



AEROSPACE MATERIAL SPECIFICATION

AMS4893™**REV. D**

Issued 1959-01
Revised 2017-08
Reaffirmed 2022-05

Superseding AMS4893C

Alloy Castings, Corrosion- and Heat-Resistant
66Ni - 29Cu - 4.0Si
Solution Treated
(Composition similar to UNS N04019)

RATIONALE

AMS4893D revises composition (3.1) to replace a withdrawn chemical analysis standard, radiographic acceptance (3.7.4.1), quality (3.7.5.1), reports (4.5), and control factors (4.4.2.1), and results from a Five-Year Review and update of this specification.

AMS4893D has been reaffirmed to comply with the SAE Five-Year Review policy.

1. SCOPE

1.1 Form

This specification covers a nickel-copper alloy in the form of castings.

1.2 Application

These castings have been used typically for parts requiring resistance to wear and galling under light-to-medium loads against dissimilar materials of higher hardness, and retention of hot hardness up to 1000 °F (538 °C), and where improved machinability or grinding over that of as-cast material is desired, 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.

AMS2175	Castings, Classification and Inspection of
AMS2694	In-Process Welding of Aerospace Castings
AMS2750	Pyrometry

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Full document details: [SAE AMS4893D](http://www.sae.org)

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS4893D/>

Documents
Document Sharing Hub

AMS2804 Identification, Castings

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 E10 Brinell Hardness of Metallic Materials

ASTM E76 Chemical Analysis of Nickel-Copper Alloys

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 E272 Reference Radiographs for High-Strength Copper-Base and Nickel-Copper Alloy Castings

ASTM E478 Chemical Analysis of Copper Alloys

ASTM E1417/E1417M Liquid Penetrant Testing

ASTM E1742/E1742M Radiographic Examination

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 E478, by spectrochemical methods or by other analytical methods acceptable to purchaser.

Table 1 - Composition

Element	Min	Max
Nickel	60.0	--
Copper	27.0	31.0
Silicon	3.5	4.5
Iron	--	2.5
Manganese	--	1.5
Cobalt	--	1.0
Carbon	--	0.25
Sulfur	--	0.015

3.2 Condition

Solution heat treated (see 3.5).

3.2.1 Centrifugal Castings

Shall be rough turned and bored.

3.2.2 Sand Castings

Solid round bars shall be rough turned.