

DENSO PRODUCT RANGE

As Denso National Distributors for diesel products, Merlin Diesel ensures that customers have access to the complete range of Denso products. The different types and characteristics of the products we offer are as follows:



Solenoid Common Rail Injector

Solenoid injectors control fuel injection by opening and closing the control valve with magnetic force, using a solenoid on the actuator.

Part Number: 095000/295050-####

Piezo Common Rail Injector

Piezo injectors achieve faster responsiveness than solenoid types by using piezo elements on the actuators. Piezo elements work by converting changes in the voltage applied into expansion and contraction (displacement). A characteristic of piezo injectors is built-in piezo stacks which layer (stack) these piezo elements.

Part Number: 295900-####



DENSO PRODUCT RANGE



G4S type Common Rail Injector

The G4S injector can operate at 2500 to 3000 bar and uses a three-way valve function.

This improves the overall hydraulic performance which in turn reduces emissions, minimises fuel consumption and gains higher power.

Part Number: 295700-####

PFR type Pump

PFR (Pintle-Forming Radius) pumps are flange mounted fixed displacement radial piston pumps.

These units are often fitted to smaller static engines or small construction/agricultural vehicles.

The PFR fuel injection pump operates based on the principle of generating high pressure by means of a reciprocating plunger.

Part Number: 094500-####



DENSO PRODUCT RANGE



HP2 type Common Rail Pump

In 1999, this first-generation common rail pump for passenger cars was introduced. Using a double pumping mechanism to ensure smooth operation, it can create a maximum system pressure of 145 Mpa.

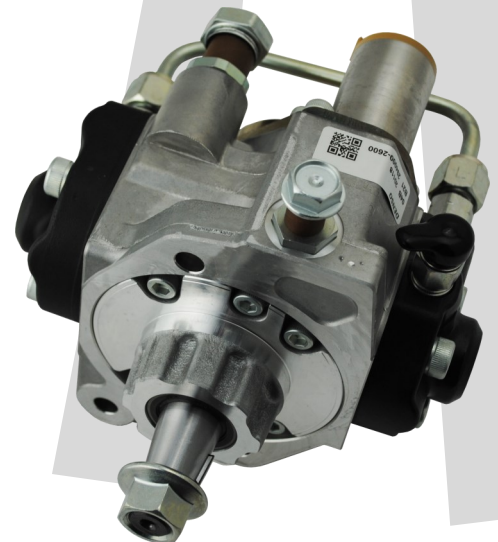
Because of the double pumping mechanism, this pump has two SCVs to regulate the pressure. These can be identified by the red and green connector of the valve.

Part Number: 097300-####

HP3 type Common Rail Pump

In 2001, this second-generation common rail pump was introduced. It is a lighter, more compact, two-cylinder pump.

This common rail pump is used in passenger cars and compact trucks. It was originally able to create a maximum system pressure of 180Mpa, but recent developments have increased this to 200Mpa. Because of its wide range of uses, this is the most popular common rail pump within the range.



DENSO PRODUCT RANGE



HP4 type Common Rail Pump

In 2004, this common rail pump was introduced to cover the medium-sized truck range.

The working principles of this pump are exactly the same as the HP3, but this pump has three cylinders and thus a higher fuel delivery capacity. It can create a maximum system pressure of 200Mpa.

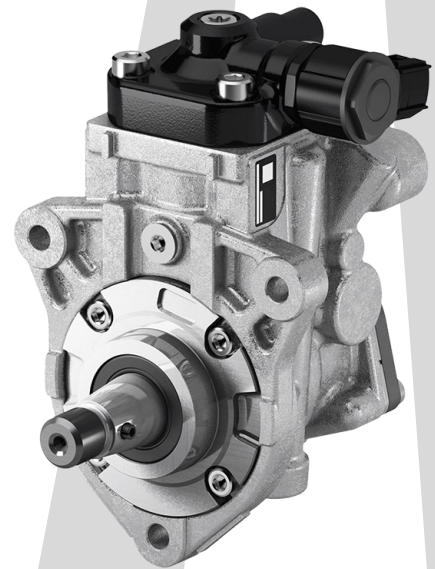
Part Number: 294050-####

HP5S type Common Rail Pump

The HP5S is the fourth-generation of Common Rail system from Denso.

