



AEROSPACE MATERIAL SPECIFICATION

AMS6533™**REV. D**

Issued	1991-04
Revised	2002-03
Noncurrent	2005-04
Reaffirmed	2020-09
Stabilized	2025-10

Superseding AMS6533C

Steel, Welding Wire
2.0Cr - 10Ni - 14Co - 1.0Mo - (0.13 - 0.17C)
Vacuum Melted, Environment Controlled Packaging
(Composition similar to UNS K92571)

RATIONALE

AMS6533D has been declared "STABILIZED" by AMS Committee E. This document will no longer be updated and may no longer represent standard industry practice. This document was stabilized because the committee can find no producers or users for this document and thus revisions are not anticipated. Previously, this document was reaffirmed. The last technical update of this document occurred in March 2002. 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.

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Documents



Standard, visit Sharing Hub

1. SCOPE:

1.1 Form:

This specification covers a premium aircraft-quality alloy steel in the form of welding wire.

1.2 Application:

This wire has been used typically as filler metal for gas-metal-arc or gas-tungsten-arc welding of steels of similar composition requiring joints with high strength and fracture toughness, 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 canceled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001 or www.sae.org.

AMS 2248	Chemical Check Analysis Limits, Corrosion and Heat Resistant Steels and Alloys, Maraging and Other Highly-Alloyed Steels, and Iron Alloys
AMS 2300	Steel Cleanliness, Premium Aircraft-Quality, Magnetic Particle Inspection Procedure
MAM 2300	Steel Cleanliness, Premium Aircraft-Quality, Magnetic Particle Inspection Procedure, Metric (SI) Measurement
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
AMS 6522	Steel Plate, 2.0Cr - 10Ni - 14Co - 1.0Mo, (0.13 - 0.17C) Vacuum Melted, Normalized, and Overaged
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, P.O. Box C700, West Conshohocken, PA 19428-2959 or www.astm.org.

ASTM E 8	Tension Testing of Metallic Materials
ASTM E 8M	Tension Testing of Metallic Materials (Metric)
ASTM E 353	Chemical Analysis of Stainless, Heat-Resisting, Maraging, and Other Similar Chromium-Nickel-Iron Alloys
ASTM E 399	Plane-Strain Fracture Toughness of Metallic Materials

3. TECHNICAL REQUIREMENTS:

3.1 Wire Composition:

Wire 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 (3.1.1.1)	0.13	0.17
Manganese	--	0.10
Silicon	--	0.10
Phosphorus	--	0.008
Sulfur	--	0.005
Phosphorus + Sulfur	--	0.010
Chromium	1.80	2.20
Nickel	9.50	10.50
Cobalt	13.50	14.50
Molybdenum	0.90	1.10
Titanium	--	0.015
Copper	--	0.10
Oxygen (3.1.1.1)	--	0.010 (100 ppm)
Nitrogen (3.1.1.1)	--	0.0015 (15 ppm)
Hydrogen (3.1.1.1)	--	0.0005 (5 ppm)

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.

3.1.1.1 Carbon, oxygen, nitrogen, and hydrogen shall also be determined periodically on finished wire (Refer to 4.2.2).

3.1.2 Check Analysis: Composition variations shall meet the applicable requirements of AMS 2248. No variation over maximum is permitted for oxygen, nitrogen, and hydrogen (See 8.2).