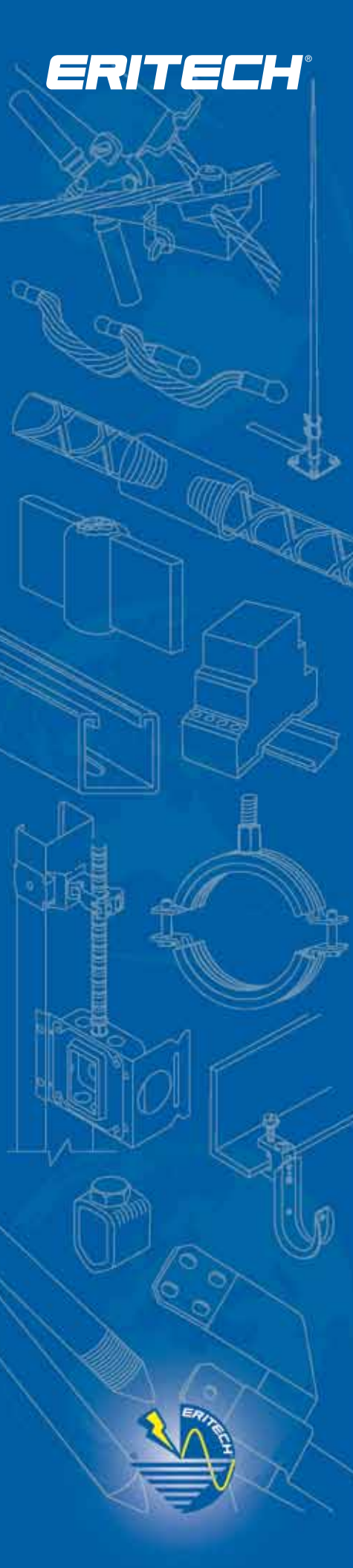


**ERITECH<sup>®</sup>**

# Copper-bonded Steel Conductor



**ERICO<sup>®</sup>**

# Copper-bonded Steel Conductor



Substation earthing riser

The Copper-bonded Steel Conductor (CBSC), part of the ERITECH® line of Facility Electrical Protection products from ERICO, is comprised of an electro-plated coating of copper deposited over a layer of nickel. This process helps ensure a long-lasting, molecular bond between the copper layer and the steel core.

The conductor core consists of a low-carbon steel grade for improved flexibility in the field. The copper surface of the conductor provides high conductivity and corrosion-resistance properties.

## Features

- Cost effective – long service life
- Copper-bonded coating will not crack or tear when the conductor is bent
- High resistance to corrosion and provides a low-resistance path to earth
- Available in standard packaging lengths of 100 meters, 50 meters and 25 meters
- Minimum copper plating thickness of 254 microns
- Available in nominal diameters of 8, 10, 13, 14, 16 and 18 mm
- Meets the requirements of IEC 62305-3 Edition 2 and EN 62561-2 for lightning protection applications
- Theft-deterrent - hard to cut with hand tools due to steel core

## Copper-bonded Steel Conductor

Part Number (100 meter length)	Nominal Size (mm)	Alternative For:
		Galvanized Flat Steel (mm)
CBSC8	8	40 x 4
CBSC10	10	50 x 5
CBSC13	13	60 x 6
CBSC14	14	80 x 6
CBSC16	16	80 x 8
CBSC18	18	80 x 10

Note: Individual circumstances and design criteria must be considered.



Equipotential grounding conductor

## CBSC CADWELD® Conductor Codes

Part Number	CBSC8	CBSC10	CBSC13	CBSC14	CBSC16	CBSC18
Conductor Code	T1	T2	T3	T4	T5	T6



# Copper-bonded Steel Conductor



GT CADWELD connection

## Applications:

The unique properties of the copper-bonded steel conductor make it ideal for both horizontal and vertical placement. Above-grade, the conductor is well-suited as a lightning-protection conductor when applied in accordance with the IEC 62305-3 Edition 2.0 standard, or as an earthing and bonding conductor where copper theft on-site may occur. The copper-bonded steel conductor is ideal for use in a variety of applications including power distribution earthing and bonding; substation earthing; commercial, industrial and railway earthing; and lightning protection.

