SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York, N.Y. 10017

AEROSPACE MATERIAL SPECIFICATIONS

AMS 6464A
Superseding AMS 6464
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WELDING ELECTRODES, COATED, STEEL
1.05Mo - 0.20V (0.06 - 0.12C)

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

2. APPLICATION: Primarily for use as filler metal for metal arc welding of carbon and low alloy steels when the deposited weld metal is required to have heat treating characteristics similar to the metals joined.

3. COMPOSITION: Electrodes shall be capable of depositing weld metal of the following composition:

	min	max
Carbon	0.06	0.12
Manganese	0.35	0.70
Silicon	0.30	0.60
Phosphorus	--	0.025
Sulfur	--	0.025
Molybdenum	0.90	1.20
Vanadium	0.10	0.30

3.1 Weld Pads for Chemical Analysis: The referee procedure for making pads of weld metal and removing ø samples for chemical analysis shall be as specified in the issue of ASTM A316 listed in the latest issue of AMS 2350.

3.2 When permitted by purchaser, the composition requirements specified above may be waived if the requirements of Sections 4 and 5 are met.

4. TYPE: Electrodes shall be suitable for welding in all positions using AC or using DC straight polarity ø (electrode negative) or reverse polarity.

5. TECHNICAL REQUIREMENTS:

5.1 Tensile Properties: Deposited weld metal shall be capable of meeting the following requirements:

5.1.1 A single-bevel-groove, butt-joint weld shall be made from one side between two pieces of AMS 6350 or AMS 6355 plate 0.250 in. thick, one of which is chamfered 7/32 in. deep to a 60 deg included angle. Root opening shall be adjusted for electrode diameter to assure 100% weld penetration. The weld ø metal shall be machined flush with the parent metal on both faces. A standard sheet-type tensile test specimen prepared in accordance with the issue of ASTM E8 specified in the latest issue of AMS 2350, having the weld in the approximate center of the gage length and perpendicular to the longitudinal axis of the specimen, hardened and tempered to a parent metal hardness not lower than Rockwell C 26, shall conform to the following requirements:

Tensile Strength Through Weld Zone, % of Parent Metal	90 min
Elongation, % in 2 in.	10 min

5.2 Weldability: Electrodes shall demonstrate good weldability and shall flow smoothly and evenly under the conditions specified in Section 4.

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5.3 Burn-Off: The coating shall be consumed uniformly on all sides and shall not burn back from the core wire under proper welding conditions. Heating of the electrode during welding shall not cause injurious blistering of the coating within the range of current values recommended by the manufacturer.

5.4 Grip Portion and Arc Ends: A portion of the electrode 0.75 - 1.25 in. long at one end shall be bare to permit good electrical contact with the electrode holder. The opposite, or arc, end of the electrode shall be sufficiently bare to permit easy striking of the arc but the length of this bare section, as measured from the end of the electrode to the point where the full cross section of the coating begins, shall not exceed the diameter of the bare wire and in no case shall it exceed 1/8 inch.

5.5 Cleaning: Slag produced during welding shall be readily removable with hand tools.

6. QUALITY:

6.1 The core wire shall be uniform in quality and condition, clean, sound, and free from foreign materials and from imperfections detrimental to weld quality.

6.2 The coating shall be uniform in quality, tightly adherent, and free from abnormal scabs, blisters, pockmarks, bruises, and other surface imperfections and shall withstand normal handling without damage. It shall not be harmfully hygroscopic and shall not adversely affect weld quality.

7. STANDARD SIZES AND LENGTHS:

Nominal Diameter of Core Wire, Inch	Length, Inches
3/32	12
1/8, 5/32, 3/16	14

7.1 Unless otherwise specified, end grip electrodes shall be supplied.

8. TOLERANCES:

8.1 Unless otherwise specified, electrodes shall not vary in length more than ± 1/8 in. from the length ordered.

8.2 Electrode core wire shall not vary in diameter more than ± 0.002 in. from the size ordered.

8.3 Over-all diameter of the coated electrodes shall not vary more than 4% from that of the approved sample.

8.4 Coating shall be concentric with the core wire to the extent that the maximum core-plus-one-coating dimension shall not exceed the minimum core-plus-one-coating dimension by more than 3% of the minimum core-plus-one-coating dimension.

9. REPORTS:

9.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report stating that the product conforms to the requirements of this specification. This report shall include the purchase order number, material specification number, control number, size, and quantity. Control number shall be a designation indicating batch processing and core wire heat number. When requested by the purchaser, the vendor shall also include in the report the composition of the deposited weld metal for each heat in the shipment.

9.2 Unless otherwise specified, when assemblies requiring use of these electrodes are supplied, the assembly manufacturer shall inspect each lot of electrodes to determine conformance to the requirements of this specification and shall furnish with each shipment three copies of a report stating that the electrodes conform to this specification. This report shall include the purchase order number, material specification number, part number, and quantity.

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