AWS A5.22/A5.22M:2010
An American National Standard

Specification for Stainless Steel Flux Cored and Metal Cored Welding Electrodes and Rods

American Welding Society

Approved American National Standard
ANSI

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Approved by the
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Specification for Stainless Steel Flux Cored and Metal Cored Welding Electrodes and Rods

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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

Classification and other requirements are specified for numerous grades of flux cored and metal cored stainless steel electrodes and rods. New classifications include a duplex alloy and three high carbon classifications not previously classified. New classifications also include all of the metal cored electrodes that are currently in A5.9/A5.9M. In the next revision of A5.9/A5.9M these metal cored electrodes will be deleted from that specification.

Designations for the flux cored electrodes and rods indicate the chemical composition of the weld metal, the position of welding, and the external shielding gas required (for those classifications for which one is required). Designations for the metal cored electrodes indicate the chemical composition of the weld metal only.

The requirements include general requirements, testing, and packaging. Annex A provides general application guidelines for individual alloys and other useful information about welding electrodes.

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Foreword

This foreword is not part of AWS A5.22/A5.22M:2010, *Specification for Stainless Steel Flux Cored and Metal Cored Welding Electrodes and Rods*, but is included for informational purposes only.

This document is the first of the A5.22 specifications which 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 ISO 544:* Welding consumables — Technical delivery conditions for welding filler metals — 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 the U.S. Customary and SI Units.*

Classifications E502TX-X and E505TX-X have been moved from this revision to AWS A5.29/A5.29M as new classifications E8XTX-B6/E8XTX-B6L and E8XTX-B8/E8XTX-B8L, respectively. Detailed size, winding, identification, packaging, and marking information has been replaced by adding reference to AWS A5.02/A5.02M, Specification for Filler Metal Standard Sizes, Packaging, and Physical Attributes*. New classifications E309HTX-X, E316HTX-X, E347HTX-X, E409NbTX-X, E430NbTX-X, EC439Nb, and E2594TX-X have been added. All metal cored classifications from A5.9/A5.9M have been transferred into this specification. Amount of Cu has been changed from 0.50% maximum to 0.75% maximum in Table 1FC. Amount of Mo has been changed from 0.50% maximum to 0.75% maximum for several classifications in Table 1FC. Cb has been changed to Nb. Amount of C has been changed from 0.03% maximum to 0.04% maximum for several classifications in Table 1FC. Table 1MC was added for metal cored filler metals. Elongation has been changed for several classifications from 35% minimum to 30% minimum in Table 6. Provision has been made for use of an optional supplemental designator "J" to indicate the impact toughness in cryogenic applications. Substantive changes are shown in italic font in this specification.*

The first AWS specification for stainless steel electrodes for flux cored arc welding was issued in 1974 and approved by the American National Standards Institute a year later. The revision history is shown below:

AWS A5.22-74 ANSI W3.22-1975	*Specification for Flux Cored Corrosion-Resisting Chromium and Chromium-Nickel Steel Electrodes*
AWS A5.22-80	*Specification for Flux Cored Corrosion-Resisting Chromium and Chromium-Nickel Steel Electrodes*
ANSI/AWS A5.22-95	*Specification for Stainless Steel Electrodes for Flux Cored Arc Welding and Stainless Steel Flux Cored Rods for Gas Tungsten Arc Welding*

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1. Scope

This specification prescribes requirements for the classification of flux cored stainless steel electrodes for flux cored arc welding, flux cored stainless steel rods for root pass welding with the gas tungsten arc process, and metal cored stainless steel electrodes for gas metal arc welding, gas tungsten arc welding, plasma arc welding, submerged arc welding, and any other process to which they may be applied.[1]

The chromium content of undiluted weld metal from these electrodes and rods is not less than 10.5% nominal 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 set at their specified minimum values.

Safety and health issues 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 state and federal regulations.

This specification uses 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 A5.22 uses U.S. Customary Units. The specification A5.22M uses SI Units. The latter are shown within brackets ([ ]) or in appropriate columns in tables. Standard dimensions based on either system may be used for sizing of filler metals or packaging or both under A5.22 or A5.22M specifications.

2. Normative References

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 agreement based on this AWS standard are encouraged to investigate the possibility of applying the most recent editions of the documents shown below. For undated references, the latest edition of the standard referred to applies.

2.1 The following AWS standards[2] are referenced in the mandatory sections of this document:

AWS A5.01M/A5.01*, Procurement Guidelines for Consumables—Welding and Allied Processes—Flux and Gas Shielded Electrical Welding Processes*

AWS A5.02/A5.02M:2007, *Specification for Filler Metal Standard Sizes, Packaging, and Physical Attributes*

AWS A5.32/A5.32M, *Specification for Welding Shielding Gases*

[1] Metal cored electrodes, currently also classified in A5.9/A5.9M, will be deleted from the next revision of that specification.
[2] AWS standards are published by the American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.