



Designation: E802 – 95(Reapproved 2010)

Standard Reference Radiographs for Gray Iron Castings Up to 4½ in. (114 mm) in Thickness ¹

This standard is issued under the fixed designation E802; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 These reference radiographs for gray iron castings consist of one set of illustrations of centerline shrinkage with severity levels 1 to 5 using three radiation source types as follows:

1.1.1 *Volume I: Medium Voltage (nominal 250 kVp) X-Ray Reference Radiographs*—Set of 5 severity levels in a 15 by 17 in. folder.

1.1.2 *Volume II: Iridium-192 Reference Radiographs*—Set of 5 severity levels in a 15 by 17 in. folder.

1.1.3 *Volume III: Cobalt-60 Reference Radiographs*—Set of 5 severity levels in a 15 by 17 in. folder.

NOTE 1—The reference radiograph films are an adjunct to this document and must be purchased separately from ASTM International if needed.

1.2 The values stated in inch-pound units are to be regarded as the standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*²

[E94 Guide for Radiographic Examination](#)

[E186 Reference Radiographs for Heavy-Walled \(2 to 4½-in. \(50.8 to 114-mm\)\) Steel Castings](#)

[E446 Reference Radiographs for Steel Castings Up to 2 in. \(50.8 mm\) in Thickness](#)

[E1316 Terminology for Nondestructive Examinations](#)

2.2 *ASTM Adjuncts:*

Reference Radiographs for Gray Iron Castings Up to 4½ in. (114 mm) in Thickness:

¹ These reference radiographs are under the jurisdiction of ASTM Committee E07 on Nondestructive Testing and are the direct responsibility of Subcommittee E07.02 on Reference Radiological Images.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

Volume I, Medium Voltage (Nominal 250 kVp) X-rays³
Volume II, Iridium-192⁴
Volume III, Cobalt-60⁵

3. Terminology

3.1 *Definitions*—For definitions of terms used in this document, see Terminology [E1316](#), Section D.

4. Significance and Use

4.1 These reference radiographs, along with the referenced applicable steel casting standards (Reference Radiographs [E186](#) and [E446](#)), are supplied as a means of establishing categories and severity levels of common internal discontinuity types in gray iron castings subjected to radiographic examination. They may be used in accordance with contractual specifications as agreed upon between purchaser and supplier.

4.2 The use of this standard is not intended to be restricted to the specific energy level or to the absolute thickness limits that are contained in this standard title. The title is intended to be descriptive and not restrictive. This document may be used, where there is no other applicable document, for other energy levels or thicknesses, or both, for which it is found to be applicable and for which agreement has been reached between purchaser and supplier.

5. Method of Preparation

5.1 The original radiographs used to prepare the accompanying reference radiographs were produced on high contrast, fine-grain film by the respective use of radiation energies stated in 1.1.1-1.1.3. The radiographs were made with a penetrometer sensitivity as determined by ASTM penetrometers (see Guide [E94](#)) of 2-2T. The reproductions have been prepared to an H&D density from 2.00 to 2.25 and they have retained substantially the contrast of the original radiographs.

5.2 *Film Deterioration*—Radiographic films are subject to wear and tear from handling and use. The extent to which the image deteriorates over time is a function of storage

³ Available from ASTM International Headquarters. Order Reference Radiograph No. [ADJE080201](#).

⁴ Available from ASTM International Headquarters. Order Reference Radiograph No. [ADJE080202](#).

⁵ Available from ASTM International Headquarters. Order Reference Radiograph No. [ADJE080203](#).