

AWS C3.5:1999
An American National Standard



Specification for Induction Brazing



American Welding Society



Key Words— Induction brazing, quality control inspection of brazed joints, brazing materials, brazing equipment, classification of brazed joints, brazed joint defects, nondestructive testing, induction brazing procedure

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Specification for Induction Brazing

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Prepared by
AWS Committee on Brazing and Soldering

Under the Direction of
AWS Technical Activities Committee

Approved by
AWS Board of Directors

Abstract

This specification provides minimum fabrication, equipment, material, process procedure requirements, and inspection requirements for the induction brazing of steels, copper, copper alloys, and heat and corrosion resistant alloys and other materials that can be adequately induction brazed. For the brazing of aluminum alloys refer to AWS C3.7, *Specification for Aluminum Brazing*. This specification provides criteria for classifying induction brazed joints based on loading and the consequences of failure and quality assurance criteria defining the limits of acceptability of each class. The specification defines acceptable induction brazing equipment, materials, and procedures, as well as the required inspection for each class of joint.



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Specification for Induction Brazing

1. Scope

This specification presents minimum fabrication and quality requirements for induction brazing material such as steels, stainless steels, copper, copper alloys, and heat or corrosion-resistant materials and other materials that can be adequately induction brazed. For the brazing of aluminum alloys refer to AWS C3.7, *Specification for Aluminum Brazing*. The purpose of this specification is to standardize induction brazing process requirements and control braze joint quality for all applications where braze joints of assured quality are required. This document states minimum requirements for processes and products with a minimum of explanatory information so that sources of ambiguity are reduced. It assigns responsibility for the ultimate quality of the brazed product to a single organization and permits that organization to modify requirements if appropriate to the application. It requires proper documentation of any such modifications. Units are rationalized conversions from U.S. Customary Units to SI Units and may be used interchangeably.

2. Applicable Documents

The following documents form a part of this specification, as referenced by this specification. Unless otherwise specified by the Organization Having Quality Responsibility, the revision of these documents in force at the time a contract or purchase order is issued shall be used.

- (1) ANSI/AWS A2.4, *Symbols for Welding, Brazing, and Nondestructive Examination*
- (2) ANSI/AWS A3.0, *Standard Welding Terms and Definitions*
- (3) ANSI/AWS A5.8, *Specification for Filler Metals for Brazing and Braze Welding*

- (4) ANSI/AWS A5.31, *Specification for Fluxes for Brazing and Braze Welding*
- (5) ANSI/AWS B2.2, *Brazing Procedure and Performance Qualification*
- (6) ANSI/AWS C3.8, *Recommended Practices for Ultrasonic Inspection of Brazed Joints*
- (7) AWS *Brazing Handbook*
- (8) ANSI/ASQC Z1.4, *Sampling Procedures and Tables for Inspection by Attributes*
- (9) ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*
- (10) AMS 2403, *Plating, General Purpose*
- (11) AMS 2404, *Plating, Electroless Nickel*
- (12) AMS 2424, *Plating, Nickel, Low Stressed Deposit*
- (13) ASTM E 1742, *Standard Practice for Radiographic Examination*
- (14) ASTM E 1417, *Standard Practice for Liquid Penetrant Examination*
- (15) ANSI/NCSL Z540-1, *General Requirements for Calibration Laboratories and Measuring and Test Equipment*

Document Sources:

American Welding Society (AWS), 550 N.W. LeJeune Road, Miami, FL 33126

American Society for Quality (ASQ), 611 East Wisconsin Avenue, Milwaukee, WI 53201

American Society for Testing and Materials (ASTM), 100 Barr Harbor Dr., West Conshohocken, PA 19428-2959

National Conference of Standards Laboratories, 1800 30th Street; Suite 305B, Boulder, CO 80301

Society of Automotive Engineers (SAE), 400 Commonwealth Drive, Warrendale, PA 15096-0001