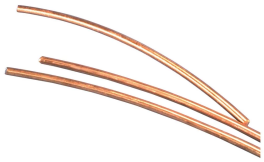
We connect and protect

# nVent ERICO Cu-Bond Round Conductor



For decades, nVent ERICO has provided the market with high quality copper-bonded ground rods. nVent ERICO has taken that same concept in ground rods and made this into a revolutionary new grounding conductor. The core of the nVent ERICO Cu-Bond Round Conductor is a low carbon steel grade for improved flexibility in the field. The steel core is plated with nickel then electro-plated with a coating of copper. This electro-plating process helps ensure a long-lasting molecular bond between the copper layer and the steel.

The steel core of the conductor provides theft-deterrent benefits, making the conductor difficult to cut with hand tools. With this steel core, nVent ERICO Cu-Bond Round Conductor is a cost-effective alternative to 100% copper conductor. The copper surface of the conductor provides high conductivity and corrosion resistance properties.

Above grade, the unique properties of nVent ERICO Cu-Bond Round Conductor make it ideal for both horizontal and vertical placement. The conductor is well-suited as a lightning protection conductor when applied in accordance with the IEC 62305-3 Edition 2.0 standard.

In the utility industry, the product can be used as a distribution down-lead conductor or as part of a bonding kit for substation fences or equipment ground risers back to the grid. In telecom applications, the product can be used to connect an equipment ground to the ground grid, as a riser (down-lead) for towers, or as a grounding conductor for datacenter mesh bonding. They are also well suited for rail applications such as trackside bonding conductors and stray current conductors, grounding kits for trackside equipment, electrical traction power, as well as in substation, wayside shelters, and communication antenna equipment.

Below grade, nVent ERICO Cu-Bond Round Conductors are ideal as earthing and bonding conductors where copper theft may occur. They may be used as a buried ground grid conductor or electrode for wireless telecom towers, power distribution and transmission grounding in utility substations, large scale ground mount solar farms, petro-chemical and mining infrastructure in industrial facilities, and railway applications. The conductor also can be used as an interconnecting grounding conductor between wind towers or as a grounding grid at the base of a wind tower.

## CERTIFICATIONS

## FEATURES

- Theft-deterrent; steel core is hard to cut with hand tools
- Cost-effective; copper bonded to a steel core minimizes the amount of copper in the cable
- Superior corrosion resistance; application life of typically 30-40 years in most soil conditions
- Copper-bonded coating will not crack or tear when the conductor is bent
- High resistance to corrosion and provides a low-resistance path to ground
- nVent ERICO Cu-Bond Round Conductor is marked every meter (3.28') for easy measurement in the field
- Meets the requirements of IEC® 62305-3 Edition 2 and IEC/EN 62561-2 for lightning protection applications
- nVent ERICO Cu-Bond Round Conductors are UL certified to IEC® 62561-2

## SPECIFICATIONS

**Plating Thickness:** 254µm

**Material:** Copper-Bonded Steel

Table 1/2

| Catalog Number | Complies With | Diameter (Ø) | Length (L) | Fusing Capacity Equivalency | nVent ERICO Cadweld Conductor Code | Unit Weight |
|---|---|---|---|---|---|---|
| CBSC8 | EN IEC® 62305-3 Edition 2, EN IEC® 62561-2, EN IEC 62561-2 | 8 mm | 100m | 25mm² | T1 | 39 kg |
| CBSC10 | EN IEC® 62305-3 Edition 2, EN IEC® 62561-2, EN IEC 62561-2 | 10 mm | 100m | 35mm² | T2 | 62.7 kg |
| CBSC13 | EN IEC® 62305-3 Edition 2, EN IEC® 62561-2, EN IEC 62561-2 | 13.2 mm | 100m | 50mm² | T3 | 107.6 kg |

| CatalogNumber | Complies With | Diameter (Ø) | Length (L) | FusingCapacity Equivalency | nVent ERICO Cadweld ConductorCode | Unit Weight |
|---|---|---|---|---|---|---|
| CBSC14 | EN IEC® 62305-3 Edition 2, EN IEC® 62561-2, EN IEC 62561-2 | 14.2 mm | 100m | 70mm² | T4 | 125 kg |
| CBSC16 | IEC® 62305-3 Edition 2, IEC® 62561-2, EN 62561-2 | 15.7 mm | 100m | 80mm² | T5 | 149.6 kg |
| CBSC18 | EN IEC® 62305-3 Edition 2, EN IEC® 62561-2, EN IEC 62561-2 | 17.7 mm | 100m | 95mm² | T6 | 192.2 kg |

Table 2/2

| Catalog Number | Certification Details | Certifications |
|---|---|---|
| CBSC8 | EN IEC® 61561-2 | UL (IEC) |
| CBSC10 | EN IEC® 61561-2 | UL (IEC) |
| CBSC13 | EN IEC® 61561-2, UL® 467, CSA C22.1 No. 41 | UL (IEC), cUL, UL |
| CBSC14 | EN IEC® 61561-2, UL® 467, CSA C22.1 No. 41 | cUL, UL, UL (IEC) |
| CBSC16 | IEC® 62561-2, UL® 467, CSA C22.1 No. 41 | UL (IEC), UL, cUL |
| CBSC18 | EN IEC® 61561-2, UL® 467, CSA C22.1 No. 41 | cUL, UL, UL (IEC) |

## ADDITIONAL PRODUCT DETAILS

Resistance per unit length measurements made in mΩ/m, CBSC compared with respect to AWG/Metric.

