

设备与系统

# 高温气冷堆备用停堆系统电磁铁驱动机构初步研究

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**摘要** 介绍了高温气冷堆备用停堆系统及其可选的驱动机构, 分析了电磁铁驱动机构的工作原理和设计要求, 并通过经验公式方法和专业软件来计算电磁铁线圈参数, 利用模型实验检验两种计算方法的可靠性。通过软件数值计算方法得出了满足电磁铁吸力要求的线圈安匝数, 并获得了启动过程的吸力特性曲线。

**关键词** [高温气冷堆](#) [备用停堆系统](#) [电磁铁驱动机构](#)

分类号

## Preliminary Study on Electromagnet Drive Mechanism in Reserve Shutdown System of High-Temperature Gas-Cooled Reactor

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**Abstract** High temperature gas-cooled reactor and the drive mechanisms which can be used were summarized. The principle and design requirements of electromagnet drive mechanism were emphasized. The empirical formula calculation method and ANSYS software were exploited to design the coil of the electromagnet. Model experiment was carried on to examine the reliability of the two methods. Finally the ampere-turns of coil which can meet the requirement of electromagnetic forces were obtained through ANSYS method and the electromagnetic force performance curve in the start-up procedure was obtained.

**Key words** [high-temperature gas-cooled reactor](#) [reserve shutdown system](#) [electromagnetic drive mechanism](#)[high-temperature gas-cooled reactor](#) [reserve shutdown system](#) [electromagnetic drive mechanism](#)

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