SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York, N.Y. 10017

AEROSPACE MATERIAL SPECIFICATIONS

AMS 5717B
Superseding AMS 5717A
Issued 1-31-64
Revised 11-1-67

ALLOY BARS, FORGINGS, AND RINGS, HEAT RESISTANT
25.5Cr - 45.5Ni - 3.2Co - 3.2Mo - 3.2W - 18Fe

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 heat and oxidation resistance and where such parts may require welding during fabrication. Material is oxidation resistant up to 2150 F (1177 C).

4. COMPOSITION:

	min	max
Carbon	--	0.08
Manganese	--	2.00
Silicon	0.75	1.50
Phosphorus	--	0.030
Sulphur	--	0.030
Chromium	24.00	27.00
Nickel	44.00	47.00
Cobalt	2.50	4.00
Molybdenum	2.50	4.00
Tungsten	2.50	4.00
Copper	--	0.50
Tin	--	0.025
Lead	--	0.025
Iron	remainder	

4.1 Check Analysis: Composition variations shall meet the requirements of the latest issue of AMS 2248.

5. CONDITION:

5.1 Bars, Forgings, and Flash Welded Rings: Solution treated as in 6.1.1, unless otherwise specified.

5.1.1 Bars: Unless otherwise specified, shall be supplied hot finished, except that bars under 0.25 in. in diameter or distance between parallel sides may be cold finished.

5.1.2 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 the latest issue of AMS 7490, unless otherwise specified.

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

6. TECHNICAL REQUIREMENTS:

6.1 Bars, Forgings, and Flash Welded Rings:

6.1.1 Heat Treatment: The product shall be solution heat treated by heating to 2000 F ± 50 (1093.3 C ± 28), holding at heat for 10 min. per inch of cross-section, and either quenching in water or cooling rapidly in air.

6.1.2 Tensile Properties:

Tensile Strength, psi	120,000 max
Ø Yield Strength at 0.2% offset or at 0.0065 in. in 2 in. Extension Under Load (E = 28,000,000), psi	35,000 min
Elongation, % in 2 in. or 4D	30 min

6.1.3 Hardness: Shall be not higher than Rockwell B 95 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 for bars shall conform to all applicable requirements of the latest issue of AMS 2241.

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.

Ø 10. IDENTIFICATION: Unless otherwise specified, the product shall be identified as follows:

Ø 10.1 Bars:

10.1.1 Each straight bar 0.500 in. and over in diameter or least width of flat surface shall be marked in a row of characters recurring at intervals not greater than 3 ft with AMS 5717B, heat number, and manufacturer's identification. The characters shall be of such size as to be clearly legible, shall be applied using a suitable marking fluid, and shall be capable of being removed in hot alkaline cleaning solution without rubbing. The markings shall have no deleterious effect on the material or its performance and shall be sufficiently stable to withstand normal handling.

10.1.2 Straight bars less than 0.500 in. in diameter or least width of flat surface shall be securely bundled and identified by a metal or plastic tag embossed with the purchase order number, AMS 5717B, heat number, nominal size, and manufacturer's identification and attached to each bundle or shall be boxed and the box marked with the same information.

10.1.3 Coiled bars shall be securely bundled and identified by a metal or plastic tag embossed with the purchase order number, AMS 5717B, heat number, nominal size, and manufacturer's identification and attached to each coil or shall be boxed and the box marked with the same information.

10.2 Forgings: Shall be identified in accordance with the latest issue of AMS 2808.

10.3 Flash Welded Rings: Shall be identified as agreed upon by purchaser and vendor.