



AEROSPACE MATERIAL SPECIFICATION

AMS2759™/1**REV. F**

Issued 1984-10
Reaffirmed 2014-04
Revised 2018-04

Superseding AMS2759/1E

(R) Heat Treatment of Carbon and Low-Alloy Steel Parts
Minimum Tensile Strength Below 220 ksi (1517 MPa)

RATIONALE

AMS2759/1F results from a Five-Year Review and general revision of AMS2759 and its slash specifications.

NOTICE

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

- AMS2759/1F
- Whether the parts are “damage tolerant”, “maintenance critical”, or “fracture critical” (see 3.4.7). These designations have been previously used to designate parts requiring additional inspection (see 4.1.1).
- Tensile strength or hardness if other than that stated in Tables 3 and 4 (see 3.4.8 and 3.5.1).

1. SCOPE

This specification, in conjunction with the general requirements for steel heat treatment covered in AMS2759, establishes the requirements for heat treatment of carbon and low-alloy steel parts to minimum ultimate tensile strengths below 220 ksi (1517 MPa). Parts are defined in AMS2759. Due to limited hardenability in these materials, there are size limits in this specification.

1.1 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.

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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.

AMS2418 Plating, Copper

AMS2424 Plating, Nickel Low-Stressed Deposit

AMS2750 Pyrometry

AMS2759 Heat Treatment of Steel Parts, General Requirements

3. TECHNICAL REQUIREMENTS

3.1 Heat Treatment

Shall conform to AMS2759 and the requirements specified herein.

3.2 Equipment

Equipment shall conform to AMS2759. Equipment specifically used for tempering of H-11, D6AC, and 9Ni-4Co steels shall conform to AMS2750, Class 2.

3.3 Heating Environment

Parts shall be controlled by type, and heat treated in the class of atmosphere permitted in Table 1 for that type when heating above 1250 °F (677 °C). When heating parts at 1250 °F (677 °C) or below, Class A, B, or C atmosphere may be used (see 8.2). Atmosphere Class and Part Type are described in AMS2759.

Table 1 - Atmospheres

Part Type	Atmosphere Classification		
	Class A	Class B	Class C
Type 1	Permitted	Permitted	Permitted
Type 2	Permitted	PROHIBITED ⁽¹⁾	PROHIBITED

NOTES:

1. Permitted provided the atmosphere is controlled to meet the surface contamination requirements in 3.5.2.

3.3.1 Protective Coatings

A supplemental coating or plating is permitted when approved by the cognizant engineering organization. Fine grain copper plating in accordance with AMS2418 or nickel plating in accordance with AMS2424 may be used without approval but the surface contamination specimens in AMS2759 shall not be plated.

3.4 Procedure

3.4.1 Preheating

Preheating until furnace stabilization in the 900 to 1200 °F (482 to 649 °C) range is recommended before heating parts above 1300 °F (704 °C) if the parts have previously been heat treated to a hardness greater than 35 HRC, have abrupt changes of section thickness, have sharp reentrant angles, have finished machined surfaces, have been welded, have been cold formed or straightened, have holes, or have sharp or only slightly-rounded notches or corners.