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498型柴油机冷却水套优化设计

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摘要 针对498型柴油机在实际运行过程中出现的过热现象，通过计算流体力学（CFD）对冷却水套进行了模拟计算,发现缸体水套进气侧存在流动死区，水套流场冷却水流量分配不均匀。为了改善水套的冷却效果，对机油冷却器出口位置，缸垫水孔位置和尺寸进行了CFD仿真优化。仿真结果表明：改进后缸体内的流动死区基本消除，水套的整体冷却能力显著提高，实际应用效果良好。

关键词 动力机械工程 柴油机 冷却水套 优化设计

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Optimization design for water jacket of 498 diesel engine

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Abstract Facing the overheating occurs during the actual operation of the 498 type diesel engine, the computational fluid dynamics(CFD) analysis was made for the cooling water jacket. It was found that the stagnant zones appear in the intake side of the cylinds block water jacket, and the water flow distribution is uneven. To improve the cooling capacity of the jacket, the outlet position of the oil cooler and the position and size of the water holes through the cylinder head gasket were optimized through CFD simulation. In the optimized water jacket the stagnant zones are basically eliminated and the cooling capacity of the water jacket is improved obviously with good effect in the real application.

Key words power and machinery engineering diesel engine water jacket optimization design

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