

CS COPPERSTEEL SOLID AND STRANDED CONDUCTORS

COPPER CLAD STEEL

CS - COPPERSTEEL is a bimetallic conductor that combines the mechanical properties of steel with the high electrical conductivity and corrosion resistance of copper. Created through a continuous cladding process, where the metals are bonded on an atomic scale, it can be produced with different proportions between the two metals, depending on the application and design requirements.

GROUNDING AND LIGHTNING PROTECTION SYSTEMS

HIGH PERFORMANCE AND RELIABILITY FOR GENERATION, TRANSMISSION AND DISTRIBUTION SYSTEMS

The **CS - COPPERSTEEL** conductors have electrical performance equivalent to copper, as the steel core allows the conductor to operate over a wider temperature range without compromising its physical characteristics.



GROUNDING FOR RENEWABLES



GROUNDING SYSTEMS IN SUBSTATIONS



GROUNDING SYSTEMS IN TRANSMISSION
(OVERHEAD, CENTERPOISE AND DOWN CONDUCTORS)



GROUNDING SYSTEMS IN DISTRIBUTION

INDICATION OF MAIN APPLICATIONS:

- 21% IACS:** Residential buildings, warehouses, commercial facilities, service entrance installations, schools, and grounding systems for simple structures.
- 30% IACS:** Solar PV plants, wind farms, hospitals, buildings, commercial complexes, small industries, power distribution, and power transmission.
- 40% IACS:** Power substations, power generation facilities, and large industrial plants.
- 53% IACS:** Large industrial plants, power generation, transmission and distribution systems, and substations. It can also be used as an electrical conductor for power transmission.



WATCH CS - COPPERSTEEL MOVIE



Comparison of materials after 10 years driven into the soil.

GREATER LIFESPAN 6 TIMES MORE DURABILITY THAN HOT DIP GALVANIZED STEEL.

CS - COPPERSTEEL is the only resistant and long-lasting material, due to the electrochemical characteristic of copper in the outer layer of the conductor. The service life of a **CS - COPPERSTEEL** conductor in any soil is 40 to 50 years, while that of a galvanized steel conductor is 8 to 10 years [1][2].

[1] Romanoff M., "Underground Corrosion", United States Department of Commerce, National Bureau of Standards, Circular 579 (April, 1957).
[2] Loboda M., "Corrosion Tests of Steel Earthing Electrodes with Protective Coatings Made from Different Materials", International Conference on Grounding and Earthing, (November, 2006).



DISCOURAGES THEFT MATERIAL WITH NO ATTRACTIVENESS IN THE ILLEGAL MARKET

The **COPPERSTEEL** conductors have no commercial value as scrap, as the atomic cladding process prevents their separation. Thus, bimetallic conductors solve the problem of pure copper theft, which is attractive due to the high resale value in the illegal market.

GROUNDING CONDUCTORS COMPARISON

	COPPER	GALVANIZED STEEL	COPPERSTEEL
Compatible with copper system fittings and connectors	✓	✗	✓
40+ Years Lifespan	✓	✗	✓
High mechanical and thermal resistance	✗	✓	✓
Discourages theft (Inventory, Logistics and Installed)	✗	✓	✓
Purity and Gauge Guarantee	✗	✗	✓
Technical and economical feasibility	✗	✗	✓

Conductivities:



21% IACS



30% IACS



40% IACS



53% IACS

IACS: INTERNATIONAL ANNEALED COPPER STANDARD

Standards:

ASTM B-228: Standard Specification for Concentric-Lay-Stranded Copper-Clad Steel Conductors.

ASTM B-227: Standard Specification for Hard-Drawn Copper-Clad Steel Wire



19 Wires

7 Wires

3 Wires

Wire

COMPATIBLE WITH CONNECTORS AND GROUND RODS

GROUNDING CLAMPS

TH

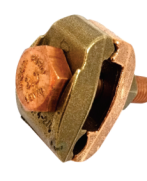


GTDU



BUSBAR GROUNDING CLAMPS

GTDB



GTSB2C



GROUNDING CONNECTORS WITH SPRING EFFECT SYSTEM

CAT



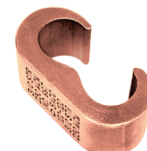
CCA



GROUNDING COMPRESSION CONNECTORS

SACC

(Cable to Cable)



SACG

(Cable to Rod)



LEH



PH



ACCESSORIES FOR SECTIONAL GROUND RODS (IHP)

IH - GROUND ROD

IHP - SECTIONAL GROUND ROD

IHR⁺ - GROUND KIT

Copper-bonded ground rod - 1/2" / 5/8" / 3/4" / 1"

Copper-bonded ground rod - 5/8" / 3/4" / 1"

Copper-bonded ground rod - 1/2" / 5/8" / 3/4" / 1"



*Supplied with connector and conductor applied.
Manufactured according to customer needs.
Ready for installation.