

**Multilayer piping systems for hot and cold water installations inside buildings - Part 5: Fitness for purpose of the system**

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## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 21003-5:2008 sisaldab Euroopa standardi EN ISO 21003-5:2008 ingliskeelset teksti.

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English Version

**Multilayer piping systems for hot and cold water installations  
inside buildings - Part 5: Fitness for purpose of the system (ISO  
21003-5:2008)**

Systèmes de canalisations multicouches pour installations  
d'eau chaude et froide à l'intérieur des bâtiments - Partie 5:  
Aptitude à l'emploi du système (ISO 21003-5:2008)

Mehrschichtverbund-Rohrleitungssysteme für die Warm-  
und Kaltwasserinstallation innerhalb von Gebäuden - Teil 5:  
Gebrauchstauglichkeit des Systems (ISO 21003-5:2008)

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## Foreword

This document (EN ISO 21003-5:2008) has been prepared by Technical Committee ISO/TC 138 "Plastics pipes, fittings and valves for the transport of fluids" in collaboration with 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of an identical text or by endorsement, at the latest by January 2009, and conflicting national standards shall be withdrawn at the latest by January 2009.

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 has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directive(s).

For relationship with EC Directive(s), see informative Annex ZA, B, C or D, which is an integral part of this document.

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### Endorsement notice

The text of ISO 21003-5:2008 has been approved by CEN as a EN ISO 21003-5:2008 without any modification.

# Contents

Page

<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>2</b>
<b>4 Symbols and abbreviated terms</b> .....	<b>2</b>
<b>5 Fitness for purpose of the joints and the piping system</b> .....	<b>3</b>
5.1 General.....	3
5.2 Internal pressure test.....	3
5.3 Bending test.....	4
5.4 Pull-out test.....	5
5.5 Thermal cycling test.....	6
5.6 Pressure cycling test.....	6
5.7 Leaktightness under vacuum.....	7
<b>Annex A (normative) List of reference product standards</b> .....	<b>8</b>
<b>Bibliography</b> .....	<b>9</b>

## Introduction

The system standard of which this is Part 5 specifies the requirements for a multilayer piping system.

The multilayer piping system is intended to be used for hot and cold water installations inside buildings.

In respect of potential adverse effects on the quality of water intended for human consumption caused by the products covered by ISO 21003:

- no information is provided as to whether the products may be used without restriction in any of the member states of the EU or EFTA;
- it should be noted that, while awaiting the adoption of verifiable European criteria, existing national regulations concerning the use and/or the characteristics of these products remain in force.

Requirements and test methods for components of the piping system are specified in ISO 21003-1, ISO 21003-2 and ISO 21003-3. ISO/TS 21003-7 gives guidance on the assessment of conformity.

This part of ISO 21003 specifies the characteristics for fitness for purpose.

For ancillary equipment, separate standards can apply.

Guidance on installation of plastics piping systems made from various materials intended to be used for hot and cold water installations is given in ENV 12108.

Other system standards which, at the date of publication of this part of ISO 21003, had been published for plastics piping systems used for the same application are listed in Annex A.

# Multilayer piping systems for hot and cold water installations inside buildings —

## Part 5: Fitness for purpose of the system

### 1 Scope

This part of ISO 21003 specifies the characteristics for the fitness for purpose of multilayer piping systems intended to be used for hot and cold water installations inside buildings for the conveyance of water — whether or not the water is intended for human consumption (domestic systems) or for heating systems — under specified design pressures and temperatures appropriate to the class of application (see Table 1 of ISO 21003:2008).

It also specifies the test parameters for the test methods referred to in this part of ISO 21003.

ISO 21003 is a reference product standard. It is applicable to multilayer pipes, fittings, their joints, and also to joints with components made of other plastics and non-plastics materials intended to be used for hot and cold water installations. This part of ISO 21003 is intended for use only in conjunction with all the other parts of ISO 21003.

ISO 21003 covers a range of service conditions (application classes) and design pressures. It is not applicable for values of design temperature,  $T_D$ , maximum design temperature,  $T_{max}$ , and malfunction temperature,  $T_{mal}$ , in excess of those in Table 1 of ISO 21003-1:2008.

NOTE 1 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.

The polymeric materials used for the stress-designed layers are the following: polybutylene (PB), polyethylene of raised temperature resistance (PE-RT), crosslinked polyethylene (PE-X), polypropylene (PP) and chlorinated poly(vinyl chloride) (PVC-C).

The PE-X used shall be fully crosslinked and shall comply with the requirements of the relevant reference product standard (ISO 15875).

NOTE 2 For the purposes of this ISO 21003, crosslinked polyethylene (PE-X) as well as adhesives are considered as thermoplastic materials.

### 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.

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 1167-2, *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 1167-3, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 3: Preparation of components*

ISO 1167-4, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 4: Preparation of assemblies*

ISO 13760, *Plastics pipes for the conveyance of fluids under pressure — Miner's rule — Calculation method for cumulative damage*

ISO 15874-5, *Plastics piping systems for hot and cold water installations — Polypropylene (PP) — Part 5: Fitness for purpose of the system*

ISO 15875-5, *Plastics piping systems for hot and cold water installations — Crosslinked polyethylene (PE-X) — Part 5: Fitness for purpose of the system*

ISO 15876-5, *Plastics piping systems for hot and cold water installations — Polybutylene (PB) — Part 5: Fitness for purpose of the system*

ISO 15877-5, *Plastics piping systems for hot and cold water installations — Chlorinated poly(vinyl chloride) (PVC-C) — Part 5: Fitness for purpose of the system*

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

ISO 21003-1:2008, *Multilayer piping systems for hot and cold water installations inside buildings — Part 1: General*

ISO 21003-2:2008, *Multilayer piping systems for hot and cold water installations inside buildings — Part 2: Pipes*

ISO 21003-3, *Multilayer piping systems for hot and cold water installations inside buildings — Part 3: Fittings*

ISO 22391-5, *Plastics piping systems for hot and cold water installations — Polyethylene of raised temperature resistance (PE-RT) — Part 5: Fitness for purpose of the system*

EN 712, *Thermoplastics piping systems — End-load bearing mechanical joints between pressure pipes and fittings — Test method for resistance to pull-out under constant longitudinal force*

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 12293, *Plastics piping systems — Thermoplastics pipes and fittings for hot and cold water — Test method for the resistance of mounted assemblies to temperature cycling*

EN 12294, *Plastics piping systems — Systems for hot and cold water — Test method for leaktightness under vacuum*

EN 12295, *Plastics piping systems — Thermoplastics pipes and associated fittings for hot and cold water — Test methods for resistance of joints to pressure cycling*

### **3 Terms and definitions**

For the purposes of this document, the terms and definitions given in ISO 21003-1 apply.

### **4 Symbols and abbreviated terms**

For the purposes of this part of ISO 21003, the symbols and abbreviated terms given in ISO 21003-1 apply.