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[Invited] Production and integration of 2G HTS tapes into HTS devices

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SuperOx manufactures and markets high current, low cost 2G HTS tapes for HTS devices. Our core manufacturing technology includes the IBAD-MgO texturing on strong, non-magnetic Hastelloy substrates to make buffer templates and the PLD growth of the GdBCO layer.

At present we offer tapes with single lengths over 300 m and I_c (77 K, s.f.) of 300-500 A/12 mm and 100-150 A/4 mm. SuperOx differentiates itself by providing deep customisation of the tape to meet specific application requirements, including any thickness of silver and/or copper coatings, surround polyimide insulation, low resistance soldered joints, solder plating, and lamination.

In addition to manufacturing 2G HTS tapes we provide further integration of the tapes into HTS device modules and ultimately into ready HTS devices by developing in-house capabilities and partnering with outside experts.

We have developed in-house capabilities for making basic modules of more complex HTS devices such as pancake and racetrack coils for magnets and rotating machines, soldered stacks of tapes for high current cables, HTS current leads, and tapes with proprietary protection against overcurrent for fault current limiters. Another development are solid 2D blocks of any size and shape consisting of multiple layers of 2G HTS tapes that represent an advanced and easily engineerable alternative to bulk HTS materials for applications that require trapping and/or shielding of magnetic field.

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