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| AEROSPACE MATERIAL SPECIFICATION | AMS5898™ | REV. B |
| | Issued 1995-02 Reaffirmed 2011-10 Revised 2018-03 Superseding AMS5898A | |
| Steel, Corrosion Resistant, Bars, Wire, and Forgings 15.2Cr - 1.0Mo - 0.40N - (0.28 - 0.34C) Consumable Electrode Melted Under Pressure | | |

RATIONALE

AMS5898B revises Composition analysis standards (3.1), Decarburization (3.4.5.4), Reports (4.4), and Identification (5.2.1.1), and is a Five-Year Review and update of this specification.

1. SCOPE

1.1 Form

This specification covers a premium aircraft-quality, corrosion-resistant steel in the form of bars, wire, forgings, and forging stock.

1.2 Application

These products have been used typically for anti-friction bearing components requiring resistance to both corrosion and wear with hardness not lower than 58 HRC after hardening and tempering, but usage is not limited to such applications.

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.

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.

- AMS2241 Tolerances, Corrosion and Heat-Resistant Steel, Iron Alloy, Titanium, and Titanium Alloy Bars and Wire
- AMS2248 Chemical Check Analysis Limits Corrosion and Heat-Resistant Steels and Alloys, Maraging and Other Highly-Alloyed Steels, and Iron Alloys

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| AMS2300 | Steel Cleanliness, Premium Aircraft-Quality Magnetic Particle Inspection Procedure |
| AMS2371 | Quality Assurance Sampling and Testing Corrosion and Heat-Resistant Steels and Alloys Wrought Products and Forging Stock |
| AMS2374 | Quality Assurance Sampling and Testing Corrosion and Heat-Resistant Steel and Alloy Forgings |
| AMS2806 | Identification Bars, Wire, Mechanical Tubing, and Extrusions Carbon and Alloy Steels and Corrosion and Heat-Resistant Steels and Alloys |
| AMS2808 | Identification Forgings |
| ARP1917 | Clarification of Terms Used in Aerospace Metals Specifications |
| AS1182 | Standard Stock Removal Allowance Aircraft-Quality and Premium Aircraft-Quality Steel Bars and Mechanical Tubing |

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.

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| ASTM A370 | Mechanical Testing of Steel Products |
| ASTM A751 | Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products |
| ASTM A604 | Macroetch Testing of Consumable Electrode Remelted Steel Bars and Billets |
| ASTM E45 | Determining the Inclusion Content of Steel |
| ASTM E112 | Determining the Average Grain Size |
| ASTM E140 | Conversion Tables for Metals Relationship Among Brinell Hardness, Vickers Hardness, Rockwell Hardness, Superficial Hardness, Knoop Hardness, Scleroscope Hardness, and Leeb Hardness |

3. TECHNICAL REQUIREMENTS

3.1 Composition

Shall conform to the percentages by weight shown in Table 1, determined in accordance with ASTM A751, by spectrochemical methods, or by other analytical methods acceptable to purchaser.

Table 1 - Composition

| Element | Min | Max |
|------------|------|-------|
| Carbon | 0.28 | 0.34 |
| Manganese | 0.30 | 0.60 |
| Silicon | 0.30 | 0.80 |
| Phosphorus | -- | 0.020 |
| Sulfur | -- | 0.010 |
| Chromium | 14.5 | 16.0 |
| Molybdenum | 0.95 | 1.10 |
| Nitrogen | 0.35 | 0.44 |
| Nickel | -- | 0.30 |

3.1.1 Check Analysis

Composition variations shall meet the applicable requirements of AMS2248.

3.2 Melting Practice

Steel shall be multiple melted using consumable electrode practice under pressurized protective gas in the remelt cycle to enable nitrogen to be dissolved in the steel to meet the requirements of Table 1.

3.3 Condition

The product shall be supplied in the following condition; hardness and tensile strength shall be determined in accordance with ASTM A370.

3.3.1 Bars

Annealed, having hardness not higher than 255 HB, or equivalent (see 8.2).

3.3.1.1 Bars 2.750 Inches (69.85 mm) and Under in Nominal Diameter or Least Distance Between Parallel Sides, and All Hexagons

Cold finished.

3.3.1.2 Bars, Other Than Hexagons, Over 2.750 Inches (69.85 mm) in Nominal Diameter or Least Distance Between Parallel Sides

Hot finished.

3.3.2 Wire

Annealed and cold finished having a tensile strength not higher than 130 ksi (896 MPa) or equivalent hardness (see 8.3).

3.3.3 Forgings

As ordered.

3.3.4 Forging Stock

As ordered by the forging manufacturer.

3.4 Properties

The product shall conform to the following requirements; hardness testing shall be performed in accordance with ASTM A370.

3.4.1 Macrostructure

Visual examination of transverse full cross-sections from bars, wire, billets, and forging stock, etched in hot hydrochloric acid in accordance with ASTM A604, shall show no pipe or cracks. Porosity, segregation, inclusions, and other imperfections for product 36 in² (232 cm²) and under in nominal cross-sectional area shall be no worse than the macrographs of ASTM A604 shown in Table 2.