



BRIEF INFORMATION

High Pressure Fuel Pump

- In the usual original equipment quality to fit perfectly in the vehicle
- Continually expanding range of products
- High performance level and long lifetime
- Installation instructions to avoid incorrect assembly and possible damage

PRODUCT FEATURES



BACKGROUND INFORMATION:

Since the introduction of common rail systems in diesel engines, high-pressure fuel pumps have become an indispensable part of the fuel processing system. With the introduction of direct petrol injection, high-pressure pumps are also used in petrol engines.

The fuel is sucked from the tank by an electrical fuel pump, then conveyed to the high-pressure pump ensuring the proper pressure into fuel system and transferred to the fuel injectors.

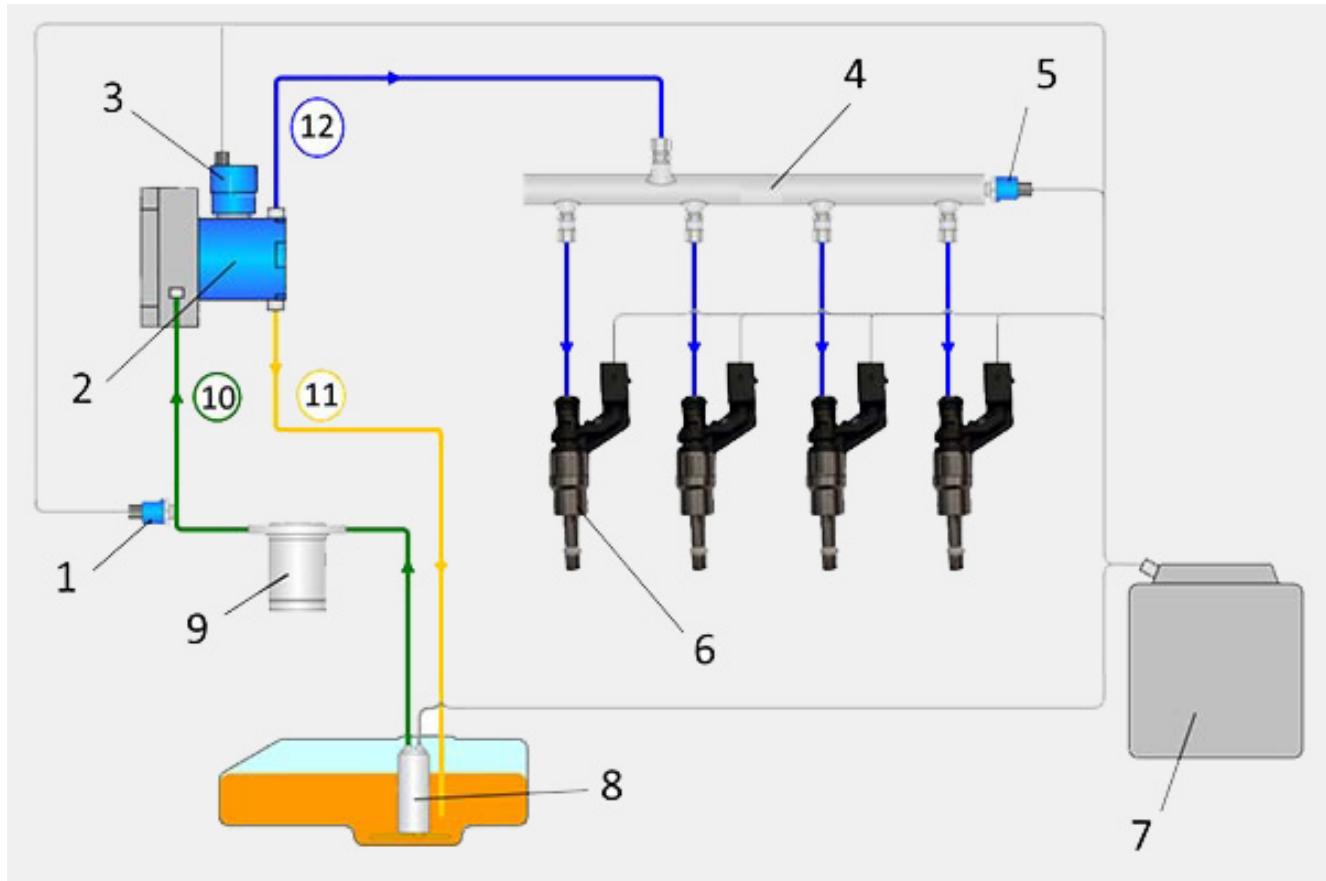
FUNCTION OF THE HIGH-PRESSURE FUEL PUMP:

