

# AERONAUTICAL MATERIAL SPECIFICATIONS

AMS 6462A

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

Issued 6-30-60  
Revised 11-15-60

STEEL WIRE, WELDING  
0.93Cr - 0.2V (0.28 - 0.33C) SAE 6130

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 inert gas arc welding of non-critical weldments of low alloy steels where the joint is capable of being heat treated to 150,000 psi tensile strength.
3. COMPOSITION:

Carbon	0.28 - 0.33
Manganese	0.70 - 0.90
Silicon	0.20 - 0.35
Phosphorus	0.025 max
Sulfur	0.025 max
Chromium	0.80 - 1.10
Vanadium	0.15 - 0.25
- 3.1 Check Analysis: Composition variations shall meet the requirements of the latest issue of AMS 2259, paragraph titled "Low Alloy Steels".
4. CONDITION:
  - 4.1 Unless otherwise specified, wire shall be cold drawn, bright finish, as drawn temper. Wire shall be furnished on disposable spools for machine welding and in cut lengths for manual welding operations, as ordered.
  - 4.2 Drawing compounds, oxides, and dirt shall be removed.
  - 4.3 When specified, wire shall be copper flash coated and shall exhibit a thin, continuous, adherent copper coating.
5. TECHNICAL REQUIREMENTS:
  - 5.1 Welding: Melted wire shall flow smoothly and evenly during welding and be capable of producing acceptable welds.
  - 5.2 Spooled Wire: Shall conform to the following unless otherwise agreed upon by purchaser and vendor.
    - 5.2.1 Cast: Wire shall have imparted to it a curvature such that a specimen 6 - 8 ft in length, when cut from the spool and suspended freely from its approximate midlength, shall form a circle not less than 20 in. and not greater than 36 in. in diameter (see Fig. 1).
    - 5.2.2 Helix: A specimen cut and suspended as in 5.2.1 and measured between adjacent turns shall show a separation not greater than 4 in. (see Fig. 1).

Section 8.3 of the SAE Technical Board rules provides that: "All technical reports including standards approved and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to any SAE standard or recommended practice, and no commitment to conform to or be guided by any technical report. In formulating and approving technical reports, the Board and its Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents."

5.2.3 Layer Winding: Wire shall be closely wound in layers but adjacent turns within a layer need not necessarily be touching; shall be wound so as to avoid producing kinks, waves, and sharp bends; and shall be free to unwind without restriction caused by overlapping or wedging. The outside end of the spooled wire shall be so treated that it may be readily located.

6. QUALITY: Wire shall be uniform in quality and condition, clean, sound, smooth, and free from foreign materials, and from internal and external imperfections detrimental to welding operations, operation of welding equipment, or properties of the deposited weld metal.

7. SIZES AND TOLERANCES: Unless otherwise specified, wire shall be supplied in the following sizes and to the tolerances shown:

7.1 Diameter:

Form	Nominal Diameter Inch	Tolerance, Inch Plus or Minus
Cut lengths	0.045, 0.062, 0.093, 0.125	0.003
Spools	0.030, 0.035, 0.045, 0.062, 0.093	0.001
Spools	0.007, 0.010, 0.015, 0.020	0.0005

7.2 Length: Cut lengths shall be furnished in 18, 27, or 36 in. lengths, as ordered, and shall not vary more than  $\pm 1/4$  in. from the length ordered.

8. REPORTS:

8.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report of the results of tests for chemical composition of each heat in the shipment and a statement that the product conforms to the technical requirements of this specification. This report shall include the purchase order number, heat number, material specification number, nominal size, and quantity from each heat.

8.2 Unless otherwise specified, when parts made of this wire or assemblies requiring the use of this welding wire are supplied, the part or assembly manufacturer shall inspect each lot of wire to determine conformance to this specification and shall furnish with each shipment three copies of a report stating that the wire conforms to the requirements of this specification. This report shall include the purchase order number, material specification number, part or assembly number, and quantity.

9. PACKAGING AND MARKING: Packaging shall be accomplished in such a manner as to ensure that the wire, during shipment and storage, will be protected against mechanical injury, contamination, and moisture.

9.1 Cut Lengths:

9.1.1 Wire shall be furnished in standard containers of approximately 5, 10, 50, or 100 lb net weight, as specified.

9.1.2 When specified, cut lengths shall be marked (Code 1121), cleaned, and packaged in accordance with the latest issue of AMS 2815.

9.2 Spooled Wire:

- 9.2.1 Spools shall be of such materials and construction as to provide adequate strength and rigidity to prevent damage or distortion in normal handling and use, and to insulate the wire from the spindle.
- 9.2.2 Unless otherwise specified, spool dimensions shall conform to the approximate dimensions shown in Fig. 2. Barrel diameter B shall be such as to permit proper feeding of the wire.
- 9.2.3 Unless otherwise specified, wire shall be furnished on spools of approximately 5, 10, or 25 lb net weight as ordered; up to 20% of the net weight of any lot in the shipment may be on spools containing not less than 50% of the ordered spool net weight.
- 9.3 Both sides of each spool for spooled wire, and each bundle and container shall  $\emptyset$  be permanently and legibly marked with the following information:

STEEL WIRE, WELDING

AMS 6462A

SIZE \_\_\_\_\_

QUANTITY \_\_\_\_\_

HEAT NUMBER \_\_\_\_\_

PURCHASE ORDER NUMBER \_\_\_\_\_

MANUFACTURER'S IDENTIFICATION \_\_\_\_\_

IDENTIFICATION METHOD (WHEN SPECIFIED) FOR CUT LENGTHS \_\_\_\_\_

AMS 2815 CODE 1121 (WHEN SPECIFIED) \_\_\_\_\_

CODE SYMBOL \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ // \_\_\_\_\_ / \_\_\_\_\_

10. REJECTIONS: Material not conforming to this specification or to authorized modifications will be subject to rejection.

NOTE. SIMILAR SPECIFICATIONS: MIL-R-5632, Class 2, is listed for information only and shall not be construed as an acceptable alternate unless all requirements of this AMS are met.