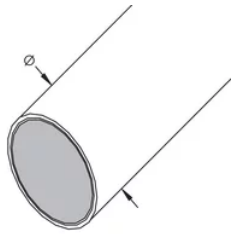
The IEEE® 837 standard (Annex C) provides a method of calculating the fusing current for conductors. This chart is a reference of the calculations for copper-bonded steel conductor according to the IEEE 837 standard. This information is for reference only.

| Conductor Physical Size Comparison | | |
|---|---|---|
| **Conductor Size** | **Approximate Diameter** | **Cross Section** |
| 25 mm² | 6.76 mm | - |
| 35 mm² | 7.65 mm | - |
| CBSC8 | 8.00 mm | 50.27 mm² |
| 50 mm² | 8.89 mm | - |
| CBSC10 | 10.00 mm | 78.52 mm² |
| 70 mm² | 10.69 mm | - |
| 95 mm² | 12.47 mm | - |
| CBSC13 | 13.20 mm | 138.07 mm² |
| CBSC14 | 14.20 mm | 158.90 mm² |
| 120 mm² | 14.22 mm | - |
| CBSC16 | 15.70 mm | 199.84 mm² |
| 150 mm² | 15.75 mm | - |
| 185 mm² | 17.65 mm | - |
| CBSC18 | 17.70 mm | 243.27 mm² |

| Conductivity Comparison | | | | |
|---|---|---|---|---|
| Part Number | AWG (Ω/km) | CBSC Resistance per Length Comparison | mm² (Ω/km) | CBSC Resistance per Length Comparison |
| CBSC18 | 1/0 AWG | 118.52% | 50 mm² | 110.82% |
| | 2 AWG | 74.54% | 35 mm² | 77.57% |
| CBSC16 | 2 AWG | 102.20% | 35 mm² | 106.36% |
| | 4 AWG | 64.27% | 25 mm² | 75.97% |
| CBSC14 | 2 AWG | 137.78% | 25 mm² | 102.42% |
| | 4 AWG | 86.65% | 16 mm² | 65.55% |
| CBSC13 | 2 AWG | 134.46% | 25 mm² | 99.95% |
| | 4 AWG | 84.56% | 16 mm² | 63.97% |
| CBSC10 | 4 AWG | 132.25% | 16 mm² | 100.05% |
| | 6 AWG | 83.17% | 10 mm² | 62.53% |
| CBSC8 | 6 AWG | 107.85% | 16 mm² | 129.73% |
| | 8 AWG | 67.83% | 10 mm² | 81.08% |

| Fusing Current Irms (kA) - IEEE® 837 Annex C | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Conductor Type Copper-bonded, Steel Core, Roda** | | **CBSC8** | **CBSC10** | **CBSC13** | **CBSC14** | **CBSC16** | **CBSC18** |
| Conductor Cross Section in mm2 | A | 50.265 | 78.52 | 138.07 | 158.903 | 199.84 | 243.27 |
| Initial Conductor Temperature in °C | Ta | 40 | 40 | 40 | 40 | 40 | 40 |
| Time of Current Flow in Seconds | tc | 2 | 2 | 2 | 2 | 2 | 2 |
| Maximum Allowable Temperature in °C | Tm | 1084 | 1084 | 1084 | 1084 | 1084 | 1084 |
| Thermal Coefficient of Resistivity at Reference Temperature Tr | ar | 0.00378 | 0.00378 | 0.00378 | 0.00378 | 0.00378 | 0.00378 |
| Resistivity of the Ground Conductor at Reference Temperature Tr in m&-cm | rr | 8.621 | 8.621 | 8.621 | 8.621 | 8.621 | 8.621 |
| 1/a0 or (1/ar) – Tr in °C | K0 | 245 | 245 | 245 | 245 | 245 | 245 |
| Thermal Capacity Factor in Joules/cm3/°C | TCAP | 3.846 | 3.846 | 3.846 | 3.846 | 3.846 | 3.846 |
| Material Conductivity | % | 24.5 | 20.4 | 18.8 | 15.9 | 16.3 | 17.7 |
| Fusing Current Calculation | ß | 84.73 | 84.73 | 84.73 | 84.73 | 84.73 | 84.73 |
| | I | 4.79 | 7.48 | 13.16 | 15.15 | 19.05 | 23.19 |
| | I90% | 4.31 | 6.74 | 11.84 | 13.63 | 17.14 | 20.87 |
| | I80% | 3.83 | 5.99 | 10.53 | 12.12 | 15.24 | 18.55 |

## DIAGRAMS




## WARNING

nVent products shall be installed and used only as indicated in nVent's product instruction sheets and training materials. Instruction sheets are available at www.nvent.com and from your nVent customer service representative. Improper installation, misuse, misapplication or other failure to completely follow nVent's instructions and warnings may cause product malfunction, property damage, serious bodily injury and death and/or void your warranty.

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