SAE Aerospace
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AEROSPACE MATERIAL SPECIFICATION

SAE AMS5966 | REV. B

Issued 1997-04
Reaffirmed 2007-08
Revised 2013-07

Superseding AMS5966A

Nickel Alloy, Corrosion and Heat Resistant, Welding Wire
50Ni - 20Cr - 20Co - 5.9Mo - 2.2Ti - 0.45Al
Consumable Electrode or Vacuum Induction Melted
(Composition similar to UNS N07263)

RATIONALE

AMS5966B revises or incorporates standard industry requirements for winding (3.5.2.1), cast (3.5.2.2, Table 2) and helix (3.5.2.3, Table 2), and is a Five Year Review and update of this specification.

1. SCOPE

1.1 Form

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

1.2 Application

This wire has been used typically as filler metal for gas-tungsten-arc or gas-metal-arc welding of corrosion and heat-resistant nickel alloys of similar composition where the weld area is required to have strength and corrosion resistance comparable to those of the base metal, but usage is not limited to such applications.

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 724-776-4970 (outside USA), www.sae.org.

AMS2269 Chemical Check Analysis Limits, Nickel, Nickel Alloys, and Cobalt Alloys

AMS2371 Quality Assurance Sampling and Testing, Corrosion and Heat-Resistant Steels and Alloys, Wrought Products and Forging Stock

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

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
http://www.sae.org

http://www.sae.org/technical/standards/AMS5966B

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

AMS2816 Identification, Welding Wire, Tab Marking Method

AMS2819 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 International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM E 354 Chemical Analysis of High-Temperature, Electrical, Magnetic, and Other Similar Iron, Nickel, and Cobalt Alloys

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 354, by spectrochemical methods, or by other analytical methods acceptable to purchaser.

TABLE 1 – COMPOSITION

Element	min	max
Carbon	0.04	0.08
Manganese	--	0.60
Silicon	--	0.40
Phosphorus	--	0.015
Sulfur	--	0.007
Chromium	19.00	21.00
Cobalt	19.00	21.00
Molybdenum	5.60	6.10
Titanium	1.90	2.40
Aluminum	0.30	0.60
Titanium + Aluminum	2.40	2.80
Iron	--	0.70
Boron	--	0.005
Copper	--	0.20
Lead	--	0.002
Bismuth	--	0.0001
Silver	--	0.0005
Nickel	remainder	

3.1.1 Chemical analysis of initial ingot, bar, or rod stock before drawing is acceptable provided the 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 AMS2269. No variation over maximum is permitted for lead, bismuth, and silver.