

Diesel Systems

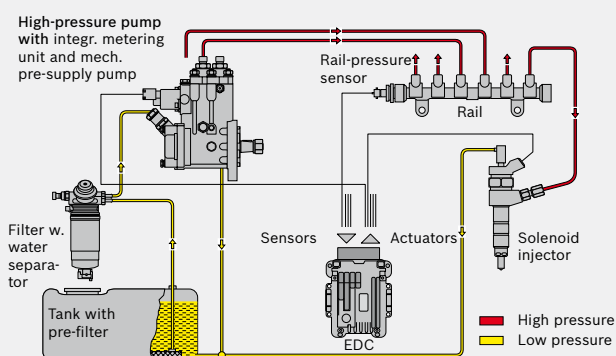
Common Rail System CRS1-16 with 1,600 bar and solenoid injectors



BOSCH

Invented for life

CRS1-16 for four-cylinder engines



Innovation benefits

- ▶ Cost-efficient solution for 2-4 cylinder diesel engines in passenger cars, light-duty vehicles and minibuses
- ▶ Lightweight, compact system design
- ▶ Easy compliance with today's emission targets up to CN4
- ▶ Easy integration into existing and new engine series

Customer benefits

- ▶ Low fuel consumption with subsequent reduction of CO₂ output
- ▶ High torque even at low engine speed
- ▶ High-pressure generation possible with various pump types for different engine-power classes
- ▶ Also suitable for critical fuel qualities
- ▶ Local development and production in China

Worldwide, more and more diesel passenger cars and commercial vehicles are being equipped with Common Rail Systems. These modular and cost-efficient injection systems can be perfectly adapted to any diesel engine and can thus replace mechanical injection systems which have been utilized up to now. With their electronic control and their ability to generate multiple injections, Common Rail Systems help to make diesel engines even more economical. They reduce CO₂ output and emissions to ensure compliance with today's emission legislation. At the same time, engine output can be increased.

CRS1-16 is a small and lightweight Common Rail System for the Chinese market. It has a high-pressure pump developed in China, and new, cost-efficient solenoid injectors. All components have been adapted specifically to the local demands of the Chinese market and are produced locally in China. At the same time, they make use of the existing, tried-and-tested Bosch technology. Bosch thus achieves a cost-efficient system solution with the CRS1-16.

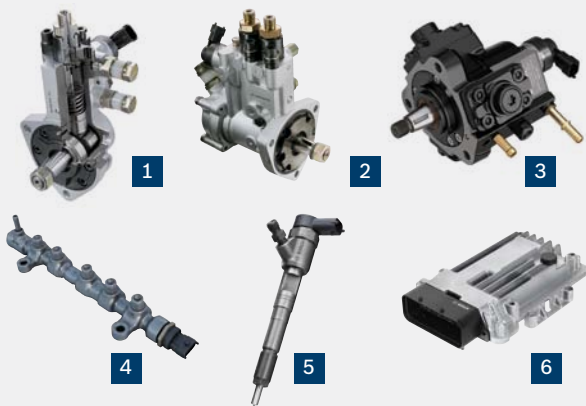
Possible applications

CRS1-16 has been specifically developed for low-price passenger cars, light-duty commercial vehicles and, in particular, for minibuses on the Chinese market.

Technical features

Engine cylinders	2 ... 4
Engine output	45 kW (CB08-16/1) 100 kW (CB18-16/2) 130 kW (CP1H-16/3)
Max. system pressure	1,600 bar
Max. number of injections	3
Min. injection separation time	800 s
Operating voltage	12 V/24 V
Emission target	CN4
Service life	150,000 km
Applications	LPV, PC

System components CRS1-16



- 1 CB08-16/1 high-pressure pump
- 2 CB18-16/2 high-pressure pump
- 3 CP1H-16/3 high-pressure pump
- 4 HFR-16 high-pressure rail with rail-pressure sensor
- 5 CRI1-16 solenoid injector
- 6 EDC17 Electronic Control Unit

System design and functional principle

The CRS1-16 can be configured with various components based on required engine output. The CB08-16/1 high-pressure pump is used for two- and three-cylinder engines. It is combined with an electric pre-supply pump inside the fuel tank. High pressure for four-cylinder engines is generated by the CB18-16/2 or, in case of higher power demand, by the CP1H-16/3. Both are equipped with an integrated pre-supply pump. All pumps have a measuring unit for fuel quantity control.

In combination with the electronic control, the CRI1-16 solenoid injectors enable three single injections for lower emissions combined with fuel-consumption benefits. Based on the tried-and-tested CRI2-16, the CRI1-16 has been further developed specifically for use in the LPV segment (Low-price vehicle) and adherence to CN4 emission regulation.

The forged HFR-16 high-pressure rail stores the fuel under high pressure and supplies it to the injectors. The CRS1-16 is operated as a one-controller system.

The Electronic Control Unit EDC17 supports control of a lambda oxygen sensor. It can be applied in 12 V and 24 V networks and is suitable for chassis mounting near the engine.

Outlook

Bosch engineers are already involved in the evolutionary development of this system in order to fulfill future emission targets in China (CN5).

Bosch: Automotive competence from a single source



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System and network competence



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