

斜轴式液压变压器效率特性分析 Research on Efficiency Characteristic of Angle Type Hydraulic Transformer

荆崇波 魏超 李雪原 刘丁华

北京理工大学

关键词: 液压变压器 变压比 效率特性 等效率曲线

摘要: 建立了斜轴式液压变压器的排量模型、流量模型、转矩模型和效率模型;在此基础上,绘制了液压变压器的等效率曲线图,揭示了斜轴式液压变压器的效率特性。理论分析与试验结果表明:斜轴式液压变压器在正常工作情况下理论总效率可达到70%左右,而且高效区的范围较宽;液压变压器的总效率随着负载口实际流量或缸体转速的增加有先增大后减小的变化趋势,随着负载口压力或配流盘转角增加也呈先增大后减小的变化趋势。 The mathematic models of displacement, flow, angular torque and efficiency about angle type hydraulic transformer were built respectively. Then, the efficiency hill of hydraulic transformer was drawn, and efficiency characteristic was revealed. The results of analysis and test show that the total efficiency of hydraulic transformer is above 70% in normal condition and the high efficiency range is wider. The total efficiency increase first and decrease afterwards with the increment of flow of load circuit or rotational speed, and presents the same change tendency with the increment of pressure of load circuit or rotation angle of valve plate.

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