SLOVENSKI STANDARD
SIST EN 15655-1:2019

01-marec-2019

Nadomešča:
SIST EN 15655:2009

Cevi, fitingi in pribor iz duktilne železove litine - Zahteve in preskusne metode za notranje organske prevleke cevi in fitingov iz duktilne železove litine - 1. del: Poliuretanska prevleka cevi in fitingov

Ductile iron pipes, fittings and accessories - Requirements and test methods for organic linings of ductile iron pipes and fittings - Part 1: Polyurethane lining of pipes and fittings

Rohre, Formstücke und Zubehörteile aus duktilem Gusseisen - Anforderungen und Prüfverfahren für organische Auskleidungen von Rohren und Formstücken aus duktilem Gusseisen - Teil 1: Polyurethan-Auskleidung von Rohren und Formstücken

Tuyaux, raccords et accessoires en fonte ductile - Exigences et méthodes d'essais relatives aux revêtements organiques des tuyaux et raccords en fonte ductile - Partie 1 : Revêtement en polyuréthane des tuyaux et raccords

Ta slovenski standard je istoveten z: **EN 15655-1:2018**

ICS:

23.040.10	Železne in jeklene cevi	Iron and steel pipes
23.040.40	Kovinski fitingi	Metal fittings

SIST EN 15655-1:2019 **en,fr,de**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 15655-1

December 2018

ICS 23.040.10; 23.040.40

Supersedes EN 15655:2009

English Version

Ductile iron pipes, fittings and accessories - Requirements and test methods for organic linings of ductile iron pipes and fittings - Part 1: Polyurethane lining of pipes and fittings

Tuyaux, raccords et accessoires en fonte ductile - Prescriptions et méthodes d'essai relatives aux revêtements organiques des tuyaux et raccords en fonte ductile - Partie 1 : Revêtement en polyuréthane des tuyaux et raccords

Rohre, Formstücke und Zubehörteile aus duktilem Gusseisen - Polyurethan-Auskleidung von Rohren und Formstücken - Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 9 November 2018.

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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-CENELEC 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

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Ref. No. EN 15655-1:2018 E

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European foreword

This document (EN 15655-1:2018) 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 June 2019, and conflicting national standards shall be withdrawn at the latest by June 2019.

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 supersedes EN 15655:2009.

The main changes to EN 15655:2009 are:

a) EN 15655 has been split into two parts. This part covers polyurethane lining of pipes and fittings;

b) in Clause 3 the definition of “minimum lining thickness” has been revised (3.5);

c) in 5.1 the values for the surface roughness have been changed;

d) in 5.1 the surface temperature to be maintained above the dew point has been changed;

e) in 5.2.2 Tables 1 and 2 for the minimum lining thickness have been revised;

f) in 5.6 the technical requirements for the non-porosity have been revised;

g) in 5.7 the requirement for the hardness 70 Shore D has been deleted;

h) in 6.5 the ambient temperature has been increased;

i) in 6.7 a reference to the CEN/TR 16950 “Ductile iron pipes, fittings and accessories — Sanitary characteristics and test methods” was added in a NOTE;

j) in 7.1.8 the requirements for testing of non-porosity has been revised;

k) in Table A.2 the requirements for the routine test of non-porosity (No.1) have been revised;

l) the requirements for photoaging have been deleted;

m) addition to informative annex that the manufacturer should provide infrared scans.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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) 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 standard:

a) No information is provided 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.

1 Scope

This document defines the requirements and test methods applicable to factory applied internal polyurethane heavy duty corrosion protection of ductile iron pipes and fittings conforming to EN 545, EN 598 and EN 969.

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

EN 598:2007+A1:2009, *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 14901, *Ductile iron pipes, fittings and accessories - Epoxy coating (heavy duty) of ductile iron fittings and accessories - Requirements and test methods*

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

EN ISO 62:2008, *Plastics — Determination of water absorption (ISO 62:2008)*

EN ISO 527-3, *Plastics — Determination of tensile properties – Part 3: Test conditions for films and sheets (ISO 527-3)*

EN ISO 868, *Plastics and ebonite — Determination of indentation hardness by means of a durometer (Shore hardness) (ISO 868)*

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)*

EN ISO 8503-1, *Preparation of steel substrates before application of paints and related products — Surface roughness characteristics of blast-cleaned steel substrates — Part 1: Specifications and definitions for ISO surface profile comparators for the assessment of abrasive blast-cleaned surfaces (ISO 8503-1)*

