

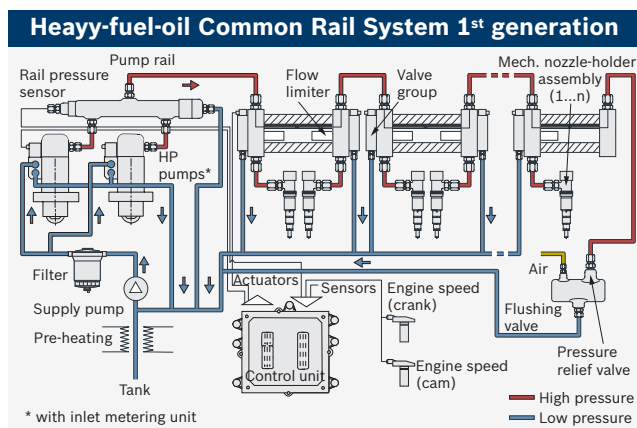
Diesel Systems

Heavy-fuel-oil Common Rail System with mechanical nozzle-holder assembly



BOSCH

Invented for life



Customer benefits

- ▶ Achievement of IMO 2 emission targets
- ▶ Reduced soot particle generation
- ▶ Robust system with established components
- ▶ Easy on-board service due to separation of nozzle-holder assembly and control valve
- ▶ Worldwide service and spare part supply guaranteed on a long-term basis

From 2011 on, marine powertrains must comply with stricter emissions legislation.

The Bosch Common Rail System for heavy fuel oil is a solution which helps engines to fulfill the IMO 2 emission targets. Conversion of existing engines is easy, because the system operates with conventional nozzle-holder assemblies. The nozzle-holder assemblies can be serviced on board independently from the control valve.

We developed the system using synergies with the Bosch automotive technology business units, above all the experience in reducing fuel consumption and emissions and the mass-production know-how.

With Bosch marine powertrain systems you benefit from decades of Bosch experience in the diesel and marine sectors. You can rely on highest quality and process safety. Service and supply of spare parts is secured worldwide.

Possible applications

The first generation heavy-fuel-oil Common Rail System has been developed for marine engines and auxiliary engines with more than 400 kW/cylinder.

Technical features	
Injection pressure	≤ 1,600 bar
Lifetime	6,000 h
Operating voltage	24 V
Application range	> 400 kW/cyl.
Engine displacement	≥ 10 l/cyl.
Main emission target	IMO 2

Heavy-fuel-oil Common Rail System 1st gen.: components



- 1 High-pressure pump with metering unit
- 2 Valve assembly
- 3 Flushing valve
- 4 Pressure relief valve
- 5 Injector

Functional principle

In Common Rail Systems, pressure generation is decoupled from injection. This makes it possible to design injection start and rate for particularly economical and low-emission fuel combustion.

System design

The Common Rail high-pressure pump compresses the heavy fuel oil to an injection pressure up to 1,600 bar. A metering unit and a pressure relief valve are used to control pressure in the accumulator rails. A flow limiter before the control valve prevents injection of excess fuel. A flushing valve is integrated for pre-heating the accumulator system.

One fuel accumulator serves two engine cylinders. The fuel is compressed to injection pressure and kept ready for injection in the accumulator. A robust injection control unit is located on each accumulator lid.

Outlook

Our engineers are already involved in the development of the second system generation by increasing pressures to 2,200 bar with multiple injections. This system generation will help to fulfill IMO 3 emission targets.

Bosch: Benefit from our competences

- 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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