

AEROSPACE MATERIAL SPECIFICATION



AMS 5645P

Issued DEC 1939
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Reaffirmed APR 2006
Superseding AMS 5645N

Steel, Corrosion and Heat Resistant, Bars, Wire, Forgings, Tubing, and Rings
18Cr - 10Ni - 0.40Ti (SAE 30321)
Solution Heat Treated

(Composition similar to UNS S32100)

1. SCOPE:

1.1 Form:

This specification covers a corrosion and heat resistant steel in the form of bars, wire, forgings, mechanical tubing, flash welded rings, and stock for forging or flash welded rings.

1.2 Application:

These products have been used typically for parts requiring good corrosion resistance and which will be subjected to elevated temperatures during fabrication or in service and for parts requiring oxidation resistance up to 1500 °F (816 °C), 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 canceled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

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 2243	Tolerances, Corrosion and Heat Resistant Steel Tubing
MAM 2243	Tolerances, Metric, Corrosion and Heat Resistant Steel Tubing

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2.1 (Continued):

AMS 2248	Chemical Check Analysis Limits, Corrosion and Heat Resistant Steels and Alloys, Maraging and Other Highly-Alloyed Steels, and Iron Alloys
AMS 2371	Quality Assurance Sampling and Testing, Corrosion and Heat Resistant Steels and Alloys, Wrought Products and Forging Stock
AMS 2374	Quality Assurance Sampling and Testing, Corrosion and Heat Resistant Steel and Alloy Forgings
AMS 2806	Identification, Bars, Wire, Mechanical Tubing, and Extrusions, Carbon and Alloy Steels and Corrosion and Heat Resistant Steels and Alloys
AMS 2808	Identification, Forgings
AMS 7490	Rings, Flash Welded, Corrosion and Heat Resistant Austenitic Steels, Austenitic-Type Iron, Nickel, or Cobalt Alloys, or Precipitation-Hardenable Alloys

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM A 262	Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels
ASTM A 370	Mechanical Testing of Steel Products
ASTM E 353	Chemical Analysis of Stainless, Heat-Resisting, Maraging, and Other Similar Chromium-Nickel-Iron Alloys

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

Shall conform to the percentages by weight shown in Table 1, determined by wet chemical methods in accordance with ASTM E 353, by spectrochemical methods, or by other analytical methods acceptable to purchaser.

TABLE 1 - Composition

Element	min	max
Carbon	--	0.08
Manganese	--	2.00
Silicon	--	1.00
Phosphorus	--	0.040
Sulfur	--	0.030
Chromium	17.00	19.00
Nickel	8.00	12.00
Titanium	5x(C+N)	0.70
Molybdenum	--	0.75
Copper	--	0.75
Nitrogen	--	0.10