

AERONAUTICAL MATERIAL SPECIFICATIONS

AMS 6355F

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Issued 9-1-42
Revised 6-30-60

STEEL SHEET AND STRIP
0.55Ni - 0.5Cr - 0.2Mo (0.28-0.33C) (SAE 8630)

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. FORM: Sheet, strip, and plate.
3. APPLICATION: Primarily for parts and assemblies where welding and moderate tensile properties are required. Sheet and strip are extensively used where minimum tensile strength of 160,000 psi is required in sections up to 0.125 in. thick and proportionately lower strength is required in heavier thicknesses.

4. COMPOSITION:

Carbon	0.28	-	0.33
Manganese	0.70	-	0.90
Silicon	0.20	-	0.35
Phosphorus	0.040	max	
Sulfur	0.040	max	
Chromium	0.40	-	0.60
Nickel	0.40	-	0.70
Molybdenum	0.15	-	0.25

- 4.1 Check Analysis: Unless otherwise specified, composition variations shall meet the requirements of the latest issue of AMS 2259, paragraph headed "Low Alloy Steels".
5. CONDITION: Cold finished and bright annealed, or hot rolled, annealed if necessary, and descaled, having tensile strength not higher than 85,000 psi unless otherwise ordered.
6. TECHNICAL REQUIREMENTS:
 - 6.1 Hardenability: Material 0.249 in. and under in nominal thickness and thicker material reduced to 0.249 in. in thickness, when quenched in oil from 1525 F \pm 10 and tempered at not lower than 900 F for 30 min. at heat, shall develop tensile strength not lower than 125,000 psi or hardness not lower than Rockwell C 26 or equivalent.
 - 6.2 Grain Size: Sheet and strip shall have grain size predominantly 5 or finer, with occasional grains as large as 3, as determined by comparison of a polished and etched specimen with the chart in ASTM E112-58T.
 - 6.3 Decarburization:
 - 6.3.1 Thickness Under 0.045 in.: The method of test and the tolerances shall be as agreed upon by purchaser and vendor.

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 liability for infringement of patents."

- 6.3.2 Thickness 0.045 in. and Over: Material shall be free from decarburization to the extent that the difference in hardness between the surface and a non-decarburized depth below the surface of an oil hardened specimen, protected during heat treatment to prevent changes in surface carbon content, shall be not more than shown below:

Nominal Thickness Inches	Rockwell Scale	Variation
0.045 to 0.249, incl	A	2
Over 0.249	A	3

- 6.4 Bending: Material shall withstand, without cracking, bending at room temperature through the angle indicated below around a diameter equal to the nominal thickness of the material, with axis of bend parallel to direction of rolling.

Nominal Thickness Inch	Angle degrees, min
0.249 and under	180
Over 0.249 to 0.749, incl	90

7. QUALITY: Material shall be uniform in quality and condition, clean, sound, smooth, 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 2252 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 and grain size of each heat in the shipment. This report shall include the purchase order number, heat number, material specification number, thickness, size, and quantity from each heat.
- 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.
10. IDENTIFICATION: Shall be according to 10.1, unless purchaser permits a method in 10.2.
- 10.1 Each plate, sheet, and strip shall be marked, in the respective location indicated below, with AMS 6355F, manufacturer's identification, and nominal thickness in inches. The characters shall be not less than $3/8$ in. in height, shall be applied using a suitable marking fluid, and shall be capable of being removed in hot alkaline cleaning solution without rubbing. The characters shall be sufficiently stable to withstand ordinary handling.