

压电式高压共轨喷油系统喷油量波动特性试验 Investigations into Multiple-injection Fuel Quantity Fluctuation for High Pressure Common Rail System
with Piezo-actuated Injector

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关键词: 压电喷油器 高压共轨 油量波动

摘要: 研究了压电式高压共轨喷油系统多次喷射过程中影响主喷油量波动的因素, 采用EFS IFR8420型单次喷射仪对预喷和主喷的油量及喷油速率进行精确测量, 总结了主喷油量波动的影响因素及其变化规律: 预喷油量越小、主预间隔时间越短, 主喷油量波动幅度越大, 且随着主预间隔时间的增加, 主喷油量呈周期性波动且波动幅度逐渐衰减。通过试验确定了预喷产生的压力波动是导致主喷油量波动的主要原因, 为后续的多次喷射控制策略的设计和主喷油量的压力波动修正提供了可靠的试验数据。 The research on factors affecting injection quantity fluctuation for main injection was performed. The experiment was conducted by measuring the fuel quantity and flow rate for pilot and main injection with EFS IFR8420. The factors influencing were given as follows: main injection quantity fluctuated remarkably with short dwell time and small pilot injection quantity, with increasing dwell time between pilot and main injection, main injection quantity fluctuated periodically and the fluctuation range attenuated gradually. It is concluded that the injection quantity fluctuation is caused by the fluctuation of rail pressure generated by the pilot injection.

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