



AEROSPACE MATERIAL SPECIFICATION

AMS5112™**REV. N**

Issued 1939-05
Revised 2018-11
Reaffirmed 2024-06

Superseding AMS5112M

Carbon Steel, Wire
Spring Quality Music Wire
0.70 - 1.00C
Cold Drawn
(Composition similar to UNS G10900)

RATIONALE

AMS5112N results from a Five-Year Review and update of this specification that revises composition analytical methods (3.1), prohibits unauthorized exceptions (3.7), and revises reporting (4.4) and marking (5.1).

AMS5112N has been reaffirmed to comply with the SAE Five-Year Review policy.

1. SCOPE

1.1 Form

This specification covers a carbon steel in the form of wire supplied as coils, spools, or cut lengths (see 8.2).

1.2 Application

This wire has been used typically for springs subject to high stress or requiring good fatigue properties up to 200 °F (93 °C), 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.

AMS2259	Chemical Check Analysis Limits, Wrought Low-Alloy and Carbon Steels
AMS2370	Quality Assurance Sampling and Testing, Carbon and Low-Alloy Steel Wrought Products and Forging Stock
ARP1917	Clarification of Terms Used in Aerospace Metals Specifications

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Full document details: SAE AMS5112N

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS5112N/>

Documents

Standard Sharing Hub

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.

ASTM A751 Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products

ASTM E8/E8M Tension Testing of Metallic Materials

ASTM E290 Bend Testing of Material for Ductility

3. TECHNICAL REQUIREMENTS

3.1 Composition

Shall conform to the percentages by weight shown in Table 1, determined in accordance with ASTM A751 or by other analytical methods acceptable to purchaser.

Table 1 - Composition

Element	Min	Max
Carbon	0.70	1.00
Manganese	0.20	0.60
Silicon	0.10	0.30
Phosphorus	--	0.025
Sulfur	--	0.030

3.1.1 Check Analysis

Composition variations shall meet the applicable requirements of AMS2259.

3.2 Condition

The product shall be supplied as cold drawn wire.

3.3 Heat Treatment

None (see 8.2.1).

3.4 Properties

The product shall conform to the following requirements:

3.4.1 Wire

3.4.1.1 Tensile Properties at Room Temperature

Shall be as shown in Table 2, determined in accordance with ASTM E8/E8M.

Table 2**Table 2A - Tensile properties, inch/pound units**

Nominal Diameter Inch	Tensile Strength ksi, Min	Tensile Strength ksi, Max	Nominal Diameter Inch	Tensile Strength ksi, Min	Tensile Strength ksi, Max
0.004	439	485	0.063	293	324
0.005	426	471	0.067	290	321
0.006	415	459	0.072	287	317
0.007	407	449	0.076	284	314
0.008	399	441	0.080	282	312
0.009	393	434	0.085	279	308
0.010	387	428	0.090	276	305
0.011	382	422	0.095	274	303
0.012	377	417	0.100	271	300
0.013	373	412	0.102	270	299
0.014	369	408	0.107	268	296
0.015	365	404	0.110	267	295
0.016	362	400	0.112	266	294
0.018	356	393	0.121	263	290
0.020	350	387	0.125	261	288
0.022	345	382	0.130	259	286
0.024	341	377	0.135	258	285
0.026	337	373	0.140	256	283
0.028	333	368	0.145	254	281
0.030	330	365	0.150	253	279
0.032	327	361	0.156	251	277
0.034	324	358	0.160	250	276
0.036	321	355	0.162	249	275
0.038	318	352	0.177	245	270
0.040	315	349	0.180	244	270
0.042	313	346	0.192	241	267
0.045	309	342	0.200	240	265
0.048	306	339	0.207	238	264
0.051	303	335	0.225	234	259
0.055	300	331	0.250	230	254
0.059	296	327			