SLOVENSKI STANDARD
SIST EN 14901-1:2014+A1:2020

01-januar-2020

Nadomešča:
SIST EN 14901:2014

Cevi, fitingi in pribor iz duktilne železove litine - Zahteve in preskusne metode za zunanje organske prevleke fitingov in pribora iz duktilne železove litine - 1. del: Epoksidna prevleka (za visoke obremenitve) (vključno z dopolnilom A1)

Ductile iron pipes, fittings and accessories - Requirements and test methods for organic coatings of ductile iron fittings and accessories - Part 1: Epoxy coating (heavy duty)

Rohre, Formstücke und Zubehör aus duktilem Gusseisen - Anforderungen und Prüfverfahren für organische Beschichtungen von Formstücken und Zubehörteilen aus duktilem Gusseisen - Teil 1: Epoxidharzbeschichtung (für erhöhte Beanspruchung)

Tuyaux, raccords et accessoires en fonte ductile - Prescriptions et méthodes d'essai pour les revêtements organiques des raccords et accessoires en fonte ductile - Partie 1 : Revêtement époxy (renforcé)

Ta slovenski standard je istoveten z: **EN 14901-1:2014+A1:2019**

ICS:

23.040.10	Železne in jeklene cevi	Iron and steel pipes
23.040.40	Kovinski fitingi	Metal fittings
25.220.60	Organske prevleke	Organic coatings

SIST EN 14901-1:2014+A1:2020 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14901-1:2014+A1

November 2019

ICS 23.040.10; 23.040.40; 25.220.60

Supersedes EN 14901:2014

English Version

Ductile iron pipes, fittings and accessories - Requirements and test methods for organic coatings of ductile iron fittings and accessories - Part 1: Epoxy coating (heavy duty)

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

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Ref. No. EN 14901-1:2014+A1:2019 E

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European foreword

This document (EN 14901-1:2014+A1:2019) has been prepared by Technical Committee CEN/TC 203 “Cast iron pipes, fittings and their joints”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by May 2020 and conflicting national standards shall be withdrawn at the latest by May 2020.

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

This document includes Amendment 1 approved by CEN on 16 September 2019.

This document supersedes ▌A1⟩ EN 14901:2014 ⟨A1▌.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ▌A1⟩ ⟨A1▌.

In comparison with EN 14901:2006, the following changes have been made:

— correction of several typing errors, wrong units etc.;

— actualized dates of referenced standards;

— clearer description of the coating thickness test method (7.1.5);

— attribution of performance requirements “chemical resistance” and “abrasion resistance” to coatings in sewer applications (Lines 8 and 9 of Table A.1);

— actualization of the requirement “fitness for contact with potable water” according to the present status (line 10 of Table A.1);

— correction of overlapping nominal sizes at DN grouping (Table A.3).

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This European Standard is in conformity with the general requirements already established by CEN/TC 164 in the field of water supply (e.g. potable water), CEN/TC 165 in the field of wastewater and CEN/TC 234 in the field of gas distribution.

In respect of potential adverse effects on the quality of water intended for human consumption caused by the product covered by this European Standard:

1) this standard provides no information as to whether the product may be used without restriction in any of the member states of the EU or EFTA;

2) it should be noted that, while awaiting the adoption of verifiable European criteria, existing national regulations concerning the use and/or the characteristics of this product remain in force.

1 Scope

This European Standard defines the requirements and test methods for factory applied epoxy coatings (fusion bonded powder or liquid two-pack) used for the corrosion protection of ductile iron fittings and accessories conforming to EN 545, EN 598, EN 969, EN 12842, EN 14525, for:

— conveying water (e.g. potable water) at operating temperature up to 50 °C excluding frost; or

— conveying waste water at operating temperature up to 45 °C excluding frost; or

— conveying gas at operating temperature up to 50 °C;

— suitable for external environments, i.e. soils, waters and atmospheres of all common corrosion loads, characterized in EN 545:2010, D.2.3.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 545:2010, *Ductile iron pipes, fittings, accessories and their joints for water pipelines - Requirements and test methods*

EN 598, *Ductile iron pipes, fittings, accessories and their joints for sewerage applications - Requirements and test methods*

EN 805, *Water supply - Requirements for systems and components outside buildings*

EN 969, *Ductile iron pipes, fittings, accessories and their joints for gas pipelines - Requirements and test methods*

EN 12842, *Ductile iron fittings for PVC-U or PE piping systems - Requirements and test methods*

EN 14525, *Ductile iron wide tolerance couplings and flange adaptors for use with pipes of different materials: ductile iron, Grey iron, Steel, PVC-U PE, Fibre-cement*