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:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
ductile iron
cast iron used for pipes, fittings and accessories in which graphite is present substantially in spheroidal form

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

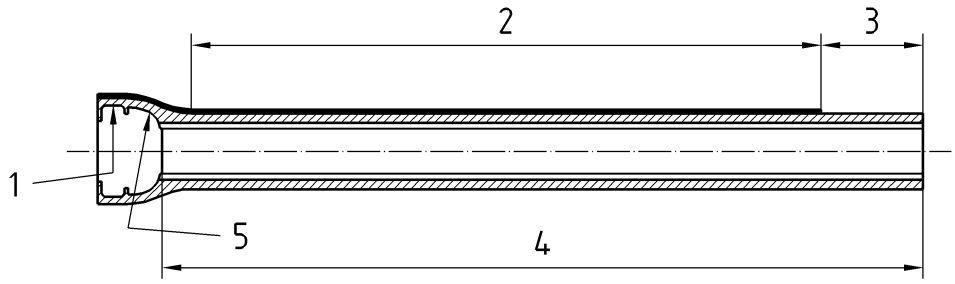
3.3
indirect impact strength
impact energy applied from outside of the pipe with deformation to which a lining can withstand without damage under defined test conditions

3.4
hardness
resistance of the lining to the penetration of a ball under defined test conditions

3.5
minimum lining thickness
minimum value of the lining thickness measured at the lined item

3.6
non-porosity
absence of holidays in a high voltage test under defined test conditions

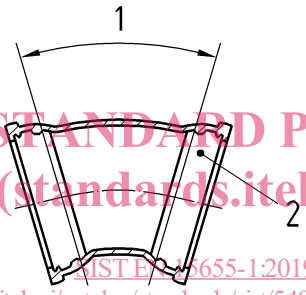
3.7
polyurethane lining
factory applied lining which consists of polyurethane on the inside of the pipe or fitting



Key

1 gasket seat
2 pipe barrel
3 spigot end
4 lining
5 internal socket profile

Figure 1 — Location of the defined pipe areas



Key

1 lining

2 internal socket profile

Figure 2 — Location of the defined fitting areas

3.8
protection of pipe ends
factory applied coating/lining of PU or Epoxy on ends of pipes or fittings

3.9
specific lining resistance
surface related electric resistance of the lining perpendicular to the pipe wall

3.10
performance test
test which is done once and is repeated according to a schedule or after relevant change of lining material and/or material supplier or change in process application

3.11
routine test
test carried out to control the manufacturing process with a frequency defined by the manufacturer

3.12
Polyurethane (PU)
Polyurethane, Polyurea and their mixtures

4 Ordering information

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

Ductile iron pipes or fittings according to EN 545, EN 598 or EN 969 but internally coated in accordance with this European Standard shall be specified in the purchaser's enquiry and order by reference to this standard, e.g.

— 5 000 m of ductile iron pipe DN 300 according to EN 545, internal PU-lining according to EN 15655; or

— 10 pieces of ductile iron fittings DN 300 according to EN 598, internal PU-lining according to EN 15655;

— further information about use and handling, if needed.

5 Technical requirements

5.1 Surface preparation

Prior to application of the polyurethane lining, the surface of the pipes or fittings to be lined shall be clean, free of rust, loose constituent materials, dirt, oil, grease and moisture.

In cold weather, or anytime when moisture tends to condense on the surface of the pipe or fitting, it shall be uniformly warmed for sufficient time to dry prior to cleaning. The surface temperature shall be maintained at least 3 °C above the dew point.

The surface shall be prepared by grinding and grit blasting for pipes and grit blasting for fittings and be in compliance with level SA 2.5 of ISO 8501-1 when checked according to 7.1.2. The surface roughness R_a in accordance with ISO 8503-1 shall be at least 12,5 µm which is equivalent to an anchored profile R_z of 63 µm or higher if required by the lining material provider or manufacturer.

The cleanliness of the surface shall be tested according to EN ISO 8502-3.

5.2 Finished polyurethane lining

5.2.1 Appearance and continuity

The polyurethane lining shall be of:

— uniform colour, except the spigot end and the internal socket profile which may be of a different colour and different coating material;

— uniform appearance and smoothness except for admissible repairs;

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

Slight superficial variations of colour or brilliance due to repairs or prolonged exposure to sunlight or contact with other pipes are permissible.

5.2.2 Minimum lining thickness

When measured in accordance with 7.1.4, the lining thickness shall be as indicated in Table 1 for water application and in Table 2 for waste water application.