AEROSPACE MATERIAL SPECIFICATION

AMS5696™	REV. E

Issued 1984-07
Noncurrent 2008-03
Revised 2015-12
Reaffirmed 2021-05

Superseding AMS5696D

Steel, Corrosion and Heat-Resistant, Welding Wire
19Cr - 12.5Ni - 2.5Mo

(Composition similar to UNS S31683)

RATIONALE

AMS5696E restores this document to active status. AMS5696E has been updated to incorporate the standard quality requirements of AMS materials as the ordering requirements for AWS specified wire, and is the result of a Five Year review and update of this specification.

1. SCOPE

1.1 Form

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

1.2 Application

This wire has been used typically as bare wire filler metal for gas-tungsten-arc or gas-metal-arc welding of corrosion and heat-resistant steels and alloys, but usage is not limited to such applications.

1.2.1 The relatively high ferrite content promotes weldability by combating microfissuring and minimizing cracking in heavy sections but limits use of the wire to applications not operating in the sigma-forming temperature range.

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS2813 Packaging and Marking of Packages of Welding Wire, Standard Method

AMS2814 Packaging and Marking of Packages of Welding Wire, Premium Quality

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

For more information on this standard, visit
https://www.sae.org/standards/content/AMS5696E/

AMS2816 Identification Welding Wire, Tab Marking Method

AMS2819 Identification, Welding Wire Direct Color Code System

ARP4926 Alloy Verification and Chemical Composition Inspection of Welding Wire

2.2 AWS Publications

Available from American Welding Society, 8669 NW 36 Street, #130, Miami, FL 33166-6672, Tel: 1-800-443-9353 or 305-443-9353, www.aws.org.

AWS A5.01 Welding Consumables Procurement of Filler Metals and Fluxes

AWS A5.9/A5.9M Specification for Bare Stainless Steel Welding Electrodes and Rods

3. TECHNICAL REQUIREMENTS

3.1 Wire shall meet the technical requirements of AWS A5.9/5.9M ER316L and the following:

3.2 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.

3.3 Sizes and Tolerances

Wire shall be supplied in the sizes and to the tolerances specified in AWS A5.9/5.9M. Smaller diameter wires, when ordered, shall be supplied in sizes and tolerances shown in 3.3.1.

3.3.1 Diameter

Shall be as shown in Table 1.

Table 1A - Sizes and diameter tolerances, inch/pound units

Form	Nominal Diameter Inch	Tolerance Inch Plus and Minus
Cut Lengths	0.030, 0.035,	0.001
Spools	0.007, 0.010, 0.015	0.0005

Table 1B - Sizes and diameter tolerances, SI units

Form	Nominal Diameter Millimeter	Tolerance Millimeter Plus and Minus
Cut Lengths	0.76, 0.89,	0.025
Spools	0.18, 0.25, 0.38	0.013

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.

4.2 Classification of Tests

4.2.1 Acceptance Tests

Composition (3.1), sizes and tolerances (3.3), and alloy verification (5.2) are acceptance tests and shall be performed on each heat or lot as applicable.

4.3 Sampling and Testing

Shall be in accordance with AWS A5.01 S3, testing schedule 5 or J.

4.4 Reports

The vendor of wire shall furnish with each shipment a report showing the results of tests for composition and ferrite number of each heat and stating that the wire conforms to the other technical requirements. This report shall include the purchase order number, heat and lot numbers, AMS5696E, nominal size, and quantity.

4.5 Resampling and Retesting

Shall be in accordance with AWS A5.01.

5. PREPARATION FOR DELIVERY

5.1 Wire shall be supplied either on spools in one continuous length for machine welding or in cut lengths for manual welding, as ordered. Wire on each spool or in each package of cut lengths shall be from the same heat of steel.

5.2 Alloy Verification

Wire on each spool or in each package of cut lengths shall be alloy verified by a method acceptable to purchaser. The alloy verification procedures of ARP4926 are recommended.

5.2.1 An 8 inch (203 mm) length of wire shall be accessible at both ends of each spool for alloy verification.

5.3 Identification

Shall be in accordance with AMS2816 unless AMS2819 or another method is specified by purchaser.

5.4 Packaging and Marking

Shall be in accordance with AMS2813 unless AMS2814 or another method is specified by purchaser.

6. ACKNOWLEDGMENT

A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

7. REJECTIONS

Wire not conforming to this specification, or to modifications authorized by purchaser, will be subject to rejection.