
**Steel and iron castings —
Radiographic testing**

Pièces moulées en acier ou en fonte — Contrôle radiographique



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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).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#).

The committee responsible for this document is ISO/TC 17, *Steel*, Subcommittee SC 11, *Steel castings*.

This third edition cancels and replaces the second edition (ISO 4993:2009), which has been technically revised with the following changes:

- Clause 12 has been deleted;
- [B.3](#), [B.4](#), [B.5](#): ISO 5579 has been added;
- C.3, "light alloys and copper", has been deleted.

Introduction

Radiography can be used to detect internal discontinuities in castings. The discontinuities can have higher or lower densities than the parent metal.

Steel and iron castings — Radiographic testing

1 Scope

This International Standard specifies the general requirements for the radiography of steel and iron castings by means of X-rays or gamma-rays, in accordance with procedures given in ISO 5579 and ISO 19232.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5579, *Non-destructive testing — Radiographic testing of metallic materials using film and X- or gamma rays — Basic rules*

ISO 19232-1, *Non-destructive testing — Image quality of radiographs — Part 1: Determination of the image quality value using wire-type image quality indicators*

ISO 19232-2, *Non-destructive testing — Image quality of radiographs — Part 2: Determination of the image quality value using step/hole-type image quality indicators*

ISO 19232-3, *Non-destructive testing — Image quality of radiographs — Part 3: Image quality classes*

ISO 19232-4, *Non-destructive testing — Image quality of radiographs — Part 4: Experimental evaluation of image quality values and image quality tables*

ISO 19232-5, *Non-destructive testing — Image quality of radiographs — Part 5: Determination of the image unsharpness value using duplex wire-type image quality indicators*

ASTM E186, *Standard Reference Radiographs for Heavy-Walled (2 to 4 1/2 in. [50.8 to 114 mm]) Steel Castings*

ASTM E192, *Standard Reference Radiographs for Investment Steel Castings for Aerospace Applications*

ASTM E280, *Standard Reference Radiographs for Heavy-Walled (4 1/2 to 12 in. [114 to 305 mm]) Steel Castings*

ASTM E446, *Standard Reference Radiographs for Steel Castings up to 2 in. (50.8 mm) in Thickness*

ASTM E689, *Standard Reference Radiographs for Ductile Iron Castings*

ASTM E802, *Standard Reference Radiographs for Gray Iron Castings up to 4 1/2 in. (114 mm) in Thickness*

ASTM E2660, *Standard Digital Reference Images for Investment Steel Castings for Aerospace Applications*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5579 apply.

4 Basis of purchase

The request for radiographic testing and all pertinent information relating thereto, such as sensitivity, coverage, and acceptance criteria, shall be indicated in the enquiry and order.

Unless otherwise specified in the enquiry and order, the radiographic coverage may be of two types, i.e. pilot or regular production inspection. For both types, the manufacturing plan shall show the area