

## Fabrication and Test of the Three-phase 6.6 kV/200 A Resistive Type SFCL Based on YBCO Thin Films

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We fabricated and tested a resistive type superconducting fault current limiter (SFCL) for three-phase 6.6 kV/200 A rating based on YBCO thin films grown on 4" diameter sapphire substrates. Fault current test was performed for single phase-to-ground faults, phase-to-phase faults and three-phase faults. Each phase of the SFCL was composed of 8×6 components connected in series and parallel. Each component was designed to have rated voltage of 600 V, and has a NiCr shunt resistor of 23  $\Omega$  for simultaneous quench of the components. Test result of single phase-to-ground faults showed that the SFCL successfully controlled the fault current of 10 kA to below 816 A<sub>peak</sub> in the first half cycle, within 0.12 msec after the fault. In case of three-phase-faults, the SFCL of each phase accomplished simultaneous quenches after a fault. In conclusion, test results of all cases showed that the SFCL operated stably regardless of fault current amplitude.

keywords : YBCO thin film, fault current, SFCL, shunt resistor, simultaneous quench

### *Acknowledgement*

This work was supported in part by a grant from Center for Applied Superconductivity Technology of the 21st Century Frontier R&D Program funded by the Ministry of Science and Technology in Korea.