

An investigation of the performance of an electronic in-line pump system for diesel engines^(PDF)

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Title: An investigation of the performance of an electronic in-line pump system for diesel engines

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关键词: [EIP marine engine fuel injection system](#) [AMESim](#)

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摘要: WIT Electronic Fuel System Co., Ltd. has developed a new fuel injector, the Electronic In-line Pump (EIP) system, designed to meet China's diesel engine emission and fuel economy regulations. It can be used on marine diesel engines and commercial vehicle engines through different EIP systems. A numerical model of the EIP system was built in the AMESim environment for the purpose of creating a design tool for engine application and system optimization. The model was used to predict key injection characteristics under different operating conditions, such as injection pressure, injection rate, and injection duration. To validate these predictions, experimental tests were conducted under the conditions that were modeled. The results were quite encouraging and in agreement with model predictions. Additional experiments were conducted to study the injection characteristics of the EIP system. These results show that injection pressure and injection quantity are insensitive to injection timing variations, this is due to the design of the constant velocity cam profile. Finally, injection quantity and pressure vs. pulse width at different cam speeds are presented, an important injection characteristic for EIP system calibration.

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