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Non-destructive testing — Magnetic particle testing —

Part 1: General principles

The European Standard EN ISO 9934-1:2001, with the incorporation of amendment A1:2003, has the status of a British Standard

ICS 19.100

National foreword

This British Standard is the official English language version of EN ISO 9934-1:2001, including amendment A1:2003. It is identical with ISO 9934-1:2000. It supersedes BS 6072:1981, which will remain current as an obsolescent standard. BS 6072:1981 will be fully withdrawn on publication of BS EN 2857-1 and BS EN 2857-2.

The UK participation in its preparation was entrusted to Technical Committee WEE/46, Non-destructive testing, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

This British Standard, having been prepared under the direction of the Engineering Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 21 December 2001

Summary of pages

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English version

**Non-destructive testing - Magnetic particles testing -
Part 1: General principles (ISO 9934-1:2001)**
(includes amendment A1:2003)

Essais non destructifs - Magnétoscopie -
Partie 1: Principes généraux du contrôle (ISO 9934-1:2001)
(inclut l'amendement A1:2003)

Zerstörungsfreie Prüfung - Magnetpulverprüfung -
Teil 1: Allgemeine Grundlagen (ISO 9934-1:2001)
(enthält Änderung A1:2003)

This European Standard was approved by CEN on 29 December 2000; amendment A1 was approved by CEN on 20 November 2003.

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 Management Centre 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 Management Centre 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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.



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Foreword

The text of EN ISO 9934-1:2001 has been prepared by Technical Committee CEN/TC 138 “Non-destructive testing”, the secretariat of which is held by AFNOR, in collaboration with Technical Committee ISO/TC 135 “Non-destructive testing”.

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 June 2002, and conflicting national standards shall be withdrawn at the latest by June 2002.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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.

Foreword to amendment A1

This document EN ISO 9934-1:2001/A1:2003 has been prepared by Technical Committee CEN/TC 138 “Non-destructive testing”, the secretariat of which is held by AFNOR.

This Amendment to the European Standard EN ISO 9934-1:2001 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2004, and conflicting national standards shall be withdrawn at the latest by June 2004.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European standard specifies general principles for the magnetic particle testing of ferromagnetic materials. Magnetic particle testing is primarily applicable to the detection of surface-breaking discontinuities, particularly cracks. It can also detect discontinuities just below the surface but its sensitivity diminishes rapidly with depth.

The standard specifies the surface preparation of the part to be tested, magnetization techniques, requirements and application of the detection media and the recording and interpretation of results. Acceptance criteria are not defined. Additional requirements for the magnetic particle testing of particular items are defined in product standards (see the relevant EN Standard).

This standard does not apply to the residual magnetization method.

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 (including amendments).

EN 473, *Non-destructive testing - Qualification and certification of NDT personnel - General principles*.

EN 1330-1, *Non-destructive testing - Terminology - Part 1 : General terms*.

EN 1330-2, *Non-destructive testing - Terminology - Part 2 : Terms common to non-destructive testing methods*.

EN ISO 3059, *Non-destructive testing - Penetrant testing and magnetic particle testing - Viewing conditions (ISO 3059:2001)*.

prEN ISO 9934-2, *Non-destructive testing - Magnetic particle testing - Part 2 : Characterisation of products (ISO/DIS 9934-2:1999)*.

prEN ISO 9934-3, *Non-destructive testing - Magnetic particle testing - Part 3 : Equipment (ISO/DIS 9934-3:1998)*.

prEN ISO 12707, *Non-destructive testing - Terminology - Terms used in magnetic particle testing*.

3 Terms and definitions

For the purposes of this standard, the terms and definitions given in EN 1330-1, EN 1330-2 and prEN ISO 12707 apply.

4 Qualification and certification of personnel

It is assumed that magnetic particle testing is performed by qualified and capable personnel. In order to provide this qualification, it is recommended to certify the personnel in accordance with EN 473 or equivalent.

5 Safety and environmental requirements

Magnetic particle testing may require the use of toxic, flammable and/or volatile materials. In such cases, working areas shall therefore be adequately ventilated and far from sources of heat or flames. Extended or repeated contact of detecting media and contrast paints with the skin or mucous membranes shall be avoided.