ICS 23.040.20, 23.060.01 SLOVENSKÁ TECHNICKÁ NORMA Máj 2024

STN	**Potrubné systémy z plastov na zásobovanie vodou a na tlakové kanalizačné potrubia a stoky Polyetylén (PE) Časť 4: Armatúry na zásobovanie vodou**	**STN EN 12201-4** 64 3041

Plastics piping systems for water supply, and for drains and sewers under pressure - Polyethylene (PE) - Part 4: Valves for water supply systems

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. 04/24

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English Version

Plastics piping systems for water supply, and for drains and sewers under pressure - Polyethylene (PE) - Part 4: Valves for water supply systems

Systèmes de canalisations en plastique pour l'alimentation en eau et pour les branchements et les collecteurs d'assainissement avec pression - Polyéthylène (PE) - Partie 4 : Robinets pour les systèmes d'alimentation en eau

Kunststoff-Rohrleitungssysteme für die Wasserversorgung und für Entwässerungs- und Abwasserdruckleitungen - Polyethylen (PE) - Teil 4: Armaturen für Wasserversorgungssysteme

This European Standard was approved by CEN on 10 December 2023.

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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
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European foreword

This document (EN 12201-4:2024) 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of an identical text or by endorsement, at the latest by July 2024, and conflicting national standards shall be withdrawn at the latest by July 2024.

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 12201-4:2012.

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 12201 consists of the following parts:

— EN 12201-1, *Plastics piping systems for water supply, and for drains and sewers under pressure — Polyethylene (PE) — Part 1: General*;

— EN 12201-2, *Plastics piping systems for water supply, and for drains and sewers under pressure — Polyethylene (PE) — Part 2: Pipes*;

— EN 12201-3, *Plastics piping systems for water supply, and for drains and sewers under pressure — Polyethylene (PE) — Part 3: Fittings*;

— EN 12201-4, *Plastics piping systems for water supply, and for drains and sewers under pressure — Polyethylene (PE) — Part 4: Valves for water supply systems* (this document);

— EN 12201-5, *Plastics piping systems for water supply, and for drains and sewers under pressure — Polyethylene (PE) — Part 5: Fitness for purpose of the system*.

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

— CEN/TS 12201-7, *Plastics piping systems for water supply, and for drainage and sewerage under pressure — Polyethylene (PE) — Part 7: Guidance for the assessment of conformity*.

The revision of this System Standard has been carried out principally to add the PE 100-RC type materials with enhanced resistance to slow crack growth. EN 12201-1:2024, Annex C discusses the performance of this type of material and gives additional information for non-conventional installation techniques. The diameter range for valves has been increased to 400 mm. An improved description of the leaktightness test is given. Annex B has been added to describe the leaktightness test after the tensile test, following withdrawal of ISO 10933. In addition, test methods have been updated and a new method has been added for PE 100-RC materials.

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.

Introduction

This document, known as the System Standard, specifies the requirements for a piping system and its components made from polyethylene (PE). The piping system is intended to be used for water supply intended for human consumption, including the conveyance of raw water prior to treatment, drains and sewers under pressure, vacuum sewer systems, and water for other purposes.

In respect of potential adverse effects on the quality of water intended for human consumption, caused by the product covered by the EN 12201 series:

— this document provides no information as to whether the products may be used without restriction in any of the Member States of the EU or EFTA;

NOTE Attention is drawn to the presence of national regulations and testing arrangements in relation to products intended for use in water supply to ensure fitness for contact with drinking water.

Requirements and test methods for material and components, other than valves, are specified in EN 12201-1, EN 12201-2 and EN 12201-3.

Characteristics for fitness of purpose are covered in EN 12201-5. CEN/TS 12201-7 [1] gives guidance for the assessment of conformity.

This part of EN 12201 covers the characteristics of valves.

1 Scope

This document specifies the characteristics of valves or valve bodies made from polyethylene (PE) for buried and above ground applications, intended for the conveyance of water for human consumption, raw water prior to treatment, drains and sewers under pressure, vacuum sewer systems, and water for other purposes, with the exception of industrial applications.

NOTE 1 For PE components intended for the conveyance of water for human consumption and raw water prior to treatment, attention is drawn to 6.4. Components manufactured for water for other purposes, drains and sewers, and vacuum systems are possibly not suitable for water supply for human consumption.

NOTE 2 Industrial application is covered by EN ISO 15494 [2].

The intended use includes sea outfalls, laid in water and pipes suspended below bridges.

It is applicable to isolating unidirectional and bi-directional valves with spigot ends or electrofusion sockets intended to be fused with PE pipes or fittings conforming to EN 12201-2 and EN 12201-3 respectively.

Valves made from materials other than PE, conforming to the relevant standards can be used in PE piping systems according to EN 12201, provided that they have PE connections for butt fusion or electrofusion ends, conforming to EN 12201-3, or material transition joints (e.g. flanged joints).

NOTE 3 For valves or valve bodies intended for drains and sewers, additional information is given in Clause 9.

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

In conjunction with EN 12201-1, EN 12201-2, EN 12201-3 and EN 12201-5, 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) allowable operating pressure, PFA, up to 25 bar[1];

b) an operating temperature of 20 °C as a reference temperature.

NOTE 4 For applications operating at constant temperature greater than 20 °C and up to 50 °C, see EN 12201-1:2024, Annex A.

The EN 12201 series covers a range of allowable operating pressures and gives requirements concerning colours and additives.

NOTE 5 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.

This document covers valves for pipes with a nominal outside diameter $d_n \leq 400$ mm.

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

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

EN 736-1, *Valves — Terminology — Part 1: Definition of types of valves*

EN 736-2, *Valves — Terminology — Part 2: Definition of components of valves*

EN 1680, *Plastics piping systems — Valves for polyethylene (PE) piping systems — Test method for leaktightness under and after bending applied to the operating mechanisms*

EN 1705, *Plastics piping systems — Thermoplastics valves — Test method for the integrity of a valve after an external blow*

EN 12100, *Plastics piping systems — Polyethylene (PE) valves — Test method for resistance to bending between supports*

EN 12201-1, *Plastics piping systems for water supply, and for drains and sewers under pressure — Polyethylene (PE) — Part 1: General*

EN 12201-2, *Plastics piping systems for water supply, and for drains and sewers under pressure — Polyethylene (PE) — Part 2: Pipes*

EN 12201-3:2024, *Plastics piping systems for water supply, and for drains and sewers under pressure — Polyethylene (PE) — Part 3: Fittings*

EN 12201-5, *Plastics piping systems for water supply, and for drains and sewers under pressure — 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)*

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 1167-4, *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 3126, *Plastics piping systems — Plastics components — Determination of dimensions (ISO 3126)*

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

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)*

ISO 161-1, *Thermoplastics pipes for the conveyance of fluids — Nominal outside diameters and nominal pressures — Part 1: Metric series*

ISO 8233, *Thermoplastic valves — Torque — Test method*

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