

AERONAUTICAL MATERIAL SPECIFICATIONS

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AMS 7717

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Revised

MAGNETIC ALLOY SHEET AND STRIP Nickel-Iron Alloy Forming 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 hot rolled with or without subsequent cold reduction, heat treated for forming quality, and de-scaled, 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 0.006 to 0.059 in., incl, in thickness shall have hardness not higher than Rockwell B 75 or equivalent, and material over 0.059 in. thick shall have hardness not higher than Rockwell B 85 or equivalent.
 - 6.2 Magnetic Properties After Heat Treatment: Material shall conform to the following requirements after annealing by heating to 2150 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