

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
29 West 39th Street
New York City

AMS 5516B

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STEEL SHEET AND STRIP, CORROSION RESISTANT

18Cr - 9Ni

Cold Rolled

Page 1 of 3

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:** This material is intended for applications requiring drawing or forming.
4. **COMPOSITION:**

Check Analysis

| | | Under Min | or | Over Max |
|--|--|-----------|----|----------|
|--|--|-----------|----|----------|

| | | | | |
|------------|-------------|------|--|-------|
| Carbon | 0.08 - 0.20 | 0.01 | | 0.01 |
| Manganese | 2.0 max | --- | | 0.04 |
| Silicon | 1.0 max | --- | | 0.05 |
| Phosphorus | 0.04 max | --- | | 0.005 |
| Sulfur | 0.03 max | --- | | 0.005 |
| Chromium | 17.0 - 19.0 | 0.20 | | 0.20 |
| Nickel | 8.0 - 10.0 | 0.10 | | 0.10 |
| Copper | 0.50 max | --- | | 0.03 |
| Molybdenum | 0.50 max | --- | | 0.03 |

5. **CONDITION:** Unless otherwise specified, the material shall be furnished in the following conditions:
 - (a) Sheet. - Solution heat treated, pickled, and dull cold rolled (No. 2D Finish),
 - (b) Strip. - Cold rolled, solution heat treated, and pickled (No. 1 Strip Finish),
 - (c) Plate. - Solution heat treated, and pickled (No. 1 Finish).
6. **TECHNICAL REQUIREMENTS:** (a) Physical Properties. - Material shall have the following physical properties:

| | |
|------------------------|------------------|
| Tensile Strength, psi | 75,000 - 100,000 |
| Elongation, % in 2 in. | 40 min |

For widths 9 inches and over, tensile test specimens shall be taken with the axis perpendicular to the direction of rolling. For widths less than 9 inches, tensile test specimens shall be taken with the axis parallel to the direction of rolling.

(b) Bending. - Material shall withstand, without cracking, bending at room temperature through the angle indicated below around a diameter equal to the thickness of the material, with axes of bends both perpendicular and parallel to the direction of rolling:

| Thickness | Angle, Degrees |
|---------------------------|----------------|
| Inch | Min |
| 0.249 and under | 180 |
| Over 0.249 to 0.749, incl | 90 |

7. QUALITY: The product shall be uniform in quality and condition, clean, sound, and free from foreign material and from internal and external defects detrimental to fabrication or to the performance of parts. Material in which defects are revealed during fabrication will be subject to rejection.
8. TOLERANCES: Unless otherwise specified, tolerances for sheet and strip shall conform to the latest issue of AMS 2242 as applicable.
9. REPORTS: (a) Unless otherwise specified, the vendor of the product shall furnish three copies of a notarized report of the chemical composition of each heat in each shipment and the results of tests on each thickness from each heat to determine conformance to the physical property and bending requirements of this specification. This report shall include the purchase order number, heat number, material specification number, thickness, size, and quantity from each heat.
- (b) Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a notarized 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 certification that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.
10. IDENTIFICATION: (a) Unless otherwise specified, each sheet, strip, and plate shall be marked with AMS 5516B, manufacturer's identification, and nominal thickness in inches. The characters shall be not less than 3/8 in. in height, and shall be applied to the material by suitable marking fluid. Marking fluid used shall be capable of being removed in hot alkaline cleaning solution without rubbing. The characters shall be legible upon receipt of material by purchaser, and shall be sufficiently stable to withstand ordinary handling.
- (1) Plate, flat sheet, and flat strip over 6 in. in width shall be marked in rows of recurring symbols, with rows parallel to the direction of rolling and spaced approximately 3 in. apart with alternate rows staggered.
- (2) Flat strip 6 in. and under in width shall be marked near each end.
- (3) Coiled sheet and strip shall be marked near the outside end of the coil, and, if practicable, on the inside end also.
11. REJECTIONS: Material not conforming to this specification or to authorized modifications will be subject to rejection. Unless otherwise stipulated, rejected material and parts will be returned to vendor at vendor's expense, unless purchaser receives, within three weeks of notification of rejection, other instructions for disposition.