



AEROSPACE MATERIAL SPECIFICATION

AMS6453™**REV. D**

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Superseding AMS6453C

Steel, Welding Wire
0.30Cr - 1.8Ni - 0.40Mo - (0.23-0.28C)
Vacuum Melted, Environment Controlled Packaging
(Composition similar to UNS K32550)

RATIONALE

AMS6453D has been declared "STABILIZED" by SAE AMS Committee E Carbon and Low Alloy Steels as mature technology that is not expected to change and thus no further revisions are anticipated.

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AMS6453D 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 This document will no longer be updated and may no longer represent standard industry practice.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 the document contains mature technology that is not expected to change and thus no further revisions are anticipated. Previously this document was revised. The last technical update of this document occurred in April 2012. 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
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1. SCOPE

1.1 Form

This specification covers a low-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, 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

AMS2259	Chemical Check Analysis Limits, Wrought Low-Alloy and Carbon Steels
AMS2370	Quality Assurance Sampling and Testing, Carbon and Low-Alloy Steel Wrought Products and Forging Stock
AMS2813	Packaging and Marking of Packages of Welding Wire, Standard Method

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 350 Chemical Analysis of Carbon Steel, Low-Alloy Steel, Silicon Electrical Steel, Ingot Iron, and Wrought Iron

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

TABLE 1 - COMPOSITION

Element	min	max
Carbon (3.1.1.1)	0.23	0.28
Manganese	1.20	1.50
Silicon	1.30	1.70
Phosphorus	--	0.010
Sulfur	--	0.008
Chromium	0.20	0.40
Nickel	1.65	2.00
Molybdenum	0.35	0.45
Copper	--	0.35
Oxygen (3.1.1.1)	--	0.010 (100 ppm)
Nitrogen (3.1.1.1)	--	0.040 (40 ppm)
Hydrogen (3.1.1.1)	--	0.001 (10 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 periodically determined on finished wire (See 4.2.2).

3.1.2 Check Analysis

Composition variations shall meet the applicable requirements of AMS2259. No variation over maximum is permitted for oxygen, nitrogen, and hydrogen.