
**Steel castings — Magnetic particle
inspection**

Pièces moulées en acier — Contrôle par magnétoscopie



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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 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 4986 was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 11, *Steel castings*.

This second edition cancels and replaces the first edition (ISO 4986:1992), which has been technically revised.

Introduction

This International Standard complements the general principles of magnetic particle inspection described in ISO 9934-1 for the additional requirements of the foundry industry.

Magnetic particle inspection, as well as any other non-destructive examination, is part of a general or specific assessment of the quality of the casting to be agreed between the purchaser and the manufacturer at the time of acceptance of the order.

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Steel castings — Magnetic particle inspection

1 Scope

This International Standard specifies a method for the magnetic particle inspection of ferro-magnetic steel castings.

It also gives acceptance criteria through severity levels defined by the nature, the area and the dimensions of the discontinuities present.

This International Standard applies to all ferro-magnetic castings, independent of the moulding method.

A steel casting is considered to be ferro-magnetic if the magnetic induction is greater than 1 T (Tesla) for a magnetic field strength of 2,4 kA/m.

This International Standard only applies to those areas of the castings specified for inspection, as well as the percentage of castings to be inspected.

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 3059, *Non-destructive testing — Penetrant testing and magnetic particle testing — Viewing conditions*

ISO 4990, *Steel castings — General technical delivery requirements*

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

ISO 9934-1, *Non-destructive testing — Magnetic particle testing — Part 1: General principles*

3 Ordering information

Subject to agreement between the manufacturer and the purchaser, enquiries and purchase orders for castings requiring magnetic particle inspection should include the following information.

The areas of the castings and the percentage of the castings to be inspected shall be indicated in the enquiry.

The manufacturing stage(s), when magnetic particle inspection(s) is (are) to be performed, shall be defined by agreement between the manufacturer and the purchaser.

The sensitivity can differ depending on the method of magnetic particle inspection selected. Hence the required severity levels and the method shall be agreed between the manufacturer and the purchaser.