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Third edition
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Steel castings — Liquid penetrant testing

Pièces moulées en acier — Contrôle par ressuage

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Foreword

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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).

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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

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

This third edition cancels and replaces the second edition (ISO 4987:2010), which has been technically revised. The main changes compared to the previous edition are as follows:

— isolated non-linear indications are defined in 6.1.2;

— definition of aligned linear indications in 6.1.3 is corrected

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document complements the general principles of liquid penetrant testing described in ISO 3452-1 with additional requirements of the steel foundry industry.

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

Steel castings — Liquid penetrant testing

1 Scope

This document specifies a method for the liquid penetrant testing of steel castings.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 3452-1, *Non-destructive testing — Penetrant testing — Part 1: General principles*

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

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

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Ordering information

Subject to agreement between the manufacturer and the purchaser, enquiries and purchase orders for castings requiring liquid penetrant testing should include the following information:

a) the area of the casting to be tested;

b) the qualification of the operators who will carry out the testing (see 5.2) or interpretation (see 7.2);

c) the frequency/number of castings to be tested;

d) the manufacturing stage, when liquid penetrant testing is to be performed;

e) the required surface finish of the areas to be tested;

f) the type of discontinuity;

g) the severity level.

The sensitivity can differ depending on the method of liquid penetrant testing selected. Therefore, the severity levels required shall be selected as a function of the liquid penetrants used and the method agreed between the manufacturer and the purchaser.

The severity level can vary depending on the area of the casting tested (see Tables 1 and 2).