



**NSAI**  
Standards

Irish Standard  
I.S. EN ISO 17643:2015

# Non-destructive testing of welds - Eddy current examination of welds by complex plane analysis (ISO 17643:2015)

## I.S. EN ISO 17643:2015

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

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## National Foreword

I.S. EN ISO 17643:2015 is the adopted Irish version of the European Document EN ISO 17643:2015, Non-destructive testing of welds - Eddy current examination of welds by complex plane analysis (ISO 17643:2015)

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EUROPEAN STANDARD

EN ISO 17643

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2015

ICS 25.160.40

Supersedes EN 1711:2000

English Version

Non-destructive testing of welds - Eddy current  
examination of welds by complex plane analysis (ISO  
17643:2015)

Contrôle non destructif des assemblages soudés -  
Contrôle par courants de Foucault des assemblages  
soudés par analyse des signaux dans le plan complexe  
(ISO 17643:2015)

Zerstörungsfreie Prüfung von Schweißverbindungen -  
Wirbelstromprüfung von Schweißverbindungen durch  
Vektorauswertung (ISO 17643:2015)

This European Standard was approved by CEN on 20 June 2015.

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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.

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## **European foreword**

This document (EN ISO 17643:2015) has been prepared by ISO/TC 44 “Welding and allied processes” in collaboration with Technical Committee CEN/TC 121 “Welding” the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by March 2016, and conflicting national standards shall be withdrawn at the latest by March 2016.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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### **Endorsement notice**

The text of ISO 17643:2015 has been approved by CEN as EN ISO 17643:2015 without any modification.

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INTERNATIONAL  
STANDARD

ISO  
17643

Second edition  
2015-09-01

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**Non-destructive testing of welds —  
Eddy current testing of welds by  
complex-plane analysis**

*Contrôle non destructif des assemblages soudés — Contrôle par  
courants de Foucault des assemblages soudés avec analyse des  
signaux dans le plan complexe*



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## ISO 17643:2015(E)

### 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 44, *Welding and allied processes*, Subcommittee SC 5, *Testing and inspection of welds*.

This second edition cancels and replaces the first edition (ISO 17643:2005), which has been technically revised.

# Non-destructive testing of welds — Eddy current testing of welds by complex-plane analysis

## 1 Scope

This International Standard defines eddy current testing techniques for detection of surface breaking and near surface planar discontinuities, mainly in ferritic materials (weld material, heat-affected zones, base material).

Eddy current testing can also be specified for use with non-ferritic materials, for example in an application standard.

The techniques can be applied to coated and uncoated objects during fabrication and in service, both onshore and offshore.

Eddy current testing can be carried out on all accessible surfaces and on welds of almost any configuration.

Unless otherwise specified at specific items in this International Standard, the general principles of ISO 15549 apply.

NOTE Eddy current testing is usually performed in the as-welded condition. However, the accuracy of the results can be affected by very rough surface finishes.

## 2 Normative references

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

ISO 9712, *Non-destructive testing — Qualification and certification of NDT personnel*

ISO 12718, *Non-destructive testing — Eddy current testing — Vocabulary*

ISO 15548-1, *Non-destructive testing — Equipment for eddy current examination — Part 1: Instrument characteristics and verification*

ISO 15548-2, *Non-destructive testing — Equipment for eddy current examination — Part 2: Probe characteristics and verification*

ISO 15548-3, *Non-destructive testing — Equipment for eddy current examination — Part 3: System characteristics and verification*

ISO 15549, *Non-destructive testing — Eddy current testing — General principles*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12718 apply.

## 4 Personnel qualification

Non-destructive testing shall be performed by qualified and capable personnel. It is recommended that personnel are qualified in accordance with ISO 9712 or an equivalent standard at an appropriate level in the relevant industry sector.

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