



SLOVENSKI STANDARD

SIST EN 1403:1999

01-oktober-1999

Antikorozijska zaščita kovin - Galvanske prevleke - Metoda za določanje splošnih zahtev

Corrosion protection of metals - Electrodeposited coatings - Method of specifying general requirements

Korrosionsschutz von Metallen - Galvanische Überzüge - Verfahren für die Spezifizierung allgemeiner Anforderungen

Protection contre la corrosion des métaux - Revêtements électrolytiques - Méthode de spécification des prescriptions générales

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Ta slovenski standard je istoveten z: EN 1403:1998

ICS:

25.220.40 Kovinske prevleke Metallic coatings

SIST EN 1403:1999 **en**

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EUROPEAN STANDARD

EN 1403

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 1998

ICS 25.220.40

Descriptors: corrosion prevention, metals, coatings, electrodeposition, classifications, codes, heat treatment, thickness, specifications

English version

Corrosion protection of metals - Electrodeposited coatings - Method of specifying general requirements

Protection contre la corrosion des métaux - Revêtements
électrolytiques - Méthode de spécification des prescriptions
générales

Korrosionsschutz von Metallen - Galvanische Überzüge -
Verfahren für die Spezifizierung allgemeiner Anforderungen

This European Standard was approved by CEN on 18 July 1998.

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.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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Contents

	Page
Foreword	3
1 Scope	4
2 Normative references	4
3 Definitions	4
4 Information to be supplied by the purchaser	5
5 Designation	6
6 Thickness	8
7 Inspection	9
Annex A (informative) Designation	10
Annex B (informative) Service condition number	11
Annex C (normative) Supplementary treatments other than conversion coatings	12

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 262 "Metallic and other inorganic coatings", 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 February 1999 and conflicting national standards shall be withdrawn at the latest by February 1999.

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.

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1 Scope

This European Standard establishes a method of specifying general requirements for electrodeposited coatings applied to metallic materials for corrosion protection.

This European Standard is for use in conjunction with other European Standards which specify the electrodeposited coating required, e.g., prEN 12329 "Corrosion protection of metals — Electrodeposited coatings of zinc with supplementary treatment on iron or steel".

This European Standard does not specify requirements for the condition, finish or surface roughness of the basis metal prior to the coating process.

This European Standard is not applicable to coatings on sheet (or coil), strip or wire in the unfabricated form.

2 Normative references

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.

EN ISO 1463 : 1994 Metallic and oxide coatings — Measurement of coating thickness — Microscopical method (ISO 1463 : 1982)

ISO 4519 : 1980 Electrodeposited metallic coatings and related finishes — Sampling procedures for inspection by attributes

3 Definitions

For the purposes of this European Standard, the definitions given in ISO 2064 : 1996 apply. These are repeated here for the sake of convenience.

3.1 significant surface: The part of the article covered or to be covered by the coating and for which the coating is essential for serviceability and/or appearance and where the coating must meet all of the specified requirements. [ISO 2064 : 1996]

3.2 measuring area: The area of the significant surface over which a single measurement is made.

"Measuring area" for the following methods is defined as:

- a) for analytical methods, the area over which the coating is removed;
- b) for the anodic dissolution method, the area enclosed by the sealing ring of the cell;
- c) for the microscopical method, the field of view at a specified magnification (see ISO 1463);

d) for non-destructive methods, the probe area or the area influencing the reading.

[ISO 2064 : 1996]

3.3 reference area: The area within which a specified number of single measurements is required to be made. [ISO 2064 : 1996]

3.4 local thickness: The mean of the thickness measurement, of which a specified number is made within a reference area. [ISO 2064 : 1996]

3.5 minimum local thickness: The lowest value of the local thicknesses found on the significant surface of a single article. [ISO 2064 : 1996]

3.6 maximum local thickness: The highest value of the local thicknesses found on the significant surface of a single article. [ISO 2064 : 1996]

3.7 average thickness: Either the value obtained by analytical methods or the mean value of a specific number of local thickness measurements that are evenly distributed over the significant surface.

