


**AWS A5.11/A5.11M:2005**  
**An American National Standard**



**Specification for  
Nickel and  
Nickel-Alloy  
Welding Electrodes  
for Shielded Metal  
Arc Welding**



**American Welding Society**



**Key Words**—Nickel, nickel-alloy welding electrodes,  
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welding electrodes

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**Approved by**  
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# **Specification for Nickel and Nickel-Alloy Welding Electrodes for Shielded Metal Arc Welding**

**Supersedes ANSI/AWS A5.11/A5.11M-97**

Prepared by  
AWS A5 Committee on Filler Metals and Allied Materials

Under the Direction of  
AWS Technical Activities Committee

Approved by  
AWS Board of Directors

## **Abstract**

This specification prescribes the composition, dimensions, soundness, and properties of weld metal from more than 30 classifications of nickel and nickel-alloy covered electrodes. Major topics include general requirements, testing, manufacturing, identification, and packaging. A guide to using the specification 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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# Specification for Nickel and Nickel-Alloy Welding Electrodes for Shielded Metal Arc Welding

## 1. Scope

**1.1** This specification prescribes requirements for the classification of nickel and nickel-alloy covered electrodes for shielded metal arc welding. It includes those compositions in which the nickel content generally exceeds that of any other element.<sup>1</sup>

**1.2** 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 the nonmandatory annex, Sections A5 and A10. 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.

**1.3** This specification makes use of both U.S. Customary Units and the International System of Units (SI). The measurements are not exact equivalents; therefore, each system must be used independently of the other without combining in any way when referring to material properties. The specification with the designation A5.11 uses U.S. Customary Units. The specification A5.11M uses SI Units. The latter are shown within brackets [ ] or in appropriate columns in tables and figures. Standard dimensions based on either system may be used for sizing of filler metal or packaging or both under A5.11 or A5.11M specifications.

## 2. Normative References

**2.1** The following standards contain provisions which, through reference in this text, constitute provisions of this AWS standard. For dated references, subsequent amendments to, or revisions of, any of these publications

1. Nickel-base covered electrodes for welding cast iron are treated separately in AWS A5.15, *Specification for Welding Electrodes and Rods for Cast Iron*.

do not apply. However, parties to agreement based on this AWS standard are encouraged to investigate the possibility of applying the most recent edition of the documents shown below. For undated references, the latest edition of the standard referred to applies.

**2.2** The following AWS standards<sup>2</sup> are referenced in the mandatory sections of this document:

- (1) AWS A1.1, *Metric Practice Guide for the Welding Industry*
- (2) AWS A5.01, *Filler Metal Procurement Guidelines*
- (3) AWS B4.0, *Standard Methods for Mechanical Testing of Welds*
- (4) AWS B4.0M, *Standard Methods for Mechanical Testing of Welds*

**2.3** The following ANSI standard<sup>3</sup> is referenced in the mandatory sections of this document:

- (1) ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*

**2.3** The following ASTM standards<sup>4</sup> are referenced in the mandatory sections of this document:

- (1) ASTM A 131/A 131M, *Standard Specification for Structural Steel for Ships*
- (2) ASTM A 240/A 240M, *Standard Specification for Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels*
- (3) ASTM A 285/A 285M, *Standard Specification for Pressure Vessel Plates, Carbon steel, Low- and Intermediate-Tensile Strength*
- (4) ASTM A 515/A 515M, *Standard Specification for Pressure Vessel Plates, Carbon Steel, for Intermediate- and Higher-Temperature Service*

2. AWS standards are published by the American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

3. ANSI Z49.1 is published by the American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

4. ASTM standards are published by the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.