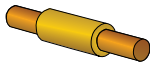


Fusing Current $I_{rms}$ (kA) - IEEE® 837 Annex C							
Conductor Type Copper-bonded, Steel Core, Rod <sub>a</sub>		CBSC8	CBSC10	CBSC13	CBSC14	CBSC16	CBSC18
Conductor Cross Section in mm <sup>2</sup>	A	50.265	78.520	138.070	158.903	199.840	243.270
Initial Conductor Temperature in °C	T <sub>a</sub>	40	40	40	40	40	40
Time of Current Flow in Seconds	t <sub>c</sub>	2	2	2	2	2	2
Maximum Allowable Temperature in °C	T <sub>m</sub>	1084	1084	1084	1084	1084	1084
Thermal Coefficient of Resistivity at Reference Temperature T <sub>r</sub>	a <sub>r</sub>	0.00378	0.00378	0.00378	0.00378	0.00378	0.00378
Resistivity of the Ground Conductor at Reference Temperature T <sub>r</sub> in m&-cm	r <sub>r</sub>	8.621	8.621	8.621	8.621	8.621	8.621
1/a <sub>0</sub> or (1/a <sub>0</sub> )-T <sub>r</sub> in °C	K <sub>0</sub>	245	245	245	245	245	245
Thermal Capacity Factor in Joules/cm <sup>3</sup> /°C	TCAP	3.846	3.846	3.846	3.846	3.846	3.846
Material Conductivity (%)	%	20	20	20	20	20	20
Fusing Current Calculation	β	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 <sub>90%</sub>	4.31	6.74	11.84	13.63	17.14	20.87
	I <sub>80%</sub>	3.45	5.39	9.48	10.91	13.72	16.70

$$\beta = \frac{\alpha_r \cdot \rho_r \cdot 10^4}{TCAP}$$

$$I = A \sqrt{\frac{\ln\left(\frac{K_0 + T_m}{K_0 + T_a}\right)}{\beta t_c}} \text{ in kA}$$

# Copper-bonded Steel Conductor

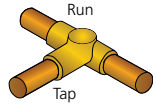


## SS Type Connections

Part Number	CADWELD® Welding Material	CADWELD® PLUS Welding Material	CADWELD Connection Type	Run	Tap	Handle Clamp
SSCT1	115	115PLUSF20	SS	T1	T1	L160 or L160SM
SSCT2	115	115PLUSF20	SS	T2	T2	L160 or L160SM
SSCT3	150	150PLUSF20	SS	T3	T3	L160 or L160SM
SSCT4	200	200PLUSF20	SS	T4	T4	L160 or L160SM
SSCT5	200	200PLUSF20	SS	T5	T5	L160 or L160SM
SSCT6	250	250PLUSF20	SS	T6	T6	L160 or L160SM

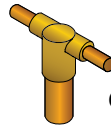


TA CADWELD connection



## TA Type Connections

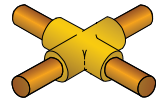
Part Number	CADWELD® Welding Material	CADWELD® PLUS Welding Material	CADWELD Connection Type	Run	Tap	Handle Clamp
TACT1	150	150PLUSF20	TA	T1	T1	L160 or L160SM
TACT2T1	150	150PLUSF20	TA	T2	T1	L160 or L160SM
TACT2	150	150PLUSF20	TA	T2	T2	L160 or L160SM
TACT3T2	150	150PLUSF20	TA	T3	T2	L160 or L160SM
TACT3	200	200PLUSF20	TA	T3	T3	L160 or L160SM
TACT4T3	200	200PLUSF20	TA	T4	T3	L160 or L160SM
TACT5T3	250	200PLUSF20	TA	T5	T3	L160 or L160SM
TACT4	200	200PLUSF20	TA	T4	T4	L160 or L160SM
TACT6T4	250	200PLUSF20	TA	T6	T4	L160 or L160SM
TACT5	250	250PLUSF20	TA	T5	T5	L160 or L160SM
TACT6T5	250	250PLUSF20	TA	T6	T5	L160 or L160SM
TACT6	2 X 150	300PLUSF20	TA	T6	T6	L160 or L160SM



