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400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 2814F

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Reaffirmed APR 2006

Superseding AMS 2814E

Packaging and Marking of Packages of Welding Wire Premium Quality

1. SCOPE:

This specification covers spooling and packaging of bare welding wire to ensure cleanliness and freedom from corrosion, spool sizes and weights of spooled wire, and package weights of cut lengths.

2. APPLICABLE DOCUMENTS:

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been canceled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publication:

Available from SAE, 400 Commonwealth Drive, Warrendale PA 15096-0001.

AMS 2816 Identification, Welding Wire, Color Code System

3. TECHNICAL REQUIREMENTS:

3.1 Preparation:

Prior to winding on spools or cutting to length, wire shall be uncoiled for cleaning and shall be rendered free of dirt, grease, oil, corrosion, and other surface contamination which would interfere with welding.

3.2 Packaging:

Shall be performed in an atmosphere of sufficiently low humidity, depending upon the corrosion rate of the alloy, to ensure that wire will not corrode during the packaging operation. Wire, after cleaning preparatory to packaging, shall not be handled with bare hands or unclean gloves.

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3.2.1 Spooled Wire:

3.2.1.1 Spools shall be of such materials and construction to provide sufficient strength and rigidity to prevent damage to, or distortion of, the wire during normal handling and use. The materials shall not induce corrosion of the wire and shall electrically insulate the wire form the spindle of the welding machine.

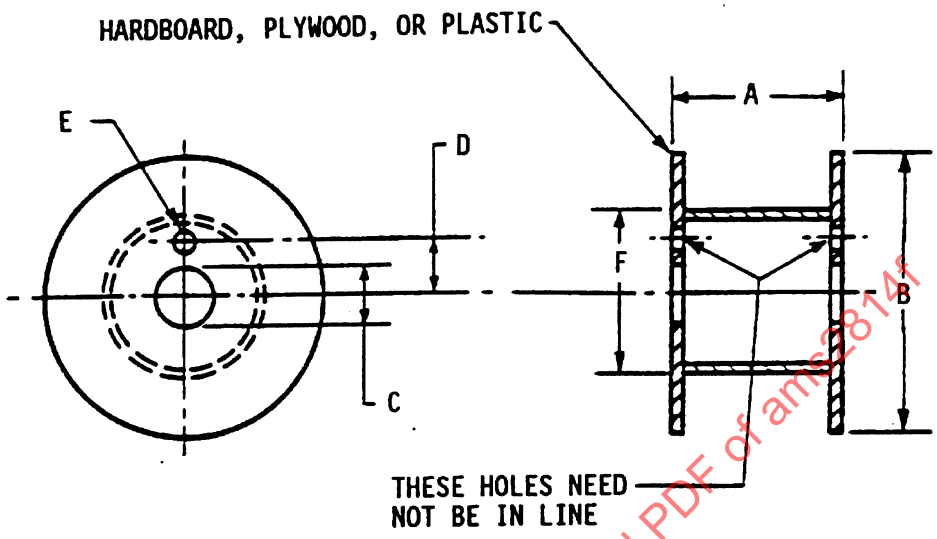
3.2.1.2 Configuration and dimensions of spools shall conform to Figure 1 and Table 1. The size of spool shall be selected on the basis of the alloy and quantity ordered. Each spool shall provide access to approximately 8 inches (203 mm) of wire at the inside end of the coil for sampling purposes; a groove in the outer face of one flange, adjacent to the barrel, is acceptable.

3.2.1.3 Unless otherwise specified in the material specification, wire on each spool shall be one continuous length from the same heat of alloy, except in the case of aluminum and magnesium alloys which are not restricted.

