Coiled Nickel-Chromium Alloy Resistance Wire

TRODEKS®

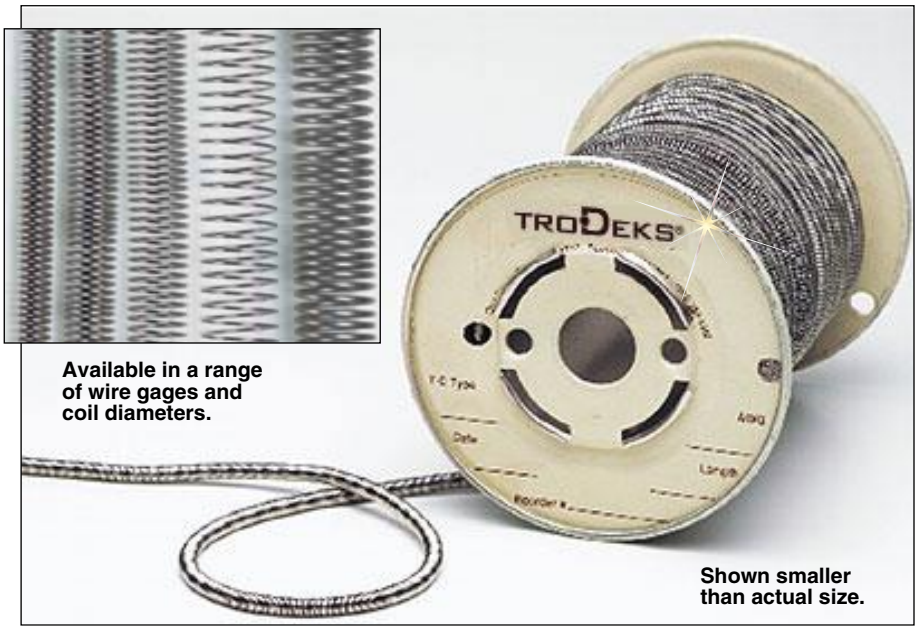
Continuous Lengths to 3500 Meters (10,000 Feet)

80% Nickel/20% Chromium and 60% Nickel/16% Chromium (Balance Iron)

NIC80 and NIC60
7.5 m (25')
(spooled length)

MADE IN USA

- **Most Popular Sizes and Gages Supplied Off-the-Shelf!**
- **Available in English Sizes**
- **Consult Factory for Your Special Requirements or OEM Needs**



Available in a range of wire gages and coil diameters.

Shown smaller than actual size.

Our nickel-chromium alloy resistance heating wire is now available coiled for ready use. Coiled heating wire is used in many high-temperature applications, including electric furnaces, radiant heating, and air heating.

NIC80 is an alloy of 80% nickel and 20% chromium and represents the highest standard in materials for use in elevated temperature environments. It is useable at temperatures up to 1150°C (2100°F).

NIC60 contains 60% nickel and 16% chromium, with the balance iron, and can be used up to 1000°C (1850°F). It is the benchmark material, most widely accepted and employed in electrical heating.

Both of these alloys also provide excellent corrosion resistance.

Coils using 18 to 30 AWG wire with 25 to 100 turns per inch are standard. Custom coil dimensions are also available.

Specifications

NIC80

Composition: 80% Ni, 20% Cr

Specific Resistance: 650 Ω per circular mil-foot at 20°C (68°F);
see table for straight nickel-chromium wire multiplication factors to obtain resistance at other temperatures

Specific Gravity: 8.41

Density: 0.304 lb/in^3

Melting Point: ≈1400°C (2550°F)

Nominal Coefficient of Linear Expansion: 0.000017 (10 to 1000°C)

Nominal Temperature Coefficient of Resistance:
0.00011 Ω/Ω/°C (20 to 500°C)

Tensile Strength (lb/in^2) @ 20°C (68°F):
Hard Drawn: 200,000
Soft Annealed: 100,000

NIC60

Composition: 60% Ni, 16% Cr, 24% Fe

Specific Resistance: 675 Ω per circular mil-foot at 20°C (68°F);
see table for straight nickel-chromium wire multiplication factors to obtain resistance at other temperatures

Specific Gravity: 8.25

Density: 0.298 lb/in^3

Melting Point: ≈1350°C (2450°F)

Nominal Coefficient of Linear Expansion: 0.000017 (20 to 1000°C)

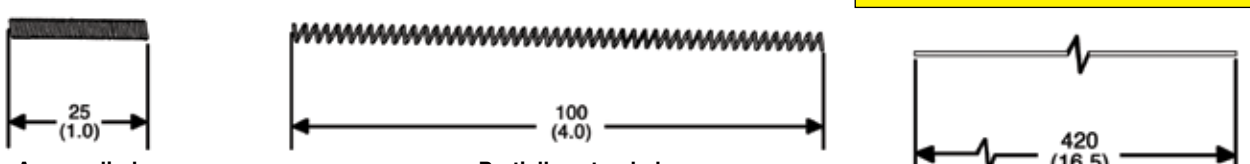
Nominal Temperature Coefficient of Resistance:
0.00015 Ω/Ω/°C (20 to 500°C)

Tensile Strength (lb/in^2) @ 20°C (68°F):
Hard Drawn: 200,000
Soft Annealed: 95,000

CAUTION AND WARNING!

Spools of wire are supplied tightly compacted. Never use precoiled wire without extending to at least three times the compacted (spooled) length.

Dimensions mm (inch)



As supplied (compacted) 50 turns/25 (1)

Partially extended (four times) 12.5 turns/25 (1)

Fully extended

Fully-extended wire (Model No. NIC80-020-125) is 16.5 times the "as supplied" coiled length.

