

AERONAUTICAL MATERIAL SPECIFICATIONS

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

AMS 7719

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Revised

MAGNETIC ALLOY SHEET AND STRIP

Nickel-Iron Alloy

Stamping Quality

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. **FORM:** Sheet and strip.
3. **APPLICATION:** Primarily for parts used in magnetic circuits requiring high magnetic permeability and saturation induction after high temperature annealing in hydrogen.
4. **COMPOSITION:** Shall be a metallic alloy containing approximately 50% nickel and 50% iron with perhaps several other alloying elements in such proportions as to meet the technical requirements.
5. **CONDITION:** Unless otherwise specified, material shall be cold rolled having a surface appearance as close as possible to a commercial corrosion resistant steel No. 2D finish; actual acceptance and rejection standards shall be as agreed upon by purchaser and vendor.
6. **TECHNICAL REQUIREMENTS:**
 - 6.1 **Hardness:** Unless otherwise specified, material shall have hardness not lower than Rockwell B 90 or equivalent.
 - 6.2 **Magnetic Properties after Heat Treatment:** Material shall conform to the following requirements after annealing by heating to $2150^{\circ}\text{F} + 25$ in a dry hydrogen atmosphere (-60°F max dew point), holding at heat for $\frac{1}{4}$ hr, and cooling to 1100°F at a rate not greater than 100°F per hr in a non-oxidizing atmosphere; tests shall be performed in accordance with Sections 7 thru 19 of ASTM A341-55, using an assumed density of 8.26 g per cubic centimeter.
 - 6.2.1 **Maximum Permeability, min**

Under 0.020 in. thickness	60,000
0.020 in. thickness and over	40,000
 - 6.2.2 **Permeability at 100 gaussess, min**

Under 0.020 in. thickness	8,000
0.020 in. thickness and over	6,000
 - 6.2.3 **Saturation Induction at 100 oersteds, gaussess, min** 15,000
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 the latest issue of AMS 2242.