AEROSPACE MATERIAL SPECIFICATION

AMS5555™	REV. G

Issued 1958-11
Reaffirmed 2011-08
Revised 2024-04

Superseding AMS5555F

Nickel Wire and Ribbon
99Ni
(Composition similar to UNS N02205)

RATIONALE

AMS5555G is the result of a Five-Year Review and update of the specification. The revision updates composition testing and reporting (see 3.1 and 3.1.1), adds country of origin requirements (see 4.4), clarifies physical attributes (see 8.5), and updates the prohibition of exceptions (see 4.4.1 and 8.4).

1. SCOPE

1.1 Form

This specification covers a nickel in the form of round wire and rectangular ribbon.

1.2 Application

These products have been used typically as weldable leads for electronic component parts or as filler wire for welding, 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 International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS2269 Chemical Check Analysis Limits, Nickel, Nickel Alloys, and Cobalt Alloys

AMS2283 Composition Testing Methods for Nickel and Cobalt Based Alloys

AMS2371 Quality Assurance Sampling and Testing, Corrosion and Heat-Resistant Steels and Alloys, Wrought Products and Forging Stock

AS7766 Terms Used in Aerospace Metals Specifications

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

For more information on this standard, visit
https://www.sae.org/standards/content/AMS5555G/

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM E8/E8M Tension Testing of Metallic Materials

ASTM E290 Bend Test of Materials for Ductility

2.3 AWS Publications

Available from American Welding Society, 8669 NW 36 Street, #130, Miami, FL 33166-6672, Tel: 1-800-443-9353 or 305-443-9353, www.aws.org.

AWS A5.02 Specification for Filler Metal, Standard Sizes, Packaging and Physical Attributes

2.4 Terms used in AMS are defined in AS7766.

3. TECHNICAL REQUIREMENTS

3.1 Composition

Composition shall conform to the percentages by weight shown in Table 1, determined in accordance with AMS2283 or by other analytical methods acceptable to the purchaser.

Table 1 - Composition

Element	Min	Max
Nickel	99.00	--
Magnesium	0.01	0.08
Titanium	0.01	0.05
Manganese	--	0.35
Iron	--	0.20
Carbon	--	0.15
Silicon	--	0.15
Copper	--	0.15
Sulfur	--	0.008

3.1.1 The producer may test for any element not listed in Table 1 and include this analysis in the report of 4.4. Reporting of any element not listed in the composition table is not a basis for rejection unless limits of acceptability are specified by the purchaser.

3.1.2 Check Analysis

Composition variations shall meet the applicable requirements of AMS2269.

3.2 Condition

Cold drawn or cold rolled; bright annealed.

3.2.1 Cold working compounds, oxides, and dirt shall be removed by cleaning processes which will not be harmful to application of the cleaned product

3.2.2 When the procuring activity specifies that the product is for welding, the physical attributes shall be in accordance with AWS A5.02 (see 8.5)

3.3 Properties

The product shall conform to the following requirements:

3.3.1 Tensile Strength

Shall be not higher than 75 ksi (517 MPa), determined in accordance with ASTM E8/E8M.

3.3.2 Wrapping

Wire shall withstand, without cracking, wrapping at room temperature five full, closely spaced turns around a diameter equal to the nominal diameter of the wire.

3.3.3 Bending

Ribbon shall be tested in accordance with ASTM E290 using a sample with its axis of bending parallel to the direction of rolling, and shall withstand, without cracking, bending at room temperature through an angle of 180 degrees around a diameter equal to the nominal thickness of the ribbon. In case of dispute, the results of tests using the guided bend test of ASTM E290 shall govern.

3.4 Quality

The product as received by the purchaser shall be uniform in temper and cross section. Surfaces shall be free of scale, corrosion, cracks, seams, scratches, slivers, dirt, grease, oil, streaks, stains, pit marks, burns, dents, blisters, laps, grooves, inclusions, and other imperfections detrimental to usage of the product; magnification up to 30X may be used to determine conformance.

3.5 Tolerances

Shall conform to the following except as provided in 3.5.3:

3.5.1 Round Wire

Shall be as shown in Table 2.

Table 2A - Round wire tolerances, inch/pound units

Nominal Diameter Inch	Tolerance, Inch Plus and Minus
0.015 to 0.020, incl	0.0004
Over 0.020 to 0.030, incl	0.0005
Over 0.030 to 0.045, incl	0.0006

Table 2B - Round wire tolerances, SI units

Nominal Diameter Millimeters	Tolerance, Millimeters Plus and Minus
0.38 to 0.51, incl	0.010
Over 0.51 to 0.76, incl	0.013
Over 0.76 to 1.14, incl	0.015

3.5.1.1 Round wire shall not be out-of-round by more than one-half the diametral tolerance.

3.5.2 Rectangular Ribbon

3.5.2.1 Thickness

Shall be as shown in Table 3.

Table 3 - Rectangular ribbon thickness tolerances

Nominal Thickness Inch	Nominal Thickness Millimeter	Tolerance Plus and Minus Inch	Tolerance Plus and Minus Millimeter
0.004 to 0.025, incl	0.10 to 0.64, incl	0.0007	0.018

3.5.2.2 Width

Shall be as shown in Table 4.

Table 4 - Rectangular ribbon width tolerance

Nominal Width Inches	Nominal Width Millimeters	Tolerance Plus and Minus Inches	Tolerance Plus and Minus Millimeters
0.015 to 0.062, incl	0.38 to 1.57, incl	0.002	0.05

3.5.3 When the procuring activity specifies that the product is for welding, wire sizes and tolerances shall be in accordance with AWS A5.02 (see 8.6).

3.6 Exceptions

Any exceptions shall be authorized by the purchaser and reported as in 4.4.1.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection

The producer of the product shall supply all samples for the producer's tests and shall be responsible for the performance of all required tests. The purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to specified requirements.

4.2 Classification of Tests

All technical requirements are acceptance tests and shall be performed on each lot.

4.3 Sampling and Testing

Shall be in accordance with AMS2371.

4.4 Reports

The producer of the product shall furnish with each shipment a report showing the producer's name, country where the metal was melted (e.g., final melt in the case of metal processed by multiple melting operations), results of tests for composition of each heat, and stating that the product conforms to the other technical requirements. This report shall include the purchase order number, heat and lot number, AMS5555G, nominal size, and quantity.

4.4.1 When material produced to this specification has exceptions taken to the technical requirements listed in Section 3 (see 5.1.6), the report shall contain a statement "This material is certified as AMS5555G(EXC) because of the following exceptions:" and the specific exceptions shall be listed.