SLOVENSKI STANDARD
SIST EN 10244-3:2002

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Jeklena žica in žični izdelki - Neželezne kovinske prevleke na jekleni žici - 3. del: Aluminijeve prevleke

Steel wire and wire products -Non-ferrous metallic coatings on steel wire - Part 3: Aluminium coatings

Stahldraht und Drahterzeugnisse - Überzüge aus Nichteisenmetall auf Stahldraht - Teil 3: Überzüge aus Aluminium

Fils et produits tréfilés en acier - Revetements métalliques non ferreux sur fils d'acier - Partie 3: Revetements d'aluminium

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ICS:

25.220.40	Kovinske prevleke	Metallic coatings
77.140.65	Jeklene žice, jeklene vrvi in verige	Steel wire, wire ropes and link chains

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EUROPEAN STANDARD

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English version

Steel wire and wire products - Non-ferrous metallic coatings on steel wire - Part 3: Aluminium coatings

Fils et produits tréfilés en acier - Revêtements métalliques non ferreux sur fils d'acier - Partie 3: Revêtements d'aluminium

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This European Standard was approved by CEN on 21 January 2001.

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 Management Centre 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 Management Centre has the same status as the official versions.

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Contents

Foreword

This European Standard has been prepared by Technical Committee ECISS/TC 30 "Steel wires", the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by September 2001, and conflicting national standards shall be withdrawn at the latest by September 2001.

This European Standard for non-ferrous metallic coating on steel wire is made up of the following parts:

Part 1 : General principles

Part 2 : Zinc and zinc alloy coatings

Part 3 : Aluminium coatings

Part 4 : Tin coatings

Part 5 : Nickel coatings

Part 6 : Copper, bronze and brass coatings

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This part of this European standard specifies the requirements for the mass other properties and testing of aluminium coatings on steel wire and steel wire products of circular or other cross-section.

2 Normative reference

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 10244-1*, Steel wire and wire products — Non-ferrous metallic coatings on steel wire — Part 1: General principles*

ASTM A428, *Test method for determining the mass of aluminium coating on steel products*

3 Terms and definitions

For the purposes of this European standard the following terms and definitions apply.

3.1
wire with aluminium coating
wire to which an aluminium coating has been applied primarily to protect it against corrosion and/or to improve its electrical conductivity. The coating is generally applied by passing the wires individually through a bath of molten aluminium, by extrusion or by cladding

3.2
mass of coating
the mass of aluminium per unit area is expressed in grams per square meter of stripped wire surface. In the case of thick coatings, the quantity of aluminium on the wire may also be expressed by the radial thickness

4 Requirements relating to coating

4.1 Material

The ingot of unrefined aluminium used for the coating shall consist of aluminium with less than following impurities.

Copper (Cu)	0,10 % max. in mass %
iron (Fe)	0,50 % max. in mass %

4.2 Coating mass

The minimum mass of aluminium per unit surface area shall comply with the requirements of Table 1.

The product standard relating to wire products with an aluminium coating may specify different requirements for minimum mass.

4.3 Appearance of coating

The aluminium coated wire shall be free of slivers, scale and other imperfections not consistent with good commercial practice. The coating on the wire shall be continuous, reasonably smooth and as evenly distributed as practicable.

4.4 Adherence of the coating

The aluminium wire shall be tested in accordance with EN 10244-1. The mandrel for the wrapping test shall have a diameter equal to three times the nominal diameter of the wire tested.

4.5 Special finishes

If the customer requires a special finish it shall be specified at the time of enquiry and order. Similarly if drawing after coating with aluminium is requested it shall be specified at the time of enquiry and order.

5 Tests conditions

5.1 Samples

5.1.1 General

See the General requirements in EN 10244-1.

5.1.2 Length of samples

The length of the samples shall be sufficient to allow the various tests to be carried out.

5.2 Determination of mass of coating

The mass of the coating shall be determined using the gravimetric method as indicated in EN 10244-1.

The stripping solution, sampling and other procedures shall be in accordance with ASTM A428. The calculation of the coatings mass is based on the difference in weight in grammes of a test specimen before and after stripping.

if Δm = difference in weight by stripping in grammes

m_2 = the weight in grammes of the stripped test sample

d = the diameter of the (round) wire in mm;

m_A = the mass of coating in g/m^2

$$m_A = 1962 \times d \times \frac{\Delta m}{m_2}$$

Table 1 — Requirements for the mass of aluminium coating

Diameter of wire (mm) *d*	Coating mass	
	Class A[a] min. (g/m^2)	Class CE[b] thickness (mm)
$1,2 \leq d < 1,5$	70	min.
$1,5 \leq d < 2,0$	80	10%
$2,0 \leq d < 2,3$	95	of nominal
$2,3 \leq d < 2,7$	100	radius
$2,7 \leq d < 3,7$	110	of
$3,7 \leq d \leq 6,0$	125	wire

[a] Class A normally made by hot dip coating.

[b] Class CE normally used for electrical conductors and normally made by cladding.