The HP5S pump is a single-cylinder variant and has its discharge quantity controlled by a pre-stroke control valve. This ensures the pump maintains its optimum pressure constantly.

Part Number: 299000-####



DENSO PRODUCT RANGE



HP5E type Common Rail Pump

The HP5E is a unit type pump that is primarily fitted to Volvo cars. The engine is a family of four-cylinder inline Euro 6 mild hybrid engines.

The pump is also found on a 4L Isuzu industrial engine and represents the very latest advancements in diesel technology.

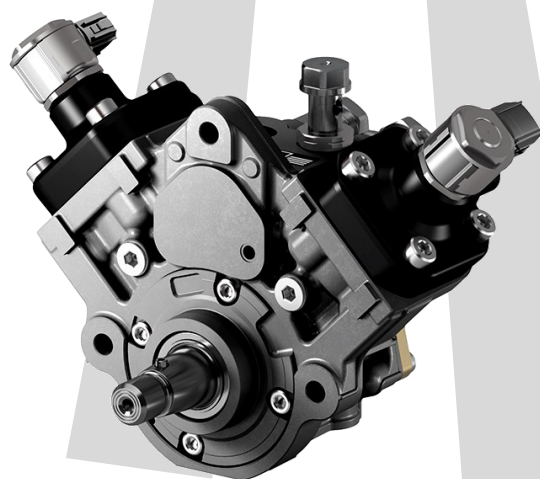
Part Number: 299090-####

HP5D type Common Rail Pump

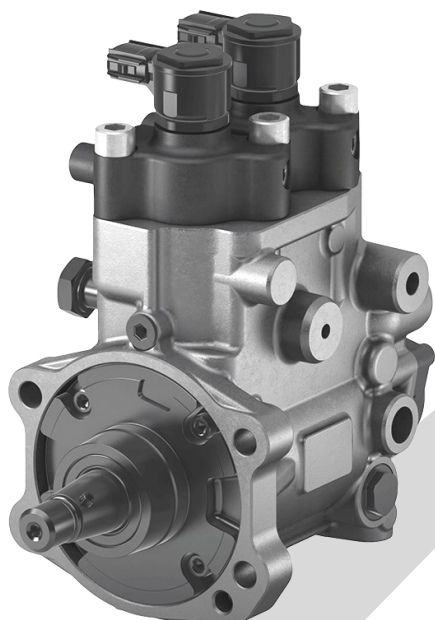
Like the HP5S, the HP5D is a two-cylinder variant for higher capacity light commercial as well as passenger vehicles.

Its discharge quantity work on the same principles as the HP5S and is controlled by a pre-stroke control valve with a working pressure of up to 250 MPa (Megapascals)

Part Number: 299020-####



DENSO PRODUCT RANGE



HP6 type Common Rail Pump

The HP6 pump has been designed to cater for high capacity engines, from 6 to 8 litres.

They are generally fitted to large applications such as Commercial, Off-highway and Agricultural vehicles.

Denso have use a MPP (mid pressure pump) to supply the two HPP (high pressure pump) chambers with a constant amount of fuel. This improves efficiency and reliability.

