SLOVENSKI STANDARD
oSIST prEN 15014:2011

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Cevni sistemi iz polimernih materialov - Podzemne in nadzemne cevne komponente za vodo in druge tekočine pod tlakom - Zahteve in preskusi/metode ocenjevanja za cevi in fitinge

Plastics piping systems - Buried and above ground piping components for water and other liquids under pressure - Requirements and test/assessment methods for pipes and fittings

Kunststoff-Rohrleitungssysteme - Bauteile für den Einsatz in erdverlegten und nicht erdverlegten Druckrohrleitungen für Wasser und andere Flüssigkeiten - Anforderungen und Prüf-/Bewertungsverfahren für Rohre und Formstücke

Systèmes de canalisations en plastique - Composants de canalisations enterrées et aériennes pour eau et autres liquides avec pression - Exigences et méthodes d'essais/d'évaluation pour tubes et raccords

Ta slovenski standard je istoveten z: **prEN 15014**

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English Version

Plastics piping systems - Buried and above ground piping components for water and other liquids under pressure - Requirements and test/assessment methods for pipes and fittings

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This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 155.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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Foreword

This document (prEN 15014:2011) has been prepared by Technical Committee CEN/TC 155 “Plastics piping systems and ducting systems”, the secretariat of which is held by NEN.

This document is currently submitted to the CEN Enquiry.

This document has been prepared under the mandate M/131 "Pipes, tanks and ancillaries not in contact with water intended for human consumption" given to CEN by the European Commission and the European Free Trade Association and support essential requirements of EU Directives.

For the relationship with EU Directives, see informative Annex ZA, which is an integral part of this document.

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, 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 and United Kingdom.

Introduction

This European Standard specifies only those characteristics of pipes and fittings for pressure applications for water supply, drainage, sewerage and irrigation, as well as for any other pressure application in which other liquids are conveyed with the exception of water intended for human consumption that need to be known to determine if the works in which these are to be installed can satisfy the essential requirements of the EU Directive(s). Additional characteristics are specified in the documents listed in Annex A or in other appropriate product specifications..

This harmonised European Standard covers plastics pipes and fittings under pressure. Valves are covered by EN 15389 [1].

1 Scope

This European Standard specifies requirements for plastics pipes and fittings for pressure applications for water supply, drainage, sewerage and irrigation, as well as for any other pressure application in which other liquids are conveyed with the exception of water intended for human consumption.

It is intended to be used for buried or above-ground conveyance of water, raw water prior to treatment, waste water, water for general purposes, vacuum-operated soil and waste conveyance and other liquids under pressure, for both outside and inside buildings.

It gives the associated test/assessment methods.

This standard does not cover adhesives, joint sealings and gaskets.

NOTE 1 For this standard the term fitting includes the term joint as meant by mandate M 131.

NOTE 2 Products complying with this document may be used for the transport of water intended for human consumption if they comply with the relevant national, regional or local regulatory provisions applicable in the place of use. Compliance of a product with this document does not confer a presumption of fitness of the product for the transport of water intended for human consumption within the meaning of the Directive 89/106/EEC.

NOTE 3 In some countries products used for the transport of raw water have to comply with the same requirements as products used for the transport of water for human consumption.

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

EN 681-4, *Elastomeric seals — Materials requirements for pipe joint seals used in water and drainage applications — Part 4: Cast polyurethane sealing elements*

EN 713, *Plastics piping systems — Mechanical joints between fittings and polyolefin pressure pipes — Test method for leaktightness under internal pressure of assemblies subjected to bending*

EN 911, *Plastics piping systems — Elastomeric sealing ring type joints and mechanical joints for thermoplastics pressure piping — Test method for leaktightness under external hydrostatic pressure*

EN 1796, *Plastics piping systems for water supply with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP)*

EN 12201-1, *Plastics piping systems for water supply, and for drainage and sewerage under pressure — Polyethylene (PE) — Part 2: 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, *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 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using test data from reaction to fire tests*

EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*

EN 14364, *Plastics piping systems for drainage and sewerage with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) — Specifications for pipes, fittings and joints*

