



AEROSPACE MATERIAL SPECIFICATION

AMS2759™/4**REV. D**

Issued 1984-10
Revised 2018-04
Reaffirmed 2025-09

Superseding AMS2759/4C

(R) Heat Treatment
Austenitic Corrosion-Resistant Steel Parts

RATIONALE

AMS2759/4D results from a Five-Year Review and general revision of AMS2759 and its slash specifications.

AMS2759/4D has been reaffirmed to comply with the SAE Five-Year Review policy.

NOTICE

ORDERING INFORMATION: In addition to that listed in AMS2759, the purchaser shall supply the following information to the heat treating processor.

- AMS2759/4D

1. SCOPE

1.1 Purpose

This specification, in conjunction with the general requirements for steel heat treatment covered in AMS2759, establishes the requirements for annealing of austenitic corrosion-resistant steel parts. Parts are defined in AMS2759. General ordering instructions are specified in AMS2759.

1.2 Application

This specification is applicable to parts made from the following corrosion-resistant steels: 201, 202, 301, 302, 303, 304, 304L, 305, 309, 310, 314, 316, 316L, 321, 347, and 348 (See Table 1, Note 1).

- 1.3 The provisions of this specification revision shall become effective 90 days after publication.

2. APPLICABLE DOCUMENTS

In addition to those listed in AMS2759, 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. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence.

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SAE WEB ADDRESS:

Full document details: SAE AMS2759_4D

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS2759/4D/>

Documents

Standard Sharing Hub

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.

AMS2750 Pyrometry

AMS2759 Heat Treatment of Steel Parts

AMS2759/11 Stress Relief of Steel Parts

ARP1820 Chord Method of Evaluating Surface Microstructural Characteristics

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 A262 Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels

ASTM E3 Preparation of Metallographic Specimens

ASTM E8/E8M Tension Testing of Metallic Materials

3. TECHNICAL REQUIREMENTS

3.1 Pyrometry

Shall be in accordance with AMS2750 and as specified herein.

3.2 Furnace Equipment

Shall be in accordance with AMS2759. Furnaces shall at a minimum, conform to AMS2750 Class 5 requirements.

3.2.1 Atmospheres

Shall be controlled so as not to contaminate the parts being heat treated. Furnaces used to heat treat other classes of steel using atmospheres that could contaminate austenitic corrosion-resistant steel parts, such as endothermic, exothermic, carbon-containing nitrogen-base, etc., shall have purge cycles (see 8.2) run and then shall be tested as required in 3.4.1 to ensure that the surfaces of parts are free from nitriding and intergranular oxidation. Parts being heat treated shall be suitably isolated from products of combustion. Materials that could attack or contaminate metal shall not contact parts during heat treatment. Composition and maintenance of salt baths shall be such as to prevent contamination of the parts. Salt baths shall be tested in accordance with AMS2759.

3.2.2 Heating Environment

Parts shall be heat treated in either air or protective atmosphere. Acceptable protective atmospheres include argon, helium, hydrogen, neutral salt, and vacuum. Nitrogen and nitrogen-hydrogen blends are permitted as a backfill quench for vacuum furnaces and as a protective atmosphere if a minimum of 0.020 inch (0.51 mm) is to be removed from all surfaces after heat treatment. Use of nitrogen from dissociated ammonia is prohibited. For scale-free or discoloration-free parts, an air atmosphere and air cooling should be avoided.

3.2.3 A protective coating is permitted to minimize oxidation on finished machined surfaces when approved by the cognizant engineering organization. Approval is not required when it can be demonstrated that the coating can effectively prevent intergranular oxidation in excess of 0.0007 inch (0.018 mm) (see 3.5.1). All protective coatings shall be removed after heat treatment.