Liebherr Common Rail solutions for high performance engines in off-highway applications
Efficiency in design and functionality

For high-performance engines in the off-highway segment, the injector platform LI2 offers a unique high nozzle flow in a compact design, enabling particularly high performance per cylinder. The injectors are combined with high-performance high pressure pumps, which deliver up to 810 l of fuel per hour and are particularly resistant due to their oil lubrication. Intelligent designs enable the integration of the injection system into a wide variety of engine dimensions and space conditions in the engine. All components in the field of high-performance engines are certified according to common marine standards.

### Technical Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>System pressure</td>
<td>250 – 2,500 bar</td>
</tr>
<tr>
<td>Engine power/displacement</td>
<td>~ 180 kW/cyl</td>
</tr>
<tr>
<td>Number of injections</td>
<td>5</td>
</tr>
<tr>
<td>Hydraulic flow rate</td>
<td>1,400 – 2,600 ml/30 sec</td>
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<tr>
<td>Nozzle diameter</td>
<td>9 mm</td>
</tr>
<tr>
<td>Max. hydraulic flow (pump)</td>
<td>810 l/h</td>
</tr>
<tr>
<td>Control leakage/injector</td>
<td>&lt; 30 ml/min</td>
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Modular design
Thanks to intelligent design and flexible connections, the modular individual components can be easily combined and adapted to specific engine designs. Different design variants, variable drive flanges and individual interfaces make Liebherr’s Common Rail Systems so flexible.

Precision parts produced in-house
Liebherr manufactures a major part of the functional micro-precision parts in-house. The high degree of vertical integration and the corresponding technical expertise allow us to flexibly respond to customer-specific special requirements for fuel injection.

Stable performance
All injection components are specially designed for highly dynamic loads in on- and off-highway vehicles. Liebherr covers the entire validation program in-house, from the development phase on the test bench to the final application on the field and implies the use of dirty and alternative fuels.

Engineering competence
Experts define the specific functionalities and requirements for the injection, diagnostics and correction process for each customer and carry out appropriate validations. In this regard, they draw on decades of experience in the development and production of diesel engines.

**Injector LI2**
- System pressure: 2,500 bar
- Nozzle diameter: 7 and 9 mm
- Hydraulic flow rate: 600 – 2,600 ml/sec

**High pressure pump LP11.2**
- System pressure: 2,200 bar
- Nozzle diameter: 320 l/h
- Hydraulic flow rate: 4,500 rpm

**High pressure pump LP11.5**
- System pressure: 2,200 bar
- Nozzle diameter: 810 l/h
- Hydraulic flow rate: 4,500 rpm

**Engine Control Unit ECU2-HD**
- Supported emission standards: Euro V / EPA Tier 4f / EU Stage IV / EU Stage V
- Supported engines: Diesel engines / Stationary gas engines (CNG)
- Number of supported cylinders: 12

**Engine Control Unit ECU3**
- Supported emission standards: Euro V / Euro VI / EPA Tier 4f / EU Stage IV / EU Stage V / IMO III
- Supported engines: Diesel engines / mobile gas engines (NG)
- Number of supported cylinders: 6
From A to Z – the components division of the Liebherr Group offers a broad range of solutions in the area of mechanical, hydraulic, electric and electronic drive system and control technology. The efficient components and systems are produced at a total of ten production sites around the world to the highest standards of quality. Central contact persons for all product lines are available to our customers at Liebherr-Components AG and the regional sales and distribution branches.

Liebherr is your partner for joint success: from the product idea to development, manufacture and commissioning right through to customer service solutions like remanufacturing.

components.liebherr.com