NOTICE OF ADOPTION

ADOPTION NOTICE 1
12 July 1991 for
AMS-5683E
1 April 1990

Inactivates
AMS-5683D
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Title of Document: Alloy Welding Wire, Corrosion and Heat Resistant
75Ni - 15.5Cr - 8.0Fe

Date of Specific Issue Adopted: 1 April 1990

Releasing Non-Government Standards Body: Society of Automotive Engineers, Inc.

NOTE:

This specification has been declared "NONCURRENT" by the Aerospace Materials Division, SAE, as of April, 1989. It is recommended that this specification not be specified for new designs.

Custodians:
Army - AL
Navy - SH
Air Force - 99

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Review Activities:
Air Force - 84
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AEROSPACE MATERIAL SPECIFICATION

SAE AMS-5683 REV E

Issued 1940-10-15
Revised 1990-04-01

Superseding AMS-5683D

Submitted for recognition as an American National Standard

ALLOY WELDING WIRE, CORROSION AND HEAT RESISTANT
75Ni - 15.5Cr - 8.0Fe

This specification has been declared "NONCURRENT" by the Aerospace Materials Division, SAE, as of April, 1989. It is recommended that this specification not be specified for new designs.

This cover sheet should be attached to the "D" Revision of the subject specification.

Noncurrent refers to those materials which have previously been widely used and which may be required on some existing designs in the future. The Aerospace Materials Division does not recommend these as standard materials for future use in new designs. Each of these "Noncurrent" specifications is available on request.

This specification is under the jurisdiction of the AMS Committee "F".

SAE The Engineering Resource For Advancing Mobility
400 COMMONWEALTH DRIVE. WARRENDALE. PA 15096

AEROSPACE MATERIAL SPECIFICATION

AMS 5683D
Superseding AMS 5683C

Issued 10-15-40
Revised 1-1-84

ALLOY WELDING WIRE, CORROSION AND HEAT RESISTANT
75Ni - 15.5Cr - 8.0Fe

1. SCOPE:

1.1 Form: This specification covers a corrosion and heat resistant nickel alloy in the form of welding wire.

1.2 Application: Primarily for use as filler metal for oxyacetylene welding.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2269 - Chemical Check Analysis Limits, Wrought Nickel Alloys and Cobalt Alloys
AMS 2350 - Standards and Test Methods
AMS 2371 - Quality Assurance Sampling of Corrosion and Heat Resistant Steels and Alloys, Wrought Products Except Forgings and Forging Stock
AMS 2813 - Packaging of Welding Wire, Standard Method
AMS 2815 - Identification, Welding Wire, Line Code System
AMS 2816 - Identification, Welding Wire, Color Code System

2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM E354 - Chemical Analysis of High-Temperature, Electrical, Magnetic, and Other Similar Iron, Nickel, and Cobalt Alloys

2.3 U.S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

AMS 5683D

2.3.1 Federal Standards:

Federal Test Method Standard No. 151 - Metals; Test Methods

3. TECHNICAL REQUIREMENTS:

3.1 Composition: Shall conform to the following percentages by weight, determined by wet chemical methods in accordance with ASTM E354, by spectrographic methods in accordance with Federal Test Method Standard No. 151, Method 112, or by other analytical methods approved by purchaser:

	min	max
Carbon	--	0.10
Manganese	--	1.00
Silicon	--	0.50
Sulfur	--	0.015
Chromium	14.00	17.00
Iron	6.00	10.00
Cobalt (3.1.1)	--	1.00
Copper	--	0.50
Nickel + Cobalt	72.00	--

3.1.1 Determination not required for routine acceptance.

3.1.2 Check Analysis: Composition variations shall meet the requirements of AMS 2269.

3.2 Condition: Cold finished in a temper which will provide proper feeding of Ø the wire in machine welding equipment.

3.2.1 Wire shall be furnished on disposable spools for machine welding or in cut lengths for manual welding, as ordered.

3.2.2 In-process annealing between cold rolling or drawing operations shall be Ø performed in a suitable protective atmosphere.

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

3.3 Properties: Wire shall conform to the following requirements:

3.3.1 Weldability: Melted wire shall flow smoothly and evenly during welding and shall produce acceptable welds, determined by a procedure agreed upon by purchaser and vendor.

3.3.2 Spooled Wire: Shall conform to 3.3.2.1 and 3.3.2.2, unless otherwise agreed upon by purchaser and vendor:

3.3.2.1 Cast: Wire wound on standard 12-in. (300 mm) diameter spools shall have imparted to it a curvature such that a specimen sufficient in length, 4 - 8 ft (1200 - 2400 mm), to form one loop, when cut from the spool and laid on a flat surface, shall form a circle not less than 15 in. (375 mm) and not greater than 30 in. (750 mm) in diameter.

3.3.2.2 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 in. (25 mm).

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

3.5 Sizes and Tolerances: Wire shall be supplied in the sizes and to the tolerances shown in 3.5.1 and 3.5.2, unless otherwise specified.

3.5.1 Diameter:

TABLE I

Form	Nominal Diameter Inch	Tolerance, Inch plus	Tolerance, Inch minus
Cut lengths	0.062, 0.094, 0.125, 0.156	0.003	0.003
Spools	0.035, 0.045	0.001	0.002
Spools	0.062, 0.094	0.002	0.002

TABLE I (SI)

Form	Nominal Diameter Millimetres	Tolerance, Millimetre plus	Tolerance, Millimetre minus
Cut lengths	1.55, 2.35, 3.10, 4.00	0.08	0.08
Spools	0.90, 1.15	0.03	0.05
Spools	1.55, 2.35	0.05	0.05

3.5.2 Length: Cut lengths shall be furnished in 18, 27, or 36 in. (450, 675, or 900 mm) lengths, as ordered, and shall not vary more than +0, -0.5 in. (-13 mm) from the length ordered.

4. QUALITY ASSURANCE PROVISIONS: