ILNAS

Institut luxembourgeois de la normalisation
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des produits et services

# ILNAS-EN 12201-4:2012

# Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE) - Part 4: Valves

Systèmes de canalisations en plastique pour l'alimentation en eau et pour les branchements et les collecteurs d'assainissement avec pression -

Kunststoff-Rohrleitungssysteme für die Wasserversorgung und für Entwässerungs- und Abwasserdruckleitungen - Polyethylen

02/2012

**National Foreword**

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# EUROPEAN STANDARD EN 12201-4

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English Version

## Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE) - Part 4: Valves

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

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

This European Standard was approved by CEN on 16 December 2011.

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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
EUROPÄISCHES KOMITEE FÜR NORMUNG

**Management Centre: Avenue Marnix 17, B-1000 Brussels**



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## Foreword

This document (EN 12201-4:2012) 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of an identical text or by endorsement, at the latest by August 2012, and conflicting national standards shall be withdrawn at the latest by August 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12201-4:2001, EN 13244-4:2002.

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).

EN 12201 consists of the following Parts, under the general title *Plastics piping systems for water supply and for drainage and sewerage under pressure — Polyethylene (PE):*

— *Part 1: General*

— *Part 2: Pipes*

— *Part 3: Fittings*

— *Part 4: Valves for water supply systems* (this standard)

— *Part 5: Fitness for purpose of the system*

— *Part 7: Guidance for the assessment of conformity* (CEN/TS).

According to the CEN/CENELEC Internal Regulations, the national standards organizations 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Introduction

This European Standard, known as the System Standard, specifies the requirements for a piping system and its components when 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, drainage and sewerage 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 EN 12201:

a) this European Standard provides no information as to whether the products may be used without restriction in any of the Member States of the EU or EFTA;

b) products intended for use in water supply systems must comply, when existing, with national regulations and testing arrangements that ensure fitness for contact with drinking water.

NOTE On April 2006, EC Commission set up a revised mandate (M/136) asking CEN to propose harmonised product standards and support standards for test methods which could be used for assessing the fitness for contact with drinking water. In parallel, EC Commission has launched processes for a regulation of construction products (CPR) to be substituted to CP directive (89/106/EC) and for the revision of drinking water directive (98/83/EC). If relevant, when the outputs of these processes will be known, European Product Standards will be amended by the addition of an Annex Z under Mandate M/136 which will contain formal references to the applicable requirements. Until such amendments, the current national regulations remain applicable.

Requirements and test methods for material and components, other than valves, are specified in EN 12201-1:2011, EN 12201-2 and EN 12201-3:2011.

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 Part of EN 12201 specifies the characteristics of valves or valve bodies made from polyethylene (PE 100 and PE 80) for buried and above ground applications, intended for the conveyance of water for human consumption, raw water prior to treatment, drainage and sewerage under pressure, vacuum sewer systems, and water for other purposes.

NOTE 1 For valves or valve bodies intended for drainage and sewerage under pressure, additional specifications/tests may be necessary according to the requirements of the purchaser, especially for the chemical resistance of the components in contact with the fluids and functioning characteristics.

NOTE 2 For PE components intended for the conveyance of water for human consumption and raw water prior to treatment attention is drawn to 5.4. Components manufactured for water for other purposes may not be suitable for water supply for human consumption.

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

NOTE 3 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 EN 12201 when they have relevant PE connection for butt fusion or electrofusion ends (see EN 12201-3:2011).

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

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

c) buried in the ground;

d) sea outfalls;

e) laid in water;

f) above ground, including pipes suspended below bridges.

NOTE 4 For applications operating at constant temperature greater than 20 °C and up to 40 °C, see EN 12201-1:2011, Annex A.

EN 12201 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 Part of EN 12201 covers valves for pipes with a nominal outside diameter $d_n \leq 315$ mm.

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

## 2 Normative references

The following referenced documents are indispensable for the application 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 736-1:1995, *Valves — Terminology — Part 1: Definition of types of valves*

EN 736-2:1997, *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, *Plastic piping systems — Polyethylene (PE) valves — Test method for resistance to bending between supports*

EN 12201-1:2011, *Plastics piping systems for water supply, and for drainage and sewerage under pressure — Polyethylene (PE) — Part 1: General*

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

EN 12201-3:2011, *Plastics piping systems for water supply, and for drainage and sewerage under pressure — Polyethylene (PE) — Part 3: Fittings*

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

EN 28233, *Thermoplastic valves — Torque — Test method (ISO 8233)*

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

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)*

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

ISO 11357-6, *Plastics — Differential scanning calorimetry (DSC) — Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT)*

## 3 Terms and definitions, symbols and abbreviations

For the purposes of this document, the terms and definitions, symbols and abbreviations given in EN 12201-1:2011, EN 736-1:1995, EN 736-2:1997 and the following apply.