

结构力学

中国先进研究堆主回路进堆管系接管载荷优化

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摘要 在已完成的中国先进研究堆(CARR)主回路系统进堆管道计算中, 换热器管嘴载荷超值, 需对支吊架设置进行优化。结合管道布置特点, 利用PIPESTRESS软件的强大功能, 找到接管载荷超值的主要原因, 采用先静载荷后动载荷的方法合理调整支架, 经反复对比分析, 得到工程可实现的约束方案, 使管嘴载荷满足了要求, 从而保护了设备, 提高了系统安全性能。为保护设备, 管嘴附近的承重架应距设备尽可能地远, 并应兼顾地震和热胀载荷对支架设置的不同要求, 结合管嘴载荷、支架反力及现场安装等因素设置支架。

关键词 [接管载荷](#) [优化](#) [支架调整](#) [安全性能](#)

分类号

Nozzle Loads Optimizing of Inlet Primary Loop Piping in China Advanced Research Reactor

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Abstract The nozzle loads overstep the limiting values of the hot exchanger in the finished calculation of the primary loop piping in China Advanced Research Reactor (CARR), and the supports setting needs to be optimized. Integrating the piping structural characteristics and using the powerful functions of the PIPESTRESS software, the essential reasons of nozzle loads overstepping the limiting values were found, the principles considering the static loads first and then the dynamic ones were adopted to adjust the supports, the realizable restricting measures were gotten through the repeated contrastive analysis, the demands of the nozzle loads were satisfied so that the equipments were protected and the piping safety capability were improved. For protecting the equipments the weight supports near nozzle should be placed as far as possible, seismic and thermal loads have different demands to supports setting, which should be considered together, all the factors such as nozzle loads, reaction force on supports, local installation should be integrated to set the supports.

Key words [nozzle](#) [loads](#) [optimizing](#) [supports](#) [adjusting](#) [safety](#) [capability](#)

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