PP) - Partie 1: Spécifications pour tubes, raccords et le système

Kunststoff-Rohrleitungssysteme zum Ableiten von Abwasser (niedriger und hoher Temperatur) innerhalb der Gebäudestruktur - Polypropylen (PP) - Teil 1: Anforderungen an Rohre, Formstücke und das Rohrleitungssystem

This European Standard was approved by CEN on 18 September 2017.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

This document consolidates EN 1451-1:2017 and the corrigendum EN 1451:2017/AC:2018.



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

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

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European foreword

This document (EN 1451-1:2017) 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 May 2018, and conflicting national standards shall be withdrawn at the latest by May 2018.

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 1451-1:1998.

EN 1451, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Polypropylene (PP)* consists of the following parts:

- *Part 1: Specifications for pipes, fittings and the system*
- *Part 2: Guidance for the assessment of conformity (CEN/TS)*

The main changes with respect to the previous edition are:

- updating in accordance with the new template;
- updating of normative references;
- thermal stability (OIT) requirement is made valid in general;
- two new dimensions for nominal size and outside diameter have been added, 250 mm and 315 mm;
- alignment of the impact resistance requirements for BD applications with the UD applications in EN 1852-1;
- utilization of non-virgin PP materials are described in the new Annex A;
- Annex B has been deleted and the relevant text has been moved to the main standard;
- new Annex B "Product standards" has been added.

This document includes the corrigendum EN 1451-1:2017/AC:2018, which corrects a value for ' $d_{em, max}$ ' in Table 2.

System standards are based on the results of the work 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.

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

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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1 Scope

This part of EN 1451 specifies the requirements for solid-wall polypropylene (PP) pipes, fittings and the system intended for:

- soil and waste discharge applications (low and high temperature) inside buildings (application area code "B");
- soil and waste discharge applications (low and high temperature) for both inside buildings and buried in the ground within the building structure (application area code "BD").

The intended use is reflected in the marking of products by "B" or "BD".

NOTE 1 For use buried in the ground within the building structure are intended only those components marked with "BD", with dimensions equal to or greater than 75 mm and nominal ring stiffness of at least SN4.

This part of EN 1451 is also applicable to PP pipes and fittings and the system intended for the following purposes:

- ventilating part of the pipework in association with discharge applications;
- rainwater pipework within the building structure.

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

This European Standard covers a range of nominal sizes, a range of pipes and fittings series and gives recommendations concerning colours.

NOTE 2 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 regulations and installation practices or codes, e.g. CEN/TR 13801 [1].

NOTE 3 Pipes, fittings and other components conforming to any of the plastics product standards listed in Annex B can be used with pipes and fittings conforming to this European Standard, provided they conform to the requirements for joint dimensions given in Clause 6 and to the requirements of Table 18.

This standard applies to pipes and fittings, marked with "B", which are intended to be used inside buildings and outside buildings fixed onto the wall.

It applies to pipes and fittings, marked with "BD", which are intended to be used for both inside buildings and buried in the ground within the building structure.

This standard is applicable to PP pipes and fittings of the following types:

- plain-ended,
- with integral elastomeric ring seal socket,
- for butt fusion joints,

whereby the fittings can be manufactured by injection-moulding or be fabricated from pipes and/or mouldings.

NOTE 4 EN 476 [2] specifies the general requirements for components used in discharge pipes, drains and sewers for gravity systems. Pipes and fittings conforming to this standard fully meet these requirements.

NOTE 5 For information about the chemical resistance of PP, guidance is given in ISO/TR 10358 [3] and for rubber materials in ISO/TR 7620[4].