
Cevi, fittingi in pribor iz duktilne železove litine - Zunanje prevleke cevi iz cementne malte - Zahteve in preskusne metode

Ductile iron pipes, fittings and accessories - External cement mortar coating for pipes - Requirements and test methods

Rohre, Formstücke und Zubehör aus duktilem Gusseisen - Zementmörtelumhüllung von Rohren - Anforderungen und Prüfverfahren

Tuyaux, raccords et accessoires en fonte ductile - Revêtement extérieur en mortier de ciment pour tuyaux - Prescriptions et méthodes d'essais

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Ta slovenski standard je istoveten z: prEN 15542

ICS:

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23.040.40	Kovinski fittingi	Metal fittings

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EUROPEAN STANDARD
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DRAFT
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English Version

**Ductile iron pipes, fittings and accessories - External
cement mortar coating for pipes - Requirements and test
methods**

Tuyaux, raccords et accessoires en fonte ductile -
Revêtement extérieur en mortier de ciment pour
tuyaux - Prescriptions et méthodes d'essais

Rohre, Formstücke und Zubehör aus duktilem
Gusseisen - Zementmörtelumhüllung von Rohren -
Anforderungen und Prüfverfahren

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 203.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (prEN 15542:2021) has been prepared by Technical Committee CEN/TC 203 “Cast iron pipes, fittings and their joints”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 15542:2008.

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Introduction

This document is in conformity with the general requirements already established by CEN/TC 164 in the field of water supply (e.g. potable water) and CEN/TC 165 in the field of waste water.

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

- a) this document provides no information as to whether the product may be used without restriction in any of the member states of the EU or EFTA;
- b) 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 document defines the requirements and test methods applicable to factory applied cement mortar coatings for the external corrosion protection of ductile iron pipes conforming to EN 545, EN 598 and EN 969 for use at operating temperatures up to 50 °C.

NOTE Coatings according to this document are suitable for soils of all common corrosion loads and trenchless applications.

Special activities on site such as joint protection, tapping, clamping, etc. could affect the corrosion protection properties of the cement mortar coating. These operations should be covered in the laying instructions supplied by the manufacturers of pipes, clamps, house connection saddles, etc. and any relevant users' procedures. Such instructions are not part of this document.

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 197-1, *Cement - Part 1: Composition, specifications and conformity criteria for common cements*

EN 197-2, *Cement - Part 2: Assessment and verification of constancy of performance*

EN 545, *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 969, *Ductile iron pipes, fittings, accessories and their joints for gas pipelines - Requirements and test methods*

EN 13055, *Lightweight aggregates*

EN 14020-1, *Reinforcements - Specification for textile glass rovings - Part 1: Designation*

EN 14020-2, *Reinforcements - Specification for textile glass rovings - Part 2: Methods of test and general requirements*

EN ISO 527-1, *Plastics - Determination of tensile properties - Part 1: General principles (ISO 527-1)*

EN ISO 527-2, *Plastics - Determination of tensile properties - Part 2: Test conditions for moulding and extrusion plastics (ISO 527-2)*

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

ISO 695, *Glass - Resistance to attack by a boiling aqueous solution of mixed alkali - Method of test and classification*

ISO 719, *Glass - Hydrolytic resistance of glass grains at 98 °C - Method of test and classification*

ISO 2591-1, *Test sieving - Part 1: Methods using test sieves of woven wire cloth and perforated metal plate*

3 Terms and definitions

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

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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 <https://www.electropedia.org/>

3.1**ductile iron**

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

3.2**cement mortar coating**

external multi-layer coating system for ductile iron pipes, principally consisting of at least the two following layers:

- zinc or zinc alloy coating
- cement mortar layer

Note 1 to entry: Polymer additive, primer, pigments, surface tissue, finishing layer on zinc or zinc alloy coating depending on the application method used by the different manufacturers.

3.3**zinc or zinc alloy coating**

coating intended to protect the ductile iron and applied to the pipe by means of a thermal spraying process

3.4**primer**

resin which serves as adhesive to the cement mortar layer

3.5**cement mortar layer**

cement mortar system reinforced with or without fibres

Note 1 to entry: It can be polymer modified and/or pigmented and can be covered with a layer of surface tissue.

3.6**fibres**

inert reinforcement, which is added to the cement mortar layer

EXAMPLE Alkali resistant glass fibres, special electrical grade glass fibres (E-type glass), polymeric fibres.

