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Wed-Af-Po3.24-07 [101]: Electrical insulation testing for CFETR CS model coil

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The Central Solenoid (CS) model coil, which is responsible for developing and verifying the larger-scale superconducting magnet technology of China Fusion Engineering Test Reactor (CFETR), has been designed and is currently being manufactured at ASIPP. In case of an emergency shut-down like in succession of a quench, the voltage across the coil may rise to about 2.5kV. Therefore, the coil have to be provided with a reliable electrical insulation. The electrical insulation systems of the CS model coil consist of turn, layer, and ground insulation. In order to verify the insulation performance, the insulation electrical performance tests are carried out at different stages of the manufacturing process. Test content includes inter-turn voltage withstand test, AC and DC high voltage test, and insulation resistance test. This paper gives the description of the electrical insulation testing for CS model coil. The test method and test process for each test are introduced. The test results are analyzed to determine whether the requirements are met.

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