Designation: E 1030 – 00

Standard Test Method for Radiographic Examination of Metallic Castings[1]

This standard is issued under the fixed designation E 1030; 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 This test method[2] provides a uniform procedure for radiographic examination of metallic castings using radiographic film as the recording medium.

1.2 Due to the many complex geometries and part configurations inherent with cast products, it is necessary to recognize potential limitations associated with obtaining complete radiographic coverage on castings. Radiography of areas where geometry or part configuration does not allow achievement of complete coverage with practical radiographic methods shall be subject to mutual agreements between purchaser and supplier. The use of alternative nondestructive methods for areas that are not conducive to practical radiography shall also be specifically agreed upon between purchaser and supplier.

1.3 The radiographic method is highly sensitive to volumetric discontinuities that displace a detectable volume of cast material. Discontinuities that do not displace an appreciable volume of material, however, such as cracks or other planar-type indications, may not be detected with radiography unless the radiation beam is coincidentally aligned with the planar orientation of the discontinuity. In view of this limitation, it may be considered appropriate to use the radiographic method in conjunction with additional nondestructive methods that maintain reliable detection capabilities for these types of discontinuities. The use of additional methods shall be specifically agreed upon between the purchaser and supplier.

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

1.5 *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.*

[1] This test method is under the jurisdiction of ASTM Committee E07 on Nondestructive Testing and is the direct responsibility of Subcommittee E07.01 on Radiology (X and Gamma) Method.

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[2] For ASME Boiler and Pressure Vessel Code applications see related Test Method SE-1030 in Section II of that Code.

2. Referenced Documents

2.1 *ASTM Standards:*

E 94 Guide for Radiographic Examination[3]

E 155 Reference Radiographs for Inspection of Aluminum and Magnesium Castings[3]

E 186 Reference Radiographs for Heavy-Walled (2 to 4½-in. (51 to 114-mm)) Steel Castings[3]

E 192 Reference Radiographs for Investment Steel Castings for Aerospace Applications[3]

E 272 Reference Radiographs for High-Strength Copper-Base and Nickel-Copper Alloy Castings[3]

E 280 Reference Radiographs for Heavy-Walled (4½ to 12-in. (114 to 305-mm)) Steel Castings[3]

E 310 Reference Radiographs for Tin Bronze Castings[3]

E 446 Reference Radiographs for Steel Castings Up to 2 in. (51 mm) in Thickness[3]

E 505 Reference Radiographs for Inspection of Aluminum and Magnesium Die Castings[3]

E 543 Practice for Agencies Performing Nondestructive Testing[3]

E 689 Reference Radiographs for Ductile Iron Castings[3]

E 746 Test Method for Determining Relative Image Quality Response of Industrial Radiographic Film[3]

E 747 Practice for Design, Manufacture and Material Grouping Classification of Wire Image Quality Indicators (IQI) Used for Radiology[3]

E 802 Reference Radiographs for Gray Iron Castings Up to 4½ in. (114 mm) in Thickness[3]

E 999 Guide for Controlling the Quality of Industrial Radiographic Film Processing[3]

E 1025 Practice for Design, Manufacture, and Material Grouping Classification of Hole-Type Image Quality Indicators (IQI) Used for Radiology[3]

E 1254 Guide for Storage of Radiographs and Unexposed Industrial Radiographic Films[3]

E 1316 Terminology for Nondestructive Examinations[3]

E 1815 Test Method for Classification of Film Systems for Industrial Radiography[3]

[3] *Annual Book of ASTM Standards*, Vol 03.03

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