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Recent progress on the development of MgB_2 wires in Hitachi

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MgB_2 wires and coils have great potentials for helium free superconducting magnet. We have been concentrated on improving the longitudinal homogeneity of MgB_2 wire, and it was confirmed by making the magnet for klystron use by Wind & React method.
We will talk about how to bend the sintered MgB_2 wires without Ic degradation for React & Wind method. Three approaches can be thought for making the critical-bending-radius of MgB_2 wire smaller. First one is increasing the pre-compressive strain on MgB_2 filaments by raising heat treatment temperature. Second one is reducing tensile strain on MgB_2 filaments by moving the neutral axis of bending from the center of the wire. Last one is reducing tensile strain on MgB_2 filaments by arranging positions of MgB_2 filaments into center part of the wire. In this presentation, the results of improving the bending radius of the MgB_2 wire with the first and second approaches will be presented.

Keywords: MgB2 wire, Wind & React, React & Wind, bending radius