

Narrow Strand YBCO Roebel Cable for Lowered AC Loss

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Abstract - We have constructed test lengths of Roebel cable from wide strips of second generation YBCO wire. The strand width is 2mm to allow for lowered AC losses in comparison with standard HTS wires. Up to 10 strands can be cut from the 40mm wide strip and assembled into a 10-strand cable with a transposition length of 90mm. Electrical measurements show good retention of critical current through the cutting and cabling processes. Initial AC loss measurements confirm the reduction expected from full width wire. Results from mechanical modeling are presented which have been used to optimise strand geometry to reduce stress concentrations. Manufacturing capability to produce up to 100m lengths has been demonstrated.

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