

AWS A5.35/A5.35M: 2015-AMD1
An American National Standard

Specification for Covered Electrodes for Underwater Wet Shielded Metal Arc Welding



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An American National Standard**

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Specification for Covered Electrodes for Underwater Wet Shielded Metal Arc Welding

1st Edition

Prepared by the
American Welding Society (AWS) A5 Committee on Filler Metals and Allied Materials

Under the Direction of the
AWS Technical Activities Committee

Approved by the
AWS Board of Directors

Abstract

This specification establishes the requirements for classification of covered electrodes for underwater wet shielded metal arc welding. The requirements include mechanical properties of weld metal, weld metal soundness, and usability of electrode. Requirements for composition of the weld metal, standard sizes and lengths, marking, manufacturing, and packaging are also included. A guide to the use of the standard is included in an Annex.

This specification makes use of both U.S. Customary Units and the International System of Units (SI). Since these are not equivalent, each system must be used independently of the other.



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This standard is subject to revision at any time by the AWS A5 Committee on Filler Metals and Allied Materials. It must be reviewed every five years, and if not revised, it must be either reaffirmed or withdrawn. Comments (recommendations, additions, or deletions) and any pertinent data that may be of use in improving this standard are requested and should be addressed to AWS Headquarters. Such comments will receive careful consideration by the AWS A5 Committee on Filler Metals and Allied Materials and the author of the comments will be informed of the Committee's response to the comments. Guests are invited to attend all meetings of the AWS A5 Committee on Filler Metals and Allied Materials to express their comments verbally. Procedures for appeal of an adverse decision concerning all such comments are provided in the Rules of Operation of the Technical Activities Committee. A copy of these Rules can be obtained from the American Welding Society, 8669 NW 36th St, #130, Miami, FL 33166.

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Foreword

This Foreword is not a part of AWS A5.35/A5.35M:2015, *Specification for Covered Electrodes for Underwater Wet Shielded Metal Arc Welding*, but is included for information purposes only.

This specification was developed by the AWS D3B Subcommittee on Underwater Welding acting as a subcommittee of the AWS A5 Committee on Filler Metals and Allied Materials. This specification is the first edition for classification of electrodes developed for shielded metal arc welding underwater, in the wet, with no mechanical barrier between the water and the welding arc. The specification covers ferritic steel, austenitic stainless steel, and nonferrous filler material, including any auxiliary coatings applied over the electrode covering.

Comments and suggestions for the improvement of this standard are welcome. They should be sent to the Secretary, AWS A5 Committee on Filler Metals and Allied Materials, American Welding Society, 8669 NW 36th St, #130, Miami, FL 33166.

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Amendments

The following Amendments have been identified and are incorporated in this reprint.

AWS Standard: A5.35/A5.35M: 2015-AMD1

Amendment Number: 1

Subject: Subclause 1.1, paragraph 2

This specification does not govern depth of water capability or maximum exposure time for wet welding electrodes classified to this document. However, such testing information shall be recorded as required by Figure 1. Water depth of welding shall also be shown as required by the marking requirements of Clause 14.

AWS Standard: A5.35/A5.35M: 2015-AMD1

Amendment Number: 1

Subject: Figure 1, line 4

Water Depth of Test Welding _____ Electrode Exposure Time _____ Water: Fresh, Salt _____

AWS Standard: A5.35/A5.35M: 2015-AMD1

Amendment Number: 1

Subject: Subclause 14.1, (6), (7)

14.1 Identification. The following information (as a minimum) shall be legibly marked on the outside of each unit package:

- (1) This specification number,
- (2) Supplier's name and trade designation,
- (3) Electrode size and net weight of container,
- (4) Lot number,
- (5) AWS A5.35/A5.35M Electrode classification,
- (6) Electrode operating characteristics (DCEP and/or DCEN, amperage, and voltage range), and
- (7) Water depth of test welding.

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Specification for Covered Electrodes for Underwater Wet Shielded Metal Arc Welding

1. Scope

1.1 This specification prescribes requirements for the classification, based on underwater wet welding test and associated evaluation, of covered electrodes for underwater wet shielded metal arc welding. Requirements for certification of test results are also shown herein. The specification covers ferritic steel, austenitic stainless steel, and nickel filler metals plus any auxiliary coatings applied over the electrode covering. Unless otherwise specified herein, the term “manufacturer” refers to the provider of the finished product (the electrode ready for underwater use). The requirements herein are intended to classify electrodes without consideration for potential base metals to be welded; suitability for specific base metals should be established by the customer during welding procedure qualification testing (see Annex A for further considerations).

This specification does not govern depth of water capability or maximum exposure time for wet welding electrodes classified to this document. However, such testing information shall be recorded as required by Figure 1. Water depth of welding shall also be shown as required by the marking requirements of Clause 14.

Safety and health issues and concerns are beyond the scope of this standard and, therefore, are not fully addressed herein. Some safety and health information can be found in informative Annex A. Safety and health information is available from other sources, including, but not limited to, ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*, and applicable federal and state regulations.

2. Normative References

The following standards contain provisions which, 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.

2.1 The following AWS standards are referenced in the mandatory clauses of this document:

- (1) AWS A5.01M/A5.01 (ISO 14344 MOD), *Welding Consumables—Procurement of Filler Metals and Fluxes*;
- (2) AWS A5.1/A5.1M, *Specification for Carbon Steel Electrodes for Shielded Metal Arc Welding*;
- (3) AWS A5.4/A5.4M, *Specification for Stainless Steel Electrodes for Shielded Metal Arc Welding*;
- (4) AWS B4.0, *Standard Methods for Mechanical Testing of Welds*;
- (5) AWS B4.0M, *Standard Methods for Mechanical Testing of Welds*;
- (6) AWS D3.6M, *Underwater Welding Code*; and
- (7) AWS PRG, *The Practical Reference Guide for Radiographic Inspection Acceptance Criteria*.