Regardless of the design, the high-pressure fuel pump has the task of compressing the fuel provided by the pre-feed pump to the fuel pressure required for the injection valves and of then making it available in the fuel distribution pipe (rail). Since the high-pressure pump is driven mechanically via the camshafts, the pump's delivery rate is proportional to the engine speed. The fuel pressure is monitored by the engine control unit via a pressure sensor and regulated via a flow control valve installed in the pump. This fuel pressure regulator is attached directly to the high-pressure pump. It measures out the supply to the high-pressure pump and thus regulates its performance. This demand-based control means that only the high pressure that is actually needed for the current operating situation is generated in the pump.

Mounting

Easy to mount because of 1:1 replacements in OE quality. Installation instructions are supplied with the product.

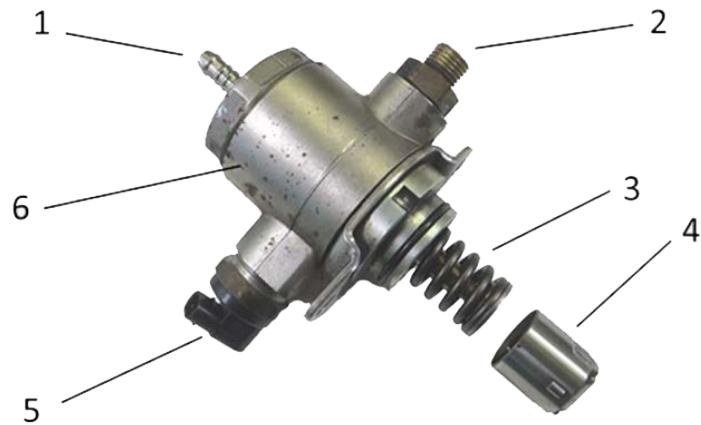
FUNCTIONAL DIAGRAM



An illustration of the fuel system with system components as an example:

(1) Low-pressure fuel sensor, (2) High-pressure fuel pump, (3) Pressure control valve, (4) Fuel distribution pipe, (5) High-pressure fuel sensor, (6) Injection valves, (7) Engine control unit, (8) Electrical fuel pump, (9) Fuel filter, (10) Low-pressure fuel system, (11) Fuel return system, (12) High-pressure fuel system

TECHNICAL DETAILS



Single-cylinder, high-pressure pump with roller tappet:

(1) Low pressure connection, (2) High pressure connection, (3) Pressure spring, (4) Roller tappet, (5) Pressure control valve, (6) Pump housing

EFFECTS AND CAUSES OF DEFECTIVE, HIGH-PRESSURE FUEL PUMPS:

Severe mechanical strain, high fuel pressures, lack of lubricant and temperature differences promote wear and can lead to a defect in the high-pressure pump over time.

