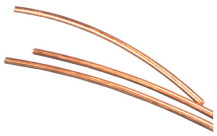
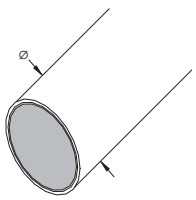
nVent ERICO Cu-Bond Round Conductor





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.

- 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



Material: Copper-Bonded Steel
Plating Thickness: 254 µm
Complies With: IEC® 62305-3 Edition 2, IEC® 62561-2, EN 62561-2

Part Number	Diameter Ø	Length L	Fusing Capacity Equivalency	nVent ERICO Cadweld Conductor Code	Unit Weight	Certification Details	Certifications
CBSC8	8.0 mm	100 m	25 mm²	T1	39.0 kg	IEC® 62561-2	UL (IEC)
CBSC10	10.0 mm	100 m	35 mm²	T2	62.7 kg	IEC® 62561-2	UL (IEC)
CBSC13	13.2 mm	100 m	50 mm²	T3	107.6 kg	IEC® 62561-2, UL® 467, CSA C22.1 No 41	cULus, UL (IEC)
CBSC14	14.2 mm	100 m	70 mm²	T4	125.0 kg	IEC® 62561-2, UL® 467, CSA C22.1 No 41	cULus, UL (IEC)
CBSC16	15.7 mm	100 m	80 mm²	T5	149.6 kg	IEC® 62561-2, UL® 467, CSA C22.1 No 41	cULus, UL (IEC)
CBSC18	17.7 mm	100 m	95 mm²	T6	192.2 kg	IEC® 62561-2, UL® 467, CSA C22.1 No 41	cULus, UL (IEC)

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%

Conductivity Comparison				
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 I_{rms} (kA) - IEEE® 837 Annex C							
Conductor Type Copper-bonded, Steel Core, Rod$_a$		CBSC8	CBSC10	CBSC13	CBSC14	CBSC16	CBSC18
Conductor Cross Section in mm^2	A	50.265	78.52	138.07	158.903	199.84	243.27
Initial Conductor Temperature in °C	T_a	40	40	40	40	40	40
Time of Current Flow in Seconds	t_c	2	2	2	2	2	2
Maximum Allowable Temperature in °C	T_m	1084	1084	1084	1084	1084	1084
Thermal Coefficient of Resistivity at Reference Temperature T_r	a_r	0.00378	0.00378	0.00378	0.00378	0.00378	0.00378
Resistivity of the Ground Conductor at Reference Temperature T_r in m&-cm	r_r	8.621	8.621	8.621	8.621	8.621	8.621
1/a_0 or (1/ a_r) – T_r in °C	K_0	245	245	245	245	245	245
Thermal Capacity Factor in Joules/cm^3/°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
	$I_{90\%}$	4.31	6.74	11.84	13.63	17.14	20.87
	$I_{80\%}$	3.83	5.99	10.53	12.12	15.24	18.55

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.