SLOVENSKI STANDARD
oSIST prEN ISO 16486-4:2021

01-maj-2021

Cevni sistemi iz polimernih materialov za oskrbo s plinastimi gorivi - Cevni sistemi iz nemehčanega poliamida (PA-U) z zvari in mehanskimi spoji - 4. del: Ventili (ISO/DIS 16486-4:2021)

Plastics piping systems for the supply of gaseous fuels - Unplasticized polyamide (PA-U) piping systems with fusion jointing and mechanical jointing - Part 4: Valves (ISO/DIS 16486-4:2021)

Kunststoff-Rohrleitungssysteme für die Gasversorgung - Rohrleitungssysteme aus weichmacherfreiem Polyamid (PA-U) mit Schweißverbindungen und mechanischen Verbindungen - Teil 4: Armaturen (ISO/DIS 16486-4:2021)

Systèmes de canalisations en matières plastiques pour la distribution de combustibles gazeux - Systèmes de canalisations en polyamide non plastifié (PA-U) avec assemblages par soudage et assemblages mécaniques - Partie 4: Robinets (ISO/DIS 16486-4:2021)

Ta slovenski standard je istoveten z: **prEN ISO 16486-4**

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75.200	Oprema za skladiščenje nafte, naftnih proizvodov in zemeljskega plina	Petroleum products and natural gas handling equipment
83.140.30	Polimerne cevi in fitingi za snovi, ki niso tekočine	Plastics pipes and fittings for non fluid use

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Plastics piping systems for the supply of gaseous fuels — Unplasticized polyamide (PA-U) piping systems with fusion jointing and mechanical jointing —

Part 4:
Valves

Systèmes de canalisations en matières plastiques pour la distribution de combustibles gazeux — Systèmes de canalisations en polyamide non plastifié (PA-U) avec assemblages par soudage et assemblages mécaniques —

Partie 4: Robinets

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC138, Plastics pipes, fittings and valves for the transport of fluids, Subcommittee SC 7, Valves and auxiliary equipment of plastics, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 155, Plastics piping systems and ducting systems, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 16486-4:2016), which has been technically revised.

The main changes compared to the previous edition are as follows:

— the scope highlights that this standard is valid for On/Off valves;

— the scope is showing 16 bar as regional CEN requirement for the limitation of MOP

— in 6.3 and 6.4 the nominal diameter of spigot ends or electrofusion sockets is expanded to dn 400 mm;

— 4.2.4 Greases and lubricants is added;

— 5.2 for non-unplasticized polyamide parts has been rephrased in line with FprEN 1555-4 by also introducing a NOTE for regional requirements

— 5.3.1 General, 5.3.2 Valve body, 6.5 Dimensions of the operating device and 7.1 General are modified;

— a new paragraph 6.3.3 has been introduced for valve terminal ends;

— 6.3.4 Operating device and 6.3.5 Seals have been modified in line with FprEN 1555-4;

— 7.2 Measurement of dimensions modified in line with FprEN 1555-4 with the exception that for PA-U conditioning does not allow to test pieces earlier then 48 h after their manufacture;

— 7.4 Regional Requirement has been added with reference to an extension of B.1.1 for CEN;

— in Table 1 the number of test pieces have been added and the footnote b references to future WD 16486-7

— in Table 1 the condition period has been changed to 16 h;

— in Table 1 the test period has been changed to 1000 h for hydrostatic strength (20 °C, 1 000 h);

— in Table 1 the pressure drop test been deleted, as this is taken up in new clause 8.3.2

— in Table 1 the operating torque for 125 mm < dn ≤ 400 mm has been changed to 10 Nm < M ≤ 150 Nm;

— in Table 1 leak tightness after tensile load is added including a footnote j for limiting the diameter;

— new 5.1.2 fusion compatibility substitutes former 6.4

— a new clause 11 Technical File, has become an individual own paragraph in line with FprEN1555-4;

— subclause 12.1 General, includes a note for regional marking requirements on packaging e.g. with reference to future FprCEN/TS 12007-6 for CEN member countries;

— Table 4 for minimum required marking of valves has been modified in line with FprEN1555-4;

— old subclause12.5 Packaging became clause 13 Delivery conditions, which has been modified and extended;

— Annex A has been updated in line with FprEN 1555-4:2020;

— Annex B has been modified according longitudinal stress parameters in line with DIS ISO 17885:2020 Table F.1;

— Annex B, clause B.2 Test piece has a rephrased definition for the length of test piece.

— Annex B, clause B.4.4 has been added as regional requirement.

A list of all parts in the ISO 16486 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This part 4 of ISO 16486 specifies the requirements for valves used in piping system made from unplasticized polyamide (PA-U), and which is intended to be used for the supply of gaseous fuels.

Part 1 of ISO 16486 specifies the general requirements for a piping system and its components made from unplasticized polyamide (PA-U), and which is intended to be used for the supply of gaseous fuels.

