AEROSPACE MATERIAL SPECIFICATION

AMS2759™ REV. G

Issued 1984-10
Reaffirmed 2014-04
Revised 2019-04

Superseding AMS2759F

Heat Treatment of Steel Parts General Requirements

RATIONALE

AMS2759G results from making corrections to types of parts (3.2.2.2.3), test specimen hardenability (3.10.3.1.5.1, 3.10.3.1.5.2, and 3.10.3.1.5.3), and surface contamination (3.12.1); and deletion of quench media control (3.10.3.3.1.4) and the fourth bullet point in 3.10.3.3.2. Start of soaking (3.8.7) was moved from the notes.

NOTICE

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

Purchase order and/or purchaser supplied documents shall specify not less than the following:

- AMS2759G
- Quantity of parts
- Part number or part identity
- Material alloy designation of parts
- Heat treating operations required
- Final heat treatment condition required
- Processing variables, if not defined or different from the applicable slash specification. Examples of such requirements include but not limited to: processing temperatures, times, and other parameters, class of atmosphere required, part type, allowance for straightening, post straightening thermal operations requirements, pre-cleaning and post-cleaning requirements, post heat treatment corrosion protection requirements.
- Additional ordering information as required by the appropriate slash specification. Examples of such requirements include but not limited to: present condition of parts, pre heat treatment surface protection (e.g., Cu plating), any restriction from the applicable slash specification (e.g., Vacuum only or Salt bath only).

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: http://www.sae.org

SAE values your input. To provide feedback on this Technical Report, please visit
http://standards.sae.org/AMS2759G

1. SCOPE

1.1 This specification establishes general requirements for the processes listed in 3.8.1 for heat treatment of steel parts (see 8.2.1) by users or their vendors or subcontractors.

1.2 Reference to AMS2759 on a drawing, fabrication order, purchase order, etc., constitutes a requirement to conform to the applicable provisions of the documents listed in 3.8.1 for the heat treatment of steel parts of the particular alloy described. Parts made from steels other than those specified in the detail specifications may be heat treated in accordance with the applicable requirements using processing temperatures, times, and other parameters recommended by the material producer unless otherwise specified by purchaser.

1.3 The conditions (temperatures, soaking times, cooling rates, etc.) used by material producers, forge shops, and foundries for qualification of response to heat treatment of their products shall conform to the requirements of the specifications listed in 3.8.1.

1.4 Heat treatment of raw material by raw material producers, forge shops, or foundries shall be in accordance with the material procurement specification.

1.5 Processes such as flame hardening, induction through-hardening, laser hardening, austempering, martempering, and hot oil quenching are recognized heat treating processes, but their requirements may not be completely covered by this specification.

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

1.7 Safety - Hazardous Materials

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards that may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

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 processor 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 and Canada), www.sae.org.

AMS2750	Pyrometry
AMS2759/1	Heat Treatment of Carbon and Low-Alloy Steel Parts, Minimum Tensile Strength Below 220 ksi (1517 MPa)
AMS2759/2	Heat Treatment of Low-Alloy Steel Parts, Minimum Tensile Strength 220 ksi (1517 MPa) and Higher
AMS2759/3	Heat Treatment Precipitation-Hardening Corrosion-Resistant, Maraging, and Secondary Hardening Steel Parts
AMS2759/4	Heat Treatment of Austenitic Corrosion-Resistant Steel Parts
AMS2759/5	Heat Treatment Martensitic Corrosion-Resistant Steel Parts
AMS2759/6	Gas Nitriding of Low-Alloy Steel Parts

AMS2759/7	Carburizing and Heat Treatment of Carburizing Grade Steel Parts
AMS2759/8	Ion Nitriding
AMS2759/9	Hydrogen Embrittlement Relief (Baking) of Steel Parts
AMS2759/10	Automated Gaseous Nitriding Controlled by Nitriding Potential
AMS2759/11	Stress Relief of Steel Parts
AMS2759/12	Automated Gaseous Nitrocarburizing, Controlled by Potentials
AMS2759/13	Gaseous Nitrocarburizing
AMS2769	Heat Treatment of Parts in a Vacuum
AMS-H-6875	Heat Treatment of Steel Raw Materials
ARP1820	Chord Method of Evaluating Surface Microstructural Characteristics
ARP1917	Clarification of Terms Used in Aerospace Metals Specifications
ARP1962	Training and Approval of Heat-Treating Personnel
AS1260	Equivalent Sections of Certain Shapes to Round Bars

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9598, www.astm.org.

ASTM A255	Determining Hardenability of Steel
ASTM A304	Carbon and Alloy Steel Bars Subject to End-Quench Hardenability Requirements
ASTM A370	Mechanical Testing of Steel Products
ASTM D6200	Determination of Cooling Characteristics of Quench Oils by Cooling Curve Analysis
ASTM D6482	Determination of Cooling Characteristics of Aqueous Polymer Quenchants by Cooling Curve Analysis with Agitation (Tensi Method)
ASTM D6549	Determination of Cooling Characteristics of Quenchants by Cooling Curve Analysis with Agitation (Drayton Unit)
ASTM D6710	Evaluation of Hydrocarbon-Based Quench Oil
ASTM E8/E8M	Tension Testing of Metallic Materials
ASTM E10	Brinell Hardness of Metallic Materials
ASTM E18	Rockwell Hardness of Metallic Materials
ASTM E110	Rockwell and Brinell Hardness of Metallic Materials by Portable Hardness Testers
ASTM E384	Microindentation Hardness of Materials