



CONDUCTUS®

BENEFITS & PERFORMANCE ADVANTAGE



What is Conductus®?

STI's Conductus® is a superconducting wire product family capable of supporting a broad range of superconducting applications and systems. In production today, Conductus® superconducting wire is a high current carrying conductor that provides dramatic performance improvements, higher power density, smaller size and significant cost benefits over traditional copper wire.

We believe that superconducting wire will modernize the electric power industry. Initial applications for Conductus® superconducting wire include high power transmission and distribution cables, superconducting fault current limiters, large industrial motors and generators, high field magnets and offshore wind turbine generators.

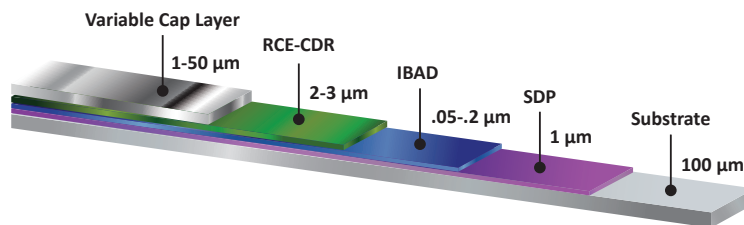
Conductus® is manufactured through a proprietary and highly refined deposition process in which superconducting materials are grown atop a metal substrate to create a very precise crystalline film of rare-earth-barium-copper-oxide (ReBCO). This compound acts as a superconductor when cooled to cryogenic temperatures. We believe our proprietary technology and manufacturing expertise will enable broad commercialization of superconducting wire by addressing three industry requirements: reliable supply, price and performance. These significant advantages will enable substantial market opportunities, primarily with Smart Grid infrastructure applications.

Conductus® Superconducting Wire Technology Advantages

STI's manufacturing methods for superconducting wire use a simplified wire architecture that produces high performance wire which is cost competitive with copper. Our unique RCE-CDR superconducting deposition offers an economic, scalable, high throughput process to successfully commercialize superconducting wire for large emerging markets. Overall, STI's superconducting wire process requires fewer manufacturing steps than other production techniques. Fewer steps reduce the total processing time and increases product yield. Reduced processing time requires less production equipment per km of wire, which results in lower cap-ex, less electricity usage, and a smaller production footprint.

Conductus® typical specification:

- 250 to 500 Amps/centimeter, 77 Kelvin, Self-Field
- 200 to 350 Amps/centimeter, 4.2 Kelvin, 15 Tesla, Field perpendicular to wire
- 4 to 77 Kelvin operating temperature –increasing wire performance
- 3mm, 4mm and 10mm wire widths
- Ultimate Tensile Strength @ 25° C >500 MPa
- Low AC loss – high uniformity across wire width
- Various cap layer options – brass, silver, copper



Conductus® HTS wire layers

