

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 5225

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Revised

ALLOY STRIP

Iron Base - 5.2Cr - 4.2Ni - 2.3Ti - 0.5Al
Cold Rolled, 50% Reduction

1. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. APPLICATION: Primarily for diaphragms, leaf springs, and helical springs, requiring a precipitation-hardening alloy with a coefficient of modulus of elasticity of -20 to $+20 \times 10^{-6}$ per deg Fahr from -50 to $+150$ F, after suitable heat treatment.

3. COMPOSITION:

Carbon	0.06 max
Manganese	0.8 max
Silicon	1.0 max
Phosphorus	0.04 max
Sulfur	0.04 max
Chromium	4.9 - 5.5
Nickel + Cobalt	41.0 - 43.0
Cobalt, if determined	1.0 max
Titanium	2.2 - 2.6
Aluminum	0.30 - 0.8
Iron	remainder

4. CONDITION: Solution heat treated and cold rolled with approximately 50% reduction in thickness.

5. TECHNICAL REQUIREMENTS:

- 5.1 Tensile Properties:

Tensile Strength, psi	125,000 - 140,000
Elongation, % in 2 in.	3 min

- 5.2 Hardness: Shall be Rockwell C 24-32 or equivalent.

- 5.3 Properties After Precipitation Heat Treatment: Material 0.020 to 0.250 in., incl, in thickness shall be capable of meeting the following requirements after being heated to $1350 \text{ F} \pm 15$, held at heat for 3 hr, and cooled in air. Properties of material of other thickness shall be as agreed upon by purchaser and vendor.

- 5.3.1 Tensile Properties:

Tensile Strength, psi	190,000 min
Yield Strength at 0.2% Offset or at 0.0162 in. in 2 in. Extension Under Load ($E = 27,000,000$), psi	165,000 min
Elongation, % in 2 in.	5 min

- 5.3.2 Hardness: Shall be Rockwell C 39-46 or equivalent.

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6. QUALITY: Material shall be uniform in quality and condition, clean, sound, smooth, and free from foreign materials and from internal and external defects detrimental to fabrication or to performance of parts.

7. TOLERANCES: Unless otherwise specified, the following tolerances shall apply:

7.1 Thickness:

Nominal Thickness (T) Inch	Thickness Tolerance, Inch, Plus and Minus Width Ranges, Inches		
	3.00 and under	Over 3.00 to 4.00, incl	Over 4.00 to 5.00, incl
0.005 and under	0.0005	---	---
Over 0.005 to 0.015, incl	0.0005	0.0005	---
Over 0.015 to 0.025, incl	0.00075	0.00075	---
Over 0.025 to 0.040, incl	0.001	0.001	0.001
Over 0.040	0.025xT	0.025xT	0.025xT

7.1.1 When premium tolerances are specified on the purchase order, material shall conform to the following:

Nominal Thickness (T) Inch	Thickness Tolerance, Inch, Plus and Minus Width Ranges, Inches		
	3.00 and under	Over 3.00 to 4.00, incl	Over 4.00 to 5.00, incl
0.005 and under	0.0002	---	---
Over 0.005 to 0.010, incl	0.0003	0.0003	---
Over 0.010 to 0.015, incl	0.0004	0.0004	---
Over 0.015 to 0.025, incl	0.0005	0.0005	---
Over 0.025	0.02xT	0.02xT	0.02xT

7.2 Width:

Nominal Width Inches	Width Tolerance, Inch Thickness Ranges, Inch					
	0.005 and under	Over 0.005 to 0.010, incl	Over 0.010 to 0.025, incl	Over 0.025 to 0.040, incl	Over 0.040 to 0.075, incl	Over 0.075
3.00 and under	+0.010 -0.000	---	---	---	---	---
Over 3.00 to 4.00, incl	---	+0.010 -0.000	+0.012 -0.000	---	---	---
Over 4.00 to 5.00, incl	---	---	---	+0.015 -0.000	+0.015 -0.005	+0.015 -0.015