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**AEROSPACE
MATERIAL
SPECIFICATION**

Submitted for recognition as an American National Standard

SAE AMS 7228G

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Superseding AMS 7228F

RIVETS, STEEL, CORROSION RESISTANT
18Cr - 9Ni
Solution Heat Treated

UNS S30200

1. SCOPE:

- 1.1 Type: This specification covers rivets fabricated from a corrosion-resistant steel.
- 1.2 Application: Primarily for joining corrosion-resistant steel parts requiring corrosion, heat, and oxidation resistance up to approximately 800°F (425°C) but not requiring high shear strength.

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.

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2.3.1 Military Standards:

MIL-STD-794 - Parts and Equipment, Procedures for Packaging and Packing of
MIL-STD-1312 - Fasteners, Test Methods

3. TECHNICAL REQUIREMENTS:

3.1 Composition: Rivets shall conform to the following percentages by weight, determined by wet chemical methods in accordance with ASTM E353 or by spectrographic or other analytical methods approved by purchaser.

Ø	min	max
Carbon	--	0.12
Manganese	--	2.00
Silicon	--	1.00
Phosphorus	--	0.045
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: Cold headed from cold-drawn wire or bar unless purchaser permits machining. Rivets, after forming, shall be solution heat treated free from continuous carbide network, descaled if necessary, and passivated; solution heat treatment shall be performed in a furnace atmosphere which will not cause surface hardening.

3.3 Properties: Rivets shall conform to the following requirements:

3.3.1 Hardness: Shall be not higher than 150 HV10, or equivalent, determined in accordance with MIL-STD-1312, Test No. 6.

3.3.2 Formability: Solid shank rivets shall withstand being driven cold to form a crack-free head having a diameter of 1.25 - 1.5 times the nominal shank diameter and a height within the range shown below and with expansion of the shank to the full diameter of the hole in which it is installed provided that the hole diameter is not more than 0.006 in. (0.15 mm) greater than the nominal shank diameter:

Nominal Rivet Diameter		Head Height Proportion of Nominal Diameter
Inch	Millimetres	
0.062 - 0.094	1.55 - 2.35	0.5 - 1.0
0.125 - 0.250	3.12 - 6.25	0.5 - 0.8
0.312 - 0.375	7.80 - 9.50	0.5 - 0.7

3.3.3 Flarability: Hollow-end rivets shall withstand being flared to a diameter of 1.5 times the nominal shank diameter without bending the shank and without cracking in the flared end.

3.4 Quality: Rivets, as received by purchaser, shall be uniform in quality and condition, sound, smooth, and free from foreign materials and from imperfections detrimental to usage of the rivets.

4. QUALITY ASSURANCE PROVISIONS:

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

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests to determine conformance to requirements for composition (3.1) and hardness (3.3.1) are classified as acceptance tests and shall be performed on each heat or lot, as applicable.

4.2.2 Periodic Tests: Tests to determine conformance to requirements for formability (3.3.2) or flarability (3.3.3), as applicable, are classified as periodic tests and shall be performed at a frequency selected by the vendor unless frequency of testing is specified by purchaser.

4.3 Sampling: Shall be in accordance with the following; a lot shall be all rivets of the same part number solution heat treated in a single furnace charge and presented for vendor's inspection at one time.

4.3.1 For Acceptance Tests:

4.3.1.1 Composition: One sample from each heat of bars or wire.

4.3.1.2 Hardness: One sample, consisting of five rivets, from each lot.

4.3.2 For Periodic Tests: As agreed upon by purchaser and vendor.

4.4 Reports: The vendor of rivets shall furnish with each shipment a report showing the results of tests for chemical composition and hardness of each lot and stating that the rivets conform to the other technical requirements of this specification. This report shall include the purchase order number, AMS 7228G, part number, and quantity.

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