NIC80: 80% Nickel, 20% Chromium

To Order						
Model Number	AWG	Wire Dia. mm (inch)	OD of Compacted Coil mm (") ±10%	Turns/ inch	25 mm (1") Fully Extended Length mm (inch)	Ω per inch of Coil @ 20°C (68°F)
NIC80-040-250	18	1.0 (0.040)	6.4 (0.250)	25	418 (16.5)	0.558
NIC80-032-250	20	0.81 (0.032)	6.4 (0.250)	31	538 (21.2)	1.132
NIC80-032-188	20	0.81 (0.032)	4.8 (0.188)	31	389 (15.3)	0.810
NIC80-025-250	22	0.64 (0.253)	6.4 (0.250)	40	119 (28.3)	2.450
NIC80-025-188	22	0.64 (0.253)	4.8 (0.188)	40	521 (20.5)	1.775
NIC80-020-156	24	0.51 (0.0201)	4.0 (0.156)	50	541 (21.3)	3.000
NIC80-020-188	24	0.51 (0.0201)	4.8 (0.188)	50	671 (26.4)	3.574
NIC80-020-125	24	0.51 (0.0201)	3.2 (0.125)	50	419 (16.5)	2.233
NIC80-015-125	26	0.40 (0.0159)	3.2 (0.125)	66	579 (22.8)	5.546
NIC80-012-125	28	0.32 (0.0126)	3.2 (0.125)	83	749 (29.5)	11.128
NIC80-010-125	30	0.25 (0.010)	3.2 (0.125)	100	917 (36.1)	19.570
NIC80-010-093	30	0.25 (0.010)	2.4 (0.093)	100	663 (26.1)	14.138
NIC80-010-062	30	0.25 (0.010)	1.6 (0.062)	100	414 (16.3)	8.849

Consult Sales Department for quantity discount over 200'.
***Ordering Example: NIC80-010-125-200** is 30-gage 80% nickel/20% chromium alloy resistance cable, precoiled in 0.125" OD coils, 200' (spooled length).*

NIC60: 60% Nickel, 16% Chromium

Model Number	AWG	Wire Dia. mm (inch)	OD of Compacted Coil mm (") ±10%	Turns/ inch	25 mm (1") Fully Extended Length mm (inch)	Ω per inch of Coil @ 20°C (68°F)
NIC60-040-250	18	1.0 (0.040)	6.4 (0.250)	25	419 (16.5)	0.580
NIC60-032-250	20	0.81 (0.032)	6.4 (0.250)	31	538 (21.2)	1.176
NIC60-032-188	20	0.81 (0.032)	4.8 (0.188)	31	389 (15.3)	0.841
NIC60-025-250	22	0.64 (0.253)	6.4 (0.250)	40	119 (28.3)	2.545
NIC60-025-188	22	0.64 (0.253)	4.8 (0.188)	40	521 (20.5)	1.843
NIC60-020-188	24	0.51 (0.0201)	4.8 (0.188)	50	671 (26.4)	3.711
NIC60-020-156	24	0.51 (0.0201)	4.0 (0.156)	50	541 (21.3)	2.966
NIC60-020-125	24	0.51 (0.0201)	3.2 (0.125)	50	419 (16.5)	2.319
NIC60-015-125	26	0.40 (0.0159)	3.2 (0.125)	66	579 (22.8)	5.760
NIC60-012-125	28	0.32 (0.0126)	3.2 (0.125)	83	749 (29.5)	11.556
NIC60-010-125	30	0.25 (0.010)	3.2 (0.125)	100	917 (36.1)	20.322
NIC80-010-093	30	0.25 (0.010)	2.4 (0.093)	100	663 (26.1)	14.681
NIC60-010-062	30	0.25 (0.010)	1.6 (0.062)	100	414 (16.3)	9.189

Consult Sales Department for quantity discount over 200'.
***Ordering Example: NIC60-010-125-50** is 18-gage 60% nickel/16% chromium alloy resistance cable, precoiled in 0.125" OD coils, 50' (spooled length).*

Current Temperature Characteristics*

		NIC80 Coiled Wire Current Characteristics (Amps)						NIC60 Coiled Wire Current Characteristics (Amps)					
AWG	Wire Dia. mm (")	425°C (800°F)	540°C (1000°F)	650°C (1200°F)	760°C (1400°F)	875°C (1600°F)	1100°C (2000°F)	425°C (800°F)	540°C (1000°F)	650°C (1200°F)	760°C (1400°F)	875°C (1600°F)	1100°C (2000°F)
18	1.0 (0.040)	5.41	6.93	8.48	10.41	12.48	16.70	5.20	6.65	8.14	10.00	11.92	16.03
20	0.81 (0.032)	3.72	4.84	6.01	7.44	8.96	12.20	3.56	4.64	5.77	7.15	8.60	11.71
22	0.64 (0.0253)	2.48	3.15	3.84	4.93	6.13	8.81	2.39	3.03	3.69	4.74	5.89	8.46
24	0.51 (0.0201)	2.05	2.59	3.13	3.82	4.55	6.07	1.96	2.47	3.00	3.67	4.36	5.83
26	0.40 (0.0159)	1.50	1.93	2.37	2.87	3.39	4.47	1.44	1.86	2.28	2.76	3.26	4.29
28	0.32 (0.0126)	0.93	1.22	1.51	1.87	2.26	3.09	0.89	1.18	1.45	1.80	2.17	2.97
30	0.25 (0.010)	0.63	0.82	1.02	1.32	1.64	2.38	0.62	0.79	0.98	1.26	1.58	2.28

***** *Showing approximate current in amperes necessary to raise a coil of arbor size of ⅛" diameter, to a given temperature, when stretched twice the close-wound length in open air.*

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.