



Standard Practice for Mechanized Ultrasonic Testing of Girth Welds Using Zonal Discrimination with Focused Search Units¹

This standard is issued under the fixed designation E1961; 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 practice covers the requirements for mechanized ultrasonic examination of girth welds. Evaluation is based upon the results of mechanized ultrasonic examination. Acceptance criteria are based upon flaw limits defined by an Engineering Critical Assessment (ECA) or other accept/reject criteria defined by the Contracting Agency.

1.2 This practice shall be applicable to the development of an examination procedure agreed upon between the users of this practice.

1.3 The values stated in SI units are to be regarded as the standard. The inch-pound units given in parentheses are for information only.

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 The following documents form a part of this practice to the extent specified herein:

2.2 ASTM Standards:²

- E164 Practice for Contact Ultrasonic Testing of Weldments
- E317 Practice for Evaluating Performance Characteristics of Ultrasonic Pulse-Echo Testing Instruments and Systems without the Use of Electronic Measurement Instruments
- E543 Specification for Agencies Performing Nondestructive Testing
- E1316 Terminology for Nondestructive Examinations

2.3 ASNT Standard:³

ASNT Practice SNT-TC-1A Personnel Qualification and Certification in Nondestructive Testing
ANSI/ASNT-CP-189 Standard for Qualification and Certification of Nondestructive Testing Personnel

2.4 AIA Standard:

NAS-410 Nondestructive Testing Personnel Qualification and Certification⁴

2.5 API Standard:

API STD-1104 Welding of Pipeline and Related Facilities⁵

2.6 CSA Standard:

CSA Z-662 Oil and Gas Pipelines Systems⁶

2.7 ISO Standards⁷

ISO 9712 Nondestructive Testing—Qualification and Certification of NDT Personnel

3. Terminology

3.1 Definitions:

3.1.1 Definitions relating to ultrasonic examination, that appear in Terminology E1316 shall apply to the terms used in this practice.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *acceptance criteria*—definition of acceptable/rejectable flaws as defined by an Engineering Critical Assessment (ECA), such as defined in CSA-Z662 or API 1104, or workmanship criteria as defined by the contracting agency.

3.2.2 *contract document*—any document specified in the contract between the contracting agency and contractor, including the purchase order, specification, drawings or other written material.

¹ This practice is under the jurisdiction of ASTM Committee E07 on Nondestructive Testing and is the direct responsibility of Subcommittee E07.06 on Ultrasonic Method.

Current edition approved June 1, 2016. Published June 2016. Originally approved in 1998. Last previous edition approved in 2011 as E1961 - 11. DOI: 10.1520/E1961-16.

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.

³ Available from American Society for Nondestructive Testing (ASNT), P.O. Box 28518, 1711 Arlingate Ln., Columbus, OH 43228-0518, <http://www.asnt.org>.

⁴ Available from Aerospace Industries Association of America, Inc. (AIA), 1000 Wilson Blvd., Suite 1700, Arlington, VA 22209-3928, <http://www.aia-aerospace.org>.

⁵ Available from American Petroleum Institute (API), 1220 L. St., NW, Washington, DC 20005-4070, <http://www.api.org>.

⁶ Available from Canadian Standards Association (CSA), 5060 Spectrum Way, Mississauga, ON L4W 5N6, Canada, <http://www.csa.ca>.

⁷ Available from International Organization for Standardization (ISO), ISO Central Secretariat, BIBC II, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland, <http://www.iso.org>.