AERONAUTICAL
MATERIAL SPECIFICATIONS
SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

AMS 5779

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Revised

ALLOY WELDING ELECTRODES, COATED, CORROSION AND HEAT RESISTANT
Nickel Base - 15Cr - (Cb+Ta) - 1.9Ti - 0.6Al

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

2. APPLICATION: Primarily for welding alloys of composition similar to that of the weld metal deposited from these electrodes.

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

Carbon	0.25 max
Manganese	1.0 max
Silicon	1.0 max
Sulfur	0.015 max
Chromium	12.5 - 17.0
Nickel + Cobalt	66.0 min
Cobalt, if determined	1.0 max
Columbium + Tantalum	4xSi min
Titanium	1.0 - 2.75
Aluminum	0.10 - 1.0
Iron	11.0 max
Copper	0.50 max

3.1 Weld Pads for Chemical Analysis: The referee procedure for making pads of weld metal and removing samples for chemical analysis shall be ASTM A298-55T, except that sample shall not be removed within 1/2 in. of the base plate, unless the base plate is similar in composition to the core wire, in which case sample may be removed from as close as 1/4 in. to the plate.

4. TYPE: Coating shall be suitable for use in flat and horizontal fillet welding with direct current.

5. TECHNICAL REQUIREMENTS:

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

5.2 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 ranges of current values recommended by the manufacturer.

5.3 Grip Portion and Arc Ends: A portion of the electrode 0.75 - 1.25 in. long on end grip rods and 1.5 - 2 in. long on center grip rods, shall be bare to permit good electrical contact with the electrode holder. The arc end of the electrode shall be sufficiently bare to permit easy striking of the arc, but the length of the 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.

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5.4 Cleaning: Slag produced during welding shall be removable; use of power tools is permissible.

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: Unless otherwise specified, 14 in. long end grip electrodes shall be supplied in 1/8 in. and 5/32 in. diameters, and 14 in. long center grip in 5/64 and 3/32 in. diameters.

8. TOLERANCES:

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

8.2 Electrode core wire shall not vary in diameter more than +0.001 in. and -0.003 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 electrodes shall furnish with each shipment three copies of a report stating that the electrodes conform 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 purchaser, the vendor shall also include in the report the composition of the deposited weld metal for each heat in the shipment.

9.2 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.

10. PACKAGING:

10.1 Packaging shall be accomplished in such a manner as to ensure that the electrodes, during shipment and storage, will be protected against mechanical injury and exposure to moisture. Such packaging shall protect the coating from changes in moisture content of such magnitude as to impair use of the electrodes.