SAE Aerospace
An SAE International Group

AEROSPACE MATERIAL SPECIFICATION

AMS 5710F

Issued	JAN 1942
Revised	JAN 1987
Noncurrent	AUG 1992
Reaf. Noncur.	NOV 2000
Cancelled	APR 2007

Superseding AMS 5710E

Steel, Bars and Forgings, Corrosion and Heat-Resistant 20Cr - 2.2Si - 1.3Ni (0.76 - 0.86)

(Composition similar to UNS S65006)

RATIONALE

AMS 5710F has been designated cancelled because survey of aerospace users indicated that this product is not being procured to this specification.

CANCELLATION NOTICE

This specification has been declared "CANCELLED" by the Aerospace Materials Division, SAE, as of April, 2007. By this action, this document will remain listed in the Numerical Section of the Index of Aerospace Material Specifications, indicating that it has been "CANCELLED".

Cancelled specifications are available from SAE.

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
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AEROSPACE MATERIAL SPECIFICATION

SAE AMS 5710E

Issued	JAN 1942
Revised	JAN 1987
Noncurrent	AUG 1992
Reaf. Noncur.	NOV 2000
Superseding	AMS 5710D

Steel, Bars and Forgings, Corrosion and Heat Resistant 20Cr - 2.2Si - 1.3Ni (0.76 - 0.86C)

UNS S65006

NONCURRENT NOTICE

This specification has been declared “NONCURRENT” by the Aerospace Materials Division, SAE, as of August, 1992. It is recommended, therefore, that this specification not be specified for new designs.

“NONCURRENT” refers to those materials which have previously been widely used and which may be required on some existing designs in the future. The Aerospace Materials Division, however, does not recommend these as standard materials for future use in new designs. Each of these “NONCURRENT” specifications is available from SAE.

1. SCOPE:

1.1 Form:

This specification covers a corrosion and heat resistant steel in the form of bars, forgings, and forging stock.

1.2 Application:

Primarily for parts, such as intake valves and valve seat inserts, requiring strength to 1000°F (540°C), oxidation resistance to 1800°F (980°C), and resistance to attack by lead compounds to 1600°F (870°C).

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2241	Tolerances, Corrosion and Heat Resistant Steel, Iron Alloy, Titanium, and Titanium Alloy Bars and Wire
MAM 2241	Tolerances, Metric, Corrosion and Heat Resistant Steel, Iron Alloy, Titanium, and Titanium Alloy Bars and Wire
AMS 2248	Chemical Check Analysis Limits, Wrought Corrosion and Heat Resistant Steels and Alloys, Maraging and Other Highly-Alloyed Steels, and Iron Alloys
AMS 2350	Standards and Test Methods
AMS 2371	Quality Assurance Sampling of Corrosion and Heat Resistant Steels and Alloys, Wrought Products Except Forgings and Forging Stock
AMS 2374	Quality Assurance Sampling of Corrosion and Heat Resistant Steels and Alloys, Forgings and Forging Stock
AMS 2806	Identification, Bars, Wire, Mechanical Tubing, and Extrusions, Carbon and Alloy Steels and Heat and Corrosion Resistant Steels and Alloys
AMS 2808	Identification, Forgings

2.2 ASTM Publications:

Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia PA 19103.

ASTM E10 Brinell Hardness of Metallic Materials
ASTM E353 Chemical Analysis of Stainless, Heat-Resisting, Maraging, and Other Similar Chromium-Nickel-Iron Alloys

2.3 U.S. Government Publications:

Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Military Standards:

MIL-STD-163 Steel Mill Products, Preparation for Shipment and Storage

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

Shall conform to the following percentages by weight, determined by wet chemical methods in accordance with ASTM E353 or by spectrographic or other analytical methods approved by purchaser:

	min	max
Carbon	0.76	0.86
Manganese	0.20	0.60
Silicon	1.90	2.60
Phosphorus	--	0.030
Sulfur	--	0.030
Chromium	19.00	21.00
Nickel	1.00	1.60

3.1.1 Check Analysis: Composition variations shall meet the requirements of AMS 2248.

3.2 Condition:

The product shall be supplied in the following condition:

3.2.1 Bars: Shall have hardness not higher than 321 HB, or equivalent, determined in accordance with ASTM E10.

3.2.2 Forgings: As ordered.

3.2.3 Forging Stock: As ordered by the forging manufacturer.

3.3 Quality:

The product, as received by purchaser, shall be uniform in quality and and condition, sound, and free from foreign materials and from imperfections detrimental to usage of the product.

3.3.1 Forgings shall have substantially uniform macrostructure; acceptance standards shall be as agreed upon by purchaser and vendor.

3.3.2 Grain flow of die forgings, except in areas which contain flash-line end grain, shall follow the general contour of the forging, showing no evidence of re-entrant flow.

3.4 Sizes:

Except when exact lengths or multiples of exact lengths are ordered, straight bars will be acceptable in mill lengths of 6 - 20 ft (2 - 6 m) but not more than 10% of any shipment shall be supplied in lengths shorter than 10 ft (3 m).

3.5 Tolerances:

Bars shall conform to all applicable requirements of AMS 2241 or MAM 2241.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

The vendor of the product shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.4. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to the requirements of this specification.

4.2 Classification of Tests:

Tests to determine conformance to all technical requirements of this specification are classified as acceptance tests and shall be performed on each heat or lot as applicable.

4.3 Sampling:

Shall be in accordance with the following:

4.3.1 Bars: AMS 2371.

4.3.2 Forgings and Forging Stock: AMS 2374.