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Dimensional Changes of Nb3Sn Cables during Heat Treatment*

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The LHC-Accelerator Research Program (LARP) has been designing and fabricating R&D magnets for the High Luminosity Upgrade (U.S.- Hi-Lumi) for over ten years. The magnets require keystoned Nb3Sn Rutherford cables in minimum unit lengths of up to 500 m. The cables are fabricated from wires with different diameter and filament layouts of RRP® fabricated by Oxford Superconducting Technology. During heat treatment the cable dimensions change: the cable typically becomes thicker, wider, and shorter, if not constrained. This paper compares the dimensions of cables in a reacted potted coils to those measured on cables reacted in tooling that leave the cable un-constrained.

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