


AWS A5.2/A5.2M:2007
An American National Standard



Specification for Carbon and Low- Alloy Steel Rods for Oxyfuel Gas Welding



American Welding Society



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Approved by the
American National Standards Institute
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Specification for
Carbon and Low-Alloy Steel Rods
for Oxyfuel Gas Welding

Supersedes ANSI/AWS A5.2-92

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 prescribes the requirements for classification of carbon and low-alloy steel rods for oxyfuel gas welding. The classification requirements include the mechanical properties of the weld metal. Additional requirements are included for chemical composition of the rod and for manufacture, sizes, lengths, and packaging. A guide is appended to the specification as a source of information concerning the classification system employed and the intended use of the rods.

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.



American Welding Society

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Foreword

This foreword is not part of AWS A5.2/A5.2M:2007, *Specification for Carbon and Low-Alloy Steel Rods for Oxyfuel Gas Welding*, but is included for informational purposes only.

This document is the first of the A5.2 specifications that 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 values in any way. In selecting rational metric units, AWS A1.1, *Metric Practice Guide for the Welding Industry*, and International Standard ISO 544, *Welding consumables — Technical delivery conditions for welding filler materials — Type of product, dimensions, tolerances, and markings*, are used where suitable. Tables and figures make use of both U.S. Customary and SI units, which, with the application of the specified tolerances, provides for interchangeability of products in both U.S. Customary and SI units.

The current document is the seventh revision of the initial joint ASTM/AWS document issued in 1942. As such, it is the second oldest document produced by the AWS A5 Committee on Filler Metals and Allied Materials. The first two revisions of the 1942 document were developed by the joint committee of the American Welding Society and the American Society for Testing and Materials. The 1969 revision was the first edition developed by the AWS A5 Committee on Filler Metals and Allied Materials. It was subsequently approved by the American National Standards Institute in 1973. *This revision adds the requirement for identification of individual rods as shown in italic font in Clause 15, Filler Metal Identification. In addition, this revision deleted the minimum tensile strength designators for 70, 80, and 90 ksi for the R(X)XX classification.* The evolution took place as follows:

ASTM A251-42T	<i>Tentative Specifications for Iron and Steel Gas Welding Rods</i>
AWS A5.2-42T	
ASTM A251-46T	<i>Tentative Specifications for Iron and Steel Gas Welding Rods</i>
AWS A5.2-46T	
ASTM A251-66T	<i>Tentative Specification for Iron and Steel Gas Welding Rods</i>
AWS A5.2-66T	
AWS A5.2-69	<i>Specification for Iron and Steel Gas Welding Rods</i>
ANSI W.3.2-1973	
ANSI/AWS A5.2-80	<i>Specification for Iron and Steel Oxyfuel Gas Welding Rods</i>
ANSI/AWS A5.2-88	<i>Specification for Carbon and Low Alloy Steel Rods for Oxyfuel Gas Welding</i>
ANSI/AWS A5.2-92	<i>Specification for Carbon and Low Alloy Steel Rods for Oxyfuel Gas Welding</i>

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, 550 N.W. LeJeune Road, Miami, FL 33126.

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Specification for Carbon and Low-Alloy Steel Rods for Oxyfuel Gas Welding

1. Scope

1.1 This specification prescribes requirements for the classification of carbon and low-alloy steel rods for oxyfuel gas welding.

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 Clauses 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 designated A5.2 uses U.S. Customary Units. The specification designated A5.2M uses SI Units. The latter units 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 A5.2 and A5.2M 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 do not apply. However, parties to agreements 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 standards¹ are referenced in the normative clauses of this document:

(1) AWS A5.01, *Filler Metal Procurement Guidelines*

(2) AWS B4.0 [AWS B4.0M], *Standard Methods for Mechanical Testing of Welds*

2.3 The following ANSI standard² is referenced in the normative clauses of this document:

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

2.4 The following ASTM standards³ are referenced in the normative clauses of this document:

(1) ASTM A 36/A 36M, *Standard Specification for Carbon Structural Steel*

(2) ASTM A 285/A 285M, *Standard Specification for Pressure Vessel Plates, Carbon Steel, Low- and Intermediate-Tensile Strength*

(3) ASTM A 514/A 514M, *Standard Specification for High-Yield-Strength, Quenched and Tempered Alloy Steel Plate, Suitable for Welding*

(4) ASTM E 29, *Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications*

(5) ASTM E 350, *Standard Test Methods for Chemical Analysis of Carbon Steel, Low-Alloy Steel, Silicon Electrical Steel, Ingot Iron, and Wrought Iron*

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

2. This ANSI standard is published by the American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

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