



AEROSPACE MATERIAL SPECIFICATION

AMS5032

REV. G

Issued 1943-10
Revised 2005-08
Reaffirmed 2013-10

Superseding AMS5032F

Wire, Steel
0.18 - 0.23C (SAE 1020)
Annealed
(Composition similar to UNS G10200)

RATIONALE

AMS5032G has been reaffirmed to comply with the SAE five-year review policy.

1. SCOPE:

1.1 Form:

This specification covers a low-carbon steel in the form of wire supplied as coils of wire or, when specified, as straight lengths.

1.2 Application:

This wire has been used typically for lockwire, but usage is not limited to such applications.

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 cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001 or www.sae.org.

AMS 2259 Chemical Check Analysis Limits, Wrought Low-Alloy and Carbon Steels
AMS 2370 Quality Assurance Sampling and Testing, Carbon and Low-Alloy Steel
 Wrought Products and Forging Stock

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2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959 or www.astm.org.

ASTM A 370 Mechanical Testing of Steel Products
 ASTM E 350 Chemical Analysis of Carbon Steel, Low-Alloy Steel, Silicon Electrical Steel, Ingot Iron, and Wrought Iron

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

Shall conform to the percentages by weight, shown in Table 1 determined by wet chemical methods in accordance with ASTM E 350, by spectrochemical methods, or by other analytical methods acceptable to purchaser.

TABLE 1 - Composition

Element	min	max
Carbon	0.18	0.23
Manganese	0.30	0.60
Phosphorus	--	0.040
Sulfur	--	0.050
Copper	--	0.15

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

3.2 Condition:

Cold drawn and bright annealed.

3.3 Properties:

Wire shall conform to the following requirements:

3.3.1 Tensile Properties: Shall be as shown in Table 2, determined in accordance with ASTM A 370.

TABLE 2 - Tensile Properties

Tensile Strength	50 to 75 ksi (345 to 517 MPa)
Elongation in 10 Inches (254 mm), minimum	15%

3.3.2 Wrapping: A length of wire not less than 12 inches (305 mm) long shall withstand, without splitting or breaking, being wrapped in a closed helix for at least six complete turns around a cylindrical mandrel having a diameter equal to the nominal diameter of the wire, and then unwrapped.

3.4 Quality:

Wire, as received by purchaser, shall be uniform in quality and condition, sound, cylindrical, and free from kinks, twists, scrapes, splits, laps, seams, and other imperfections detrimental to usage of the wire.

3.4.1 The surface of the wire shall have a bright, smooth finish free from pits, abrasions, and other surface defects.

3.5 Tolerances:

Diameter tolerances shall conform to Table 3.

TABLE 3A - Diameter Tolerances, Inch/Pound Units

Nominal Diameter Inch	Tolerance, Inch plus and minus
Up to 0.076, excl	0.001
0.076 to 0.249, incl	0.002

TABLE 3B - Diameter Tolerances, SI Units

Nominal Diameter Millimeters	Tolerance, Millimeter plus and minus
Up to 1.93, excl	0.025
1.93 to 6.32, incl	0.051

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 the performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the wire conforms to specified requirements.

4.2 Classification of Tests:

All technical requirements are acceptance tests and shall be performed on each heat or lot as applicable.

4.3 Sampling and Testing:

Shall be in accordance with AMS 2370.

4.4 Reports:

The vendor of wire shall furnish with each shipment a report showing the results of tests for composition of each heat and for tensile and wrapping properties of each lot, and stating that the product conforms to the other technical requirements. This report shall include the purchase order number, heat and lot numbers, AMS 5032G, size, and quantity.

4.5 Resampling and Retesting:

Shall be in accordance with AMS 2370.

5. PREPARATION FOR DELIVERY:

5.1 Identification:

Shall be as follows:

5.1.1 Coils or reels of wire shall each be identified by a durable tag marked with not less than the purchase order number, AMS 5032G, lot number, nominal size, quantity, and manufacturer's identification, or shall be boxed and the box marked with the same information.

5.1.2 Straight lengths shall be bundled or boxed and shall have attached to each bundle or box a durable tag marked with the information of 5.1.1.

5.2 Packaging:

5.2.1 Wire shall be furnished in coils, unless otherwise ordered as straight lengths. Each coil shall be one continuous length, properly coiled, and firmly tied.

5.2.2 Packages of wire shall be prepared for shipment in accordance with commercial practice and in compliance with applicable rules and regulations pertaining to the handling, packaging, and transportation of the wire to ensure carrier acceptance and safe delivery.

5.2.3 Protective Treatment:

Wire shall be protected from corrosion prior to shipment.

6. ACKNOWLEDGMENT:

A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.