



<b>AEROSPACE MATERIAL SPECIFICATION</b>	<b>AMS7719™</b>	<b>REV. F</b>
	Issued 1961-01 Revised 2015-08 Reaffirmed 2019-05 Stabilized 2025-01  Superseding AMS7719E	
Nickel-Iron Alloy, Magnetic, Sheet and Strip 50Ni - 50Fe Stamping Quality, Half-Hard Temper (Composition similar to UNS K95000)		

RATIONALE

AMS7719F has been declared "STABILIZED" by SAE AMS Committee E. This document will no longer be updated and may no longer represent standard industry practice. This document was stabilized because this document is no longer state of the art and other documents contain similar but not necessarily equivalent requirements.

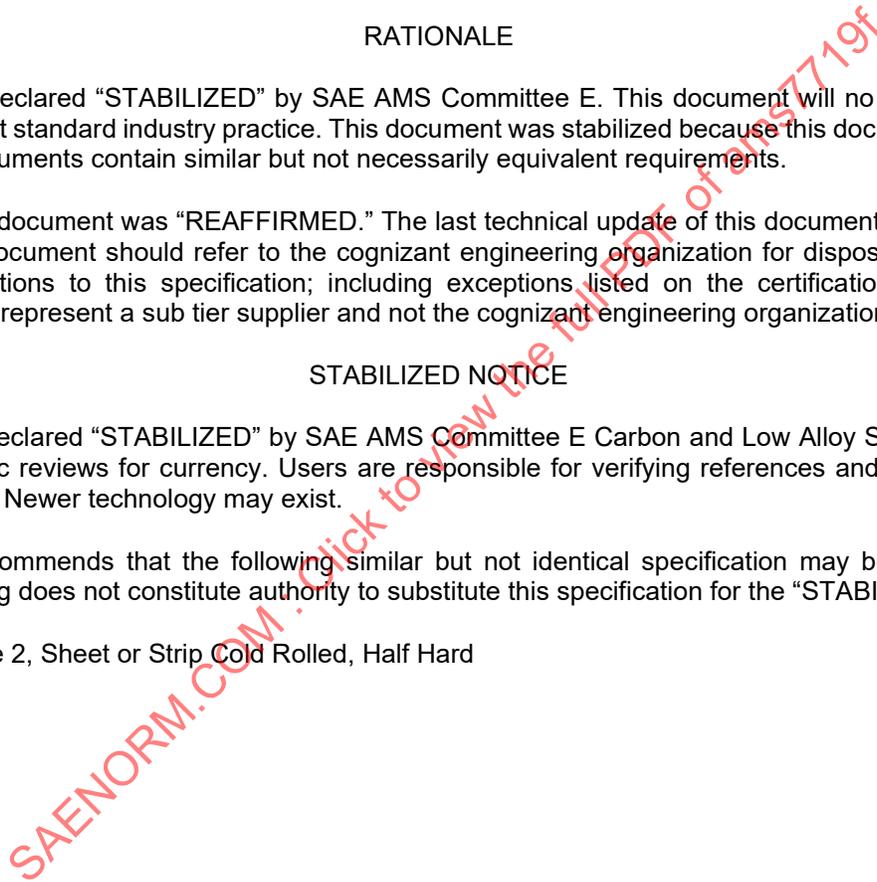
NOTE: Previously this document was "REAFFIRMED." The last technical update of this document occurred in April 2011. Users of this document should refer to the cognizant engineering organization for disposition of any issues with reports/certifications to this specification; including exceptions listed on the certification. In many cases, the purchaser may represent a sub tier supplier and not the cognizant engineering organization.

STABILIZED NOTICE

AMS7719F has been declared "STABILIZED" by SAE AMS Committee E Carbon and Low Alloy Steels and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

AMS Committee E recommends that the following similar but not identical specification may be considered for future procurement. This listing does not constitute authority to substitute this specification for the "STABILIZED" specification.

ASTM A753, Alloy Type 2, Sheet or Strip Cold Rolled, Half Hard



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## 1. SCOPE

### 1.1 Form

This specification covers a magnetic nickel-iron alloy in the form of sheet and strip.

