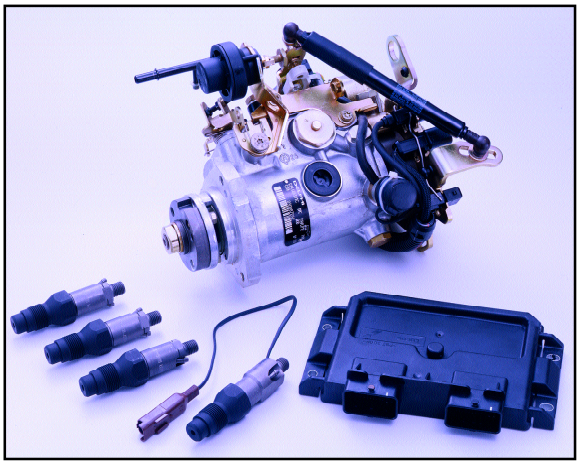
Delphi DPCN Diesel Rotary Fuel Pump

Delphi is an industry leader in diesel common rail fuel injection technology and 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, helping minimize emissions while providing robust performance and low noise.



Description – The Delphi DPCN diesel rotary fuel pump series offers an advancement in emissions control and passenger comfort. Developed specifically for indirect injection diesel engines, and for use on cars and light vans, the DPCN series is based on Delphi's mechanical DPC fuel pump, but operated via an electronic control unit (ECU).

Product Design – The Delphi DPCN diesel rotary fuel pump uses the well-proven internal cam pumping mechanism used on all Delphi DPC pumps, which requires no external lubrication. A built-in transfer pump is used to draw fuel from the tank via the filter. The fuel then passes into the pumping element via a metering valve that is linked to the throttle lever and mechanical governor. The pumping element consists of two opposed plungers and forms part of the distributor rotor. These are connected to a roller and shoes assembly, which rotates in a cam ring.

Typical Applications – Delphi DPCN diesel rotary fuel pumps are available for cars and light vans, for four-cylinder engines up to a capacity of 2.5 liters.

Product Features

- Controlled by an ECU
- Flexible timing control
- Improved hot and cold starting
- EGR (exhaust gas recirculation) control
- Pre- and post-heating
- Anti-start device
- Fast idle control
- Throttle lever damper
- Throttle lever dash-pot
- Turbocharger boost control
- Altitude compensation

DELPHI

Delphi Energy & Chassis
5820 Delphi Drive
Building D
Troy, Michigan 48098-2815 U.S.A.
Tel: [1] 248.813.2000

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DPCN Advantages

- Proven Technology
  The Delphi DPCN diesel rotary fuel pump is based on the proven DPC rotary pump, but fitted with an ECU, offering the benefits of advanced technology.
- Reduced Emissions
  The precision fuel injection offered by the ECU helps result in a reduction in emissions, and will help enable engines to meet emissions legislation.
- EGR Control
  In addition to controlling the pump, the ECU can also control a wide range of EGR systems, including close loop control.
- Vehicle Security
  Delphi DPCN diesel rotary fuel pumps can assist vehicle security; all the pumps in the series can be fitted with an electronic anti-start device, operated via a dash-mounted keypad.
- Fast Idle Control
  With the Delphi DPCN diesel rotary fuel pumps, it is possible to increase idle speed using the fast idle device. Controlled by the ECU, this device can be used to improve acceleration from a standing start. This device can be used to improve:
  - cold operation
  - acceleration from a standing start
  - engine behavior on vehicles with air conditioning
- ECU Control
  The electronic control unit enables a range of other features to be included on the Delphi DPCN diesel rotary fuel pumps. These include an anti-theft device, air conditioning, automatic transmission, pre- and post-heating, and exhaust gas recirculation.

Operating Principle

- The fuel injection process is initiated when a transfer pump draws fuel from the tank via a filter.
- The fuel then passes into the pumping element. The rate at which the fuel is introduced is controlled by the cam profile, with the optimum cam position being determined by the ECU. The start of injection is detected by a needle lift sensor. The signal is given to the ECU to drive the actuator, which rotates the cam ring.
- Fuel is then delivered at high pressure to each of the injectors at the optimum timing and in the correct firing order.

Advanced Diesel Technology – The popularity of diesel vehicles is growing globally. In Europe, approximately one of every three new cars sold is powered by a diesel engine. There are many reasons for this surge in popularity. Consumers are discovering that diesel engines offer:

- Better fuel efficiency: Light-duty diesel engines typically use 30-40 percent less fuel than gasoline engines of similar power under similar circumstances
- More torque: Diesels produce more drive force at low engine speeds than gasoline engines under similar circumstances, making diesels more fun to drive
- Lower greenhouse gas emissions:
  Less fuel consumed translates to lower emissions of carbon dioxide

To continue to offer consumers these advantages, vehicle manufacturers are required to meet stringent diesel emission standards. These standards vary throughout the world and are one factor driving development of advanced diesel technology.

The Delphi Advantage – As a global leader in advanced diesel technology, Delphi integrates air and fuel management systems, exhaust aftertreatment, and the associated electronic controls and sensors, helping provide complete end-to-end diesel engine control systems that help meet emission requirements worldwide.

Delphi has two common rail development centers, five diesel applications facilities in Europe, Asia-Pacific, and the United States, and nearly 8,000 employees working to further advance diesel technologies. Delphi has 12 manufacturing facilities that produce diesel systems components in seven countries, enabling exceptional on-time delivery performance.

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