



AEROSPACE MATERIAL SPECIFICATION

AMS5845™

REV. K

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Superseding AMS5845J

Alloy, Corrosion-Resistant, Round Bars
20Cr - 35Ni - 35Co - 10Mo
Vacuum Induction Plus Consumable Electrode Vacuum Remelted
Solution Heat Treated, Work Strengthened, and Aged
(Composition similar to UNS R30035)

RATIONALE

AMS5845K prohibits unauthorized exceptions (3.8), revises reports (4.4.6) and identification (5.2.1), and results from a Five-Year Review and update of this specification.

1. SCOPE

1.1 Form

This specification covers a high-strength, corrosion-resistant alloy in the form of bar up to 1.75 inches (44.4 mm) in diameter (see 8.2 and 8.7).

1.2 Application

These bars have been used typically for parts requiring a combination of high strength, good tension-tension fatigue strength, toughness, ductility, and exceptionally good corrosion resistance (see 8.2), 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.

AMS2261 Tolerances, Nickel, Nickel Alloy, and Cobalt Alloy Bars, Rods, and Wire

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

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

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- AMS2750 Pyrometry
- AMS2806 Identification, Bars, Wire, Mechanical Tubing, and Extrusions, Carbon and Alloy Steels and Corrosion and Heat-Resistant Steels and Alloys
- ARP1917 Clarification of Terms Used in Aerospace Metals Specifications

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 E18 Rockwell Hardness of Metallic Materials
- ASTM E112 Determining Average Grain Size
- ASTM E140 Conversion Tables for Metals Relationship Among Brinell Hardness, Vickers Hardness, Rockwell Hardness, Superficial Hardness, Knoop Hardness, Scleroscope Hardness, and Leeb Hardness
- ASTM E354 Chemical Analysis of High-Temperature, Electrical, Magnetic, and Other Similar Iron, Nickel, and Cobalt Alloys

3. TECHNICAL REQUIREMENTS

3.1 Composition

Shall conform to the percentages by weight shown in Table 1, determined by wet chemical methods in accordance with ASTM E354, by spectrochemical methods, or by other analytical methods acceptable to purchaser.

Table 1 - Composition

Element	Min	Max
Carbon	--	0.025
Manganese	--	0.15
Silicon	--	0.15
Phosphorus	--	0.015
Sulfur	--	0.010
Chromium	19.00	21.00
Nickel	33.00	37.00
Molybdenum	9.00	10.50
Titanium	--	1.00
Iron	--	1.00
Cobalt	remainder	

3.1.1 Check Analysis

Composition variations shall meet the applicable requirements of AMS2269.

3.2 Melting Practice

Alloy shall be multiple melted using vacuum induction melting followed by consumable electrode vacuum remelting.

3.3 Condition

Solution heat treated, work strengthened, aged, and centerless ground.

3.3.1 Bars shall not be cut from plate (also see 4.4.5).