



Standard Practice for Design, Manufacture, and Material Grouping Classification of Hole-Type Image Quality Indicators (IQI) Used for Radiology¹

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1. Scope*

1.1 This practice² covers the design, material grouping classification, and manufacture of hole-type image quality indicators (IQI) used to indicate the quality of radiologic images.

1.2 This practice is applicable to X-ray and gamma-ray radiology.

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

1.4 *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:³

E139/B139M Specification for Phosphor Bronze Rod, Bar, and Shapes

E150/B150M Specification for Aluminum Bronze Rod, Bar, and Shapes

B164 Specification for Nickel-Copper Alloy Rod, Bar, and Wire

B166 Specification for Nickel-Chromium-Iron Alloys (UNS N06600, N06601, N06603, N06690, N06693, N06025, N06045, and N06696), Nickel-Chromium-Cobalt-Molybdenum Alloy (UNS N06617), and Nickel-Iron-Chromium-Tungsten Alloy (UNS N06674) Rod, Bar, and Wire

¹ This practice 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 Practice SE-1025 in Section II of that Code.

³ 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.

E746 Practice for Determining Relative Image Quality Response of Industrial Radiographic Imaging Systems

E747 Practice for Design, Manufacture and Material Grouping Classification of Wire Image Quality Indicators (IQI) Used for Radiology

E1735 Test Method for Determining Relative Image Quality of Industrial Radiographic Film Exposed to X-Radiation from 4 to 25 MeV

E1316 Terminology for Nondestructive Examinations

E2662 Practice for Radiologic Examination of Flat Panel Composites and Sandwich Core Materials Used in Aerospace Applications

2.2 Department of Defense (DoD) Documents:

MIL-I-24768 Insulation, Plastics, Laminated, Thermosetting; General Specification for⁴

3. Terminology

3.1 *Definitions*—The definitions of terms relating to gamma and X-radiology in Terminology **E1316**, Section D, shall apply to the terms used in this practice.

4. Hole-Type IQI Requirements

4.1 Image quality indicators (IQIs) used to determine radiologic-image quality levels shall conform to the following requirements.

4.1.1 All image quality indicators (IQIs) shall be fabricated from materials or alloys identified or listed in accordance with **7.3**. Other materials may be used in accordance with **7.4**.

4.1.2 Standard Hole-Type IQIs:

4.1.2.1 Standard Hole-Type Image quality indicators (IQIs) shall dimensionally conform to the requirements of **Fig. 1**.

4.1.3 Modified Hole-Type IQI:

4.1.3.1 The rectangular IQI may be modified in length and width as necessary for special applications, provided the hole size(s) and IQI thickness conform to **Fig. 1** or **4.1.4**, as applicable.

⁴ Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, <http://dodssp.daps.dla.mil>.

*A Summary of Changes section appears at the end of this standard