EN 16000, *Plastics piping systems — Systems within the building structure — Mounting and fixing of components in the test apparatus to thermal attack by a single burning item*

EN ISO 75-2, Plastics — Determination of temperature of deflection under load — Part 2: Plastics and ebonite

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 1167-1:2006)*

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 1167-2:2006)*

EN ISO 1167-3, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 3: Preparation of components (ISO 1167-3:2007)*

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 1167-4:2007)*

EN ISO 1452-2, *Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure — Unplasticized poly(vinyl chloride) (PVC-U) — Part 2: Pipes (ISO 1452-2:2009)*

EN ISO 1452-3, *Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure — Unplasticized poly(vinyl chloride) (PVC-U) — Part 3: Fittings (ISO 1452-3:2009)*

EN ISO 1452-5, *Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure — Unplasticized poly(vinyl chloride) (PVC-U) — Part 5: Fitness for purpose of the system (ISO 1452-5:2009)*

EN ISO 3126, *Plastics piping systems — Plastics components — Determination of dimensions (ISO 3126:2005)*

EN ISO 9080, *Plastics piping and ducting systems — Determination of the long-term hydrostatic strength of thermoplastics materials in pipe form by extrapolation (ISO 9080:2003)*

EN ISO 10931, *Plastics piping systems for industrial applications — Poly(vinylidene fluoride) (PVDF) - Specifications for components and the system (ISO 10931:2005)*

EN ISO 12162, *Thermoplastics materials for pipes and fittings for pressure applications — Classification and designation — Overall service (design) coefficient (ISO 12162:2009)*

EN ISO 13783, *Plastics piping systems — Unplasticized poly(vinyl chloride) (PVC-U) end-load-bearing double socket joints — Test method for leaktightness and strength while subjected to bending and internal pressure (ISO 13783:1997)*

EN ISO 13844, *Plastics piping systems — Elastomeric-sealing-ring-type socket joints of unplasticized poly(vinyl chloride) (PVC-U) for use with PVC-U pipes — Test method for leaktightness under negative pressure (ISO 13844:2000)*

EN ISO 13845, *Plastics piping systems — Elastomeric-sealing-ring-type socket joints for use with unplasticized poly(vinyl chloride) (PVC-U) pipes — Test method for leaktightness under internal pressure and with angular deflection (ISO 13845:2000)*

EN ISO 13846, *Plastics piping systems — End-load-bearing and non-end-load-bearing assemblies and joints for thermoplastics pressure piping — Test method for long-term leaktightness under internal water pressure (ISO 13846:2000)*

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

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

ISO 8521, *Plastics piping systems — Glass-reinforced thermosetting plastics (GRP) pipes — Test methods for the determination of the apparent initial circumferential tensile strength*

ISO 8779, *Plastics piping systems — Polyethylene (PE) pipes for irrigation — Specifications*

ISO 9852, *Unplasticized poly(vinyl chloride) (PVC-U) pipes — Dichloromethane resistance at specified temperature (DCMT) — Test method*

ISO 11357-3, *Plastics — Differential scanning calorimetry (DSC) — Part 3: Determination of temperature and enthalpy of melting and crystallization*

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

ISO 13761, *Plastics pipes and fittings — Pressure reduction factors for polyethylene pipeline systems for use at temperature above 20 °C*

ISO 14236, *Plastics pipes and fittings — Mechanical-joint compression fittings for use with polyethylene pressure pipes in water supply systems*

ISO 16422, *Pipes and joints made of oriented unplasticized poly(vinyl chloride) (PVC-O) for the conveyance of water under pressure — Specifications*

ISO 17456, *Plastics piping systems — Multilayer pipes — Determination of long-term strength*

ISO 21004, *Plastics piping systems — Multilayer pipes and their joints, based on thermoplastics, for water supply*

3 Terms, definitions and symbols

For the purposes of this document, the following terms, definitions and symbols apply.