## GT Type Connections

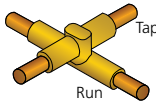
Part Number	CADWELD® Welding Material	CADWELD® PLUS Welding Material	CADWELD Connection Type	Run	Tap	Handle Clamp
GTC14T1	150	150PLUSF20	GT	14	T1	L160 or L160SM
GTC14T2	150	150PLUSF20	GT	14	T2	L160 or L160SM
GTC14T3	250	250PLUSF20	GT	14	T3	L160 or L160SM
GTC14T4	250	250PLUSF20	GT	14	T4	L160 or L160SM
GTC14T5	2 X 150	300PLUSF20	GT	14	T5	L160 or L160SM
GTC14T6	2 X 150	300PLUSF20	GT	14	T6	L160 or L160SM
GTC16T1	150	150PLUSF20	GT	16	T1	L160 or L160SM
GTC16T2	150	150PLUSF20	GT	16	T2	L160 or L160SM
GTC16T3	250	250PLUSF20	GT	16	T3	L160 or L160SM
GTC16T4	250	250PLUSF20	GT	16	T4	L160 or L160SM
GTC16T5	2 X 150	300PLUSF20	GT	16	T5	L160 or L160SM
GTC16T6	2 X 150	300PLUSF20	GT	16	T6	L160 or L160SM
GTC18T1	150	150PLUSF20	GT	18	T1	L160 or L160SM
GTC18T2	150	150PLUSF20	GT	18	T2	L160 or L160SM
GTC18T3	250	250PLUSF20	GT	18	T3	L160 or L160SM
GTC18T4	250	250PLUSF20	GT	18	T4	L160 or L160SM
GTC18T5	2 X 150	300PLUSF20	GT	18	T5	L160 or L160SM
GTC18T6	2 X 150	300PLUSF20	GT	18	T6	L160 or L160SM

14 = 1/2" (12.8 mm) copper-bonded ground rod, 16 = nominal 5/8" (14.3 mm) copper-bonded ground rod, 18 = nominal 3/4" (17.3 mm) copper-bonded ground rod



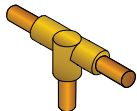
## XA Type Connections

Part Number	CADWELD® Welding Material	CADWELD® PLUS Welding Material	CADWELD Connection Type	Run	Tap	Handle Clamp
XACT1	200	200PLUSF20	XA	T1	T1	L160 or L160SM
XACT2T1	200	200PLUSF20	XA	T2	T1	L160 or L160SM
XACT2	200	200PLUSF20	XA	T2	T2	L160 or L160SM
XACT3T1	250	250PLUSF20	XA	T3	T1	L160 or L160SM
XACT3T2	250	250PLUSF20	XA	T3	T2	L160 or L160SM
XACT3	250	250PLUSF20	XA	T3	T3	L160 or L160SM
XACT4T2	250	250PLUSF20	XA	T4	T2	L160 or L160SM
XACT4T3	250	250PLUSF20	XA	T4	T3	L160 or L160SM
XACT4	250	250PLUSF20	XA	T4	T4	L160 or L160SM
XADT5T2	2 x 200	400PLUSF20	XA	T5	T2	L159 or L159SM
XADT5T3	2 x 200	400PLUSF20	XA	T5	T3	L159 or L159SM
XADT5	500	500PLUSF20	XA	T5	T5	L159 or L159SM
XADT6T4	500	500PLUSF20	XA	T6	T4	L159 or L159SM
XADT6T5	500	500PLUSF20	XA	T6	T5	L159 or L159SM
XADT6	500	500PLUSF20	XA	T6	T6	L159 or L159SM



## XB Type Connections

Part Number	CADWELD® Welding Material	CADWELD® PLUS Welding Material	CADWELD Connection Type	Run	Tap	Handle Clamp
XB3T1T1	2X 150	300PLUSF20	XB	T1	T1	L163
XB3T2T1	2X 150	300PLUSF20	XB	T2	T1	L163
XB3T2T2	2X 150	300PLUSF20	XB	T2	T2	L163
XB4T3T1	2 X 200	400PLUSF20	XB	T3	T1	L164
XB4T3T2	2 X 200	400PLUSF20	XB	T3	T2	L164
XB4T3T3	2 X 200	400PLUSF20	XB	T3	T3	L164
XB4T4T2	500	500PLUSF20	XB	T4	T2	L164
XB4T4T3	500	500PLUSF20	XB	T4	T3	L164
XB4T4T4	500	500PLUSF20	XB	T4	T4	L164
XB4T5T2	500	500PLUSF20	XB	T5	T2	L164
XB4T5T3	500	500PLUSF20	XB	T5	T3	L164
XB4T5T5	500	500PLUSF20	XB	T5	T5	L164
XB4T6T4	3 X 200	600PLUSF20	XB	T6	T4	L164
XB4T6T5	3 X 200	600PLUSF20	XB	T6	T5	L164
XB4T6T6	3 X 200	600PLUSF20	XB	T6	T6	L164



## TV Type Connections

Part Number	CADWELD® Welding Material	CADWELD® PLUS Welding Material	CADWELD Connection Type	Run	Tap	Handle Clamp
TVCT1	150	150PLUSF20	TV	T1	T1	L160
TVCT2	150	150PLUSF20	TV	T2	T2	L160
TVCT3	200	200PLUSF20	TV	T3	T3	L160

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Code	Description
T1	CBSC8
T2	CBSC10
T3	CBSC13

Code	Description
T4	CBSC14
T5	CBSC16
T6	CBSC18

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