

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 5516 D

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STEEL SHEET AND STRIP, CORROSION RESISTANT
18Cr - 8Ni (SAE 30302)
Cold Rolled - 36,000 psi Yield

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 requiring drawing or forming.
4. COMPOSITION:

		Check Analysis	
		Under Min	or Over Max
Carbon	0.08 - 0.20	0.01	0.01
Manganese	2.00 max	--	0.04
Silicon	1.00 max	--	0.05
Phosphorus	0.040 max	--	0.005
Sulfur	0.030 max	--	0.005
Chromium	17.00 - 19.00	0.20	0.20
Nickel	7.00 - 10.00	0.10	0.10
Molybdenum	0.50 max	--	0.03
Copper	0.50 max	--	0.03

5. CONDITION:

- 5.1 Sheet: Cold rolled, solution heat treated, and descaled (No. 2D Finish).
- 5.2 Strip: Cold rolled, solution heat treated, and descaled (No. 1 Strip Finish).
- 5.3 Plate: Hot rolled, solution heat treated, and descaled.

6. TECHNICAL REQUIREMENTS:

6.1 Tensile Properties:

Tensile Strength, psi	75,000 - 100,000
∅ Yield Strength at 0.2% Offset or at 0.0065 in. in 2 in. Extension Under Load (E = 29,000,000), psi	36,000 - 60,000
Elongation, % in 2 in.	40 min

6.1.1 Yield Strength requirements apply to sheet and strip having a nominal thickness of 0.176 in. and under.

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

Section 7C 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."

- 6.2 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 the direction of rolling.

Nominal Thickness Inch	Type of Bend	Angle degrees, min	Bend Factor
0.249 and under	Free Bend	180	1
0.249 and under	V-Block	135	1
Over 0.249 to 0.749, incl	Free Bend	90	1
Over 0.249 to 0.749, incl	V-Block	135	2

7. QUALITY: Material shall be uniform in quality and condition, clean, sound, and free from foreign materials and from internal and external defects detrimental to fabrication or to performance of parts.
8. TOLERANCES: Unless otherwise specified, tolerances shall conform to the latest issue of AMS 2242 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 the results of tests on each thickness from each heat to determine conformance to the tensile 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.
- 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: Unless otherwise specified, each plate, sheet, and strip shall be marked, in the respective location indicated below, with AMS 5516D, 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 markings shall have no deleterious effect on the material or its performance. The characters shall be sufficiently stable to withstand ordinary handling.
- 10.1 Plate, Flat Sheet, and Flat Strip Over 6 in. in Width: Shall be marked in lengthwise rows of characters, recurring at intervals not greater than 2 ft, the rows being spaced not more than 3 in. apart and alternately staggered.