



**BOSCH**

Invented for life

Driven by

# SYSTEMS

**Gasoline direct injection**  
Potential revenues for workshops

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# Gasoline direct injection

## Systematic Bosch service

Out on the roads, there is a growing number of vehicles equipped with direct injection systems.

More and more vehicles equipped with Bosch gasoline direct injection systems are launched onto the market – also as part of hybrid drive concepts. The need for reliable servicing and repairs is growing accordingly. With Bosch, workshops benefit from these sources of revenues – satisfying their customers at the same time.

### Growing service market

Gasoline direct injection allows even more economical and efficient engine generations. Within the trend towards electrification, gasoline direct injection remains an important component of hybrid drives. In addition to the large number of existing direct injection systems, as a result of hybridization the market will continue to grow. The demand for competent maintenance and repairs remains correspondingly high.

### Supporting the workshops

Besides suitable spare parts featuring the same high quality as Bosch OE parts, the product range also includes matching tools. The workshop software ESI [tronic] 2.0 Online supports the diagnosis and professional dismantling of Bosch high-pressure injection valves (HDEV).

### Advantages at a glance:

- ▶ **Detailed system diagnosis** using ESI[tronic] 2.0 Online workshop software including error patterns, signal patterns and measured values – if required, ESI[tronic] 2.0 Online even allows injector coding.
- ▶ **Instructions concerning removal, installation and use of special tools** are part of ESI[tronic] 2.0 Online and are also freely available on the internet.
- ▶ **Matching spare parts** featuring the same quality as original equipment does.

# High-pressure injectors and pumps

## Product details

High-pressure injectors and pumps are the key components of gasoline direct injection systems. For servicing and repairs, workshops can fully rely on Bosch spare parts – and be in safe keeping.



High-pressure injectors (HDEV4 piezo-controlled, HDEV5 long, HDEV6 short) and high-pressure pump (HDP)

### High-pressure injectors (HDEV)

HDEV doses the fuel and sprays it into the combustion chamber evenly distributing it for a good mixture of fuel and air. HDEV is used from downsized to supercharged engines. Whether three-cylinder engine with a displacement of 1l or turbocharged V8, gasoline direct injection supports equally consumption and performance concepts.

#### Advantages at a glance:

- ▶ **Using Bosch high-pressure injectors,** the original functionality of the system is reestablished at repairs.
- ▶ **Bosch supports the replacement of combustion chamber sealing rings** on high pressure injection valves (HDEV) with a professional tool kit and know-how – that simplifies especially for independent workshops maintenance and repairs on gasoline direct injection systems.

### High-pressure pumps (HDP)

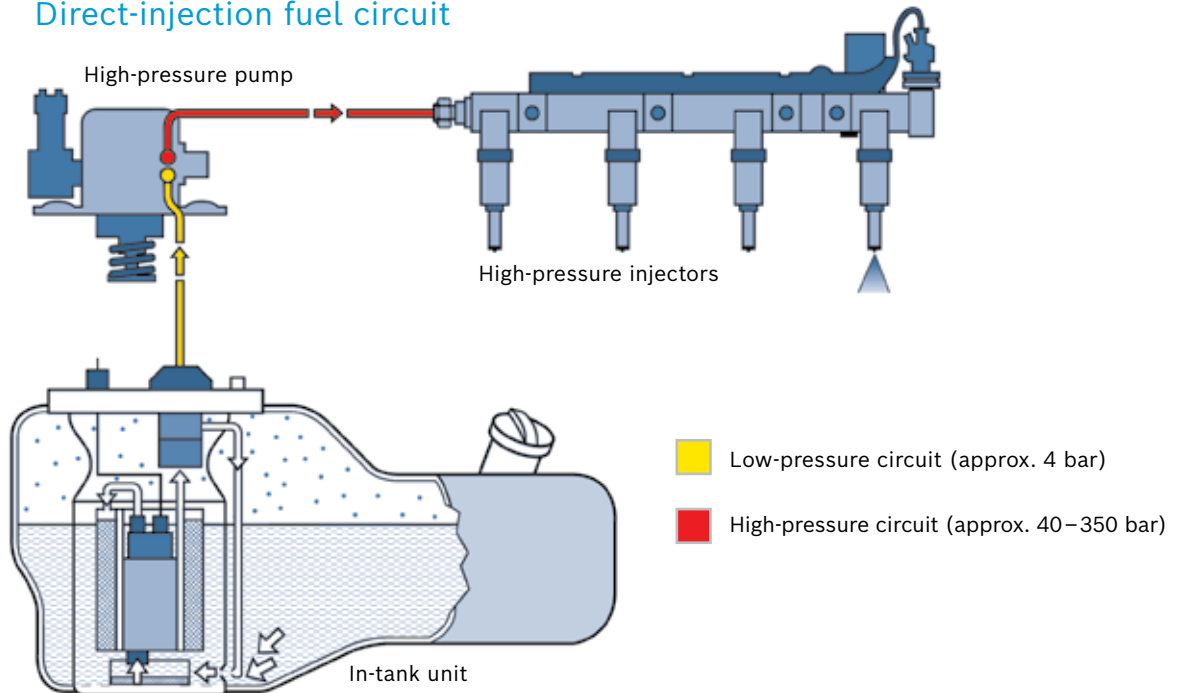
HDP compresses the fuel need-oriented up to 350 bar and conducts it to the fuel rail. From there, the distribution takes place in the correct amount and with the correct pressure on the high-pressure injection valves.

