



AEROSPACE MATERIAL SPECIFICATION

AMS2664™**REV. G**

Issued 1968-05
Reaffirmed 2019-11
Revised 2025-06

Superseding AMS2664F

Brazing, Silver
For Use Up to 800 °F (427 °C)

RATIONALE

AMS2664G is the result of a Five-Year Review and update of this specification with changes to Ordering Information, Authority (see 1.3), and sampling for acceptance testing (see Table 2).

NOTICE

ORDERING INFORMATION: The following information shall be provided to the plating processor by the purchaser.

1. Purchase order shall specify not less than the following:

- AMS2664G
- Quantity of pieces to be brazed
- Material types of components being joined
- Applicable CEO engineering drawings
- Filler metal, if specific type is to be used (see 3.1.1)
- If specified, the method and acceptance criteria for proof pressure test (see 3.4.2)

2. Parts manufacturing operations such as heat treating, forming, joining and media finishing can affect the condition of the substrate for brazing or, if performed after brazing, could adversely affect the brazed part. The sequencing of these types of operations should be specified by the cognizant engineering organization or the purchaser and is not controlled by this specification.

1. SCOPE

1.1 Purpose

This specification covers the engineering requirements for producing brazed joints in parts made of steels, iron alloys, nickel alloys, and cobalt alloys by use of silver alloy filler metals and the properties of such joints.

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SAE WEB ADDRESS:

Full document details: SAE AMS2664G

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS2664G/>

Documents

Standard, visit Sharing Hub

1.2 Application

This process has been used typically for joints requiring high strength up to 800 °F (427 °C), but usage is not limited to such applications.

1.3 Authority

The cognizant engineering organization (CEO) may impose requirements or approve allowances that supersede the requirements in this AMS.

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.

AMS2403	Plating, Nickel, General Purpose
AMS2424	Plating, Nickel, Low-Stressed Deposit
AMS3411	Flux, Silver Brazing, High Temperature
AMS3417	Flux, Brazing, High Temperature
AMS4765	Silver Alloy, Brazing Filler Metal, 56Ag - 42Cu - 2.0Ni, 1420 to 1640 °F (771 to 893 °C) Solidus-Liquidus Range
AMS4772	Silver Alloy, Brazing Filler Metal, 54Ag - 40Cu - 5.0Zn - 1.0Ni, 1325 to 1575 °F (718 to 857 °C) Solidus-Liquidus Range
AMS4774	Silver Alloy Brazing Filler Metal, 63Ag - 28.5Cu - 6.0Sn - 2.5Ni, 1275 to 1475 °F (691 to 802 °C) Solidus-Liquidus Range
AS7766	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 D1179 Fluoride Ion in Water

ASTM D1193 Reagent Water

2.3 U.S. Government Publications

Copies of these documents are available online at <https://quicksearch.dla.mil>.

MIL-STD-2073-1 Standard Practice for Military Packaging

2.4 Definitions

Terms used in AMS are defined in AS7766.

3. TECHNICAL REQUIREMENTS

3.1 Materials

3.1.1 Flux

Shall conform to AMS3411, AMS3417, or other flux acceptable to the cognizant engineering organization.

3.1.2 Filler Metal

Shall conform to AMS4765, AMS4772, or, when specified, AMS4774. AMS4765 is recommended for brazing in protective atmospheres. AMS4772 is recommended for use with flux.

3.2 Preparation

3.2.1 Surface Condition

The surfaces to be joined shall be clean prior to assembly. Surfaces shall not be polished.

3.2.2 Nickel Plating (Required for Induction and Furnace Brazing Without Flux)

Joint surfaces on parts made of any steel or alloy having a specified titanium or aluminum content, either as a maximum or a range, shall be nickel plated in accordance with AMS2403 or AMS2424, except that plating will not be required on materials in which the specified maximum titanium content is not greater than 0.30% or the specified maximum aluminum content is not greater than 0.20% or the specified maximum sum of aluminum plus titanium contents is not greater than 0.50%. Thickness of plating shall be 0.0001 to 0.0006 inch (2.5 to 15.0 μm). Plating shall not extend beyond the intended joint plus fillet surfaces.

3.2.2.1 Nickel plating may be used on steels and alloys not having a specified titanium or aluminum content when such parts are to be brazed in an atmosphere permitted in 3.3.3.2.

3.2.3 Post-Plating Stress-Relief Treatment

Prior to brazing, nickel-plated tube joints shall be induction heated to $1850\text{ }^{\circ}\text{F} \pm 50\text{ }^{\circ}\text{F}$ ($1010\text{ }^{\circ}\text{C} \pm 28\text{ }^{\circ}\text{C}$) and held at heat for not less than 10 seconds to avoid stress corrosion. Other parts may also be stress relieved, as required, to avoid stress corrosion. Stress relief prior to brazing is not required for parts to be furnace brazed.

3.3 Procedure

3.3.1 Fluxing

Unless parts are to be brazed in a protective atmosphere as defined in 3.3.3.2, flux as specified in 3.1.1 shall be applied so that the surfaces to be joined are completely coated.

3.3.2 Assembly

3.3.2.1 Clearances

Detail parts, after nickel plating when plating is used, shall be assembled so that the clearances between mating surfaces are within tolerances specified on the drawing. Where clearances are not specified, joint clearance shall be as shown in Table 1.