
Litoželezne cevi, oblikovni kosi in pribor – Epoksidni premaz (za visoke obremenitve) litoželeznih oblikovnih kosov in pribora – Zahteve in preskusne metode

Ductile iron pipes, fittings and accessories - Epoxy coating (heavy duty) of ductile iron fittings and accessories - Requirements and test methods

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

Tuyaux, raccords et accessoires en fonte ductile - Revêtement époxy (renforcé) des raccords et accessoires en fonte ductile - Prescriptions et méthodes d'essai

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English Version

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This European Standard was approved by CEN on 20 April 2006.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN 14901:2006) 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of an identical text or by endorsement, at the latest by November 2006, and conflicting national standards shall be withdrawn at the latest by November 2006.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, 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.

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Introduction

This 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 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.

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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, characterised in annex D3 of EN 545:2002.

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 545:2002, *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 application – 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 4624:2002).*

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 8501-1:1988).*

3 Terms and definitions

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

3.1

accessory

any casting other than a pipe or fitting which is used in a pipeline:

- inspection chambers;
- manholes;

- glands for mechanical flexible joints;
- glands and locking rings for restrained flexible joints;
- pipe saddles for house connection;
- adjustable flanges.

NOTE Valves of all types are not covered by the term accessory.

**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. In addition 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 fluidised 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;
- as binder only pure epoxy is allowed.

**3.10
chalking**

superficial reaction of epoxy coatings influenced by UV-radiation. The process is stopped by the reaction products at a depth of 2 – 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. For the purpose of this standard these areas are defined as:

- joint areas;
- bolt holes;
- permitted markings;
- ribs;
- edges.

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NOTE 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

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3.15**localised 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 EN 14901.

The purchaser shall stipulate the scope of application.

5 Technical Requirements

5.1 General

The following is applicable: