



AEROSPACE MATERIAL SPECIFICATION

AMS5621™

REV. H

Issued	1952-11
Reaffirmed	2006-04
Revised	2021-05

Superseding AMS5621G

Steel, Corrosion Resistant, Bars, Wire, and Forgings
13Cr (0.30-0.40C) (51420)
Annealed

(Composition similar to UNS S42000)

RATIONALE

AMS5621H prohibits unauthorized exceptions (3.6, 4.4.3, 5.2.1.1, 8.7), updates composition testing (3.1), adds examination method (3.3.2.4.1), updates quality requirements for bar (3.4), clarifies samples for test (3.3.1, 4.3.3), updates reporting (4.4), adds note on stock removal (8.8), allows prior revisions (8.6), and is the result of a Five-Year Review and update of this specification.

1. SCOPE

1.1 Form

This specification covers a corrosion-resistant steel in the form of bars, wire, forgings, and forging stock.

1.2 Application

These products have been used typically for parts requiring corrosion resistance and oxidation resistance up to 800 °F (427 °C) and hardness at room temperature within the range 40 to 55 HRC when heat treated, but usage is not limited to such applications.

1.2.1 Certain design and processing procedures may cause these products to become susceptible to stress-corrosion cracking; ARP1110 recommends practices to minimize such conditions.

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.

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<https://www.sae.org/standards/content/AMS5621H>

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.

AMS2241	Tolerances, Corrosion and Heat-Resistant Steel, Iron Alloy, Titanium, and Titanium Alloy Bars and Wire
AMS2248	Chemical Check Analysis Limits, Corrosion and Heat-Resistant Steels and Alloys, Maraging and Other Highly-Alloyed Steels, and Iron Alloys
AMS2371	Quality Assurance Sampling and Testing, Corrosion and Heat-Resistant Steels and Alloys, Wrought Products and Forging Stock
AMS2374	Quality Assurance Sampling and Testing, Corrosion and Heat-Resistant Steel and Alloy Forgings
AMS2806	Identification, Bars, Wire, Mechanical Tubing, and Extrusions, Carbon and Alloy Steels and Corrosion and Heat-Resistant Steels and Alloys
AMS2808	Identification Forgings
ARP1110	Minimizing Stress Corrosion Cracking in Wrought Forms of Steels and Corrosion Resistant Steels and Alloys
ARP1917	Clarification of Terms Used in Aerospace Metals Specifications
AS1182	Standard Stock Removal Allowance Aircraft-Quality and Premium Aircraft-Quality Steel Bars and Mechanical Tubing

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 A370	Mechanical Testing of Steel Products
ASTM A751	Chemical Analysis of Steel Products
ASTM E140	Hardness Conversion Tables for Metals Relationship Among Brinell Hardness, Vickers Hardness, Rockwell Hardness, Superficial Hardness, Knoop Hardness, Scleroscope Hardness, and Leeb Hardness
ASTM E384	Microindentation Hardness of Materials
ASTM E1077	Estimating the Depth of Decarburization of Steel Specimens

3. TECHNICAL REQUIREMENTS

3.1 Composition

Shall conform to the percentages by weight shown in Table 1, determined in accordance with ASTM A751 or by other analytical methods acceptable to purchaser.

Table 1 - Composition

Element	Min	Max
Carbon	0.30	0.40
Manganese	--	1.00
Silicon	--	1.00
Phosphorus	--	0.040
Sulfur	--	0.030
Chromium	12.00	14.00
Nickel	--	0.50
Molybdenum	--	0.50
Copper	--	0.50
Aluminum	--	0.05
Tin	--	0.05

3.1.1 Check Analysis

Composition variations shall meet the applicable requirements of AMS2248.

3.2 Condition

The product shall be supplied in the following condition; hardness and tensile strength shall be determined in accordance with ASTM A370:

3.2.1 Bars

Annealed having hardness not higher than 241 HB, or equivalent (see 8.2).

3.2.1.1 All hexagons regardless of size, and other bars 2.750 inches (69.85 mm) and under in nominal diameter or least distance between parallel sides shall be cold finished.

3.2.1.2 Bars, other than hexagons, over 2.750 inches (69.85 mm) in nominal diameter or least distance between parallel sides shall be hot finished or cold finished.

3.2.2 Wire

Cold drawn and annealed having tensile strength not higher than 115 ksi (793 MPa), or equivalent hardness (see 8.3).

3.2.3 Forgings

As ordered.

3.2.4 Forging Stock

As ordered by the forging manufacturer.

3.3 Properties

The product shall conform to the following requirements; hardness testing shall be performed in accordance with ASTM A370:

3.3.1 Response to Heat Treatment

Specimens as in 4.3.3 shall have hardness not lower than 50 HRC, or equivalent (see 8.2), after being heated to 1825 °F ± 25 °F (996 °C ± 14 °C), held at heat for 30 minutes ± 3 minutes, and cooled at a rate equivalent to still air cooling.