Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

AEROSPACE MATERIAL SPECIFICATION

AMS 7210E
Superseding AMS 7210D
Issued 3-13-40
Revised 1-15-77

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

1. SCOPE:

1.1 Type: 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 (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2248 - Chemical Check Analysis Limits, Wrought Heat and Corrosion Resistant Steels and Alloys
AMS 2350 - Standards and Test Methods
AMS 2371 - Quality Assurance Sampling of Corrosion and Heat Resistant Alloys, Wrought Products Except Forgings

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 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: Cotter pins shall conform to the following percentages by weight, determined by wet ø chemical methods in accordance with ASTM E353, by spectrographic methods in accordance with Federal Test Method Standard No. 151, Method 112, or by other approved analytical methods:

	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 ø 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 shall be uniform in quality, condition, clean, sound, and free from foreign materials and from internal and external imperfections detrimental to their performance.

3.6 Tolerances: Permissible variations in cross-section dimensions of the half-round wire used for manufacture of pins shall be ± 0.002 in. (± 0.51 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 cotter pins shall supply all samples and shall be responsi- ø bile 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 perform such confirmatory testing as he deems 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 specifi- ø cation are classified as acceptance tests.

4.3 Sampling: Shall be in accordance with the following; a lot shall be all pins of the same part number ø solution heat treated in one furnace charge:

ø 4.3.1 Composition: One sample from wire from each heat.

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