

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
29 West 39th Street
New York City

AMS 5688c

Issued 12-4-39
Revised 2-15-52

STEEL WIRE, CORROSION RESISTANT
18Cr - 8Ni (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:

Check Analysis
Under Min or Over Max

Carbon	0.15 max	--	0.01
Manganese	2.00 max	--	0.04
Silicon	1.00 max	--	0.10
Phosphorus	0.040 max	--	0.005
Sulfur	0.030 max	--	0.005
Chromium	17.00 - 19.00	0.20	0.20
Nickel	7.00 - 10.00	0.10	0.10

4. CONDITION: Spring temper, cold drawn to required size; coils shall be supplied, unless otherwise specified.

5. TECHNICAL REQUIREMENTS:

5.1 Tensile Properties:

5.1.1 Coils:

Nominal Diameter Inch	Tensile Strength, psi	
	min	max
0.009 and under	325,000	355,000
0.010	320,000	350,000
0.011	318,000	348,000
0.012	316,000	346,000
0.013	314,000	344,000
0.014	312,000	342,000
0.015	310,000	340,000
0.016	308,000	338,000
0.017	306,000	336,000
0.018	304,000	334,000
0.020	300,000	330,000
0.022	296,000	326,000
0.024	292,000	322,000
0.026	289,000	319,000
0.028	286,000	316,000
0.032	277,000	307,000
0.036	273,000	303,000
0.041	269,000	299,000
0.047	262,000	292,000

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Nominal Diameter Inch	Tensile Strength, psi	
	min	max
0.054	260,000	290,000
0.062	255,000	285,000
0.072	250,000	280,000
0.080	245,000	275,000
0.092	240,000	270,000
0.105	232,000	262,000
0.120	225,000	255,000
0.148	210,000	240,000
0.162	205,000	235,000
0.177	195,000	225,000
0.207	185,000	215,000
0.225	180,000	210,000
0.250	175,000	205,000
0.312	160,000	190,000
0.375	140,000	170,000

5.1.2 Straight Lengths: When straightened and cut lengths are ordered, the tensile strength requirement for each size may be reduced by 10%.

5.2 Wrapping: Wire shall withstand, without cracking, wrapping at room temperature one full turn around a diameter equal to the nominal diameter of the wire.

5.3 Coiling: The 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 four times its as-wound length. This requirement shall apply only to wire furnished in coils and having diameter of 0.125 in. and under.

Nominal Diameter Inch	Arbor Diameter Inch
0.034 and under	0.102
Over 0.034 to 0.045, incl	0.145
Over 0.045 to 0.055, incl	0.212
Over 0.055 to 0.125, incl	0.250

6. QUALITY:

6.1 Wire shall be uniform in quality and condition, cylindrical, clean and free from kinks, twists, scrapes, splits, cold shuts and other injurious defects.

6.2 The surface shall have a bright smooth, cold-drawn finish, free from pits, abrasions, and other surface imperfections. Wire intended for coiling on automatic spring winding machines shall be furnished with a lubricating coating suitable for this purpose.