SLOVENSKI STANDARD
SIST EN 14628-1:2020

01-september-2020

Nadomešča:
SIST EN 14628:2006

Cevi, fitingi in pribor iz duktilne železove litine - Zahteve in preskusne metode - 1. del: Polietilenska (PE) zunanja prevleka

Ductile iron pipes, fittings and accessories - Requirements and test methods - Part 1: PE coatings

Rohre, Formstücke und Zubehörteile aus duktilem Gusseisen - Anforderungen und Prüfverfahren - Teil 1: Polyethylenumhüllung von Rohren

Tuyaux, raccords et accessoires en fonte ductile - Prescriptions et méthodes d'essai - Partie 1 : Revêtements en PE

Ta slovenski standard je istoveten z: **EN 14628-1:2020**

ICS:

23.040.10	Železne in jeklene cevi	Iron and steel pipes
23.040.40	Kovinski fitingi	Metal fittings
25.220.01	Površinska obdelava in prevleke na splošno	Surface treatment and coating in general

SIST EN 14628-1:2020 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14628-1

July 2020

ICS 23.040.10; 23.040.40

Supersedes EN 14628:2005

English Version

Ductile iron pipes, fittings and accessories - Requirements and test methods - Part 1: PE coatings

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This European Standard was approved by CEN on 9 April 2020.

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

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Contents

Page

European foreword

This document (EN 14628-1:2020) 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of an identical text or by endorsement, at the latest by January 2021, and conflicting national standards shall be withdrawn at the latest by January 2021.

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 14628:2005.

In comparison with the previous edition, the following technical modifications have been made:

a) EN 14628 has been split into two parts. This part covers factory applied extruded polyethylene coatings for the external corrosion protection of ductile iron pipes.

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 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 can be used without restriction in any of the member states of the EU or EFTA;

b) it is also 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 specifies the requirements and test methods applicable to factory applied extruded polyethylene coatings for the external corrosion protection of ductile iron pipes according to EN 545, EN 598 and EN 969 for use at operating temperatures up to 50 °C.

This document is not applicable to ductile iron pipes protected with thin PE sleeve. Special works at site like drilling, tapping, etc. can influence the corrosion protection properties. Those job steps are intended to be included in the instructions of pipe saddle and accessory manufacturers and all other essential installation instructions. These 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 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 application - Requirements and test methods*

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

EN 1238, *Adhesives - Determination of the softening point of thermoplastic adhesives (ring and ball)*

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 1133-1, *Plastics - Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics - Part 1: Standard method (ISO 1133-1)*

EN ISO 3681, *Binders for paints and varnishes - Determination of saponification value - Titrimetric method (ISO 3681)*

EN ISO 4892-2, *Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps (ISO 4892-2)*

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 https://www.iso.org/obp/ui

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

3.2
elongation at break
relative change in length of the specimen of the polyethylene material when it breaks in a tensile test

3.3
heat ageing
artificial ageing of the polyethylene under the effects of hot air at a given temperature and over a given period

3.4
impact strength
impact energy which a coating can withstand without damage under defined test conditions

3.5
indentation resistance
resistance of the coating to the penetration of a punch under defined test conditions

3.6
light ageing
artificial ageing of the polyethylene under the effects of xenon arc radiation at an elevated temperature and at a given level of atmospheric humidity using a xenon test apparatus

3.7
minimum coating thickness
lower limit specified for the polyethylene coating thickness

3.8
non-porosity
absence of holidays in a high voltage test under defined test conditions

3.9
peeling resistance
force required to peel off a strip of polyethylene coating over a defined peeling path under defined test conditions

3.10
polyethylene coating
coating which generally consists of two factory applied layers:

— an adhesive layer applied by extrusion or by hot spraying; and

— an extruded polyethylene compound outer layer applied either by the tubular extrusion method (cross head extrusion) or by the flat die wrapping extrusion method.

3.11
specific coating resistance
surface related electric resistance of the coating perpendicular to the pipe wall

3.12
performance test
test which is done once and is repeated only after change of polymer supplier, polymer material or relevant change in process application

3.13
routine test
test carried out to control the manufacturing process with a frequency defined by the manufacturer

3.14
reground material
material that has been used in the coating process at least once before subsequently ground or chopped

4 Ordering information

4.1 General

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

4.2 Mandatory

Ductile iron pipes according to EN 545, EN 598 or EN 969, but coated in accordance with this document shall be specified in the purchaser's enquiry and order by reference to this document:

EXAMPLE 5 000 m of ductile iron pipe DN 300 according to EN 545;

external polyethylene coating according to EN 14628-1.

4.3 Options to be indicated by the purchaser

One of the following options shall be specified by the purchaser:

a) standard thickness, pipe not zinc-coated: PE-A;

b) reinforced thickness, pipe not zinc-coated: PE-B;

c) standard thickness, pipe zinc-coated: PE-C;

d) reinforced thickness, pipe zinc-coated: PE-D;

e) standard thickness, pipe zinc-alloy coated: PE-E;

f) reinforced thickness, pipe zinc-alloy coated: PE-F;

g) standard thickness, pipe zinc-alloy coated with finishing layer: PE-G;

h) reinforced thickness, pipe zinc-alloy coated with finishing layer: PE-H;

In case that no option is stipulated, option a) shall apply.

5 Technical requirements

5.1 Surface condition

The polyethylene coating shall be applied to the works' standard oxide skin surface, zinc or zinc-alloy coated surface of ductile iron pipes, with or without finishing layer. Immediately prior to application the surface of the pipes shall be substantially free of rust (individual incipient rust spots are permissible), loose constituent materials, dirt, oil, grease and moisture.

5.2 Material properties

5.2.1 Polyethylene

Only the use of virgin material or reground material up to 10 % is permitted. Reground material shall comply with the technical requirements given in Clause 5 of this document.

5.2.2 Adhesive

The adhesive consists generally of a blend of rubber and high molecular weight resins and its physical properties shall conform to the values specified in Table 1.

Table 1 — Adhesive physical properties

Property	Standard	Requirements
Softening point	EN 1238	> 70 °C
Saponification value	EN ISO 3681	< 3 mg KOH/g

5.3 Finished polyethylene coating

5.3.1 Appearance and continuity

The polyethylene coating shall be of:

— uniform colour, except for permitted marking;

— uniform appearance and smoothness, except admissible repairs.

5.3.2 Minimum coating thickness

The minimum coating thickness shall comply with the values given in Table 2 for the standard thickness or for the reinforced thickness (see 4.3).