AEROSPACE
MATERIAL SPECIFICATIONS
SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

AMS 5698B

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# ALLOY WIRE, CORROSION AND HEAT RESISTANT
## Nickel Base - 15.5Cr - 7Fe - 2.3Ti - 1(Cb+Ta) - 0.7Al
## No. 1 Temper



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

ø 2. FORM: Round, square, and flat wire.

3. APPLICATION: Primarily for helical springs requiring optimum resistance to relaxation at temperatures up to 1000 F (540 C) with moderate or relatively low stresses.

4. COMPOSITION:

| | |
|---|---|
| Carbon | 0.08 max |
| Manganese | 1.00 max |
| Silicon | 0.50 max |
| Sulfur | 0.015 max |
| Chromium | 14.00 - 17.00 |
| Nickel + Cobalt | 70.00 min |
| Cobalt, if determined | 1.00 max |
| Columbium + Tantalum | 0.70 - 1.20 |
| Titanium | 2.00 - 2.75 |
| Aluminum | 0.40 - 1.00 |
| Iron | 5.00 - 9.00 |
| Copper | 0.50 max |

4.1 Check Analysis: Composition variations shall meet the requirements of the latest issue of AMS 2269.

5. CONDITION: Unless otherwise specified, wire shall be cold worked from hot finished wire or rod that has been previously ground or has had surface preparation (other than by pickling) for removal of seams and
ø other injurious surface imperfections. Sizes over 0.025 in. in diameter or thickness shall be heat treated at 2100 F (1148 C) or higher, and shall then be copper coated and given a reduction of approximately 15%. Sizes 0.025 in. and under in diameter or thickness shall be heat treated at 2100 F (1148 C) or higher and furnished in the heat treated condition, without metallic lubrication.

6. TECHNICAL REQUIREMENTS:

6.1 Tensile Properties:

| ø Nominal Diameter or Thickness, Inch | Tensile Strength, psi min | Tensile Strength, psi max |
|---|---|---|
| Up to 0.025, incl | -- | 150,000 |
| Over 0.025 to 0.500, incl | 130,000 | 165,000 |





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6.2 Wrapping: Wire shall withstand, without cracking, wrapping at room temperature 5 full, closely spaced turns around a diameter equal to the following:

| Wire Shape | Wrapping Diameter |
|---|---|
| Round | Nominal Diameter of Wire |
| Square | Nominal Diagonal of Wire |
| Flat | Nominal Width of Wire |

6.3 Tensile Properties After Precipitation Heat Treatment: Wire after being precipitation heat treated by heating to 1350 F ± 25 (732.2 C ± 14), holding at heat for 16 hr, and cooling in air shall conform to the following requirements.

| Nominal Diameter or Thickness Inch | Tensile Strength psi, min |
|---|---|
| Up to 0.025, incl | 155,000 |
| Over 0.025 to 0.500, incl | 165,000 |

7. QUALITY:

7.1 Wire shall be uniform in quality and condition, clean, and free from kinks, twists, scrapes, splits, pipes, cold shuts, and other injurious imperfections.

7.2 The surface shall have a smooth finish, free from pits, abrasions, and other injurious surface imperfections.

ø 8. TOLERANCES: Unless otherwise specified, tolerances shall be as follows:

8.1 Round and Square Wire:

| ø Nominal Diameter or Thickness, Inch | Tolerance, Inch Plus and Minus |
|---|---|
| 0.003 to 0.005, excl | 0.0001 |
| 0.005 to 0.008, excl | 0.0002 |
| 0.008 to 0.012, excl | 0.0003 |
| 0.012 to 0.024, excl | 0.0004 |
| 0.024 to 0.033, excl | 0.0005 |
| 0.033 to 0.044, excl | 0.0008 |
| 0.044 to 0.312, excl | 0.0010 |
| 0.312 to 0.500, incl | 0.0015 |

8.1.1 Out-of-Roundness: Round wire shall not be out-of-round by more than one-half the total permissible tolerance in 8.1