Requirements and test methods for other components of the piping system are specified in ISO 16486-2 and ISO 16486-3.

Characteristics for fitness for purpose of the system and generic welding parameters are covered in ISO 16486-5.

Recommended practice for installation is given in ISO 16486-6. ISO 16486-6 will not be implemented as European Standard under the Vienna Agreement. Recommended practice for installation will be given in future FprCEN/TS 12007-6, *Gas infrastructure - Pipelines for maximum operating pressure up to and including 16 bar - Part 6: Specific functional recommendations for unplasticized polyamide (PA-U)*, that has been prepared by Technical Committee CEN/TC234 *Gas infrastructure*.

Assessment of conformity of the system is to form the subject of WD ISO/TS 16486-7[1].

Plastics piping systems for the supply of gaseous fuels — Unplasticized polyamide (PA-U) piping systems with fusion jointing and mechanical jointing —

Part 4: Valves

1 Scope

This part of ISO 16486 specifies the characteristics of valves made from unplasticized polyamide (PA-U) in accordance with ISO 16486 1, intended to be buried and used for the supply of gaseous fuels.

It is applicable to isolating unidirectional and bi-directional valves with spigot ends or electrofusion sockets intended to be fused with PE pipes or fittings conforming to EN ISO 16486-2 and EN ISO 16486-3 respectively.

Valves made from other material than unplasticized polyamide designed for the supply of gaseous fuels conforming to the relevant standards are permitted to be used in PA-U piping system according to ISO 16486 provided they have relevant PA-U connections for butt fusion or electrofusion ends (see ISO 16486 3). The component, i.e. the complete valve, shall fulfil the requirements of this part of ISO 16486.

It also specifies the test parameters for the test methods referred to in this part of ISO 16486.

In conjunction with Parts 1, 2, 3 and 5 of ISO 16486 EN-1555, it is applicable to PA-U PE valves, their joints and to joints with components of PA-U PE and other materials intended to be used under the following conditions:

a) a maximum operating pressure, MOP, up to and including 18 bar[1] ~~10 bar1,~~ or as regional CEN requirement limited to 16 bar, at a reference temperature of 20 °C for design purposes;

NOTE 1 For the purpose of this document and the references to ISO/DIS 8233, MOP is considered to be nominal pressure.

b) an operating temperature of between -20 °C to 40 °C;

NOTE 2 For operating temperatures between 20 °C and 40 °C, derating coefficients are defined in ISO DIS 16486-5.

ISO 16486 (all parts) covers a range of maximum operating pressures and gives requirements concerning colours.

NOTE 3 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.

It is applicable to bi-directional valves with spigot end or electrofusion socket intended to be jointed with PA-U pipes conforming to ISO 16486-2 without any fittings or with PA-U fittings conforming to ISO 16486 3.

This part of ISO 16486 covers valves for pipes with a nominal outside diameter, dn, ≤400 mm.

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

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 291, *Plastics — Standard atmospheres for conditioning and testing*

ISO 307, *Plastics — Polyamides — Determination of viscosity number*

ISO 1110, *Plastics — Polyamides — Accelerated conditioning of test specimens*

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

ISO 3126, *Plastics piping systems — Plastics components — Determination of dimensions*

ISO 3127, *Thermoplastics pipes — Determination of resistance to external blows — Round-the-clock method*

ISO 8233, *Thermoplastics valves — Torque — Test method*

ISO 9393-1:2004, *Thermoplastics valves for industrial applications — Pressure test methods and requirements — Part 1: General*

ISO 16486-1, *Plastics piping systems for the supply of gaseous fuels — Unplasticized polyamide (PA-U) piping systems with fusion jointing and mechanical jointing — Part 1: General*

ISO 16486-2, *Plastics piping systems for the supply of gaseous fuels — Unplasticized polyamide (PA-U) piping systems with fusion jointing and mechanical jointing — Part 2: Pipes*

ISO 16486-3:2012, *Plastics piping systems for the supply of gaseous fuels — Unplasticized polyamide (PA-U) piping systems with fusion jointing and mechanical jointing — Part 3: Fittings*

ISO 16486-5, *Plastics piping systems for the supply of gaseous fuels — Unplasticized polyamide (PA-U) piping systems with fusion jointing and mechanical jointing — Part 5: Fitness for purpose of the system*

ISO 17778, *Plastics piping systems — Fittings, valves and ancillaries — Determination of gaseous flow rate/pressure drop relationships*

EN 736-1, *Valves Terminology — Part 1: Definition of types of valves*

EN 736-2, *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 1704, *Plastics piping systems — Thermoplastics valves — Test method for the integrity of a valve after temperature cycling under bending*

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

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

EN 12119, *Plastics piping systems — Polyethylene (PE) valves — Test method for resistance to thermal cycling*

