



AEROSPACE MATERIAL SPECIFICATION

AMS7727™

REV. F

Issued	1964-01
Revised	2000-05
Noncurrent	2006-05
Reaf. Nonc.	2012-04
Stabilized	2017-04

Superseding AMS7727E

Iron-Nickel-Cobalt Alloy, Bars and Forgings
53Fe - 29Ni - 17Co
Low Expansion, Glass Sealing
K94610

RATIONALE

AMS7727F stabilizes this document because it contains mature technology that is not expected to change and thus no further revisions are anticipated.

STABILIZED NOTICE

AMS7727F has been declared "STABILIZED" by the SAE AMS F Corrosion Heat Resistant Alloys Committee. This document was stabilized because this document contains mature technology that is not expected to change and thus no further revisions are anticipated. Previously this document was non-current. The last technical update of this document occurred in May, 2000. 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.

NOTE: In many cases, the purchaser may represent a sub tier supplier and not the cognizant engineering organization.

AMS Committee F 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 F15 Iron-Nickel-Cobalt Sealing Alloy

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Documents
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1. SCOPE:

1.1 Form:

This specification covers an iron-nickel-cobalt alloy in the form of bars and forgings.

1.2 Application:

Those products have been used typically for electronic elements to be sealed to hard glasses during assembly, 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 form 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 canceled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AMS 2371	Quality Assurance Sampling and Testing, Corrosion and Heat Resistant Steels and Alloys, Wrought Products and Forging Stock
AMS 2374	Quality Assurance Sampling and Testing, Corrosion and Heat Resistant Steel and Alloy Forgings
AMS 2806	Identification, Bars, Wire, Mechanical Tubing, and Extrusions, Carbon and Alloy Steels and Corrosion and Heat Resistant Steels and Alloys
AMS 2808	Identification, Forgings

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM E 8	Tension Testing of Metallic Materials
ASTM E 8M	Tension Testing of Metallic Materials (Metric)
ASTM E 228	Linear Thermal Expansion of Solid Materials with a Vitreous Silica Dilatometer
ASTM E 354	Chemical Analysis of High-Temperature, Electrical, Magnetic, and Other Similar Iron, Nickel, and Cobalt Alloys

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

Shall be approximately 53% iron, 29% nickel, and 17% cobalt by weight with residual elements not exceeding the percentages by weight shown in Table 1, determined by wet chemical methods in accordance with ASTM E 354, by spectrochemical methods, or by other analytical methods acceptable to purchaser.

TABLE 1 - Composition, Residual Elements

Element	min	max
Carbon	--	0.04
Manganese	--	0.50
Silicon	--	0.20
Chromium	--	0.20
Molybdenum	--	0.20
Copper	--	0.20
Titanium	--	0.10
Aluminum	--	0.10
Magnesium	--	0.10
Zirconium	--	0.10
Sum of Ti+Al+Mg+Zr	--	0.20

3.2 Condition:

The product shall be supplied in the following condition:

3.2.1 Bars: Centerless ground.

3.2.2 Forgings: As ordered.