### 1.2 Application

These products have been used typically for magnetic circuit parts that require high magnetic permeability at low flux densities with the fabricated parts to be annealed in dry hydrogen, but usage is not limited to such applications.

## 2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

### 2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org).

AMS2242	Tolerances, Corrosion and Heat Resistant Steel, Iron Alloy, Titanium, and Titanium Alloy Sheet, Strip, and Plate
AMS2371	Quality Assurance Sampling and Testing, Corrosion and Heat-Resistant Steels and Alloys, Wrought Products and Forging Stock
AMS2807	Identification, Carbon and Low-Alloy Steels, Corrosion and Heat-Resistant Steels and Alloys, Sheet, Strip, Plate, and Aircraft Tubing

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## 2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, [www.astm.org](http://www.astm.org).

ASTM A596/A596M	Direct-Current Magnetic Properties of Materials Using the Ballistic Method and Specimens
ASTM A773/A773M	D-C Magnetic Properties of Materials Using Ring and Permeameter Procedures with dc Electronic Hysteresigraphs.
ASTM E18	Rockwell Hardness of Metallic Materials

## 3. TECHNICAL REQUIREMENTS

### 3.1 Composition

Shall be an alloy containing approximately 50% nickel and 50% iron with other alloying elements in such proportions as required to provide a product meeting the requirements of 3.3.

### 3.2 Condition

Cold rolled to half-hard temper having a surface appearance comparable to the following commercial corrosion-resistant steel finishes as applicable (See 8.2).

#### 3.2.1 Sheet

No. 2D finish.

#### 3.2.2 Strip

No. 1 strip finish.

### 3.3 Properties

The product shall conform to the following requirements:

#### 3.3.1 Hardness

Shall be not lower than 90 HRB, or equivalent (See 8.3), determined in accordance with ASTM E18.

#### 3.3.2 Magnetic Properties

Shall be as shown in Table 1, determined in accordance with ASTM A596/A596M or ASTM A773/A773M on specimens as in 4.3.1, annealed by heating to  $2150\text{ °F} \pm 25$  ( $1177\text{ °C} \pm 14$ ) in a dry hydrogen atmosphere having a dew point of  $-60\text{ °F}$  ( $-51\text{ °C}$ ) or lower, holding at heat for  $4\text{ hours} \pm 0.25$ , and cooling in a non-contaminating atmosphere at a rate not greater than  $100\text{ °F}$  ( $56\text{ °C}$ ) degrees per hour to  $1100\text{ °F}$  ( $593\text{ °C}$ ) or lower, unless another cooling rate is recommended by the alloy producer (See 8.4).

## 3.3.2.1 Maximum Permeability

Shall be as shown in Table 1.

**Table 1 - Maximum permeability**

Nominal Thickness Inch	Nominal Thickness Millimeter	Minimum Value
Up to 0.020, excl 0.020 and over	Up to 0.51, excl 0.51 and over	60 000 40 000

## 3.3.2.2 Permeability at 100 Gauss (0.01T)

Shall be as shown in Table 2.

**Table 2 - Permeability at 100 gauss**

Nominal Thickness Inch	Nominal Thickness Millimeter	Minimum Value
Up to 0.020, excl 0.020 and over	Up to 0.51, excl 0.51 and over	8000 6000

## 3.3.2.3 Induction at 100 Oersteds (7958 A/m)

Shall be not less than 15 000 gauss (1.5T).

## 3.4 Quality

The product, as received by purchaser, shall be uniform in quality and condition, sound, and free from foreign materials and from imperfections detrimental to usage of the product.

## 3.5 Tolerances

Shall conform to all applicable requirements of AMS2242.

## 4. QUALITY ASSURANCE PROVISIONS

## 4.1 Responsibility for Inspection

The producer of the product shall supply all samples for producer's tests and shall be responsible for the performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to specified requirements.

## 4.2 Classification of Tests

All technical requirements are acceptance tests and shall be performed on each heat or lot as applicable.