



**NSAI**  
Standards

Irish Standard  
I.S. EN ISO 2178:2016

# Non-magnetic coatings on magnetic substrates - Measurement of coating thickness - Magnetic method (ISO 2178:2016)

## I.S. EN ISO 2178:2016

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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## National Foreword

I.S. EN ISO 2178:2016 is the adopted Irish version of the European Document EN ISO 2178:2016, Non-magnetic coatings on magnetic substrates - Measurement of coating thickness - Magnetic method (ISO 2178:2016)

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EUROPEAN STANDARD

EN ISO 2178

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2016

ICS 25.220.40; 25.220.50

Supersedes EN ISO 2178:1995

English Version

Non-magnetic coatings on magnetic substrates -  
Measurement of coating thickness - Magnetic method (ISO  
2178:2016)

Revêtements métalliques non magnétiques sur métal  
de base magnétique - Mesurage de l'épaisseur du  
revêtement - Méthode magnétique (ISO 2178:2016)

Nichtmagnetische Überzüge auf magnetischen  
Grundmetallen - Messen der Schichtdicke -  
Magnetverfahren (ISO 2178:2016)

This European Standard was approved by CEN on 27 February 2016.

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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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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**EN ISO 2178:2016 (E)**

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## **European foreword**

This document (EN ISO 2178:2016) has been prepared by Technical Committee ISO/TC 107 "Metallic and other inorganic coatings" in collaboration with 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 October 2016, and conflicting national standards shall be withdrawn at the latest by October 2016.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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According to the CEN-CENELEC Internal Regulations, the national standards organizations 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### **Endorsement notice**

The text of ISO 2178:2016 has been approved by CEN as EN ISO 2178:2016 without any modification

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# INTERNATIONAL STANDARD

# ISO 2178

Third edition  
2016-03-15

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## **Non-magnetic coatings on magnetic substrates — Measurement of coating thickness — Magnetic method**

*Revêtement métalliques non magnétiques sur métal de base  
magnétique — Mesurage de l'épaisseur du revêtement — Méthode  
magnétique*



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**ISO 2178:2016(E)**



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## 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 107, *Metallic and other inorganic coatings*.

This third edition cancels and replaces the second edition (ISO 2178:1982), which has been technically revised.



# Non-magnetic coatings on magnetic substrates — Measurement of coating thickness — Magnetic method

## 1 Scope

This International Standard specifies a method for non-destructive measurements of the thickness of non-magnetizable coatings on magnetizable base metals.

The measurements are tactile and non-destructive on typical coatings. The probe or an instrument with integrated probe is placed directly on the coating to be measured. The coating thickness is displayed on the instrument.

In this International Standard the term “coating” is used for material such as, for example, paints and varnishes, electroplated coatings, enamel coatings, plastic coatings, powder coatings, claddings.

NOTE This method can also be applied to the measurement of magnetizable coatings on non-magnetizable base metals or other materials (see ISO 2361).

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2064, *Metallic and other inorganic coatings — Definitions and conventions concerning the measurement of thickness*

ISO 4618, *Paints and varnishes — Terms and definitions*

ISO 5725-1:1994, *Accuracy (trueness and precision) of measurement methods and results — Part 1: General principles and definitions*

ISO/IEC Guide 98-3, *Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 2064 and ISO 4618 and the following apply.

### 3.1

#### **adjustment of a measuring system**

set of operations carried out on a measuring system so that it provides prescribed indications corresponding to given values of a quantity to be measured

Note 1 to entry: Adjustment of a measuring system can include zero adjustment, offset adjustment, and span adjustment (sometimes called gain adjustment).

Note 2 to entry: Adjustment of a measuring system should not be confused with calibration, which is a prerequisite for adjustment.

Note 3 to entry: After an adjustment of a measuring system, the measuring system shall usually be recalibrated.

Note 4 to entry: Colloquially the term “calibration” is frequently but falsely used instead of the term “adjustment”. In the same way, the terms “verification” and “checking” are often used instead of the correct term “calibration”.

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