



AEROSPACE MATERIAL SPECIFICATION

AMS5750™**REV. D**

Issued	1953-06
Revised	1973-05
Noncurrent	1980-10
Reaf. Nonc.	2012-04
Stabilized	2017-04

Superseding AMS5750C

Alloy Bars, Forgings, and Rings, Corrosion and Heat Resistant
Nickel Base - 15.5Cr - 16Mo - 3.8W - 5.5Fe
Solution Heat Treated

RATIONALE

AMS5750D stabilizes this document because it contains mature technology that is not expected to change and thus no further revisions are anticipated.

STABILIZED NOTICE

AMS5750D has been declared "STABILIZED" by the AMS F Corrosion Heat Resistant Alloys Committee. This document was stabilized because this document contains mature technology that is not expected to change and thus no further revisions are anticipated. Previously this document was non-current. The last technical update of this document occurred in April, 1973. Users of this document should refer to the cognizant engineering organization for disposition of any issues with reports/certifications to this specification; including exceptions listed on the certification.

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1. SCOPE:

1.1 Form:

This specification covers a corrosion and heat resistant nickel-base alloy in the form of bars, forgings, flash welded rings, and stock for forging or flash welded rings.

1.2 Application:

Primarily for parts and assemblies, such as turbine rotors, shafts, blades, and bolts, requiring high strength up to 1500°F (816°C) and oxidation resistance up to 2000°F (1093°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., Two Pennsylvania Plaza, New York, New York 10001.

2.1.1 Aerospace Material Specifications:

AMS 2261	Tolerances, Nickel, Nickel-Base and Cobalt-Base Alloy Bars and Forging Stock
AMS 2269	Chemical Check Analysis Limits, Wrought Nickel and Nickel-Base Alloys
AMS 2350	Standards and Test Methods
AMS 2371	Quality Assurance Sampling of Corrosion and Heat Resistant Alloys, Wrought Products Except Forgings
AMS 2375	Approval and Control of Critical Forgings
AMS 2808	Identification, Forgings
AMS 7490	Rings, Flash Welded, Corrosion and Heat Resistant, Austenitic Steels and Austenitic-Type Alloys

2.2 ASTM Publications:

Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

ASTM E8	Tension Testing of Metallic Materials
ASTM E10	Brinell Hardness of Metallic Materials
ASTM E139	Conducting Creep, Creep-Rupture, and Stress-Rupture Tests of Metallic Materials
ASTM E354	Chemical Analysis of High-Temperature, Electrical, Magnetic, and Other Similar Iron, Nickel, and Cobalt-Base Alloys

2.3 Government Publications:

Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, Pennsylvania 19120.

2.3.1 Federal Standards:

Federal Test Methods Standard No. 151 - Metals; Test Methods

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

Shall conform to the following percentages by weight, determined by wet chemical methods in accordance with ASTM E354, by spectrographic methods in accordance with Federal Test Method Standard No. 151, Method 112, or by other approved analytical methods:

	min		max
Carbon	--		0.08
Manganese	--		1.00
Silicon	--		1.00
Phosphorus	--		0.040
Sulfur	--		0.030
Chromium	14.50	-	16.50
Molybdenum	15.00	-	17.00
Tungsten	3.00	-	4.50
Iron	4.00	-	7.00
Cobalt (3.1.1)	--		2.50
Vanadium	--		0.35
Nickel + Cobalt	remainder		

3.1.1 Determination not required for routine acceptance.

3.1.2 Check Analysis: Composition variations shall meet the requirements of AMS 2269.

3.2 Condition:

The product shall be supplied in the following condition:

3.2.1 Bars, Forgings, and Flash Welded Rings: Solution heat treated free of continuous grain boundary carbide network.

3.2.1.1 Bars less than 0.75 in. (19.0 mm) in diameter or distance between parallel sides shall be pickled.