SAE The Engineering Resource For Advancing Mobility®
400 COMMONWEALTH DRIVE WARRENDALE PA 15096

AEROSPACE MATERIAL SPECIFICATION

AMS 7210G
Superseding AMS 7210F

Issued 3-13-40
Revised 10-1-84

COTTER PINS, STEEL, CORROSION-RESISTANT
18Cr - 9.5Ni

UNS S30200

1. SCOPE:

1.1 Form: This specification covers cotter pins made of a corrosion-resistant steel.

1.2 Application: Primarily for use where a corrosion-resistant locking device is required for use up to 800°F (425°C).

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

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2248 - Chemical Check Analysis Limits, Wrought Corrosion and Heat Resistant Steels and Alloys, Maraging and Other Highly-Alloyed Steels, and Iron Alloys
AMS 2350 - Standards and Test Methods

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

ASTM E353 - Chemical Analysis of Stainless, Heat-Resisting, Maraging, and Other Similar Chromium-Nickel-Iron Alloys

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 Method Standard No. 151 - Metals; Test Methods

2.3.2 Military Standards:

MIL-STD-794 - Parts and Equipment, Procedures for Packaging and Packing of

3. TECHNICAL REQUIREMENTS:

3.1 Composition: Shall conform to the following percentages by weight, determined on specimens as in 4.3.1 by wet chemical methods in accordance with ASTM E353, 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	--	0.20
Manganese	--	2.00
Silicon	--	0.75
Phosphorus	--	0.030
Sulfur	--	0.030
Chromium	17.00	--
Nickel	8.00	--
Molybdenum	--	0.75
Copper	--	0.75

3.1.1 Check Analysis: Composition variations shall meet the requirements of AMS 2248.

3.2 Condition: Wire from which pins are manufactured shall be solution heat treated free from continuous carbide network and cold finished.

3.3 Shape: Cotter pins shall have ends slightly rounded, beveled, or pointed, unless otherwise specified, with one end slightly extended beyond the other to permit easy assembly.

3.4 Properties: Cotter pins shall conform to the following requirements:

3.4.1 Bending: Either prong of any pin shall withstand bending flat on itself, without cracking; the flat of the prong shall form the outside of the bend.

3.5 Quality: Cotter pins, as received by purchaser, shall be uniform in quality and condition, sound, and free from foreign materials and from imperfections detrimental to their performance.

3.6 Tolerances: Permissible variations in cross-sectional dimensions of the half-round wire used for manufacture of pins shall be ±0.002 in. (±0.50 mm) for the major axis and ±0.001 in (±0.25 mm) for the minor axis.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of the cotter pins 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 pins conform to the requirements of this specification.

4.2 Classification of Tests: Tests to determine conformance to all technical requirements of this specification are classified as acceptance tests and shall be performed on each heat or lot as applicable.

4.3 Sampling: Shall be in accordance with the following; a lot shall be all pins of the same size or part number manufactured in a continuous series of operations from one heat of steel:

4.3.1 Composition: One sample of wire from each heat.

4.3.2 Bending: One sample, consisting of five cotter pins, from each lot.

4.4 Reports: The vendor of cotter pins shall furnish with each shipment a report showing the results of tests for chemical composition and stating that the pins conform to the other technical requirements of this specification. This report shall include the purchase order number, lot number, AMS 7210G, size or part number, and quantity.

4.5 Resampling and Retesting: If any pin or specimen used in the above tests fails to meet the specified requirements, disposition of the pins may be based on the results of testing three additional pins or specimens for each original nonconforming specimen. Failure of any retest pin or specimen to meet the specified requirements shall be cause for rejection of the pins represented and no additional testing shall be permitted. Results of all tests shall be reported.

5. PREPARATION FOR DELIVERY:

5.1 Identification and Packaging:

5.1.1 Pins of each different part number shall be packed in separate containers.

5.1.2 Each container shall be marked with not less than the following information:

COTTER PINS, STEEL, CORROSION RESISTANT_____
AMS 7210G
PART NUMBER_____
PURCHASE ORDER NUMBER_____
QUANTITY_____
MANUFACTURER'S IDENTIFICATION_____