



AEROSPACE MATERIAL SPECIFICATION

AMS5772™**REV. G**

Issued 1971-05
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Revised 2026-07

Superseding AMS5772F

Cobalt Alloy, Corrosion- and Heat-Resistant, Bars, Forgings, and Rings,
40Co - 22Cr - 22Ni - 14.5W - 0.07La (HS188),
Solution Heat Treated
(Composition similar to UNS R30188)

RATIONALE

AMS5772G is the result of a Five-Year Review and update of the specification. The revision adds the trade name to the Title (see 8.5), revises composition testing and reporting (see 3.1 and 3.1.1), updates strain rate control (see 3.4.1.1.1), removes ASTM E140 as a hardness conversion method and adds ASTM E18 as a hardness measurement method (see 3.4.1.2 [8.2 Rev. F]) and adds an alternate hardness value (see 3.4.1.2.1), clarifies oxidation measurement requirements (see 3.4.1.4.1), adds reporting to MMPDS (see 3.7 and 8.6), and clarifies reporting of bar size (see 4.5.5).

1. SCOPE

1.1 Form

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

1.2 Application

These products have been used typically for parts requiring high strength up to 1800 °F (982 °C) and oxidation resistance up to 2000 °F (1093 °C), 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: 1-877-606-7323 (U.S. and Canada only) or 1-724-776-4970 (outside U.S. and Canada), 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

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Full document details: SAE AMS5772G

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Documents

Standard, visit Sharing Hub

AMS2283	Composition Testing Methods for Nickel- and Cobalt-Based 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
AMS2750	Pyrometry
AMS2806	Identification, Bars, Wire, Mechanical Tubing, and Extrusions, Carbon and Alloy Steels, and Corrosion and Heat-Resistant Steels and Alloys
AMS2808	Identification, Forgings
AMS7490	Rings, Flash Welded, Corrosion and Heat-Resistant Austenitic Steels, Austenitic-Type Iron, Nickel or Cobalt Alloys, or Precipitation-Hardenable Alloys
AS7766	Terms Used in Aerospace Metals Specifications
HS-1086	Metals and Alloys in the Unified Numbering System

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 E10	Brinell Hardness of Metallic Materials
ASTM E18	Rockwell Hardness of Metallic Materials
ASTM E139	Creep, Creep-Rupture, and Stress-Rupture Tests of Metallic Materials

2.3 Definitions

Terms used in AMS are defined in AS7766.

3. TECHNICAL REQUIREMENTS

3.1 Composition

Composition shall conform to the percentages by weight shown in Table 1, determined in accordance with AMS2283 or by other analytical methods acceptable to the purchaser.

Table 1 - Composition

Element	Min	Max
Carbon	0.05	0.15
Manganese	--	1.25
Silicon	0.20	0.50
Phosphorus	--	0.020
Sulfur	--	0.015
Chromium	20.00	24.00
Nickel	20.00	24.00
Tungsten	13.00	16.00
Lanthanum	0.02	0.12
Boron	--	0.015
Iron	--	3.00
Cobalt	remainder	

3.1.1 The producer may test for any element not listed in Table 1 and include this analysis in the report of 4.5. Reporting of any element not listed in the composition table is not a basis for rejection unless limits of acceptability are specified by the purchaser.

3.1.2 Check Analysis

Composition variations shall meet the applicable requirements of AMS2269.

3.2 Condition

The product shall be supplied in the following condition:

3.2.1 Bars

3.2.1.1 Bars shall be hot finished or cold finished and solution heat treated; round bars shall be ground or turned.

3.2.1.2 Bars shall not be cut from plate (see 4.5.5).

3.2.2 Forgings and Flash-Welded Rings

Solution heat treated. Surface finish shall be as agreed upon by the purchaser and the forging or flash-welded ring manufacturer.

3.2.2.1 Flash-welded rings shall not be supplied unless specified or permitted on the purchaser's part drawing. When supplied, rings shall be manufactured in accordance with AMS7490.

3.2.3 Stock for Forging or Flash-Welded Rings

Stock for forging or flash-welded rings shall be as ordered by the forging or flash-welded ring manufacturer.

3.3 Solution Heat Treatment

Bars, forgings, and flash-welded rings shall be solution heat treated by heating to 2150 °F ± 25 °F (1177 °C ± 14 °C), holding at heat for a time commensurate with cross-sectional thickness, and cooling at a rate that will produce product meeting the requirements of 3.4.1.1, 3.4.1.2, and 3.4.1.3. Pyrometry shall be in accordance with AMS2750.

3.3.1 Any thermal treatment following solution heat treatment as in 3.3 shall not involve use of temperatures higher than 2050 °F ± 25 °F (1121 °C ± 14 °C).