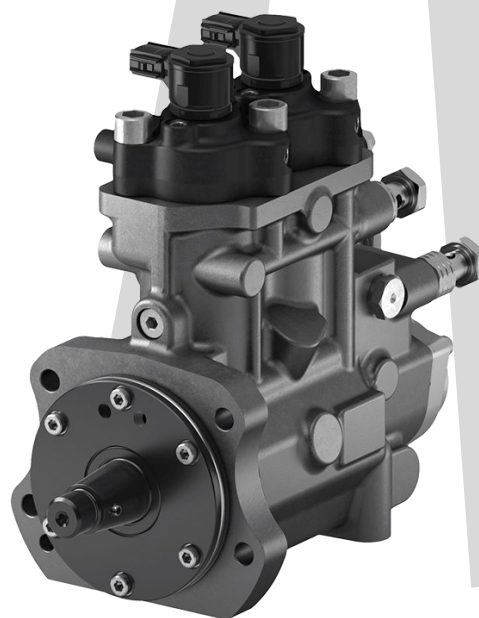
Part Number: 299050-####

HP7 type Common Rail

The HP7 works on exactly the same principles as the HP6 fuel injection pumps.

These pumps are designed for large engine applications such as Marine, Off-road, Rail and Power Generation as well as large Commercial Vehicles.

Part Number: 299070-####



DENSO PRODUCT RANGE



Part Number: 096000/098000-####

Rotary type Pump

Denso introduced its first rotary fuel injection pump in the 1960s.

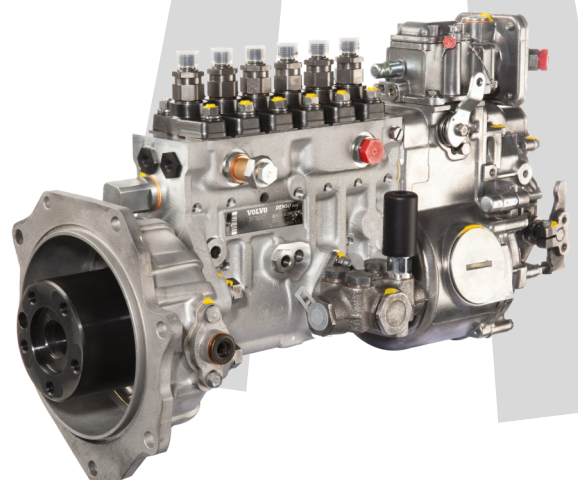
This pump design offered significant advantages over traditional inline fuel injection pumps. The rotary design enabled smoother and more precise fuel delivery, resulting in improved engine performance and reduced emissions.

Over the years, Denso continued to refine its rotary fuel injection pump technology. The company integrated electronic controls into its fuel injection systems, allowing for more precise fuel metering and timing.

Inline type Pump

Denso's inline fuel injection pumps became widely recognised for their reliability, performance, and fuel efficiency.

A major advancement in Denso's inline fuel injection pump technology is the introduction of electronic controls. By integrating electronic control units (ECUs) with the pumps, Denso enhanced fuel delivery precision and responsiveness.



DENSO PRODUCT RANGE



HP2 Common Rail Pump Suction Control Valve

Because this high-pressure pump has two pumping mechanisms, it also has two SCVs.

These on/off solenoid valves use a green or red connector to identify the two pumping systems, which is Important for pump timing.

Part Number: 096360/096710-####

HP3/4 Common Rail Pump Suction Control Valve

Operation of the SCV is the same for HP3 and HP4 pump systems.

For these two pump systems, depending on application, DENSO uses two different types of SCV. Both of them are linear solenoid valves and operate in the opposite way to each other.

Part Number: 294200/294009-####



DENSO PRODUCT RANGE



HP0 type Common Rail Pump

The HP0 was introduced in 1996 and was one of the first common rail systems on the market.

Designed for large/medium sized commercial vehicles and buses, it is mounted to 4,6 and 8 cylinder engines and can produce pressures up to 120 MPa (Megapascals).

Part Number: 094000-####

Authorised Repair Parts

Merlin also supply all the parts you may associate with the remanufacture of Denso fuel Injectors and pumps. From the older mechanical type pumps to the very latest common rail kits we hold stock of all the authorised repair parts you will need to repair any Denso unit.

For more information please contact: Info@merlindiesel.com



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