



Standard Practice for Ultrasonic Examination of Steel Forgings¹

This standard is issued under the fixed designation A388/A388M; 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 reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

1. Scope*

1.1 This practice² covers the examination procedures for the contact, pulse-echo ultrasonic examination of steel forgings by the straight and angle-beam techniques. The straight beam techniques include utilization of the DGS (Distance Gain-Size) method. See [Appendix X3](#).

1.2 This practice is to be used whenever the inquiry, contract, order, or specification states that forgings are to be subject to ultrasonic examination in accordance with Practice A388/A388M.

1.3 Supplementary requirements of an optional nature are provided for use at the option of the purchaser. The supplementary requirements shall apply only when specified individually by the purchaser in the purchase order or contract.

1.4 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.5 This specification and the applicable material specifications are expressed in both inch-pound units and SI units. However, unless the order specifies the applicable “M” specification designation [SI units], the material shall be furnished to inch-pound units.

1.6 *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

[A469/A469M Specification for Vacuum-Treated Steel Forgings for Generator Rotors](#)

[A745/A745M Practice for Ultrasonic Examination of Austenitic Steel Forgings](#)

[A788/A788M Specification for Steel Forgings, General Requirements](#)

[E317 Practice for Evaluating Performance Characteristics of Ultrasonic Pulse-Echo Testing Instruments and Systems without the Use of Electronic Measurement Instruments](#)

[E428 Practice for Fabrication and Control of Metal, Other than Aluminum, Reference Blocks Used in Ultrasonic Testing](#)

[E1065/E1065M Practice for Evaluating Characteristics of Ultrasonic Search Units](#)

2.2 Other Document:⁴

[Recommended Practice for Nondestructive Personnel Qualification and Certification SNT-TC-1A, \(1988 or later\)](#)

3. Terminology

3.1 Definitions:

3.1.1 *indication levels (clusters)*, n —five or more indications in a volume representing a 2-in. [50-mm] or smaller cube in the forging.

3.1.2 *individual indications*, n —single indications showing a decrease in amplitude as the search unit is moved in any direction from the position of maximum amplitude and which are too small to be considered traveling or planar.

3.1.3 *planar indications*, n —indications shall be considered continuous over a plane if they have a major axis greater than 1 in. [25 mm] or twice the major dimension of the transducer, whichever is greater, and do not travel.

¹ This practice is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloys and is the direct responsibility of Subcommittee A01.06 on Steel Forgings and Billets.

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² For ASME Boiler and Pressure Vessel Code applications see related Specification SA-388/SA-388M 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.

⁴ Available from American Society for Nondestructive Testing (ASNT), P.O. Box 28518, 1711 Arlington Ln., Columbus, OH 43228-0518, <http://www.asnt.org>.