3.1
nominal size (DN)
numerical designation of the size of a component, other than a component designated by thread size, which is a convenient round number approximately equal to the manufacturing dimension in millimetres (mm)

NOTE This can apply to either the internal diameter (DN/ID) or external diameter (DN/OD).

3.2
nominal outside diameter
d_n
specified diameter, in millimetres, assigned to a nominal size (for thermoplastics pipes and fittings only)

3.3
nominal pressure (PN)
numerical designation used for reference purposes related to the mechanical characteristics of the component of a piping system

NOTE For plastic piping systems conveying water it corresponds to the maximum continuous operating pressure in bar, which can be sustained with water at 20 °C for thermoplastics and 35 °C for glass-reinforced thermosetting materials, based on the minimum design coefficient.

3.4
Connection
assembly of pipe(s) and fitting(s)

4 Requirements

4.1 Reaction to fire

The contribution to fire development of products falling under the scope of this European standard is verified according to the provisions of clause 5.1.

Test results shall be classified according to EN 13501-1.

4.2 External pressure strength

4.2.1 External pressure strength for thermoplastics pipes

The external pressure strength of thermoplastics pipes is deemed to be satisfied by the internal pressure strength as given in 4.3.

NOTE Guidance on limitations for the use in vacuum-operated soil and waste pipes may be found in the manufacturers technical file.

4.2.2 External pressure strength for glass-reinforced thermosetting pipes

The external pressure strength of glass-reinforced thermosetting pipes shall be determined in accordance with 5.7 and shall be declared as the nominal stiffness SN.

4.3 Internal pressure strength

4.3.1 Determination of nominal pressure PN

For thermoplastics materials the internal pressure strength of the pipe and fitting shall be determined in accordance with 5.2.1 and shall be declared by the manufacturer as nominal pressure PN in accordance with ISO 161-1 and including PN 25 where applicable.

The design coefficient shall not be less than that specified in EN ISO 12162 for the relevant material. Depending on the intended use, product standards as referred to in clause 2 define the design coefficient to be applied.

For glass-reinforced thermosetting materials the internal pressure strength of the pipe or fitting shall be determined in accordance with 5.2.2 and shall be declared by the manufacturer as nominal pressure in accordance with EN 1796 or EN 14364.

For multilayer pipes the internal pressure strength shall be determined and declared by the manufacturer in accordance with 5.2.3.

The design coefficient may also be enhanced by derating the PN.

4.3.2 Verification of pressure strength

The verification of the internal pressure strength of pipes and fittings shall be done in accordance with 5.3.

4.4 Dimensional tolerances

The manufacturer shall declare the relevant dimensional tolerances for the connection of pipes and fittings, by means of:

a) reference to a specific European standard as given in Clause 2 or Annex A, as applicable,

b) in the absence of a), reference to a specific European product specification,

c) in the absence of a) and b), reference to an International Standard,

d) in the absence of a), b), and c), by stating the values of his own specification and associated connecting method.

Dimensions shall be measured in accordance with 5.4 and shall be within the declared tolerances.

4.5 Tightness

For products in accordance with this standard, tightness is required. Pipes and fittings covered by this standard and having passed the type testing in accordance with the evaluation of conformity clause, are deemed to be tight.

Connections between pipes and fittings shall be tested in accordance with 5.5. No leakage shall occur during the test period.

4.6 Durability

4.6.1 Durability of internal pressure strength related to materials

The durability of internal pressure strength related to materials, from which the pipes and fittings are manufactured, shall be assessed by testing in accordance with 5.6.1.

4.6.2 Durability of internal pressure strength of pipes and fittings

Pipes and fittings for which the nominal pressure PN is declared in accordance with 4.3.1, and which have been made of material meeting the requirements of 5.6.1, are deemed to have a reasonable economic working life.

NOTE The piping components are expected to last at least the lifetime of the network where they are installed.

If the nature of the liquid is different from water or this liquid or water has a higher temperature than 20 °C (35 °C for glass-reinforced thermosetting materials), guidance for de-rating the pressure shall be in accordance with the appropriate following standards: EN ISO 1452-2 for PVC-U, ISO 16422 for PVC-O,