ICS 23.040.01, 91.140.80 SLOVENSKÁ TECHNICKÁ NORMA Júl 2018

| STN | **Potrubné systémy z plastov pre kanalizácie vnútri konštrukcie budov (s nízkou a vysokou teplotou) Polypropylén (PP) Časť 1: Požiadavky na rúry, tvarovky a systém** | **STN EN 1451-1** 64 3061 |
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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

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 06/18

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# EN 1451-1

November 2017

ICS 23.040.01; 91.140.80 Supersedes EN 1451-1:1998

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.

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

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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.

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.

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.

# 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].

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 681-1, *Elastomeric seals - Materials requirements for pipe joint seals used in water and drainage applications - Part 1: Vulcanized rubber*

EN 681-2, *Elastomeric Seals - Materials requirements for pipe joint seals used in water and drainage applications - Part 2: Thermoplastic elastomers*

EN 12099, *Plastics piping systems - Polyethylene piping materials and components - Determination of volatile content*

EN ISO 472, *Plastics - Vocabulary (ISO 472)*

EN ISO 580, *Plastics piping and ducting systems - Injection-moulded thermoplastics fittings - Methods for visually assessing the effects of heating (ISO 580)*

EN ISO 1043-1, *Plastics - Symbols and abbreviated terms - Part 1: Basic polymers and their special characteristics (ISO 1043-1)*

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)*

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

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 1183-2, *Plastics - Methods for determining the density of non-cellular plastics - Part 2: Density gradient column method (ISO 1183-2)*

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 3451-1, *Plastics - Determination of ash - Part 1: General methods (ISO 3451-1)*

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

prEN ISO 13254, *Thermoplastics piping systems for non-pressure applications - Test method for watertightness (ISO 13254)*

prEN ISO 13255, *Thermoplastics piping systems for soil and waste discharge inside buildings - Test method for airtightness of joints (ISO 13255)*

prEN ISO 13257, *Thermoplastics piping systems for non-pressure applications - Test method for resistance to elevated temperature cycling (ISO 13257)*

prEN ISO 13259, *Thermoplastics piping systems for underground non-pressure applications - Test method for leaktightness of elastomeric sealing ring type joints (ISO 13259)*

prEN ISO 13263, *Thermoplastics piping systems for non-pressure underground drainage and sewerage - Thermoplastics fittings - Test method for impact strength (ISO 13263)*

prEN ISO 13264, *Thermoplastics piping systems for non-pressure underground drainage and sewerage - Thermoplastics fittings - Test method for mechanical strength or flexibility of fabricated fittings (ISO 13264)*

EN ISO 3127, *Thermoplastics pipes — Determination of resistance to external blows — Round-the-clock method*

ISO 4065, *Thermoplastics pipes - Universal wall thickness table*

EN ISO 11173, *Thermoplastics pipes — Determination of resistance to external blows — Staircase method*