

反应堆工程

扁管流道流动阻力特性研究

范广铭; 孙中宁; 王建军; 王盟

哈尔滨工程大学 核科学与技术学院, 黑龙江 哈尔滨 150001

收稿日期 修回日期 网络版发布日期:

摘要 文章以水为工质, 对扁管流道的阻力特性进行了实验研究和理论分析, 推导出层流区的阻力系数近似解, 并拟合了紊流区的经验关系式。结果表明, 扁管流道的摩擦阻力系数变化趋势与普通的圆管流道相同, 但在数值上明显高于后者, 流态转换区域也较圆管滞后。本文推导出的摩擦阻力系数理论计算式和拟合的经验关系式均有较高的计算精度, 计算值与实验值间的相对偏差均在4%以内。

关键词 [扁管](#) [层流](#) [紊流](#) [摩阻系数](#)

分类号

Investigation on Single Phase Flow Resistance in Flat Tube

FAN Guang-ming; SUN Zhong-ni ng; WANG Ji an-j un; WANG Meng

College of Nuclear Science and Technology, Harbin Engineering University, Harbin 150001, China

Abstract Experimental and theoretical investigations of water flow resistance in flat tube were carried out. The approximate solution of the friction factor was derived theoretically in the laminar region. And the friction factor was also correlated with the experimental data in the turbulent region. The results show that the friction factor of flat tube varies similarly with that of the circular tube, whereas the former is higher than the latter. And also, Reynolds number of transition area from laminar to turbulent region is higher than circular tube. Both the theoretical expression and the empirical correlation are accurate very much, and the deviations are less than 4%.

Key words [flat tube](#) [laminar flow](#) [turbulent flow](#) [friction factor](#)

DOI

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [\[PDF全文\]\(383KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)

相关信息

- ▶ [本刊中 包含“扁管”的 相关文章](#)

▶ 本文作者相关文章

- [范广铭](#)
- [孙中宁](#)
- [王建军](#)
- [王盟](#)

通讯作者