

**STEEL WELDING WIRE  
Low Carbon**

1. SCOPE:

- 1.1 Form: This specification covers a low-carbon steel in the form of welding wire supplied as cut lengths.
- 1.2 Application: Primarily for use as filler metal for gas-tungsten-arc or gas-metal-arc welding of parts fabricated from low-carbon and low-alloy steels.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Materials Specifications:

- AMS 2259 - Chemical Check Analysis Limits, Wrought Low-Alloy and Carbon Steels  
AMS 2350 - Standards and Test Methods  
AMS 2370 - Quality Assurance Sampling of Carbon and Low-Alloy Steels, Wrought Products Except Forgings and Forging Stock  
AMS 2813 - Packaging of Welding Wire, Standard Method  
AMS 2815 - Identification, Welding Wire, Line Code System  
AMS 2816 - Identification, Welding Wire, Color Code System

2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM E350 - Chemical Analysis of Carbon Steel, Low-Alloy Steel, Silicon Electrical Steel, Ingot Iron, and Wrought Iron

2.3 U.S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Federal Standards:

Federal Test Methods Standard No. 151 - Metals; Test Methods

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### 3. TECHNICAL REQUIREMENTS:

3.1 Composition: Shall conform to the following percentages by weight, determined by wet chemical methods in accordance with ASTM E350, by spectrographic methods in accordance with Federal Test Method Standard No. 151, Method 112, or by other analytical methods approved by purchaser:

|            | min | max   |
|------------|-----|-------|
| Carbon     | --  | 0.06  |
| Manganese  | --  | 0.25  |
| Silicon    | --  | 0.08  |
| Phosphorus | --  | 0.040 |
| Sulfur     | --  | 0.040 |
| Copper     | --  | 0.15  |

3.1.1 Check Analysis: Composition variations shall meet the applicable requirements of AMS 2259.

3.2 Condition: Cold drawn, copper coated.

3.3 Properties: Wire shall conform to the following requirements:

3.3.1 Weldability: Melted wire shall flow smoothly and evenly during welding and shall produce acceptable welds, determined by a procedure agreed upon by purchaser and vendor.

3.4 Quality: Wire, as received by purchaser, shall be uniform in quality and condition, sound, 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.

3.5 Sizes and Tolerances: Unless otherwise specified, wire shall be supplied in the sizes and to the tolerances shown in 3.5.1 and 3.5.2.

3.5.1 Diameter:

**TABLE I**

| Form        | Nominal Diameter<br>Inch          | Tolerance, Inch<br>plus and minus |
|-------------|-----------------------------------|-----------------------------------|
| Cut Lengths | 0.045, 0.062, 0.078, 0.093, 0.125 | 0.003                             |

**TABLE I (SI)**

| Form        | Nominal Diameter<br>Millimetres | Tolerance, Millimetre<br>plus and minus |
|-------------|---------------------------------|---|
| Cut Lengths | 1.15, 1.55, 2.00, 2.35, 3.20    | 0.08                                    |

3.5.2 Length: Cut lengths shall be furnished in 18, 27, or 36, in. (450, 675, or 900 mm) lengths, as ordered, and shall not vary more than +0, -0.5 in. (-13 mm) from the length ordered.

### 4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of wire shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.4. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the wire conforms to the requirements of this specification.