

Test of an HTS Continuous Disk Winding for Power Transformers

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Generally, two kinds of windings used to be adopted for the high temperature-superconducting (HTS) transformer in the world. One is layer type winding and the other is disk type winding. Most of HTS transformer, which have been developed over the world, adopted layer winding, because its lower AC losses than disk type one. In the shape of the HTS tapes, the layer winding is unacceptable for high voltage power transformer. Therefore continuous disk winding will be adopted for 33 MVA HTS power transformer. This winding has advantages over the layer winding for a power transformer such as good insulation and limit of voltage stress. In addition, the winding shall be wound without the joint between the disks. And it generates lower loss than disk windings in HTS transformer.

In this paper, we have proposed a continuous disk winding for high voltage power transformer. The continuous disk winding was wound with bscco-2223 tapes and its electrical characteristics were analyzed and measured. To prove the effectiveness of proposed winding, characteristic test was carried out such as critical current and AC losses test. And the capacitances between turns were measured and compared with calculated one.

Keywords : HTS, Continuous Disk Winding, Capacitance

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