

Diesel Systems

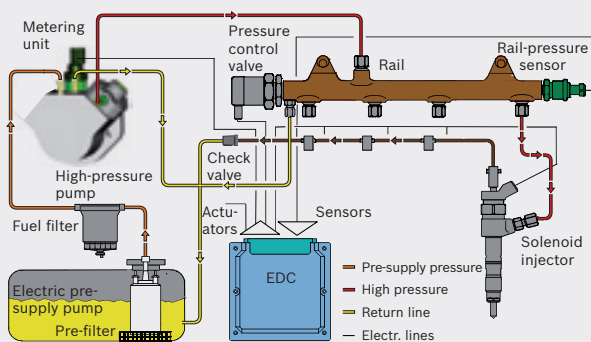
Common Rail Systems CRS2 with 1,600 to 2,000 bar and solenoid injectors



BOSCH

Invented for life

CRS2-20



Customer benefits

- ▶ Efficient and versatile due to modular system design: for engines with 2 to 8 cylinders
- ▶ Efficient and fuel-saving in part due to start/stop compatibility
- ▶ Adaptable for fuels with critical lubricating characteristics (robustness package)
- ▶ Easy integration into existing and new engine series
- ▶ Application for Euro 6 and similar norms
- ▶ Reduction of emissions and combustion noise due to reduced hydraulic flow rate

Customer benefits CRS2-16

- ▶ Robust system – proven millions of times
- ▶ Cost benefits and reduction of system complexity due to possibility of one-governor control

Customer benefits CRS2-18/20

- ▶ Increased flexibility for basic engine design and application of exhaust-gas treatment

Customer benefits CRS2-20

- ▶ Increased hydraulic efficiency and CO₂ optimization due to reduced return flow

With fuel prices on the rise and increasingly stricter emission standards, the modern, economical and environmentally friendly diesel is the first choice for powertrains.

Bosch offers a cost-efficient and performance-optimized solution for reducing fuel consumption and consequently vehicle operating costs: the CRS2 Common Rail Systems series. Fast-switching solenoid injectors with short injection intervals are central parts of these systems.

The CRS2 series is suitable for diesel engines with up to eight cylinders and a wide power and torque range. The modular systems can be adapted to multiple engine types.

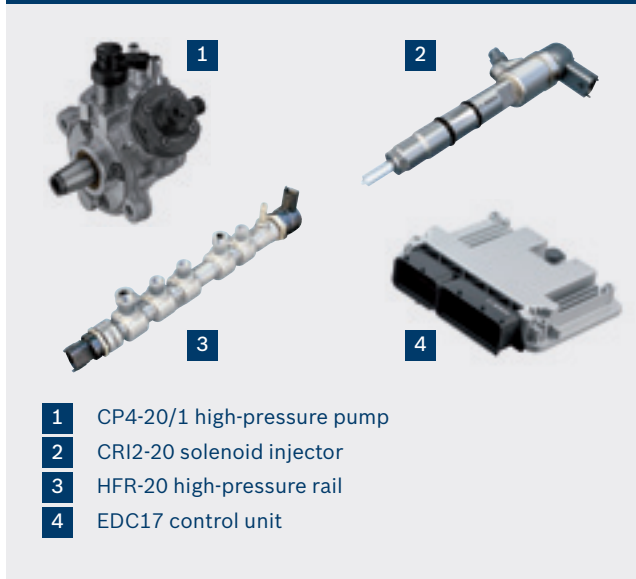
Bosch is experienced in series application of the CRS2: the 1,600 bar system CRS2-16 is already in use in millions of vehicles. Based on this system, the CRS2-18 with 1,800 bar and CRS2-20 with 2,000 bar have been developed. With increased pressure and technical modifications, these systems help to fulfill today's and future emission targets. In addition, higher injection pressures mean more flexibility for designing the basic engine and the exhaust-gas treatment.

Possible applications

CRS2 is used in passenger-car engines with 2 to 8 cylinders. Additionally, applications in light-duty commercial vehicles are possible. With appropriate adaptation, the CRS2 can also be used for off-highway operation (please refer to the CRS2-OHW datasheet). This further development of the reliable passenger-car system for additional fields of application generates cost benefits. Featuring solutions for all diesel-fuel qualities, the series can be applied in all regions worldwide.

	CRS2-16	CRS2-18	CRS2-20
Technical features			
Engine cylinders	2 - 6	3 - 6	3 - 8
Max. system pressure	1,600 bar	1,800 bar	2,000 bar
Max. number of injections	8	8	8
Min. injection separation time	800 µs	350 µs	200 µs
Operating voltage	12/24 V	12 V	12 V
Emission target corresponding to	Euro 4/5/6	Euro 5/6	Euro5/6
Service life (PC/LD)	300,000/400,000 km		
Application	PC, LD		

CRS2-20 system components



System design and function

The powerful second-generation solenoid injectors offer engine developers a high degree of flexibility for injection-rate shaping. Up to eight single injections per stroke are performed in a narrow time slot. This multiple-injection capability contributes to the reduction of fuel consumption and consequently improved CO₂ emissions as well as further emissions and engine-noise reduction.

The improved magnet core of the CRI2-16 injector achieves high power when opening the solenoid valve. The split armature module enables higher dynamics in controlling the nozzle needle and very short injection separation time.

The injectors of the CRS2-18 and CRS2-20 system have a pressure-balanced solenoid. This enables a further leap forward in system pressure.

In addition, the CRI2-20 injector features an integrated high-pressure volume that reduces pressure oscillations. Hydraulic efficiency is increased due to a reduced return flow.

EDC Electronic Diesel Control by Bosch controls the entire injection process, the boost pressure and the exhaust-gas recirculation.

Outlook

CRS2 system technology will allow further pressure increases in the course of further development. Our proven modular system design will, of course, be maintained.

Bosch: Automotive competence from a single source

- Comprehensive range of services and know-how
- System and network competence
- Innovator and technology leader
- Warrantor for quality and dependability
- Worldwide presence
- Universal partner

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