



Alloys : CN10 (Copper Nickel Resistance Wire Type 10)

Characteristic

Outstanding resistance to corrosion and can be operated to 220°C.

Non magnetic and material are easy to process.

Suitable for Load Heater, Floor Heater, Electrical fuse.

| JIS | JIS Code | Electrical Resistivity [$\mu\Omega\text{m}$] | Average TCR [$\times 10^{-6}/^{\circ}\text{C}$] |
|-------|----------|---|--|
| GCN10 | C 2532 | 0.10 ± 0.012 | * 710 (23~100°C) |

| Thermal expansion coefficient $\times 10^{-6}/^{\circ}\text{C}$ | Density g/cm^3 (20°C) | Melting Point $^{\circ}\text{C}$ | Max operating temperature $^{\circ}\text{C}$ |
|--|---|-------------------------------------|---|
| 17.5 | 8.9 | 1090 | 220 |

| Chemical composition | Mn | Ni | Cu+Ni+Mn |
|----------------------|------------|-----|-----------|
| (%) | ≤ 1.5 | 4~7 | ≥ 99 |

| Alloys | Type | Diameter (mm) | |
|--------|--------|-----------------------|-----------------|
| CN10W | Wire | $\phi 6.00 \sim 0.05$ | |
| CN10R | Ribbon | $t=2.90 \sim 0.05$ | $w=40 \sim 0.4$ |

Copper Nickel Resistance Wire **[Resistance · Length · Weight]**

| | |
|-----------------|--------------------------------------|
| Alloys CN10W | Resistivity (23°C μΩm) 0.10±0.012 |
|-----------------|--------------------------------------|

| Diameter (mm) | Tolerance (mm) | Cross section (mm ²) | Resistance Tolerance (%) | DC Resistance (Ω/m) | Length (m/Kg) | Weight (g/m) |
|------------------|-------------------|--|--------------------------------|---------------------------|------------------|-----------------|
| 6.00 | ±0.080 | 28.27 | ±5 | 0.00354 | 3.97 | 252 |
| 5.50 | ±0.080 | 23.76 | ±5 | 0.00421 | 4.73 | 211 |
| 5.00 | ±0.080 | 19.64 | ±5 | 0.00509 | 5.72 | 175 |
| 4.50 | ±0.080 | 15.90 | ±5 | 0.00629 | 7.06 | 142 |
| 4.00 | ±0.080 | 12.57 | ±5 | 0.00796 | 8.94 | 112 |
| 3.50 | ±0.080 | 9.621 | ±5 | 0.0104 | 11.7 | 85.6 |
| 3.20 | ±0.060 | 8.042 | ±5 | 0.0124 | 14.0 | 71.6 |
| 2.90 | ±0.060 | 6.605 | ±5 | 0.0151 | 17.0 | 58.8 |
| 2.60 | ±0.060 | 5.309 | ±5 | 0.0188 | 21.2 | 47.3 |
| 2.30 | ±0.050 | 4.155 | ±5 | 0.0241 | 27.0 | 37.0 |
| 2.00 | ±0.050 | 3.142 | ±5 | 0.0318 | 35.8 | 28.0 |
| 1.80 | ±0.050 | 2.545 | ±5 | 0.0393 | 44.2 | 22.6 |
| 1.60 | ±0.040 | 2.011 | ±5 | 0.0497 | 55.9 | 17.9 |
| 1.50 | ±0.040 | 1.767 | ±5 | 0.0566 | 63.6 | 15.7 |
| 1.40 | ±0.040 | 1.539 | ±5 | 0.0650 | 73.0 | 13.7 |
| 1.30 | ±0.040 | 1.327 | ±5 | 0.0753 | 84.7 | 11.8 |
| 1.20 | ±0.040 | 1.131 | ±5 | 0.0884 | 99.3 | 10.1 |
| 1.10 | ±0.030 | 0.9503 | ±6 | 0.105 | 118 | 8.46 |
| 1.00 | ±0.030 | 0.7854 | ±6 | 0.127 | 143 | 6.99 |
| 0.90 | ±0.030 | 0.6362 | ±6 | 0.157 | 177 | 5.66 |
| 0.85 | ±0.030 | 0.5675 | ±6 | 0.176 | 198 | 5.05 |
| 0.80 | ±0.030 | 0.5027 | ±6 | 0.199 | 224 | 4.47 |
| 0.75 | ±0.025 | 0.4418 | ±6 | 0.226 | 254 | 3.93 |
| 0.70 | ±0.025 | 0.3848 | ±6 | 0.260 | 292 | 3.43 |
| 0.65 | ±0.025 | 0.3318 | ±6 | 0.301 | 339 | 2.95 |
| 0.60 | ±0.025 | 0.2827 | ±6 | 0.354 | 397 | 2.52 |
| 0.55 | ±0.020 | 0.2376 | ±7 | 0.421 | 473 | 2.11 |
| 0.50 | ±0.020 | 0.1964 | ±7 | 0.509 | 572 | 1.75 |
| 0.45 | ±0.020 | 0.1590 | ±7 | 0.629 | 706 | 1.42 |
| 0.40 | ±0.015 | 0.1257 | ±7 | 0.796 | 894 | 1.12 |

