



# SLOVENSKI STANDARD

## SIST EN 12201-4:2002

01-junij-2002

---

### Cevni sistemi iz polimernih materialov za oskrbo z vodo - Polietilen (PE) - 4. del: Ventili

Plastics piping systems for water supply - Polyethylene (PE) - Part 4: Valves

Kunststoff-Rohrleitungssysteme für die Wasserversorgung - Polyethylen (PE) - Teil 4:  
Armaturen

Systemes de canalisations en plastique pour l'alimentation en eau - Poléthylène (PE) -  
Partie 4: Robinets

iTeh STANDARD PREVIEW

(standards.iteh.ai)

SIST EN 12201-4:2002

Ta slovenski standard je istoveten z: EN 12201-4:2001

<https://standards.iteh.ai/catalog/standards/sist/dfad7426-beff-47f7-bea8-682b9c2aa9d3/sist-en-12201-4-2002>

---

#### **ICS:**

23.060.01	Ventili na splošno	Valves in general
91.140.60	Sistemi za oskrbo z vodo	Water supply systems

**SIST EN 12201-4:2002**

**en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 12201-4:2002

<https://standards.iteh.ai/catalog/standards/sist/dfad7426-beff-47f7-bea8-682b9c2aa9d3/sist-en-12201-4-2002>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 12201-4**

December 2001

ICS 23.060.01

English version

## Plastics piping systems for water supply - Polyethylene (PE) - Part 4: Valves

Systèmes de canalisations en plastique pour l'alimentation  
en eau - Poléthylène (PE) - Partie 4: Robinets

Kunststoff-Rohrleitungssysteme für die Wasserversorgung  
- Polyethylen (PE) - Teil 4: Armaturen

This European Standard was approved by CEN on 19 January 2001.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

SIST EN 12201-4:2002

<https://standards.iteh.ai/catalog/standards/sist/dfad7426-beff-47f7-bea8-682b9c2aa9d3/sist-en-12201-4-2002>



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

## Contents

	page
<b>Introduction</b> .....	<b>4</b>
<b>1 Scope</b> .....	<b>5</b>
<b>2 Normative references</b> .....	<b>5</b>
<b>3 Definitions symbols and abbreviations</b> .....	<b>6</b>
<b>4 Material</b> .....	<b>6</b>
4.1 Compound .....	6
4.2 Material for non-polyethylene parts .....	7
<b>5 General characteristics</b> .....	<b>7</b>
5.1 Appearance of the valve .....	7
5.2 Design .....	7
5.3 Colour .....	8
5.4 Effect on water quality .....	8
<b>6 Geometric characteristics</b> .....	<b>8</b>
6.1 General .....	8
6.2 Measurement of dimensions .....	8
6.3 Wall thickness at any point of the PE valve body .....	8
6.4 Dimensions of spigot ends for valves .....	9
6.5 Dimensions of valves with electrofusion sockets .....	9
6.6 Dimensions of the operating cap .....	9
<b>7 Mechanical characteristics for assembled valves</b> .....	<b>9</b>
7.1 General .....	9
7.2 Conditioning .....	9
7.3 Requirements .....	9
7.4 Retest in case of failure of hydrostatic strength at 80 °C .....	11
<b>8 Physical characteristics</b> .....	<b>12</b>
8.1 Conditioning .....	12
8.2 Requirements .....	12
<b>9 Performance requirements</b> .....	<b>13</b>
<b>10 Marking</b> .....	<b>13</b>
10.1 General .....	13
10.2 Minimum required marking of valves .....	13
10.3 Marking on a label .....	14
<b>11 Packaging</b> .....	<b>14</b>

## Foreword

This European Standard 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 June 2002, and conflicting national standards shall be withdrawn at the latest by December 2003.

This standard is a Part of a System Standard for plastics piping systems of a particular material for a specified application. There are a number of such System Standards.

