Diesel Systems
Common Rail System CRS1-18 with 1,800 bar and solenoid injectors

Worldwide, more and more diesel passenger cars and commercial vehicles are being equipped with Common Rail Systems. These modular, performance-optimized 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 CN5 and future CN6 emission legislation. At the same time, engine output can be increased.

CRS1-18 is an evolutionary, modular Common Rail System for the Chinese market. It has a high-pressure pump developed in China, and new, cost-efficient ball-valve 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 CRS1-18.

Possible applications
CRS1-18 has been specifically developed for low-price passenger cars, light-duty commercial vehicles and for minibuses on the Chinese market.
### System design and functional principle

The CRS1-18 can be configured with various components based on required engine output. The CB08-18/1 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 CB18-18/2 or, in case of higher power demand, by the CP1H-18/3. Both are equipped with an integrated pre-supply pump. All pump types have a measuring unit for fuel quantity control.

In combination with the electronic control, the CRI1-18 solenoid injectors enable five single injections for lower emissions combined with fuel-consumption benefits. Based on the tried-and-tested CRI2-16, the CRI1-18 with ball-valve technology has been further developed specifically for use in the LPV segment (Low-price vehicle) and adherence to CN5 and future CN6 emission regulation.

The forged HFR-18 high-pressure rail stores the fuel under high pressure and supplies it to the injectors. The CRS1-18 is operated as a one-controller system.

The Electronic Control Unit EDC17 supports control of a diesel particulate filter and a lambda oxygen sensor.

CRS1 system technology will allow customers to meet CN5 and future CN6 emission targets cost-efficiently with modular components.

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**Technical features**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
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<tbody>
<tr>
<td>Engine cylinders</td>
<td>2–4</td>
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<tr>
<td>Max. system pressure</td>
<td>1,800 bar</td>
</tr>
<tr>
<td>Max. number of injections</td>
<td>5</td>
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<tr>
<td>Min. injection separation time</td>
<td>800 μs</td>
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<tr>
<td>Operating voltage</td>
<td>12V/24V</td>
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<tr>
<td>Emission target</td>
<td>CN5 and future CN6</td>
</tr>
<tr>
<td>Service life</td>
<td>160,000/300,000 km</td>
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<tr>
<td>Start/stop cycles</td>
<td>150,000/250,000</td>
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<tr>
<td>Applications</td>
<td>Minibus, LD ≤ 3.5 t, LD &gt; 3.5 t, PC, SUV, MPV</td>
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</tbody>
</table>

**System components CRS1-18**

1. CB08-18/1 high-pressure pump
2. CB18-18/2 high-pressure pump
3. CP1H-18/3 high-pressure pump
4. CP4-18/1 high pressure pump
5. HFR-18 high-pressure rail with rail-pressure sensor
6. CRI1-18 solenoid injector
7. EDC17 Electronic Control Unit

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- Innovator and technology leader
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