NOTE: In the case of components coated in bulk, the product specification may require determination of the value of the average thickness of a batch. In such cases the standard deviation will be known to be able to estimate the proportion of the batch that is below the thickness in question.

[ISO 2064 : 1996]

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4 Information to be supplied by the purchaser

4.1 Essential information

The purchaser shall supply the following information:

- a) the designation (see clause 5) of the particular coating required;
- b) the requirements for any heat treatment before and/or after electrodeposition (see 5.4);
- c) the significant surface, indicated by drawings of the articles or by suitably marked samples;
- d) the nature, condition and finish of the basis metal, if any of these could affect the serviceability and/or the appearance of the coating;
- e) the position on the surface for unavoidable defects, such as rack or contact marks;
- f) the finish required, for example bright, dull, satin or other finish, preferably with a sample of the finish;
- g) sampling methods, acceptance levels or any other inspection requirements, if different from those given in ISO 4519 : 1980 (see 7.2);

h) the standards for any thickness, corrosion or adhesion test requirements (see 7.1).

4.2 Additional information

When applicable, the following additional information shall be supplied by the purchaser:

- a) any special requirements for, or restrictions on, preparation of the articles to be coated;
- b) any special requirements for recovering rejected articles;
- c) any special requirements that depend on the shape or method of manufacturing of the component;
- d) any other special requirements (e.g. roughness and tolerances).

5 Designation

5.1 General

The designation shall comprise the following (see examples in annex A):

- a) electrodeposited coating;
- b) the number of the European Standard to which the required coating shall conform;
- c) a hyphen;
- d) the basis metal code (see 5.2);
- e) a solidus;
- f) the additional applicable codes separated by solidi for every stage of the coating sequence (in the order of application) (see 5.3 and 5.5).

Double separators shall be used to indicate any missing stages (i.e. when a particular stage is not required).

NOTE 1 : Allowed composition and purity tolerances for the values shown in the designation are specified in the European Standards for the coatings to which they are applicable.

NOTE 2 : The purchaser should be guided in his choice of designation by the severity of service conditions to be withstood by the coating, expressed as the service condition number (see annex B).

5.2 Basis metal

The basis metal shall be designated by its chemical symbol (or that of the principal constituent of an alloy) (see table A.1).

NOTE : It is recommended that the chemical symbol is followed by the standard designation of the basis metal.

5.3 Metal layers (coating metals)

The metal coating layer is designated by the chemical symbol(s) for the electrodeposited metal, or metals (in the case of an alloy coating), immediately followed by:

- a) a number indicating the minimum local thickness of the layer in micrometres (see clause 6);
- b) upper case letters indicating the type of coating, if applicable (see below).

When the coating metal is an alloy, the chemical symbol for the chief component shall precede the chemical symbol for each minor component. Each chemical symbol for a minor component shall be followed by a whole number in parentheses designating its nominal percentage mass (see 5.1 note 1). However, if the percentage mass of a minor component is less than 1 %, then it shall be designated to one decimal place.

When the coating metal is a precious metal (e.g. gold or silver), the metal layer shall be designated by its chemical symbol immediately followed by a number in parentheses indicating the minimum content of precious metal in the layer, expressed as percentage mass to one decimal place.

The decimal sign shall be indicated by a comma on the line.

Where a type of metal coating is required to be specified e.g. microcracked chromium, the type shall be designated by one or more upper case letter(s) as defined in the European Standard specifying the coating.

5.4 Heat treatment

The heat treatment designation shall comprise:

- a) the letters "HT";
- b) in parentheses, the minimum temperature specified, in degrees Celsius;
- c) the duration, in hours.

EXAMPLE: A heat treatment to be carried out for 3 h at a minimum temperature of 190 °C has the following designation:

HT(190)3

5.5 Supplementary treatments

5.5.1 Conversion coatings

Conversion coatings shall be specified in accordance with the European Standard to which they are applicable.