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 standards on general functional requirements and standards on recommended practice for installation.

prEN 12201 consists of the following Parts, under the general title *Plastics piping systems for water supply — Polyethylene (PE)*:

— Part 1: General

— Part 2: Pipes

— Part 3: Fittings

— Part 4: Valves (this standard)

— Part 5: Fitness for purpose of the system

— Part 7: Guidance for the assessment of conformity (to be published as an ENV)

NOTE It was decided not to publish a Part 6: Recommended practice for installation. Instead, existing national practices would be applicable.

This Part of EN 12201 includes the following:

— Bibliography

System Standards for piping systems of other plastics materials used for the conveyance of water under pressure include the following:

— EN 1452, Plastics piping systems for water supply — Unplasticized poly(vinyl chloride) (PVC-U)

— prEN 1796, Plastics piping systems for water supply with or without pressure — Glass-reinforced thermoplastics (GRP) based on polyester resin (UP)

For components which have conformed to the relevant national standard before December 2001, as shown by the manufacturer or by a certification body, the national standard may continue to be applied until December 2003.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this document: Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)

[SIST EN 12201-4:2002](https://standards.iteh.ai/catalog/standards/sist/dfad7426-beff-47f7-bea8-682b9c2aa9d3/sist-en-12201-4-2002)

<https://standards.iteh.ai/catalog/standards/sist/dfad7426-beff-47f7-bea8-682b9c2aa9d3/sist-en-12201-4-2002>

EN 12201-4:2001 (E)

## Introduction

The System Standard, of which this is Part 4, specifies the requirements of a piping system and its components made from polyethylene (PE). It is intended to be used for water supply intended for human consumption, including the conveyance of raw water prior to treatment.

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

- a) This standard provides no information as to whether the product may be used without restriction in any of the Member States of the EU or EFTA;
- b) It should be noted that, while awaiting the adoption of verifiable European criteria, existing national regulations concerning the use and/or the characteristics of this product remain in force.

Requirements and test methods for material and components, other than valves, are specified in prEN 12201-1, prEN 12201-2 and prEN 12201-3. Characteristics for fitness of purpose are covered in prEN 12201-5 and prEN 12201-7 gives guidance for the assessment of conformity.

This Part of prEN 12201 covers the characteristics of valves.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 12201-4:2002

<https://standards.iteh.ai/catalog/standards/sist/dfad7426-beff-47f7-bea8-682b9c2aa9d3/sist-en-12201-4-2002>

## 1 Scope

This Part of EN 12201 specifies the characteristics of valves or valve bodies made from polyethylene (PE) intended for the conveyance of water intended for human consumption, including raw water prior to treatment.

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

NOTE 1 Valves made from material other than polyethylene (PE) designed for the supply of water intended for human consumption to a relevant standard(s) can be used in PE piping systems conforming to prEN 12201 when they have relevant PE connection ends for butt fusion or electrofusion (see prEN 12201-3).

In conjunction with other Parts of prEN 12201 it is applicable to PE valves, their joints and to 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 25 bar;
- b) an operating temperature of 20 °C as reference temperature.

NOTE 2 For applications operating at constant temperatures greater than 20 °C and up to 40 °C, see annex A of prEN 12201-1:1999.

prEN 12201 covers a range of maximum operating pressures and gives requirements concerning colours and additives.

NOTE 3 It is the responsibility of the purchaser 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 Part of EN 12201 covers valves for pipes with a nominal outside diameter  $d_n \leq 225$  mm.

## 2 Normative references

(standards.iteh.ai)

This standard incorporates by dated or undated reference provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to, or revisions of, any of these publications apply to this standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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 728, *Plastics piping and ducting systems — Polyolefin pipes and fittings — Determination of oxidation induction time*

EN 917:1997, *Plastics piping systems — Thermoplastics valves — Test method for resistance to internal pressure and leaktightness*

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

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

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

prEN 12201-1:2001, *Plastics piping systems for water supply — Polyethylene (PE) — Part 1: General*

prEN 12201-2, *Plastics piping systems for water supply — Polyethylene (PE) — Part 2: Pipes*

prEN 12201-3:2001, *Plastics piping systems for water supply — Polyethylene (PE) — Part 3: Fittings*

prEN 12201-5, *Plastics piping systems for water supply — Polyethylene (PE) — Part 5: Fitness for purpose of the system*