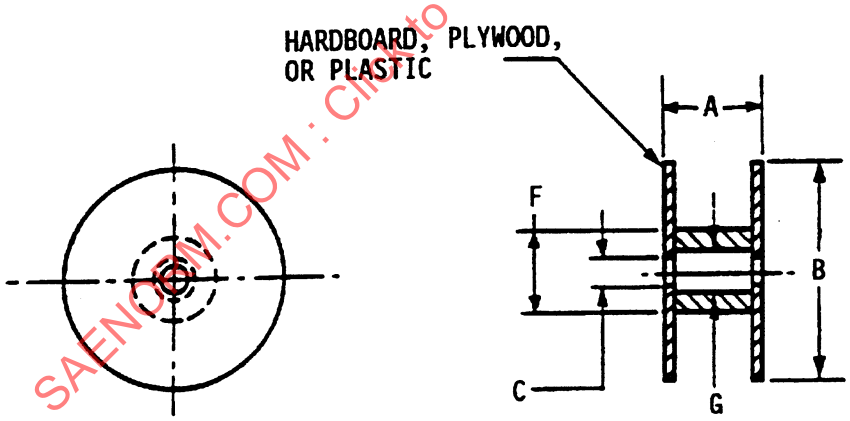
3.2.1.4 Wire shall be furnished on spools containing approximately the ordered spool net weight except that up to 20% of the net weight of any one combination of alloy, wire diameter, and spool size in a shipment may be on spools containing not less than 50% of the ordered spool net weight.

3.2.1.5 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. Both ends of the spooled wire shall be so treated that it may be readily located for verification purposes.

3.2.1.6 Net weight of wire on spools shall be as specified in Table 2 for the alloy type ordered.



8 inch (203 mm) and 12 inch (303 mm) diameter



4 inch (102 mm) diameter

DIMENSIONS FOR ALL SIZES SHALL BE AS SPECIFIED IN TABLE 1.

FIGURE 1 - Configuration of Spools

TABLE 1A - Spool Dimensions, Inch/Pound Units

Dimension	Nominal Diameter of Spool Inches 4	Nominal Diameter of Spool Inches 8	Nominal Diameter of Spool Inches 12
(A) Spool Width	1-3/4 ± 1/32	2-5/32 ± 1/32	4 ± 1/16
(B) Flange OD	4 +0 −1/16	8 +0 −1/4	12 +0 −1/4
(C) Spindle Hole Diameter	0.630 +0.005 −0	2-1/32 +1/16 −0	2-1/32 +1/16 −0
(D) Peg Hole Placement	--	1-3/4 ± 1/64	1-3/4 ± 1/64
(E) Peg Hole Diameter	--	7/16 +0 −1/16	7/16 +0 −1/16
(F) Barrel OD	Note 1	Note 1	Note 1
(G) Barrel ID	Note 2	--	--

Note 1. Shall be such that swelling or misalignment of the barrel and flanges will not cause interference with the spindle hole.

Note 2. Shall be such as to promote smooth feeding of the wire.

TABLE 1B - Spool Dimensions, SI Units

Dimension	Nominal Diameter of Spool Millimeters 102	Nominal Diameter of Spool Millimeters 203	Nominal Diameter of Spool Millimeters 305
(A) Spool Width	44.5 ± 0.8	54 ± 0.8	102 ± 1.6
(B) Flange OD	102 +0 −1.6	203 +0 −6.4	305 +0 −6.4
(C) Spindle Hole Diameter	16 +0.13 −0	52 +1.6 −0	52 +1/6 −0
(D) Peg Hole Placement	--	44.5 ± 0.4	44.5 ± 0.4
(E) Peg Hole Diameter	--	11 +0 −1/6	11 +0 −1.6
(F) Barrel OD	Note 1	Note 1	Note 1
(G) Barrel ID	Note 2	--	--

Note 1. Shall be such that swelling or misalignment of the barrel and flanges will not cause interference with the spindle hole.

Note 2. Shall be such as to promote smooth feeding of the wire.

