

Delphi E1 Diesel Electronic Unit Injector

Delphi is an industry leader in diesel fuel injection technology. Delphi is actively involved in the development of advanced diesel technology to create fuel injection equipment that continues to help meet stringent emission requirements while enhancing fuel economy and performance. Extensive experience in high-pressure fuel injection technology has helped Delphi develop several innovative design and control strategies to meet customer needs for cost-competitive, high-value fuel injection systems that provide accurate injection over the life of the vehicle. These systems are designed to help minimize emissions while providing robust performance and low noise.

Description – The Delphi E1 diesel electronic unit injector is an evolution of the well-established and successful EUI 200 electronic unit injector. It is intended for heavy-duty diesel applications. With increased pressure capability and reduced size and weight, the basic method of operation is the same as the rest of the EUI range. The important difference is that the spill valve and actuator, formerly positioned externally, have been significantly reduced in size and are now incorporated into the main body of the injector between the pumping plunger and the nozzle assembly.

Additional improvements include a new high-strength nozzle assembly with a smaller needle. This adds to the responsiveness of the unit injector and therefore promotes more consistent control to the fuel charge and timing. A high-voltage drive



system and an individual electronic characterization strategy also bring benefits as the electronic control unit (ECU) compensates for any minor inconsistencies in performance.

Features

- 2,000 peak bar pressure injection
- Compact and lightweight
- High-speed operation
- Electronic pilot injection
- Individual injector electronic characterization

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Benefits

- Helps meet Euro III and US02/04 emission levels, with potential for Euro IV and Euro V
- Smaller installation envelope benefits engine designers
- Reduced response time
- Reduced noise

Typical Application – Intended for heavy-duty diesel applications, the new streamlined and more compact design of the Delphi E1 electronic unit injector provides extra space in the cylinder head, which benefits engine designers. By reducing the pumping route of the fuel, the hydraulic efficiency is increased and the response of the unit enhanced. The load on the drivetrain is also decreased. Along with these changes, peak injection pressure is increased from 1,650 bar to 2,000 bar. Thus, engines fitted with the E1 electronic unit injector will be able to meet Euro III and US02/04 emissions regulations. It will provide a base for continued development to Euro IV and Euro V.

Performance Advantages – As with the former system, sensors provide digital signals to the ECU on a wide range of engine functions, including accelerator position, engine speed, camshaft position, air inlet manifold pressure and temperature, ambient air temperature, and so on. This information is continuously compared with optimum values stored in the ECU memory, enabling the unit injector to deliver fuel at the timing required by the engine.

Specifications	
Plunger diameter range	9 mm to 11 mm
Stroke range	up to 18 mm
Engine cylinder capacity	1.5 liters to 2.6 liters
Peak pressure	2,000 bar
Weight	1.1 kg
Emission levels	Euro III and US02/04