

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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STEEL STRIP
.90 -1.05 Carbon Annealed

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1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. **APPLICATION:** Primarily for heat treated springs, shims, spacers and other applications where spring temper is required.

3. **COMPOSITION:**

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Check Analysis			
Under Min or Over Max			
Carbon	0.90 - 1.05	0.03	0.05
Manganese	0.30 - 0.60	0.03	0.03
Phosphorus	0.040 max	-	0.01
Sulfur	0.050 max	-	0.01

4. **CONDITION:** (a) Cold-rolled and annealed in thicknesses of 1/16 in. or less and either cold or hot-rolled and annealed, as specified, in thicknesses over 1/16 in.

(b) The hardness shall be not higher than Rockwell B 85, or the equivalent.

(c) Material shall withstand, without cracking, bending at room temperature through an angle of 180° around a diameter equal to the thickness of the material, with axis of bend perpendicular to the direction of rolling; and around a diameter equal to twice the thickness of the material, with axis of bend parallel to the direction of rolling.

5. **DECARBURIZATION:** Material shall be free from complete decarburization as determined microscopically, and free from partial decarburization to the extent that the increase in hardness from the surface to the point of maximum subsurface hardness of an oil hardened specimen will be not more than two points on the Rockwell 30N scale.

6. **QUALITY:** Material shall be uniform in quality and condition, clean, sound, smooth and free from foreign materials and from surface and internal defects detrimental to fabrication or to performance of parts. Material in which defects are revealed during fabrication will be subject to rejection.

Section 7C of the SAE Technical Board rules provides that: "All technical reports, including standards approved and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to the SAE standard or recommended practice, and no commitment to form to or be guided by any technical report. In formulating and approving technical reports, the Board and its Committees will not investigate or consider which may apply to the subject matter. Prospective users of the report are responsible for their own liability for infringement of patents."

7. **TOLERANCES:** (a) Unless otherwise specified, thickness tolerances for cold-rolled and annealed material shall be as follows:

Thickness Inch	Tolerance, Inch, Plus and Minus Width Ranges, Inches							
	3/16 to 1 excl	1 to 3 excl	3 to 6 incl	Over 6 to 9 incl	Over 9 to 12 incl	Over 12 to 16 incl	Over 16 to 20 incl	Over 20 to 24 incl
.005 and under	.0005	.0005	.0005	-	-	-	-	-
Over .005 to .009 incl	.00075	.00075	.00075	.001	.001	.001	.001	.001
Over .009 to .011 incl	.001	.001	.001	.001	.001	.001	.001	.001
Over .011 to .012 incl	.001	.001	.001	.001	.0015	.0015	.0015	.0015
Over .012 to .019 incl	.001	.001	.001	.0015	.0015	.0015	.0015	.0015
Over .019 to .025 incl	.001	.001	.0015	.0015	.0015	.002	.002	.002
Over .025 to .028 incl	.001	.0015	.0015	.002	.002	.002	.002	.002
Over .028 to .031 incl	.0015	.0015	.0015	.002	.002	.002	.002	.002
Over .031 to .034 incl	.0015	.0015	.002	.002	.002	.002	.002	.002
Over .034 to .039 incl	.002	.002	.002	.002	.002	.002	.002	.002
Over .039 to .049 incl	.002	.002	.0025	.0025	.0025	.003	.003	.003
Over .049 to .068 incl	.002	.002	.0025	.0025	.0025	.003	.0035	.0035
Over .068 to .099 incl	.002	.002	.0025	.003	.003	.0035	.0035	.0035
Over .099 to .160 incl	.002	.002	.003	.003	.003	.0035	.0045	.005
Over .160 to .249 incl	.002	.003	.0035	.0035	.0035	.0045	.005	.005

Thickness is measured at any place on stock less than 1 inch wide; at any place over 3/8 inch from an edge on stock 1 inch or wider.

Tolerance for thickness at center of strip shall be that for the edge measurement plus the following:

Thickness Inch	Width Ranges, Inches	
	1 to 5 incl	Over 5 to 12 incl
.005 to .010 incl	.00075	.001
Over .010 to .025 incl	.001	.0015
Over .025 to .065 incl	.0015	.002
Over .065 to .187 incl	.002	.0025
Over .187 to .249 incl	.002	.0025

(b) When hot-rolled and annealed material is specified, thickness tolerance shall be as agreed between purchaser and vendor.