EN ISO 4624, *Paints and varnishes - Pull-off test for adhesion (ISO 4624)*

EN ISO 8501-1, *Preparation of steel substrates before application of paints and related products - Visual assessment of surface cleanliness - Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings (ISO 8501-1)*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at https://www.iso.org/obp

- IEC Electropedia: available at http://www.electropedia.org/

3.1
accessory
〚A1〛 any casting other than a pipe or fitting which is used in a water pipeline

Note 1 to entry: Examples for accessory are:

— valves;

— inspection chambers;

— manholes;

— glands for mechanical flexible joints;

— glands and locking rings for restrained flexible joints;

— pipe saddles for house connection;

— adjustable flanges". 〚/A1〛

3.2
adhesion
force per unit area, applied perpendicular to the surface, which is necessary to separate the coating from its substrate

3.3
cross linkage
chemical reaction between epoxy resin and hardener to form the final coating

3.4
ductile iron
cast iron used for pipes, fittings and accessories in which graphite is present substantially in spheroidal form

3.5
fitting
casting other than a pipe or accessory which allows pipeline deviation, change of direction or bore

Note 1 to entry: Flanged-socket pieces, flanged spigot pieces and collars are also classified as fittings.

3.6
impact strength
impact energy which a coating can withstand without damage under specific test conditions

3.7
indentation resistance
resistance of the coating to the penetration of a punch under defined test conditions

3.8
non porosity
absence of electrical puncture in a high voltage test under defined test conditions

3.9
epoxy coating
factory applied coating with pure epoxy as a binder such as:

— fusion bonded epoxy powder (P) applied by (electrostatic) spraying or dipping in fluidized bed on preheated parts;

— two-pack liquid epoxy (L) consisting of a base and a catalyst component which is mixed together in the proportion specified by the manufacturer before use

3.10
chalking
superficial reaction of epoxy coatings influenced by UV-radiation

Note 1 to entry: The process is stopped by the reaction products at a depth of 2 µm to 5 µm, combined with a loss of brilliance. There are no adverse influences on the protection properties.

3.11
performance test
test which is done once and is repeated only after change of coating material supplier, coating material or relevant change in process application

3.12
routine test
test carried out to control the manufacturing process with a frequency defined by the manufacturer of the coated ductile iron component

3.13
designated zones
areas of a casting where because of jointing tolerance restrictions, testing difficulties, or shrouding by a gasket, etc. a lower standard of coating performance is unavoidable

Note 1 to entry: For the purpose of this standard, these areas are defined as:

— joint areas;

— bolt holes;

— permitted markings;

— ribs;

— edges.

Note 2 to entry: Where considered necessary, these zones may be protected by appropriate additional corrosion protection measures during or after installation. However, such measures are not part of this standard.

3.14
average thickness
arithmetic mean of all thickness measurements taken on one coated item

3.15
localized thickness
measured thickness at any one point of one coated item

4 Ordering information

The following information shall be supplied to the manufacturer by the purchaser:

Ductile iron fittings and accessories according to EN 545, EN 598, EN 969, EN 12842 or EN 14525 but coated in accordance with this European Standard shall be specified in the purchasers enquiry and order by reference to this standard:

EXAMPLE 10 pieces of ductile iron fitting DN 300 according to EN 545 with external and internal coating according to ⟨A1⟩ EN 14901-1 ⟨A1⟩.

The purchaser shall stipulate the scope of application.

5 Technical Requirements

5.1 General

The following is applicable:

5.2 Surface preparation

Prior to the coating process, the surface to be coated shall be substantially clean and free of oil, grease and moisture. The surface to be coated shall comply at least with the level Sa 2 ½ of EN ISO 8501-1 (see 7.1.2). Blasted fittings and accessories shall only be handled with appropriate tools to prevent surface contamination.

5.3 Appearance and continuity

The epoxy coating of the final product shall be of:

— uniform colour, except for permitted marking;

— uniform appearance and smoothness, except for admissible repairs;

— free of visible defects (pinholes, bubbles, blisters, wrinkles, cracks or voids).

Slight superficial colour variations due to repairs or prolonged exposure to sunlight (chalking) are permissible (see 7.1.3).

Repairs are permitted (see 5.7).

As binder only pure epoxy is allowed.

5.4 Adhesion

Adhesion shall be tested in accordance with the test method described in 7.1.4 on production samples (⟨A1⟩ fittings, accessories or test plates ⟨A1⟩).

The epoxy coating adhesion shall achieve an average value of at least 8 MPa and a minimum single value of 6 MPa.

In case of multilayer systems no adhesive failure between the layers is permitted.

5.5 Coating thickness

When measured in accordance with the method defined in 7.1.5, except on designated zones, the localized minimum thickness shall be greater than 200 µm and the minimum average thickness shall be equal to or greater than 250 µm. For designated zones (see 3.13), localized minimum thickness of 150 µm is permissible.