AERONAUTICAL MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

AMS 5652B

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STEEL, CORROSION AND HEAT RESISTANT 25Cr - 20Ni - 2Si (SAE 30314)

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. FORM: Bars, forgings, flash welded rings, mechanical tubing, and stock for ø forgings or flash welded rings.

3. APPLICATION: Primarily for parts, such as nozzle diaphragm vanes and assemblies, requiring both corrosion and heat resistance, and where such parts may require welding during fabrication. Parts and assemblies requiring oxidation resistance up to approximately 2000 F, but useful at the higher temperatures only when stresses are very low. Strength at elevated temperatures is similar to that of the 18-8 types. The specified silicon content improves oxidation resistance with some sacrifice of weldability and ductility.

4. COMPOSITION:

		Check Analysis Under Min	Check Analysis Over Max
Carbon	0.18 max	--	0.01
Manganese	1.00 - 2.00	0.04	0.04
Silicon	1.50 - 2.30	0.10	0.10
Phosphorus	0.040 max	--	0.005
Sulfur	0.030 max	--	0.005
Chromium	23.00 - 25.00	0.25	0.25
Nickel	19.00 - 22.00	0.20	0.20
Molybdenum	0.50 max	--	0.03

5. CONDITION:

5.1 Bars, Forgings, Flash Welded Rings, and Mechanical Tubing: Solution heat ø treated free from continuous carbide network.

5.1.1 Bars: Unless otherwise specified, shall be supplied hot finished.

5.1.2 Mechanical Tubing: Cold finished.

5.1.3 Flash welded rings shall not be supplied unless specified or permitted on ø purchaser's part drawing. When supplied, they shall be manufactured in accordance with the latest issue of AMS 7490, unless otherwise specified.

5.2 Stock for Forgings or Flash Welded Rings: As ordered by the forging or ø flash welded ring manufacturer.

6. TECHNICAL REQUIREMENTS:

6.1 Hardness:

6.1.1 Bars and Mechanical Tubing: Shall have hardness as follows or equivalent ø when taken approximately midway between outer surface and center or inner surface as applicable.

ø 6.1.1.1 Bars: Not higher than Brinell 187 or equivalent.

ø 6.1.1.2 Mechanical Tubing: Not higher than Rockwell B 90 or equivalent.

6.1.2 Forgings and Flash Welded Rings: Shall have hardness not higher than ø Brinell 187 or equivalent.

7. QUALITY: Material shall be uniform in quality and condition, clean, sound, and free from foreign materials and from internal and external imperfections detrimental to fabrication or to performance of parts.

8. TOLERANCES: Unless otherwise specified, tolerances shall conform to the following:

8.1 Bars: The latest issue of AMS 2241 as applicable to hot finished.

8.2 Mechanical Tubing: The latest issue of AMS 2243 as applicable. Diameter ø tolerances shall conform to Table I, columns headed "Annealed or Solution Heat Treated".

9. REPORTS:

9.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report of the results of tests for chemical composition of each heat in the shipment. This report shall include the purchase order number, heat number, material specification number, size, and quantity from each heat. If forgings are supplied, the part number and size of stock used to make the forgings shall also be included.

9.2 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number, contractor or other direct supplier of material, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.