



AEROSPACE MATERIAL SPECIFICATION

AMS2759™/11**REV. B**

Issued 2005-04
Reaffirmed 2014-04
Revised 2025-07

Superseding AMS2759/11A

Stress Relief of Steel Parts

RATIONALE

AMS2759/11B results from a Five-Year Review and update of this specification with changes to Purpose (see 1.1.2), Application (see 1.2), Pyrometry (see 3.1), Heating Environment (see 3.2.1), Stress Relieving (see 3.4.1, 3.4.1.2, 3.4.1.3.2, and 3.4.1.3.4), stress-relieving temperature (see Table 1), and soaking time for stress relieving (see Table 2).

NOTICE

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

- AMS2759/11B
- Cycle 1 or Cycle 2 when stress relieving austenitic corrosion-resistant steels
- Current condition of the parts and if parts are made from strain-hardened material and parts that have been intentionally cold worked, strain hardened, or peened
- Tempering or aging temperature as applicable to what was last performed
- Minimum hardness or strength to which parts have been heat treated
- Whether the stress-relief process to be performed is pre-plate, pre-chemical processing, or before other processing

SAE Executive Standards Committee Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2025 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, or used for text and data mining, AI training, or similar technologies, without the prior written permission of SAE.

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
http://www.sae.org

SAE WEB ADDRESS:

Full document details: SAE AMS2759_11B

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS2759/11B/>

Documents

Standard, visit Sharing Hub

1. SCOPE

1.1 Purpose

1.1.1 This specification, in conjunction with the general requirements for steel heat treatment in AMS2759, establishes requirements for thermal stress-relief treatments of parts manufactured from the following materials:

- a. Carbon and low-alloy steels
- b. Tool steels
- c. Precipitation-hardening, corrosion-resistant, and maraging steels
- d. Austenitic corrosion-resistant steels
- e. Martensitic corrosion-resistant steels

1.1.2 Parts made from strain-hardened material (1/4 hard, 1/2 hard, etc.) and parts that have been intentionally cold worked, strain hardened, or peened shall not be stress relieved.

1.2 Application

Stress relief of parts is performed to reduce residual stresses and thereby improve dimensional stability, decrease warpage during subsequent machining, and facilitate subsequent forming operations. It is also performed prior to plating, other chemical processing, or other processing to prevent cracking during processing. When required, stress relief should be performed to reduce residual stress that may affect fatigue performance.

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 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. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence.

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.

AMS2759 Heat Treatment of Steel Parts, General Requirements

AMS2759/4 Heat Treatment, Austenitic Corrosion-Resistant Steel Parts

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 A262 Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels

ASTM E140 Hardness Conversion Tables for Metals Relationship Among Brinell Hardness, Vickers Hardness, Rockwell Hardness, Superficial Hardness, Knoop Hardness, Scleroscope Hardness, and Leeb Hardness