

# **Superconducting properties of Roebel Coated Conductor Cable from Super Power and SuperOx tapes with different transposition length**

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Roebel Coated Conductor Cable (RACC) is one of the proposals for high temperature superconducting cable. Such cables offer high engineering critical current density and full transposition of all cable strands (tapes). Purpose for those cables as electrical or magnet applications need cables with high critical current and low AC-losses. AC-losses depend on used coated conductor, architecture of superconducting cable, as well as critical current of the cable.

Coated conductors from two producers: Superpower and SuperOx were analyzed and used for Roebel cable. Six different 12 mm wide Roebel Coated Conductor cables were prepared. For three cables Superpower and for other three SuperOx coated conductor tape were used. Three different transposition lengths were applied: 126, 226, 426 mm and according to that maximum number of strands (10, 17 and 31, respectively) was used. Record critical current at 77 K and self-field of 2.7 kA for SuperOx Roebel cable with 426 mm transposition length and 31 strands was measured. AC-losses of those cables at 77 K were measured and analyzed, as well.