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Design of Quench Protection System for K-DEMO TF Magnet

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Conceptual design of the K-DEMO magnet system has been under way. From the up-to-date design activities, the TF magnets use two different types of cable-in-conduit conductors (CICCs) where high field region uses quite an amount of superconducting wires, but in relatively low field region, substantial amount of superconducting wires should be replaced by copper wires. The stored magnetic energy is estimated to be over 49 GJ. Eighteen TF magnets are series-connected and charged by a power supply, where the design current is 65.52 kA. Protection circuits for the K-DEMO TF magnets should be designed with a fail-free concept after interlock signals are received. The design activities to minimize the system failures are carried out to guarantee the reliable and stable operation

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