TABLE 2A - Spool Wire Weight, Inch/Pound Units

Alloy Base	Net Weight Pounds
Aluminum	1, 5, 10, 12-1/2, 15
Magnesium	3/4, 1, 3, 10
Titanium	1, 5, 10, 15, 20
Copper	1, 10, 25, 50
Steel, Corrosion and Heat Resistant Alloys and Refractory Alloys	1-1/2, 2-1/2, 10, 12, 15, 25, 30, 35, 44, 50, 60

TABLE 2B - Spool Wire Weight, SI Units

Alloy Base	Net Weight Kilograms
Aluminum	0.45, 2.3, 4.5, 5.7, 6.8
Magnesium	0.3, 0.5, 4.5
Titanium	0.5, 2.2, 4.5, 6.8, 9.1
Copper	0.45, 4.5, 11.3, 22.7
Steel, Corrosion and Heat Resistant Alloys and Refractory Alloys	0.7, 1.1, 4.5, 5.5, 6.8, 11.3, 13.6, 15.9, 20, 22.7, 27.2

3.2.1.7 Spooled wire shall be packaged in hermetically sealed containers with a desiccant and/or a dry, inert atmosphere. When specified, the hermetically sealed containers shall be so designed that they can be used for storage after opening.

3.2.2 Cut Lengths:

3.2.2.1 Envelopes shall be made of a material free from oil and other substances detrimental to welding operations. Envelope material used in packaging wire which is susceptible to corrosion shall have a water vapor transmission rate lower than 0.05 grams per 100 square inches (0.775 g/m^2) per 24 hours at 100 °F (38 °C) and 90% relative humidity. Envelopes shall be of sufficient strength to withstand normal handling; ends of wires may be capped to prevent puncturing the envelope. Envelopes may be purged with inert gas and this gas maintained as the atmosphere in the envelope; desiccants may also be added for further protection against oxidation and corrosion of the wire. Envelopes in which an inert gas atmosphere is used shall be heat sealed.

3.2.2.2 Unless otherwise specified in the material specification, no package shall contain wire from more than one heat of alloy, except in the case of aluminum and magnesium alloys which are not restricted.

3.2.2.3 Not more than 40 lengths of wire shall be packaged in an envelope or in each compartment of a multiple-compartment envelope, unless otherwise specified. The weight of wire in each envelope or each compartment shall be not greater than shown in Table 3.

TABLE 3A - Weight of Wire, Pounds per Envelope or Compartment, Inch/Pound Units

Alloy Type	For Wire Diameters Inch Up to 0.035, incl	For Wire Diameters Inch Over 0.035 to 0.050, incl	For Wire Diameters Inch Over 0.050 to 0.080, incl	For Wire Diameters Inch Over 0.080 to 0.100, incl	For Wire Diameters Inch Over 0.100
Aluminum, Magnesium, and Titanium	1.0	1.0	2.0	2.0	5.0
All Others	1.0	2.0	5.0	10.0	10.0

TABLE 3B - Weight of Wire, Kilograms per Envelope or Compartment, SI Units

Alloy Type	For Wire Diameter Millimeter Up to 0.89, incl	For Wire Diameter Millimeter Over 0.89 to 1.27, incl	For Wire Diameter Millimeter Over 1.27 to 2.03, incl	For Wire Diameter Millimeter Over 2.03 to 2.54, incl	For Wire Diameter Millimeter Over 2.54
Aluminum, Magnesium, and Titanium	0.45	0.45	0.91	0.91	2.3
All Others	0.45	0.91	2.3	4.5	4.5

3.3 Packaging:

3.3.1 Containers of wire shall be packaged to ensure that the wire, during shipment and storage, will be protected against mechanical injury, corrosion, dirt, grease, oil, and other contamination detrimental to welding.

3.3.2 Exterior containers of spooled wire shall contain the ordered multiple of standard spool net weights up to a maximum net weight of 120 pounds (54.4 kg).

3.3.3 Exterior shipping containers of cut lengths shall contain approximately 5, 10, 50, or 100 pounds (2.3, 4.5, 22.7, or 45.3 kg), as ordered.