

An American National Standard



# Specification for Stainless Steel Electrodes for Shielded Metal Arc Welding



**American Welding Society®**



**AWS A5.4/A5.4M:2012**  
**An American National Standard**

**Approved by the**  
**American National Standards Institute**  
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# **Specification for Stainless Steel Electrodes for Shielded Metal Arc Welding**

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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**

Composition and other requirements are specified for more than forty classifications of covered stainless steel welding electrodes. The requirements include general requirements, testing, and packaging. Annex A provides application guidelines and other useful information about the electrodes.

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 Stainless Steel Electrodes for Shielded Metal Arc Welding

## 1. Scope

**1.1** This specification prescribes requirements for the classification of covered stainless steel electrodes for shielded metal arc welding.<sup>1,2</sup>

The chromium content of weld metal deposited by these electrodes is not less than 10.5 percent and the iron content exceeds that of any other element. For purposes of classification, the iron content shall be derived as the balance element when all other elements are considered to be at their minimum specified values.

*NOTE: No attempt has been made to classify all grades of filler metals within the limits of the above scope; only the more commonly used grades have been included.*

**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 Annex Sections A5 and A11. 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 state and federal 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 A5.4 uses U.S. Customary Units. The specification A5.4M uses SI Units. The latter are shown in 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 A5.4 or A5.4M specifications.

## 2. Normative References

**2.1** The following AWS standards<sup>3</sup> are referenced in the mandatory section of this document.

1. AWS A5.01M/A5.01 (ISO 14344 MOD). *Procurement Guidelines for Consumables – Welding and Allied Processes – Flux and Gas Shielded Electrical Welding Processes*
2. AWS A5.5, *Specification for Low-Alloy Steel Electrodes for Shielded Metal Arc Welding*
3. AWS B4.0, *Standard Methods for Mechanical Testing of Welds*
4. AWS B4.0M, *Standard Methods for Mechanical Testing of Welds*

<sup>1</sup> Due to possible differences in composition, core wire from covered electrodes should not be used as bare filler wire.

<sup>2</sup> Classifications E502, E505, and E7Cr are no longer specified by this document. They are specified in AWS A5.5/A5.5M:2006, designated as follows: E502 as E801X-B6 and E801X-B6L, E505 as E801X-B8 and E801X-B8L, and E7Cr as E801X-B7 and E801X-B7L.

<sup>3</sup> AWS standards are published by the American Welding Society, 8669 Doral Blvd., Suite 130, Doral, FL 33166.