

柴油机各缸工作不均匀性对Nox排放量的影响

罗福强 刘浩龙 汤东 梁昱

江苏大学

关键词: 柴油机 均匀性 Nox排放

摘要: 采用高速数据采集系统实测直喷式柴油机气缸压力, 通过气缸压力计算分析燃烧放热规律, 建立了由放热率预测直喷式柴油机Nox排放的模型, 并验证了该模型的精度与准确性。通过实测多缸柴油机各缸压力, 利用该模型计算各缸在各工况下的Nox排放, 分析了柴油机各缸工作不均匀性对Nox排放的影响。结果表明, 多缸机由于各缸压力不均匀, 其Nox排放量有一定的差别, 气缸压力大, Nox排放量也大; 降低柴油机各缸工作不均匀性可降低Nox排放量。The cylinder pressure has great influence on the power, economy and emission of a diesel engine. High-speed data collection system was applied to measure cylinder pressure of DI diesel engine, combustion heat release rate has been calculated and analyzed by the cylinder pressure, the model of Nox emission by the measured cylinder pressure of DI diesel engine was established. The model accuracy has been proved by the experiment. The Nox emissions of each cylinder at different speeds and loads have been calculated by the measured cylinder pressure of each cylinder of a multi-cylinder DI diesel engine with this model. The influence of cylinder-to-cylinder variation to Nox emission was analyzed. It is found that if the cylinder pressure is larger, the Nox emission of this cylinder is larger. The Nox emission of the multi-cylinder diesel engine could be reduced when the cylinder-to-cylinder pressure variation reduces.

[查看全文](#) [返回首页](#)

[引用本文](#)