#### Advantages at a glance:

- ▶ **The HDP can be found in many vehicles,** almost half of all vehicles with gasoline direct injection are equipped with a Bosch injection system.
- ▶ **The HDP is powerful and reliable throughout its entire service life,** thanks to its robust and high-quality workmanship according to original equipment standards.

# Gasoline direct injection Technology

## Direct-injection fuel circuit



## Always the exact fuel amount

Gasoline direct injection systems consist of both a low-pressure and a high-pressure circuit. At the low-pressure circuit, the electric fuel pump supplies the high-pressure pump (HDP) need-oriented with gasoline. The high-pressure pump compresses the fuel to up to 350 bar and conducts it to the fuel rail distributing it to the high-pressure injectors. Finely atomized and well-dosed, the fuel is then injected into the combustion chamber for optimum combustion

of the fuel mixture. Thanks to precise dosing, preparation and distribution of air and fuel for each combustion stroke, the respective engines works extremely efficient: high performance combined with low consumption and low emissions.

Detailed information on ultrasonic cleaning of high-pressure injection valves is part of the ESI[tronic] 2.0 Online.



Precise composition and distribution of air and fuel

## Workshop tip

### Installation

1. Unbox the new spark plug
2. Do not lubricate the thread. Screw in the spark plug by hand until it is seated at the cylinder head.
3. Then the spark plug must be tightened with a spark plug wrench and the mandatory, type-specific torque, e.g. 23 Nm.



# Professional service

## Special tool kit and spare parts

Detailed instructions allow easy and time-saving removal of high-pressure injectors and replacement of combustion-chamber seal rings. With the new BTG 5120 tool set and Bosch spare parts, workshops will be able to provide a professional service and expand their range of maintenance and repairs.

### Teflon ring



Disassembly of the teflon ring (combustion chamber sealing ring)

### Decoupling element



Disassembly of the decoupling element

### O-ring



Disassembly of the O-ring and the support washer



Winding up a new teflon ring



Assembly of the new decoupling element



Assembly of the support washer and the O-ring

“Step-by-step” HDEV and HDP online removal and installation instruction



Special tool kit BTG 5120, extraction tools and spare parts

# What drives you, drives us

Bosch technologies are used in most vehicles worldwide. People, and assuring their mobility, is what we are focused on.

Therefore, we have dedicated over 130 years of pioneering spirit and expertise in research and manufacturing to achieving this.

We provide the aftermarket and workshops worldwide with modern diagnostic and workshop equipment and a wide range of spare parts for passenger cars and commercial vehicles:

- ▶ Solutions for efficient and effective vehicle repairs
- ▶ Innovative workshop equipment and software
- ▶ One of the world's most comprehensive ranges of new and exchange parts
- ▶ Large network of wholesale customers, for quick and reliable parts supply
- ▶ Competent technical support
- ▶ Comprehensive educational and training offers
- ▶ Targeted sales and marketing support

Find out more at:  
[boschaftermarket.com](https://boschaftermarket.com)

**Robert Bosch GmbH**  
Automotive Aftermarket

Auf der Breit 4  
76227 Karlsruhe  
Germany