AEROSPACE MATERIAL SPECIFICATION

AMS6466™	REV. G

Issued	1959-01
Revised	1997-06
Reaffirmed	2006-04
Noncurrent	2008-12
Reaf. Nonc.	2015-12
Stabilized	2017-12

Superseding AMS6466F

Steel, Corrosion-Resistant, Welding Wire
5.2Cr – 0.55Mo
(Composition similar to UNS S50280)

RATIONALE

AMS6466G has been designated stabilized based on results of a survey to aerospace users and producers.

STABILIZED NOTICE

AMS6466G has been declared "STABILIZED" by SAE AMS Committee E Carbon and Low Alloy Steels. This document will no longer be updated and may no longer represent standard industry practice. This document was stabilized because this document contains mature technology that is not expected to change, and other documents contain similar, but not necessarily equivalent requirements, and thus no further revisions are anticipated. Previously this document was non-current. The last technical update of this document occurred in June 1997. Users of this document should refer to the cognizant engineering organization for disposition of any issues with reports/certifications to this specification; including exceptions listed on the certification.

NOTE: In many cases, the purchaser may represent a sub tier supplier and not the cognizant engineering organization.

AMS Committee E recommends that the following similar but not identical specifications may be considered for future procurement. This listing does not constitute authority to substitute these specifications for the “STABILIZED” specification.

AWS A5.28/A5.28M Specification for Low-Alloy Steel Electrodes and Rods for Gas Shielded Arc Welding ER80S-B6 UNS S50280

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
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1. SCOPE:

1.1 Form:

This specification covers a corrosion-resistant steel in the form of welding wire.

1.2 Application:

This wire has been used typically as filler metal for gas-tungsten-arc and gas-metal-arc welding of low-alloy steels where response to heat treatment is required in the weld, but usage is not limited to such applications.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AMS 2248	Chemical Check Analysis Limits, Corrosion and Heat Resistant Steels and Alloys, Maraging and Other Highly-Alloyed Steels, and Iron Alloys
AMS 2371	Quality Assurance Sampling and Testing, Corrosion and Heat Resistant Steels and Alloys, Wrought Products and Forging Stock
AMS 2813	Packaging and Marking of Packages of Welding Wire, Standard Method
AMS 2814	Packaging and Marking of Packages of Welding Wire, Premium Quality
AMS 2816	Identification, Welding Wire, Tab Marking Method
AMS 2819	Identification, Welding Wire, Direct Color Code System
ARP1876	Weldability Test for Weld Filler Metal Wire
ARP4926	Alloy Verification and Chemical Composition Inspection of Welding Wire

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM E 353 Chemical Analysis of Stainless, Heat-Resisting, Maraging, and Other Similar Chromium-Nickel-Iron Alloys

2.3 ANSI Publications:

Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.

ANSI B46.1 Surface Texture

3. TECHNICAL REQUIREMENTS:

3.1 Wire Composition:

Shall conform to the percentages by weight shown in Table 1, determined by wet chemical methods in accordance with ASTM E 353, by spectrochemical methods, or by other analytical methods acceptable to purchaser.

TABLE 1 - Composition

Element	min	max
Carbon	--	0.10
Manganese	--	0.60
Silicon	0.25	0.60
Phosphorus	--	0.03
Sulfur	--	0.03
Chromium	4.50	6.00
Molybdenum	0.45	0.65
Nickel	--	0.60
Copper	--	0.35

3.1.1 Chemical analysis of initial ingot, bar, or rod stock before drawing, other than those analyses required to be done on the finished wire, is acceptable, provided processes used for drawing or rolling, annealing, and cleaning are controlled to ensure continued conformance to composition requirements.

3.1.2 Check Analysis: Composition variations shall meet the applicable requirements of AMS 2248.

3.2 Condition:

Cold worked, bright finish, in a temper and with a surface finish which will provide proper feeding of the wire in machine welding equipment.

3.3 Fabrication:

3.3.1 In process annealing, if required between cold rolling or drawing operations, shall be performed in vacuum or protective atmosphere to avoid surface oxidation and absorption of other extraneous elements.

3.3.2 Butt welding is permissible provided both ends to be joined are alloy verified using a method or methods capable of distinguishing the alloy from all other alloys processed in the facility, or the repair is made at the wire processing station. The butt weld shall not interfere with uniform, uninterrupted feeding of the wire in machine welding equipment.

3.3.3 Drawing compounds, oxides, dirt, oil, and other foreign materials shall be removed by cleaning processes which will neither result in pitting nor cause gas absorption by the wire or deposition of substances harmful to welding operations.

3.3.4 Residual elements and dissolved gases picked up during wire processing, that can adversely affect the welding characteristics, the operation of the equipment, or the properties of the weld metal, shall be removed.

3.4 Properties:

Wire shall conform to the following requirements:

3.4.1 Weldability: Melted wire shall flow smoothly and evenly during welding and shall produce acceptable welds. ARP1876 may be used to resolve disputes.

3.4.2 Spooled Wire: Shall conform to 3.4.2.1 and 3.4.2.2.

3.4.2.1 Cast: Wire, wound on standard 12-inch (305-mm) diameter spools, shall have imparted to it a curvature such that a specimen sufficient in length to form one loop with a 1-inch (25-mm) overlap, when cut from the spool and laid on a flat surface, shall form a circle 15 to 50 inches (381 to 1270 mm) in diameter.

3.4.2.2 Helix: The specimen on which cast was determined, when laid on a flat surface and measured between adjacent turns, shall show a vertical separation not greater than 1 inch (25 mm).

3.5 Quality:

Wire, as received by purchaser, shall be uniform in quality and condition, sound, and free from foreign materials and from imperfections detrimental to welding operations, operation of welding equipment, or properties of the deposited weld metal.

3.6 Sizes and Tolerances:

Wire shall be supplied in the sizes and to the tolerances shown in 3.6.1 and 3.6.2.

3.6.1 Diameter: Shall be as shown in Table 2.

TABLE 2A - Sizes and Diameter Tolerances, Inch/Pound Units

Form	Nominal Diameter Inch	Tolerance plus	Tolerance minus
Cut Lengths	0.030, 0.035, 0.045, 0.062	0.002	0.002
Cut Lengths	0.094, 0.125	0.003	0.003
Spools	0.020, 0.025	0.0005	0.0005
Spools	0.030, 0.035, 0.045	0.001	0.002
Spools	0.062, 0.094	0.002	0.002

TABLE 2B - Sizes and Diameter Tolerances, SI Units

Form	Nominal Diameter Millimeters	Tolerance plus	Tolerance minus
Cut Lengths	0.75, 0.89, 1.15, 1.55	0.05	0.05
Cut Lengths	2.35, 3.10	0.08	0.08
Spools	0.50, 0.64	0.015	0.015
Spools	0.75, 0.90, 1.15	0.02	0.05
Spools	1.55, 2.35	0.05	0.05

3.6.2 Length: Cut lengths shall be furnished in 18, 27, or 36 inch (457, 686, or 914 mm) lengths, as ordered, and shall not vary more than +0, -0.5 inch (-13 mm) from the length ordered.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

The vendor of wire shall supply all samples for vendor's tests and shall be responsible for the performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the wire conforms to specified requirements.