

Current Limiting Characteristics of YBCO Coated Conductor

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YBCO coated conductors, which are also known as second generation HTS tapes, are expected to be applicable to various fields of electric power systems. They can carry a large amount of current without electrical loss and generate high resistance when quench occurs. In this light, we investigated the current limiting characteristics of the YBCO coated conductors. First, the quench characteristics of the conductors were examined using coated conductors. From the experimental results, we determined the rated voltage based on the temperature increase due to Joule heating. Second, recovery time to superconductivity after the quench was measured by an electrical method. The various fault conditions were simulated by varying the voltages and currents along with various fault duration. Finally, various lengths of the coated conductors were prepared and connected in series and parallel. The current limiting characteristics of them were investigated and analyzed for the application to superconducting fault current limiters.

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