

**COPPERSTEEL® WIRE - 21% IACS**

CS21-9-1F

**Description**

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**COPPERSTEEL** is a bimetallic conductor that combines the mechanical properties of steel with the high conductivity and corrosion resistance of copper. Created from a continuous cladding process where the metals are joined together on an atomic scale to produce a bimetallic material with the best of both metals, it is the smartest option for grounding grid, counterpoise, grounding conductor and various other applications.

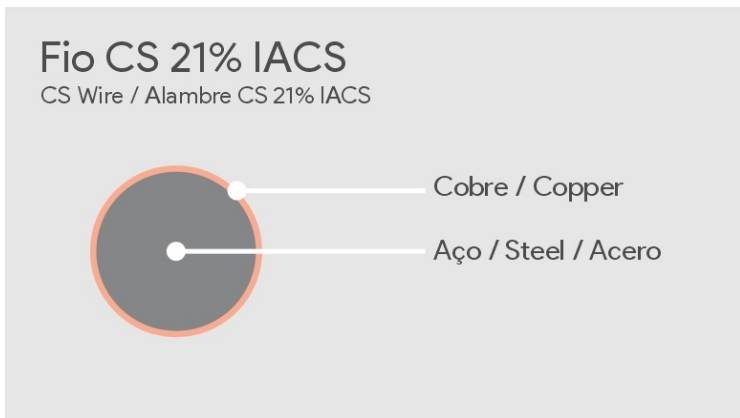
**GROUNDING AND LIGHTNING PROTECTION SYSTEMS:** Properly designed ground systems are essential to adequately discharge extremely high currents, directing them to the ground during lightning surges and short-circuit. The **COPPERSTEEL** conductors with steel core and copper cladding is the best choice for power generation, transmission and electrical distribution grounding and lightning systems. It offers equivalent performance to bare copper for grounding applications and much higher performance than zinc plated steel for lightning protection, thanks to its longer service life.

**TRANSMISSION GROUNDING SYSTEMS:** For lightning protection of overhead transmission lines, grounding and earthing systems are vital. **COPPERSTEEL** conductors offer high strength and corrosion resistance for overhead and grounding applications. On overhead ground wire application, where discharge time are in the order of microseconds, the 21% and 30% IACS COPPERSTEEL conductors have equivalent performance to copper and much higher performance than hot dip galvanized steel wires. When used as counterpoised, the **COPPERSTEEL** copper cladding technology ensures 40 to 50 years of lifetime, in all types of soil (regardless of pH), up to 6 times more durability than hot dip galvanized steel.

**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.



**Datasheet**

|   |      |
|---|------|
| <b>Nominal Cross Section (AWG/MCM)</b>          | 9    |
| <b>Effective Cross Section (mm<sup>2</sup>)</b> | 6,65 |
| <b>Diameter of Wires (mm)</b>                   | 2,91 |
| <b>Physical Parameters</b>                      |      |
| Copper Area (%)                                 | 14   |
| Steel Area (%)                                  | 86   |
| Specific Weight (g/cm <sup>3</sup> )            | 7,96 |

| <b>Mechanical Characteristics</b>          |           |
|--|-----------|
| Nominal Weight (kg/km)                     | 53,00     |
| Elastic Modulus (GPa)                      | 190       |
| Coef. of Linear Thermal Expansion (1/°C)   | 1,77 E-05 |
| Breaking Load (daN)                        | 216,0     |
| <b>Electrical Characteristics</b>          |           |
| Coef. de Variação de Resistência (1/°C)    | 0,00378   |
| Inductive Reactance - 60Hz (ohms/km)       | -         |
| Capacitive Reactance - 60Hz (ohms/km)      | -         |
| Steady-State Current Capacity - 75°C (A)   | -         |
| Current Capacity in DC - 50ms (A)          | -         |
| Current Capacity in DC - 100ms (A)         | -         |
| Current Capacity in DC - 0,5s (A)          | -         |
| Maximum Resistance to 20°C in DC (ohms/km) | 12,344    |
| <b>Package</b>                             |           |
| Reel Type                                  | -         |
| Nominal Length (m)                         | -         |
| Net Weight per Reel (kg)                   | -         |
| Gross Weight per Reel With Packing (kg)    | -         |