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## Quench and Recovery Characteristics of MgB<sub>2</sub> Coil with Various Protection Schemes

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In recent years, magnesium diboride (MgB<sub>2</sub>) has been regarded as one of the promising candidates for the development of MRI magnets owing to its critical temperature of 39 K, which allows magnets to be operated without the use of liquid helium (LHe), unlike their low-temperature superconductor counterparts. Prior to the development of the LHe-free MgB<sub>2</sub> MRI magnet, it is essential to investigate the appropriate protection scheme for the magnets. Therefore, this study examined passive and active protections for a proto-type MgB<sub>2</sub> coil using the MgB<sub>2</sub> wires manufactured by Kiswire Advanced Technology Co. Ltd. The quench and recovery characteristics of the MgB<sub>2</sub> coil with various protection schemes were evaluated in terms of the maximum hotspot temperature, maximum induced voltage, and recovery time.

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