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## **M3Or1A-03: HTS Roebel cables, status and potential**

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Roebel cables from coated conductors were already tested in first real applications, recently in first sub-size demonstrator dipole insert magnets for particle accelerators, an activity from the EU-project EUcard2 coordinated by CERN. The Roebel HTS approach offers unique properties for magnet applications, such as low AC losses from transposed strands, excellent off-plane bending ability and preserved in-field anisotropy of the critical currents, being an advantage for winding geometries. Ways to enhance the transport currents by increasing the numbers of strands can be done by extending the transposition length or/and applying stacked tapes in the strands, with some limitation. A new concept can extend the existing RACC cable design to much higher transport currents by adding an additional layer around, the so-called DOCO-cable. Roebel cables however are produced by means of a sophisticated method and require a distinct HTS tape performance and conditioning to insure safe and reliable operation. We summarize in this contribution the state-of-the-art preparation methods of HTS Roebel cables, the role of the HTS Performance and properties and the achievable Performance of the Roebel cable. We also address the limitations coming from different factors and outline the necessary steps for further optimization and large scale industrial production with improved economy.

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