INTERNATIONAL STANDARD

ISO 9934-3

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Non-destructive testing — Magnetic particle testing —

Part 3: Equipment

Essais non destructifs — Magnétoscopie —

Partie 3: Équipement

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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 part of ISO 9934 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 9934 was prepared by the European Committee for Standardization (CEN) in collaboration with Technical Committee ISO/TC 135, *Non-destructive testing*, Subcommittee SC 2, *Surface methods*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Throughout the text of this document, read "...this European Standard..." to mean "...this International Standard...".

ISO 9934 consists of the following parts, under the general title *Non-destructive testing — Magnetic particle testing*:

— *Part 1: General principles*

— *Part 2: Detection media*

— *Part 3: Equipment*

Annex ZZ provides a list of corresponding International and European Standards for which equivalents are not given in the test.

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Foreword

This document (ISO 9934-3:2002) has been prepared by Technical Committee ISO/TC 135 "Non-destructive testing" in collaboration with Technical Committee CEN/TC 138, "Non-destructive testing", the secretariat of which is held by AFNOR.

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 December 2002, and conflicting national standards shall be withdrawn at the latest by December 2002.

This Standard consists of the following parts :

EN ISO 9934-1	Non destructive testing - Magnetic particle testing - Part 1 : General rules
prEN ISO 9934-2	Non destructive testing - Magnetic particle testing - Part 2 : Detection media
EN ISO 9934-3	Non destructive testing - Magnetic particle testing - Part 3 : Equipment

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, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard describes three types of equipment for magnetic particle testing :

— portable or transportable equipment ;

— fixed installations ;

— specialized testing systems for testing components on a continuous basis, comprising a series of processing stations placed in sequence to form a process line.

Equipment for magnetizing, demagnetizing, illumination, metering and monitoring are also described.

This standard specifies the properties to be provided by the equipment supplier, minimum requirements for application and the method of measuring certain parameters. Where appropriate, measuring and calibration requirements and in-service checks are also specified.

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 10084 *Case hardening steels - Technical delivery conditions*

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

EN ISO 9934-1:2001 *Non-destructive testing - Magnetic particle testing - Part 1 : General rules (ISO 9934-1:2001)*

EN 60529 *Degrees of protection provides by enclosures (IP Code) (IEC 60529:1989)*

3 Safety requirements

The equipment design shall take into account of all European, national and local regulations which include health, safety, electrical and environmental requirements.

4 Types of devices

4.1 Portable electromagnets (AC[1])

4.1.1 General

Hand-held portable electromagnets (yokes) produce a magnetic field between the two poles. (When testing according to EN ISO 9934-1, DC electromagnets should only be used if agreed at enquiry and order stages).

Magnetization shall be determined by measuring the tangential field strength H_t at the centre of a line joining the centres of the pole faces of the electromagnet with pole extenders where used. The electromagnet with a pole spacing *s* is placed on a steel plate as shown in Figure 1. The plate shall have the dimensions (500 ± 25) mm x (250 ± 13) mm x (10 ± 0.5) mm and shall be of steel conforming to C 22 (EN 10084)..

1) AC = alternative current, and DC = rectified current