3.7**pigments**

material added to the fresh cement mortar in order to identify the medium to be transported

3.8**polymer additive**

organic material added to the fresh cement mortar in order to improve the workability and to reduce the water/cement ratio and to improve the performance of the cement mortar layer

3.10**surface tissue**

polymeric tissue in form of strip with a net-like structure, which is applied to the cement mortar layer

3.11**finishing layer**

layer of synthetic resin compatible with zinc or zinc alloy

Note 1 to entry: The cement mortar coating layer can be applied on pipes with finishing layer.

3.12**minimum coating thickness**

lower limit specified for the cement mortar coating thickness

3.13**impact strength**

impact energy which a coating can withstand without damage under defined test conditions

3.14**adhesion**

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

3.15**performance test**

test which is done once and is repeated according to a schedule or after relevant change of raw material supplier or relevant change in process application

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3.16**routine test**

test carried out to control the manufacturing process with a frequency defined by the manufacturer

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4 Ordering information

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

Ductile iron pipes according to EN 545, EN 598 or EN 969, but coated with cement mortar coating by reference to this document.

EXAMPLE 5 000 m of ductile iron pipe DN 300 according to EN 545; external cement mortar coating according to EN 15542.

5 Technical requirements**5.1 Zinc or zinc alloy coating**

The zinc or zinc alloy coating shall comply with the requirements specified in EN 545, EN 598 or EN 969. The zinc or zinc alloy coating shall be dry and free from dirt, oil and grease.

5.2 Fresh cement mortar layer thickness

The nominal thickness of the fresh cement mortar layer shall be 5 mm with individual minimum values of 3 mm when measured according to 7.1.2.

5.3 Pipe ends

The spigot shall be not covered by the cement mortar coating over a free length “a” (see Figure 1).

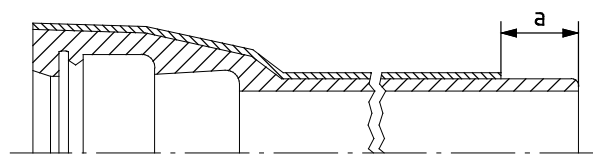
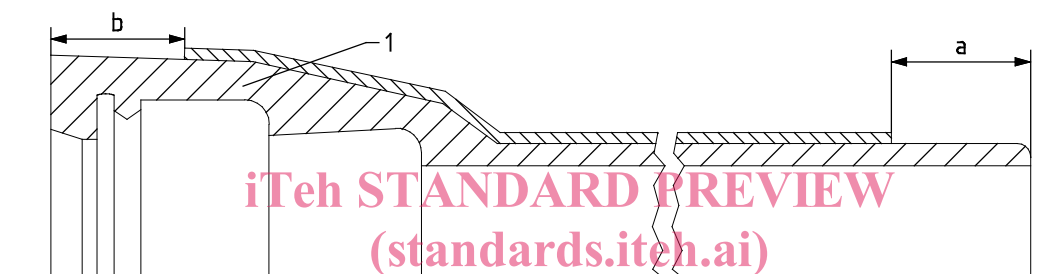


Figure 1 — spigot end

The uncoated spigot end length “a” depends on the type of joint. It is the responsibility of the manufacturer to define the appropriate uncoated length for each type of joint.

Depending on the manufacturing process, it may be necessary that an area on the socket bell is not coated with cement mortar. The front end of the socket bell may be uncoated free on a length “b” (see Figure 2). The length “b” shall not be more than 40 mm.



Key

- 1 push in socket

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Figure 2 — Socket bell

The surfaces of which are not covered with cement mortar (spigot, front end of socket and internal section of socket) shall be coated with a finishing layer according to EN 545 or EN 598 or EN 969. Where such coatings are in contact with water intended for human consumption, these shall comply with the relevant requirements stated in the introduction of this document.

NOTE The pipe areas not covered by cement mortar will be protected after laying using appropriate measures, e.g. rubber sleeves or heat shrinkable sleeves, which are covered by the manufacturers laying instructions and are not within the scope of this document.

5.4 Appearance of cured cement mortar coating

The cement mortar coating shall adhere to the pipe surface and shall be free of hollow areas. The cured coating shall not exhibit any chipping nor any loose particles. Protruding grains and fibres, as well as hairline cracks, are permitted. Appearance shall be inspected according to 7.1.4.

5.5 Thickness of cured cement mortar coating

When measured by the method indicated in 7.1.5, the nominal thickness of the cement mortar coating shall be 5 mm with individual minimum values of 3 mm.