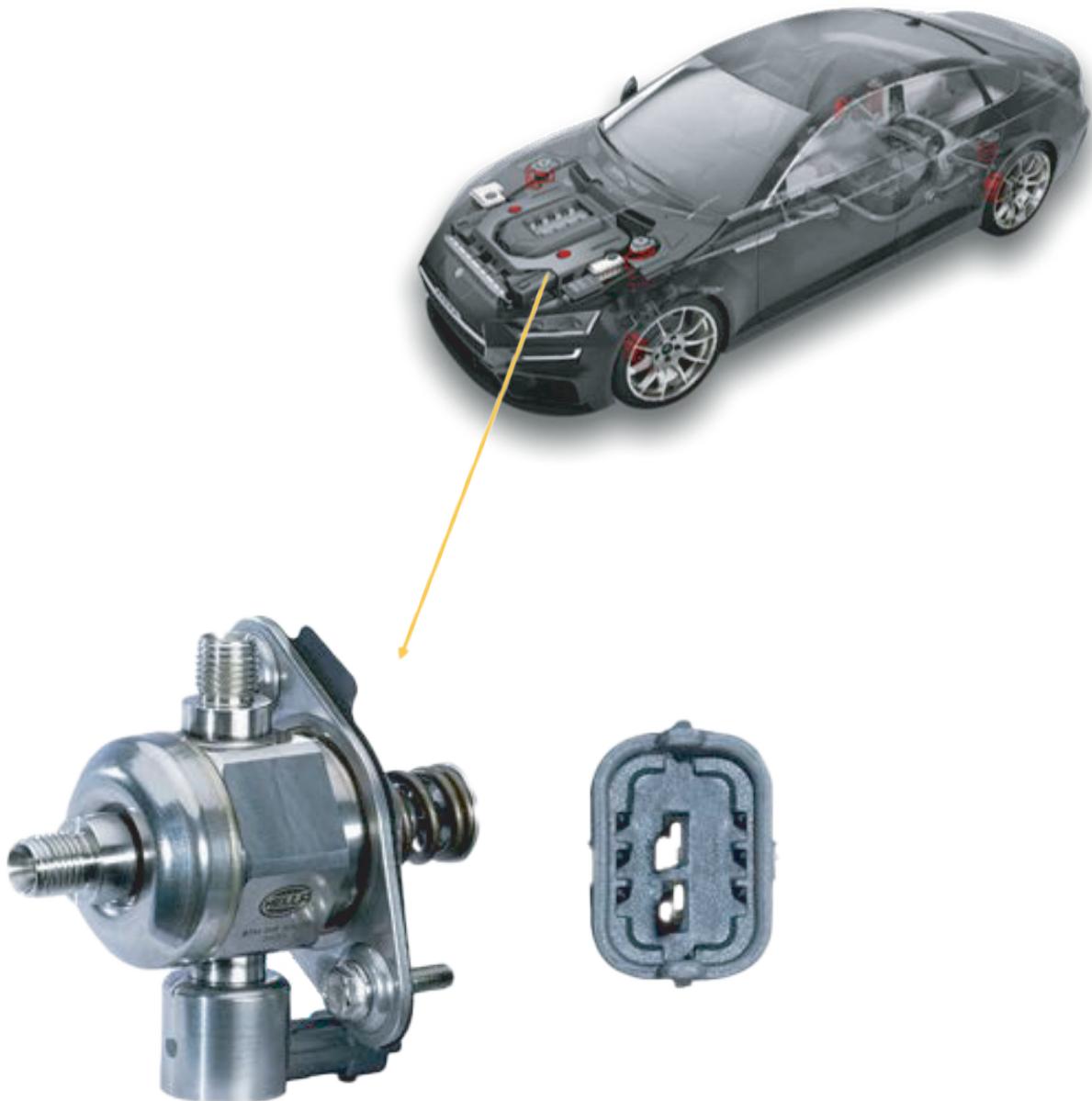
The following effects may indicate a defective high-pressure pump:

- Erratic engine running
- No power in the upper speed range
- Poor starting behavior
- Engine stops – engine warning light comes on
- Oil dilution

Causes of failure of the high-pressure pump can be:

- External mechanical damage
- Contamination in the low-pressure system
- Internal mechanical damage to the drive, roller tappet or pump element
- Inspection Intervals not respected
- Poor Lubrication - Oil dilution
- Leaks - fuel loss

PROGRAM OVERVIEW



With the introduction of direct petrol injection, High-pressure fuel pumps have become an indispensable part of the fuel processing system.

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Q&A

– High Pressure Fuel Pump –

1 How does it work?

- Transfers of the liquid from the fuel pump to the fuel injectors of the internal combustion engine.
- Plays an essential role to start and keep the engine running by ensuring the proper pressure into fuel system

2 Why we need to replace it?

- Contamination: debris and moisture can clog the fuel filter and trigger the premature wear of the pump
- Use of poor/wrong quality fuel
- A mechanical failure of the pump can prevent the engine from working
- Delayed/not start of the engine
- Lack of power at high speed
- Restless idling

3 Why HELLA?

- Premium quality
- Continually expanding range of products
- Higher performance level and durability
- Mounting instruction to prevent the wrong installation and potential damages

4 What are the applications that HELLA offers?

- VW, Audi, Seat, Skoda
- Buick, Cadillac, Chevrolet, GMC, Saturn
- Land Rover, Jaguar
- BMW
- Mercedes-Benz