

**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, corrected version 2010-03-01)**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 1452-5:2011 sisaldab Euroopa standardi EN ISO 1452-5:2010 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 31.05.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 06.10.2010.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN ISO 1452-5:2011 consists of the English text of the European standard EN ISO 1452-5:2010.

This standard is ratified with the order of Estonian Centre for Standardisation dated 31.05.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 06.10.2010.

The standard is available from Estonian standardisation organisation.

ICS 23.040.20, 23.040.45, 91.140.60, 93.025

### Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:  
Aru 10 Tallinn 10317 Eesti; [www.evs.ee](http://www.evs.ee); Telefon: 605 5050; E-post: [info@evs.ee](mailto:info@evs.ee)

### Right to reproduce and distribute belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without permission in writing from Estonian Centre for Standardisation.

If you have any questions about standards copyright, please contact Estonian Centre for Standardisation:  
Aru str 10 Tallinn 10317 Estonia; [www.evs.ee](http://www.evs.ee); Phone: 605 5050; E-mail: [info@evs.ee](mailto:info@evs.ee)

English Version

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, corrected version  
2010-03-01)

Systèmes de canalisations en plastique pour l'alimentation  
en eau, pour branchements et collecteurs d'assainissement  
enterrés et aériens avec pression - Poly(chlorure de vinyle)  
non plastifié (PVC-U) - Partie 5: Aptitude à l'emploi du  
système (ISO 1452-5:2009, version corrigée 2010-03-01)

Kunststoff-Rohrleitungssysteme für die Wasserversorgung  
und für erdverlegte und nicht erdverlegte Entwässerungs-  
und Abwasserdruckleitungen - Weichmacherfreies  
Polyvinylchlorid (PVC-U) - Teil 5: Gebrauchstauglichkeit  
des Systems (ISO 1452-5:2009, korrigierte Fassung 2010-  
03-01)

This European Standard was approved by CEN on 23 September 2010.

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 CEN 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 CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 and United Kingdom.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

## Foreword

The text of ISO 1452-5:2009, corrected version 2010-03-01 has been prepared by Technical Committee ISO/TC 138 "Plastics pipes, fittings and valves for the transport of fluids" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 1452-5:2010 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 April 2011, and conflicting national standards shall be withdrawn at the latest by April 2011.

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 ISO 1452-5:2009.

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 and the United Kingdom.

### Endorsement notice

The text of ISO 1452-5:2009, corrected version 2010-03-01 has been approved by CEN as a EN ISO 1452-5:2010 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, symbols and abbreviations</b> .....	<b>2</b>
<b>4 Fitness for purpose of joints and the system</b> .....	<b>2</b>
4.1 Assemblies with non-end-load-bearing joints .....	2
4.2 Assemblies with end-load-bearing joints .....	3
4.3 Short-term pressure test for leaktightness of assemblies .....	3
4.4 Short-term negative pressure test for leaktightness of assemblies .....	4
4.5 Long-term pressure test for leaktightness of assemblies .....	5
<b>Annex A (normative) Assemblies of imperial (inch)-sized pipes, fittings, valves and ancillaries</b> .....	<b>7</b>
<b>Annex B (informative) Determination of the long-term test pressure by creep consideration</b> .....	<b>9</b>
<b>Bibliography</b> .....	<b>13</b>

## Introduction

The System Standard, of which this is Part 5, specifies the requirements for a piping system and its components made from unplasticized poly(vinyl chloride) (PVC-U). The piping system is intended to be used for water supply and for buried and above-ground drainage and sewerage under pressure.

In respect of potential adverse effects on the quality of water intended for human consumption, caused by the products covered by this part of ISO 1452, the following are relevant.

- a) This part of ISO 1452 provides no information as to whether the products may be used without restriction;
- b) Existing national regulations concerning the use and/or the characteristics of these products remain in force.

Requirements and test methods for components requirements and test methods are specified in ISO 1452-2, ISO 1452-3 and ISO 1452-4.

This part of ISO 1452 establishes the characteristics of fitness for purpose of the plastics piping system composed of pipes, fittings, valves, ancillaries and their joints.

Guidance for installation is given in ISO/TR 4191<sup>[1]</sup>.

Guidance for assessment of conformity is provided in ENV 1452-7<sup>[2]</sup>.

# 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

### 1 Scope

This part of ISO 1452 specifies the characteristics for the fitness for purpose of unplasticized poly(vinyl chloride) (PVC-U) piping systems intended for water supply and for buried and above-ground drainage and sewerage under pressure.

It also specifies the test parameters for the test methods referred to in this part of ISO 1452.

In conjunction with ISO 1452-1, ISO 1452-2, ISO 1452-3 and ISO 1452-4, it is applicable to joints and assemblies with components of PVC-U, other plastics and non-plastics materials intended to be used for the following:

- a) water mains and services buried in ground;
- b) conveyance of water above ground for both outside and inside buildings;
- c) buried and above-ground drainage and sewerage under pressure;

It is applicable to piping systems intended for the supply of water under pressure up to and including 25 °C (cold water) intended for human consumption and for general purposes as well as for waste water under pressure.

This part of ISO 1452 is also applicable to components for the conveyance of water and waste water up to and including 45 °C. For temperatures between 25 °C and 45 °C, Figure A.1 of ISO 1452-2:2009 applies.

**NOTE** The producer and the end-user can come to agreement on the possibilities of use for temperatures above 45 °C on a case-by-case basis.

### 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 1452-1, *Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure — Unplasticized poly(vinyl chloride) (PVC-U) — Part 1: General*

ISO 1452-2:2009, *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 1452-3:2009, *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 1452-4, *Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure — Unplasticized poly(vinyl chloride) (PVC U) — Part 4: Valves*

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 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 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 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*

### 3 Terms and definitions, symbols and abbreviations

For the purposes of this document, the terms, definitions, symbols and abbreviated terms given in ISO 1452-1 apply.

### 4 Fitness for purpose of joints and the system

#### 4.1 Assemblies with non-end-load-bearing joints

The following types of assemblies with non-end-load-bearing joints shall fulfil the fitness for purpose requirements given in 4.3 to 4.5 and Tables 1 and 2, as applicable:

- a) integrally socketed PVC-U pipe to pipe assemblies with elastomeric ring seal joints conforming to ISO 1452-2;
- b) PVC-U fitting and pipe assemblies with elastomeric ring seal joints conforming to ISO 1452-3 and ISO 1452-2, respectively;
- c) PVC-U valve and pipe assemblies with elastomeric ring seal joints conforming to ISO 1452-4 and ISO 1452-2, respectively;
- d) metal fitting and PVC-U pipe assemblies with elastomeric ring seal joints;
- e) metal valve and PVC-U pipe assemblies with elastomeric ring seal joints;
- f) PVC-U, GRP or metal adaptor assemblies with elastomeric ring seal joints for PVC-U pipes and with flanged, threaded or other connections to pipes of different materials or to ancillary equipment, such as tapping saddles;
- g) mechanical joint assemblies with PVC-U pipes.

The components of the assemblies of types b) to g) shall be assembled with PVC-U pipes of the corresponding nominal pressure, PN, or pipe series S conforming to ISO 1452-2. The assembly instructions of the component manufacturer shall be followed.