

# Resistance Heating Wire Nickel-Chromium Alloy 60% Nickel / 16% Chromium (Balance Iron)

- ✓ Used to Make Straight or Helical Coil Resistance Heaters
- ✓ Quick Heating, Long Life
- ✓ High Temperature, 1000°C (1850°F)
- ✓ Corrosion Resistant
- ✓ Convenient 15 m (50') and 60 m (200') Spools



Shown smaller than actual size.

Nickel-Chrome 60 is the world's standard of comparison in the electrical trade for metallic resistance wire. It is an alloy of 60% nickel and 16% chromium, and is the accepted material for heating devices operating up to 1000°C (1850°F). This encompasses most pluggable power cord domestic heating appliances and those heating units of medium temperatures which do not require the unsurpassed quality of NI/CR-80/20, the 80-20 alloy.

In addition to being commonly used in electrical heating, Nickel-Chrome 60 is used extensively in industrial

applications for rheostats and resistance units. It makes for compact units capable of withstanding severe overloads and short circuits without damage or circuit impairment.

The excellent corrosion resistance of Nickel-Chrome 60 makes it very useful for purposes other than electrical heating. Acid dipping baskets, cyanide hardening and pickling containers, filter cloth, wire mesh, bolts and nuts are a few representative uses.

## Specifications

- Composition:** 60% Ni, 16% Cr, balance Fe
- Specific Resistance:** 675 Ω per circular mil-foot at 68°F (20°C); see table below for multiplication factors to obtain resistance at other temperatures
- Specific Gravity:** 8.25
- Density:** 0.298 lb/in<sup>3</sup>
- Melting Point:** Approx 1350°C (2450°F)
- Nominal Coefficient of Linear Expansion:** 0.00017 (20 to 1000°C)
- Tensile Strength (lb/in<sup>2</sup>) at 20°C (68°F):**  
**Soft Annealed:** 95,000
- Nominal Temperature Coefficient of Resistance:** 0.00015 Ω/Ω°C (20 to 500°C)

### Factor by Which Resistance at Room Temperature Is to Be Multiplied to Obtain Resistance at Indicated Temperatures (These figures are given as a basis for engineering calculations and represent average material as supplied.)

|         |       |       |       |       |       |       |       |       |        |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Temp °C | 20    | 93    | 204   | 315   | 427   | 538   | 649   | 760   | 871°C  |
| Temp °F | 68    | 200   | 400   | 600   | 800   | 1000  | 1200  | 1400  | 1600°F |
| Factor  | 1.000 | 1.019 | 1.044 | 1.070 | 1.092 | 1.108 | 1.112 | 1.118 | 1.13   |

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### To Order (Specify Model Number)

| AWG | Dia. mm (in)  | Ω per ft @ 20°C (68°F) | Current Temperature Characteristics* °C (°F) |            |            |            |            |             | Model No.    | Price      |             |
|-----|---------------|------------------------|--|------------|------------|------------|------------|-------------|--------------|------------|-------------|
|     |               |                        | 425 (800)                                    | 550 (1000) | 650 (1200) | 750 (1400) | 875 (1600) | 1100 (2000) |              | 15 m (50') | 60 m (200') |
| 18  | 1.0 (0.040)   | 0.4219                 | 7.90   | 9.75       | 11.96      | 14.51      | 17.37      | 23.08       | NI60-040-(t) | \$21       | \$63        |
| 20  | 0.81 (0.032)  | 0.6592                 | 5.92   | 7.25       | 8.86       | 10.69      | 12.72      | 16.87       | NI60-032-(t) | 16         | 48          |
| 22  | 0.64 (0.0253) | 1.055                  | 4.44   | 5.40       | 6.56       | 7.87       | 11.63      | 12.33       | NI60-025-(t) | 16         | 48          |
| 24  | 0.51 (0.0201) | 1.671                  | 3.32   | 4.01       | 4.86       | 5.80       | 6.82       | 9.01        | NI60-020-(t) | 16         | 48          |
| 26  | 0.40 (0.0159) | 2.670                  | 2.52   | 3.00       | 3.61       | 4.31       | 5.06       | 6.63        | NI60-015-(t) | 10         | 30          |
| 28  | 0.32 (0.0126) | 4.252                  | 1.90   | 2.28       | 2.73       | 3.23       | 3.77       | 4.88        | NI60-012-(t) | 10         | 30          |
| 30  | 0.25 (0.010)  | 6.750                  | 1.43   | 1.74       | 2.06       | 2.43       | 2.81       | 3.59        | NI60-010-(t) | 10         | 30          |

\* Showing approximate amperes necessary to produce a given temperature, applying only to a straight wire stretched horizontally in free air.

† Specify desired length in feet: "50" or "200". **Note:** This wire is **not** intended for use in making thermocouple elements.

**Ordering Example:** NI60-010-200 is a 60 m (200') spool of 30 gage bare 60% nickel/16% chromium alloy heating wire, \$30.

**Note:** Published prices are based on market value at time of printing and are subject to change due to Nickel surcharges, Chromium and precious-metal market fluctuations.



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