



Contribution ID: 800 Contribution code: TUE-PO1-722-08

Type: Poster

Fabrication of Racetrack Type Double-pancake Coils Using 2G Tapes

Tuesday, November 16, 2021 1:15 PM (20 minutes)

Three racetrack type double-pancake coils were wound and assembled in a certain sequence to form a module. To improve the anisotropism between the straight sections and circular sections, the bobbin was designed and some clamping fixtures were added on both sides and on the straight sections. By investigating the viscosity and torque of rotor, the optimum range of temperature for impregnating the coils was confirmed. After the assembly of the coils, the module of coils was whole sucked in liquid paraffin. Then the whole module was fixed in a dewar which filled with liquid nitrogen to cool the coils. The coils with dewar were tested the mechanical shock resistance dynamically. From the results, after paraffin impregnation, the characteristics of the coils did not change. With increasing value of acceleration up to 30g every 5g interval in X direction dynamically, the voltage and magnetic field were almost unaffected. Thus this method of construction and paraffin impregnation and fixtures can be used in this racetrack type double-pancakes coils.

Keywords YBCO · Racetrack Type · Vacuum Impregnation · Mechanical Shock Test

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Session Classification: TUE-PO1-722 Model Coil I