

First edition
2008-08-01

Non-destructive testing — Eddy current testing — General principles

*Essais non destructifs — Contrôle par courants de Foucault — Principes
généraux*



Reference number
ISO 15549:2008(E)

© ISO 2008

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

This document is a preview generated by EVS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2008

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

	Page
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 General principles	1
5 Qualification of personnel	2
6 Purpose of examination and products to be tested	2
7 Measurement techniques	2
8 Equipment	3
9 Preparation of equipment	4
10 Verification of equipment	4
11 Preparation of the product to be tested	5
12 Examination	5
13 Documentation	6

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 15549 was prepared by Technical Committee ISO/TC 135, *Non-destructive testing*, Subcommittee SC 4, *Eddy current methods*.

Non-destructive testing — Eddy current testing — General principles

1 Scope

This International Standard defines the general principles to be applied to non-destructive eddy current examination of products and materials in order to ensure defined and repeatable performance.

It includes guidelines for the preparation of application documents which describe the specific requirements for the application of the eddy current method to a particular type of product.

2 Normative references

The following referenced documents are indispensable for the application of 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 9712, *Non-destructive testing — Qualification and certification of personnel*

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

3 Terms and definitions

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

4 General principles

The eddy current examination is based upon the induction of an electric current in a conducting material. The quantity measured and analysed is related to the distribution of the induced currents. For alternating excitation, it is represented by a vector in the complex plane.

The distribution of eddy currents in a material according to depth is governed by physical laws, the density of the currents decreasing drastically with increasing depth. For high-frequency excitation, this decrease is an exponential function of depth.

The following properties, alone or in combination, of the product to be tested influence the measured quantity:

- the conductivity of the material;
- the magnetic permeability of the material;
- the size and geometry of the product to be tested;
- the geometrical relationship between the eddy current probe and the product to be tested.

More detailed information is obtained when the measured quantity is displayed in the complex plane.