



AEROSPACE MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
485 LEXINGTON AVENUE, NEW YORK, N. Y. 10017

AMS 5688E

Superseding AMS 5688D

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STEEL WIRE, CORROSION RESISTANT
18Cr - 9.0Ni (SAE 30302)
Spring Temper

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 springs.
3. COMPOSITION:

	min	max
Carbon	--	0.15
Manganese	--	2.00
Silicon	--	1.00
Phosphorus	--	0.040
Sulfur	--	0.030
Chromium	17.00 - 19.00	
Nickel	8.00 - 10.00	
Molybdenum	--	0.50
Copper	--	0.50

- 3.1 Check Analysis: Composition variations shall meet the requirements of the latest issue of AMS 2248.
4. CONDITION: Spring temper, cold drawn or rolled to required size; coils shall be supplied, unless otherwise ordered.
5. TECHNICAL REQUIREMENTS:
 - 5.1 Tensile Properties: The following requirements apply to round and square wire, and to rectangular wire having nominal width not more than 4 times the nominal thickness.
 - 5.1.1 Coils:

Nominal Diameter or Thickness Inch	Round		Square and Rectangular	
	Tensile Strength, psi		Tensile Strength, psi	
	min	max	min	max
Up to 0.009, incl	325,000	355,000	295,000	325,000
0.010	320,000	350,000	290,000	320,000
0.011	318,000	348,000	288,000	318,000
0.012	316,000	346,000	286,000	316,000
0.013	314,000	344,000	284,000	314,000
0.014	312,000	342,000	282,000	312,000
0.015	310,000	340,000	280,000	310,000
0.016	308,000	338,000	278,000	308,000
0.017	306,000	336,000	276,000	306,000
0.018	304,000	334,000	274,000	304,000
0.020	300,000	330,000	270,000	300,000
0.022	296,000	326,000	266,000	296,000
0.024	292,000	322,000	262,000	292,000

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5.1.1 Coils: (Continued)

Ø	Nominal Diameter or Thickness Inch	Round		Square and Rectangular	
		Tensile Strength, psi		Tensile Strength, psi	
		min	max	min	max
	0.026	291,000	320,000	261,000	291,000
	0.028	289,000	318,000	259,000	289,000
	0.031	285,000	315,000	255,000	285,000
	0.034	282,000	310,000	252,000	282,000
	0.037	280,000	308,000	250,000	280,000
	0.041	275,000	304,000	245,000	275,000
	0.045	272,000	300,000	242,000	272,000
	0.050	267,000	295,000	237,000	267,000
	0.054	265,000	293,000	235,000	265,000
	0.058	261,000	289,000	231,000	261,000
	0.063	258,000	285,000	228,000	258,000
	0.070	252,000	281,000	222,000	252,000
	0.075	250,000	278,000	220,000	250,000
	0.080	246,000	275,000	216,000	246,000
	0.087	242,000	271,000	212,000	242,000
	0.095	238,000	268,000	208,000	238,000
	0.105	232,000	262,000	202,000	232,000
	0.115	227,000	257,000	197,000	227,000
	0.125	222,000	253,000	192,000	222,000
	0.135	217,000	248,000	187,000	217,000
	0.148	210,000	241,000	180,000	210,000
	0.162	205,000	235,000	175,000	205,000
	0.177	198,000	228,000	168,000	198,000
	0.192	194,000	225,000	164,000	194,000
	0.207	188,000	220,000	158,000	188,000
	0.225	182,000	214,000	152,000	182,000
	0.250	175,000	205,000	145,000	175,000
	0.278	168,000	198,000	138,000	168,000
	0.306	161,000	192,000	131,000	161,000
	0.331	155,000	186,000	125,000	155,000
	0.362	148,000	180,000	118,000	148,000
	0.394	142,000	173,000	112,000	142,000

Ø 5.1.1.1 Intermediate Sizes: Tensile properties shall be as specified for the next larger standard size.

5.1.1.2 Sizes Over 0.394 In. in Diameter or Thickness: Shall have tensile properties as agreed upon by purchaser and vendor.

5.1.2 Cut Lengths: When straightened or flattened cut lengths are ordered, the tensile strength requirement for each size may be reduced by 10% of the applicable value shown in 5.1.1.

5.2 Wrapping: Round wire shall withstand, without cracking, wrapping at room temperature five full, closely spaced turns around a diameter equal to the nominal diameter of the wire.

5.3 Coiling: Round wire shall show a uniform pitch with no splits or fractures when wound into a tightly closed coil on an arbor of size shown in the table below and the resultant coil stretched to a permanent set of 4 times its as-wound length. The requirement applies only to coiled wire 0.180 in. and under in diameter.