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Design of magnetic shielding for 600 MWh SMES

Content :

Superconducting Magnetic Energy Storage (SMES) systems are superconductor based inductor coils, which are capable of storing high energy. These coils carry very high current which in turn generates very high magnetic field. This generated magnetic field can cause magnetic interference with the devices around and also risks the human safety. This paper discusses the design of superconductor based magnetic shield to confine the magnetic lines of forces within its interior to reduce the leakage flux outside well below the safety and interference limits. The use of diamagnetism property of superconductor helps in the design of such magnetic shield. An electromagnetic analysis was carried out to understand the magnetic field variation with and without magnetic shielding. These studies help in designing the suitable magnetic shields for SMES systems.

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