

SLOVENSKI STANDARD

SIST EN ISO 3882:1999

01-oktober-1999

Kovinske in druge anorganske prevleke - Pregled postopkov za merjenje debeline (ISO 3882:1986)

Metallic and other non-organic coatings - Review of methods of measurement of thickness (ISO 3882:1986)

Metallische und andere anorganische Schichten - Übersicht von Verfahren der Schichtdickenmessung (ISO 3882:1986)

Revetements métalliques et autres revêtements non organiques - Vue d'ensemble sur les méthodes de mesure de l'épaisseur (ISO 3882:1986)

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Ta slovenski standard je istoveten z: EN ISO 3882:1994

ICS:

17.040.20	Lastnosti površin	Properties of surfaces
25.220.20	Površinska obdelava	Surface treatment
25.220.40	Kovinske prevleke	Metallic coatings

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en

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EUROPEAN STANDARD

EN ISO 3882

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 1994

ICS 25.220.40

Descriptors: coatings, metal coatings, non metallic coatings, tests, dimensional measurement, thickness

English version

**Metallic and other non-organic coatings - Review
of methods of measurement of thickness
(ISO 3882:1986)**

Revêtements métalliques et autres revêtements
non organiques - Vue d'ensemble sur les
méthodes de mesurage de l'épaisseur
(ISO 3882:1986)

Metallische und andere anorganische Schichten
- Übersicht von Verfahren der
Schichtdickenmessung (ISO 3882:1986)

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This European Standard was approved by CEN on 1994-10-26. 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.

The European Standards exist 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

This European Standard was taken over by the Technical Committee CEN/TC 262 "Protection of metallic materials against corrosion" from the work of ISO/TC 107 "Metallic and other inorganic coatings" of the International Standards Organization (ISO).

CEN/TC 262 had decided to submit the final draft for Formal Vote. The result was positive.

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 April 1995, and conflicting national standards shall be withdrawn at the latest by April 1995.

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

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Endorsement notice

The text of the International Standard ISO 3882:1986 has been approved by CEN as a European Standard without any modification.

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NOTE: Normative references to international publications are listed in annex ZA (normative).



Annex ZA (normative)**Normative references to international publications
with their relevant European publications**

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).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 1463		Metallic and oxide coatings - Measurement of coating thickness - Microscopical method	EN ISO 1463	
ISO 2064		Metallic and other non-organic coatings - Definitions and conventions concerning the measurement of thickness	EN ISO 2064	
ISO 2128		Anodizing of aluminium and its alloys - Determination of thickness of anodic oxide coatings - Non-destructive measurement by split-beam microscope		
ISO 2177		Metallic coatings - Measurement of coating thickness - Coulometric method by anodic dissolution	EN ISO 2177	
ISO 2178		Non-magnetic coatings on magnetic substrates - Measurement of coating thickness - Magnetic method		
ISO 2360		Non-destructive coatings on non-magnetic basis metals - Measurement of coating thickness - Eddy current method		
ISO 2361		Electrodeposited nickel coatings on magnetic and non-magnetic substrates - Measurement of coating thickness - Magnetic method		
ISO 3497		Metallic coatings - Measurement of coating thickness - X-ray spectrometric methods		
ISO 3543		Metallic and non-metallic coatings - Measurement of thickness - Beta backscatter method	EN ISO 3543	
ISO 3868		Metallic and other non-organic coatings - Measurement of coating thicknesses - Fizeau multiple-beam interferometry method	EN ISO 3868	
ISO 4518		Metallic coatings - Measurement of coating thickness - Profilometric method		

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International Standard



3882

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Metallic and other non-organic coatings — Review of methods of measurement of thickness

Revêtements métalliques et autres revêtements non organiques — Vue d'ensemble sur les méthodes de mesurage de l'épaisseur

Second edition — 1986-04-01

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UDC 669.058 : 531.717

Ref. No. ISO 3882-1986 (E)

Descriptors : coatings, metal coatings, non metallic coatings, tests, dimensional measurement, thickness.

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 3882 was prepared by Technical Committee ISO/TC 107, *Metallic and other non-organic coatings*.

This second edition cancels and replaces the first edition (ISO 3882:1976), table 2 of which has been technically revised.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Metallic and other non-organic coatings — Review of methods of measurement of thickness

0 Introduction

This International Standard summarizes the various methods used for the measurement of coating thickness and describes their working principles. Methods of measuring coating thickness may be either destructive or non-destructive (see table 1). The information given in table 2 and table 3 will assist in the choice of the method most suited to a particular purpose.

The thickness ranges covered by the different methods depend on the coating materials, substrates and instruments used.

ISO 2361, *Electrodeposited nickel coatings on magnetic and non-magnetic substrates — Measurement of coating thickness — Magnetic method.*

ISO 3497, *Metallic coatings — Measurement of coating thickness — X-ray spectrometric methods.*

ISO 3543, *Metallic and non-metallic coatings — Measurement of thickness — Beta backscatter method.*

ISO 3868, *Metallic and other non-organic coatings — Measurement of coating thicknesses — Fizeau multiple-beam interferometry method.*

1 Scope and field of application

This International Standard reviews methods for measuring the thickness of metallic and other non-organic coatings on both metallic and non-metallic substrates. It is limited to tests already specified, or to be specified, in International Standards, and excludes certain tests which are employed for special applications.

ISO 4518, *Metallic coatings — Measurement of coating thickness — Profilometric method.*

3 Definitions

For the purpose of this International Standard, the definitions of ISO 2064 apply.

2 References

ISO 1463, *Metallic and oxide coatings — Measurement of coating thickness — Microscopical method.*

ISO 2064, *Metallic and other non-organic coatings — Definitions and conventions concerning the measurement of thickness.*

ISO 2128, *Anodizing of aluminium and its alloys — Determination of thickness of anodic oxide coatings — Non-destructive measurement by split-beam microscope.*

ISO 2177, *Metallic coatings — Measurement of coating thickness — Coulometric method by anodic dissolution.*

ISO 2178, *Non-magnetic coatings on magnetic substrates — Measurement of coating thickness — Magnetic method.*

ISO 2360, *Non-conductive coatings on non-magnetic basis metals — Measurement of coating thickness — Eddy current method.*

4 Non-destructive methods

4.1 Magnetic methods

Instruments for these methods measure either the magnetic attraction between a magnet and the basis metal, as influenced by the presence of the coating, or the reluctance of a magnetic flux path passing through the coating and the basis metal.

The measurement uncertainty of the method is normally less than 10 % of the thickness or 1,5 µm, whichever is the greater.

These methods are limited in practice to non-magnetic coatings on a magnetic substrate (see ISO 2178) and to electroplated nickel coatings on magnetic or non-magnetic substrates (see ISO 2361).

4.2 Eddy current method

This method is based on differences in electrical conductivity between coatings and substrates. It is used primarily for measuring the thicknesses of non-conductive coatings on non-