


**AWS C3.8M/C3.8:2011**  
**An American National Standard**



# **Specification for the Ultrasonic Pulse-Echo Examination of Brazed Joints**



**American Welding Society®**



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An American National Standard**

**Approved by the  
American National Standards Institute  
July 13, 2011**

# **Specification for the Ultrasonic Pulse-Echo Examination of Brazed Joints**

**3rd Edition**

**Supersedes AWS C3.8M/C3.8:2005**

Prepared by the  
American Welding Society (AWS) C3 Committee on Brazing and Soldering

Under the Direction of the  
AWS Technical Activities Committee

Approved by the  
AWS Board of Directors

## **Abstract**

This specification provides the minimum requirements for the pulse-echo ultrasonic examination of brazed joints. Its purpose is to standardize brazed-joint ultrasonic examination requirements for all applications in which brazed joints of assured quality are required. It provides the minimum requirements for equipment, procedures, and the documentation of such tests.



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# Foreword

This foreword is not part of AWS C3.8M/C3.8:2011, *Specification for the Ultrasonic Pulse-Echo Examination of Brazed Joints*, but is included for informational purposes only.

The American Welding Society (AWS) C3 Committee on Brazing and Soldering has prepared this specification to provide specific criteria and requirements for the application of pulse-echo ultrasonic testing to brazed joints.

This specification may be used for the inspection of brazements to show conformance to five associated independent brazing process specifications. These are AWS C3.4M/C3.4, *Specification for Torch Brazing*; AWS C3.5M/C3.5, *Specification for Induction Brazing*; AWS C3.6M/C3.6, *Specification for Furnace Brazing*; AWS C3.7M/C3.7, *Specification for Aluminum Brazing*; and AWS C3.9M/C3.9, *Specification for Resistance Brazing*.

The present edition, which supersedes AWS C3.8M/C3.8:2005, includes the following updates:

- (1) Bears a new title to clarify that pulse echo is the only technique covered
- (2) Informative material moved to Annex A
- (3) Substantive and editorial content revised and updated to clarify requirements

Comments and suggestions for the improvement of this standard are welcome. They should be sent to the Secretary, AWS C3 Committee on Brazing and Soldering, American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

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# Specification for the Ultrasonic Pulse-Echo Examination of Brazed Joints

## 1. General Requirements

**1.1 Scope.** This specification establishes the minimum equipment and procedure requirements for the pulse-echo ultrasonic examination of brazed joints. This specification addresses the following techniques: pulse-echo contact (manual) and pulse-echo immersion (automated).

**1.2 Units of Measurement.** This standard makes use of both the International System of Units (SI) and U.S. Customary Units. The latter are shown within brackets ([ ]) or in appropriate columns in tables and figures. The measurements may not be exact equivalents; therefore, each system must be used independently.

**1.3 Safety.** Safety and health issues and concerns are beyond the scope of this standard and therefore are not addressed herein.

Safety and Health information is available from the following sources:

American Welding Society:

- (1) ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*
- (2) AWS Safety and Health Fact Sheets
- (3) Other safety and health information on the AWS website

Material or Equipment Manufacturers:

- (1) Material Safety Data Sheets supplied by the materials manufacturers
- (2) Operating Manuals supplied by equipment manufacturers

Applicable Regulatory Agencies:

- (1) United States Department of Labor, Occupational Safety & Health Administration (OSHA)
- (2) Equivalent agencies of other countries and individual states

Work performed in accordance with this standard may involve the use of materials that have been deemed hazardous, and may involve operations or equipment that may cause injury or death. This standard does not purport to address all safety and health risks that may be encountered. The user of this standard should establish an appropriate safety program to address such risks as well as to meet applicable regulatory requirements. ANSI Z49.1 should be considered when developing the safety program.

## 2. Normative References

The standards listed below contain provisions that, through reference in this text, constitute mandatory provisions of this AWS standard. For undated references, the latest edition of the referenced standard shall apply. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply.