

# AEROSPACE

# AMS 5515D

## MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

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### STEEL SHEET AND STRIP, CORROSION RESISTANT 18Cr - 8Ni (SAE 30302) Deep and Shallow Forming

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 deep and shallow formed parts operating at temperatures below 700 F and requiring corrosion and oxidation resistance. Satisfactory for use at temperatures up to 1500 F at low stress levels. However, the corrosion resistance is appreciably reduced when exposed to temperatures in the range of 800 - 1100 F for an extended time.

4. **COMPOSITION:**

Carbon	0.08 - 0.15
Manganese	2.00 max
Silicon	1.00 max
Phosphorus	0.040 max
Sulfur	0.030 max
Chromium	17.00 - 19.00
Nickel	7.00 - 10.00
Molybdenum	0.50 max
Copper	0.50 max

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

5. **CONDITION:** Material shall be supplied in the following condition:

- 5.1 **Sheet:** Unless otherwise specified, hot rolled, solution heat treated, and descaled (No. 1 Finish) or cold rolled, solution heat treated, and descaled (No. 2D Finish). Cold rolling after solution heat treatment for any purpose (flattening, finishing, polishing, etc) is not permitted.
- 5.2 **Strip:** Cold rolled, solution heat treated, and descaled (No. 1 Strip Finish). Cold rolling after solution heat treatment for any purpose (flattening, finishing, polishing, etc) is not permitted.
- 5.3 **Plate:** Hot rolled, solution heat treated, and descaled.

6. **TECHNICAL REQUIREMENTS:**

6.1 **Tensile Properties:**

Tensile Strength, psi	120,000 max
Elongation, % in 2 in.	
Thickness under 0.025 in.	50 min
0.025 in. and over	55 min

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."

6.1.1 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.

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 axes of bends both perpendicular and parallel to the direction of rolling.

Nominal Thickness Inch	Angle deg, 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, 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 all applicable requirements of the latest issue of AMS 2242.
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 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.
- 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 5515D, heat number, 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.