EN 12201-4:2001 (E)

EN 28233:1990, *Thermoplastic valves — Torque — Test method*

EN ISO 1133:1999, *Plastics — Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics (ISO 1133 : 1997)*

prEN ISO 3126:1999, *Plastics piping systems — Plastics piping components — Measurement and determination of dimensions (ISO/DIS 3126:1999)*

ISO 5208:1993, *Industrial valves — Pressure testing for valves*

ISO 10933:1997, *Polyethylene (PE) valves for gas distribution systems*

### 3 Definitions symbols and abbreviations

For the purposes of this European standard, the definitions, symbols and abbreviations given in prEN 12201-1:2001 apply, together with the following.

#### 3.1

##### **external leaktightness**

Leaktightness of the body enveloping the space containing the water, with respect to the atmosphere

#### 3.2

##### **internal leaktightness**

Leaktightness between the inlet and the outlet of the valve, with the valve in the closed position

#### 3.3

##### **leaktightness test**

test for both of the following characteristics: (standards.iteh.ai)

- a) the internal leaktightness of the valve's seat when closed and pressurised from either side;
- b) the external leaktightness of the valve when half open

#### 3.4

##### **initiating torque**

torque required to initiate movement of the obturator

#### 3.5

##### **running torque**

torque required to achieve full opening or closing of the valve at maximum allowable operating pressure

#### 3.6

##### **leakage**

seepage of water through the valve body, or any component of the valve

#### 3.7

##### **valve body**

main part of a valve which contains the obdurating device (rotating member, the seat, the packing seals and the operating stop), as applicable and provides the terminal ends for connection to the PE pipe/fittings

#### 3.8

##### **operating cap**

part of a valve for connection with the operating key which allows the opening and closing of the valve

### 4 Material

#### 4.1 Compound

The compound from which the body of the valve, with spigot end or electrofusion socket is made shall conform to prEN 12201-1:2001.



## 4.2 Material for non-polyethylene parts

### 4.2.1 General

All components shall conform to the relevant EN standard(s). Alternative standards may be utilised in cases where suitable EN standard(s) do not exist provided a fitness for purpose can be demonstrated.

The materials and the constituent elements used in making the valves (including elastomers, greases and any metal parts as may be used) shall be as resistant to the external and internal environment as the other elements of the piping system and shall have a life expectancy under the following conditions at least equal to that of the PE pipes conforming to prEN 12201-2 with which they are intended to be used:

- a) during storage;
- b) under the effect of the water being conveyed;
- c) with respect to the service environment and operating conditions.

The requirements for the level of material performance for non-polyethylene parts shall be at least as stringent as that of the PE compound for the piping system.

Valve material in contact with the PE pipe shall not adversely affect the pipe performance or initiate stress cracking.

NOTE Metal valve bodies for PE piping systems up to 25 bar should conform to the relevant standard of CEN/TC 69 *Industrial valves*.

### 4.2.2 Metal parts

All metal parts susceptible to corrosion shall be adequately protected.

When dissimilar metallic materials are used which may be in contact with moisture, steps shall be taken to avoid the possibility of galvanic corrosion.

### 4.2.3 Elastomers

Elastomeric seals shall conform to EN 681-1 or EN 681-2, as applicable.

### 4.2.4 Other materials

Greases or lubricants shall not exude on to fusion areas and shall not affect the long-term performance of the PE valve or valve body nor have any adverse effect on the quality of the water.

### 4.2.5 Assembly

Valves shall be assembled according to manufacturer's procedures and any component used in the assembly shall not prevent conformity of the valve to this standard.

## 5 General characteristics

### 5.1 Appearance of the valve

When viewed without magnification, the internal and external surfaces of valves shall be smooth, clean and free from scoring, cavities and other surface defects to an extent that would prevent conformity of the valve to this standard.

### 5.2 Design

#### 5.2.1 General

The design of the valve shall be such that, when assembling the valve onto the pipe or other components, the electrical coils and/or seals are not displaced.