

AERONAUTICAL

MATERIAL SPECIFICATIONS

AMS 5613 D

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

485 Lexington Ave., New York 17, N.Y.

Issued 3-1-48

Revised 1-15-61

STEEL, CORROSION AND MODERATE HEAT RESISTANT 12.5Cr (SAE 51410)

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, forging stock, and mechanical tubing.
3. APPLICATION: Primarily for parts and assemblies, such as compressor wheels and blades, requiring oxidation resistance up to 1000 F, but useful at the higher temperatures only when stresses are low.
4. COMPOSITION:

Carbon	0.15	max
Manganese	1.00	max
Silicon	1.00	max
Phosphorus	0.040	max
Sulfur	0.030	max
Chromium	11.50 - 13.50	
Nickel	0.75	max
Molybdenum	0.50	max
Aluminum	0.05	max
Copper	0.50	max
Tin	0.05	max

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

5. CONDITION:

- 5.1 Bars: Unless otherwise specified, all hexagons, and other bars 2.75 in. and under in diameter or distance between parallel sides shall be cold finished.
Ø Bars other than hexagons over 2.75 in. in diameter or distance between parallel sides shall be hot finished. All bars shall have hardness not higher than Brinell 241 or equivalent.
- 5.2 Mechanical Tubing: Cold finished, having hardness not higher than Brinell 241 or equivalent.
- 5.3 Forgings: As ordered.
- 5.4 Forging Stock: As ordered by the forging manufacturer.

6. TECHNICAL REQUIREMENTS:

- 6.1 Hardenability: Material 0.375 in. and less in thickness and 0.375 in. thick specimens cut from larger bars, tubes, and forgings when placed in a furnace which is at 1750 F + 10, allowed to heat to 1750 F + 10, held at heat for 30 min., and cooled in still air, shall conform to the following requirements:
Ø

Section 8.3 of the SAE Technical Board rules provides that: "All technical reports, including standards approved and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to any SAE standard or recommended practice, and no commitment to conform to or be guided by any technical report. In formulating and approving technical reports, the Board and its Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against infringement of patents."