

MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

485 Lexington Ave., New York 17, N.Y.

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Revised

STEEL WIRE, WELDING, CORROSION AND HEAT RESISTANT
15Cr - 26Ni - 1.3Mo - 2.2Ti - 0.3V

1. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. APPLICATION: Primarily for use as filler metal for inert gas arc welding of precipitation hardening corrosion resistant steels of similar composition.
3. COMPOSITION:

Carbon	0.08	max
Manganese	1.00	- 2.00
Silicon	0.040	- 1.00
Phosphorus	0.020	max
Sulfur	0.015	max
Chromium	13.50	- 16.00
Nickel	24.00	- 27.00
Molybdenum	1.00	- 1.50
Titanium	2.00	- 2.45
Aluminum	0.35	max
Boron	0.0030	- 0.010
Vanadium	0.10	- 0.50

- 3.1 Check Analysis: Composition variations shall meet the requirements of the latest issue of AMS 2248.

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, as ordered.
- 4.2 Drawing compounds, oxides, and dirt shall be removed.
- 4.2.1 If pickling is necessary to remove surface contamination or scaling, only a light pickle shall be used.

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).
- 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.
- 5.3 Heat: Wire on each spool shall be one continuous length from the same heat of material. Cut lengths in any one package shall be from the same heat of material.
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 and minus |
|-------------|--------------------------|--------|--------|--------|-------|-----------------------------------|
| Cut Lengths | 0.030, | 0.045, | 0.062, | 0.093, | 0.125 | 0.003 |
| Spools | 0.030, | 0.035, | 0.045, | 0.062, | 0.093 | 0.001 |
| Spools | 0.005, | 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, material specification number, heat 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 2222), cleaned, and packaged in accordance with the latest issue of AMS 2815.

9.2 Spooled Wire:

- 9.2.1 Spools shall be of such material 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 Figure 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 be permanently and legibly marked with the following information:

STEEL WIRE, WELDING

AMS 5804

SIZE _____

QUANTITY _____

HEAT NUMBER _____

PURCHASE ORDER NUMBER (Containers Only) _____

MANUFACTURER'S IDENTIFICATION _____

IDENTIFICATION METHOD (WHEN SPECIFIED) FOR CUT LENGTHS _____

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