



AEROSPACE MATERIAL SPECIFICATION

AMS5659™/H1025**REV. B**

Issued 2012-11
Reaffirmed 2018-05
Revised 2020-06

Superseding AMS5659/H1025A

Steel, Corrosion-Resistant, Bars, Wire, Forgings, Rings, and Extrusions
15Cr - 4.5Ni - 0.30Cb (Nb) - 3.5Cu
Consumable Remelted, Solution and Precipitation Heat Treated (H1025)
(Composition similar to UNS S15500)

RATIONALE

AMS5659/H1025B prohibits unauthorized exceptions (3.8), revises condition (3.3.3), precipitation heat treatment (3.4.1.1), properties (3.5.3.1), and reports (4.4), and results from a Five-Year Review and update of this specification.

1. SCOPE

1.1 Form

This specification covers a corrosion-resistant steel product in the solution and precipitation heat treated (H1025) condition.

1.1.1 The aged product may be supplied directly by a mill or by a producer other than the mill. The latter would be accomplished by precipitation heat treatment of solution treated material previously certified to AMS5659. The entity assuming responsibility for the aging operation is designated the producer of AMS5659/H1025B.

1.2 Application

These products have been used typically for parts requiring corrosion resistance and high strength up to 600 °F (316 °C) with good ductility and strength in the transverse direction in large section sizes, but usage is not limited to such applications (see 8.1).

1.3 Classification

Melting practice classification shall be in accordance with AMS5659.

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.

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Documents
Document 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

AMS2759/3 Heat Treatment, Precipitation-Hardening Corrosion-Resistant, Maraging, and Secondary Hardening Steel Parts

AMS5659 Steel, Corrosion-Resistant, Bars, Wire, Forgings, Rings, and Extrusions, 15Cr - 4.5Ni - 0.30Cb (Nb) - 3.5Cu

AMS-H-6875 Heat Treatment of Steel Raw Materials

3. TECHNICAL REQUIREMENTS

3.1 Composition

Shall be in accordance with AMS5659.

3.2 Melting Practice

Shall be in accordance with AMS5659.

3.3 Condition

Shall be in accordance with AMS5659, and the following:

3.3.1 The product shall be supplied in the precipitation hardened (H1025) heat treat condition.

3.3.2 If straightening is performed after precipitation hardening heat treatment, product shall be stress relieved by heating to 925 °F (496 °C) and soaking for at least 1 hour plus 1 hour additional for each inch (25 mm) of thickness or fraction thereof greater than 1 inch (25 mm). When load thermocouples are used, the soaking time shall be at least 1 hour.

3.3.3 Bars shall not be cut from plate (also see 4.3.4).

3.4 Heat Treatment

Shall be in accordance with AMS5659 and the following:

3.4.1 Precipitation Heat Treatment

3.4.1.1 Shall be in accordance with the requirements applicable to either AMS-H-6875 or AMS2759/3 at the producer's option, except acceptance testing and criteria shall be as specified in 3.5.3.1.

3.4.1.2 When the product is precipitation heat treated by an entity other than the mill producer of the AMS5659-certified product, the heat treatment source shall be accredited by a recognized industry agency for stainless steel heat treatment acceptable to the purchaser.

3.5 Properties

All products shall conform to the following requirements:

3.5.1 Macrostructure

Shall be in accordance with AMS5659.