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

AMS 5665F

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ALLOY, CORROSION AND HEAT RESISTANT
Nickel Base - 15.5Cr - 8Fe

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, and stock for forgings or flash welded rings.

3. APPLICATION: Primarily for parts and assemblies requiring both corrosion and oxidation 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 low. Strength at elevated temperatures is similar to that of the 18-8 type of steel.

4. COMPOSITION:

Carbon	0.15 max
Manganese	1.0 max
Silicon	0.50 max
Sulfur	0.015 max
Chromium	14.0 - 17.0
Nickel + Cobalt	72.0 min
Cobalt, if determined	1.0 max
Iron	6.0 - 10.0
Copper	0.50 max

5. CONDITION:

5.1 Bars:

5.1.1 Rounds 2.5 in. and Less in Diameter: Cold drawn.

5.1.2 Rounds Over 2.5 in. in Diameter: Hot finished. They may be turned, and shall be turned when specified.

5.1.3 Squares and Rectangles: Hot finished.

5.2 Forgings and Flash Welded Rings: Annealed.

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

5.3 Stock for Forging or Flash Welded Rings: As ordered by the forging or flash welded ring manufacturer.

6. TECHNICAL REQUIREMENTS:

6.1 Heat Treatment: Forgings and flash welded rings shall be annealed by heating uniformly to 1925 F ± 25 and air cooling.

6.2 Hardness:

6.2.1 Bars: Shall have hardness as follows or equivalent when taken approximately midway between surface and center.

Nominal Diameter or Thickness, Inches	Hardness, Brinell
Rounds	
1.0 and under	229 - 311
Over 1.0 to 2.5, incl	207 - 285
Over 2.5	134 - 217
Squares and Rectangles	
Under 0.5	134 - 241
0.5 and over	134 - 217

6.2.2 Forgings: Shall have hardness not higher than 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 latest issue of AMS 2261 as applicable and as specified below:

8.1 Diameter (Rounds 2.5 in. and Less in Diameter): Table II.

8.2 Diameter (Rounds Over 2.5 in. in Diameter): Table IV.

8.3 Thickness and Width (Squares and Rectangles): Table IV.

8.4 Straightness: Section 6 as applicable.

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 and results of tests on each size from each sheet to determine conformance to the technical requirements of this specification. 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.