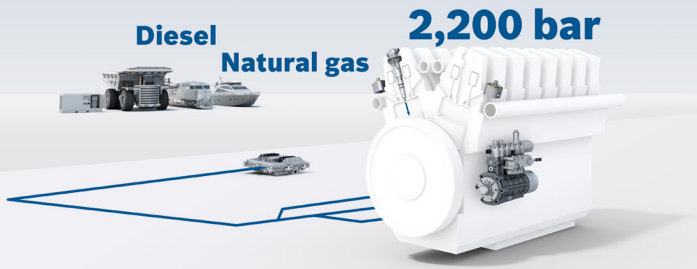
# Modular common-rail system for large engines

## Perfectly metered injection for more efficient consumption

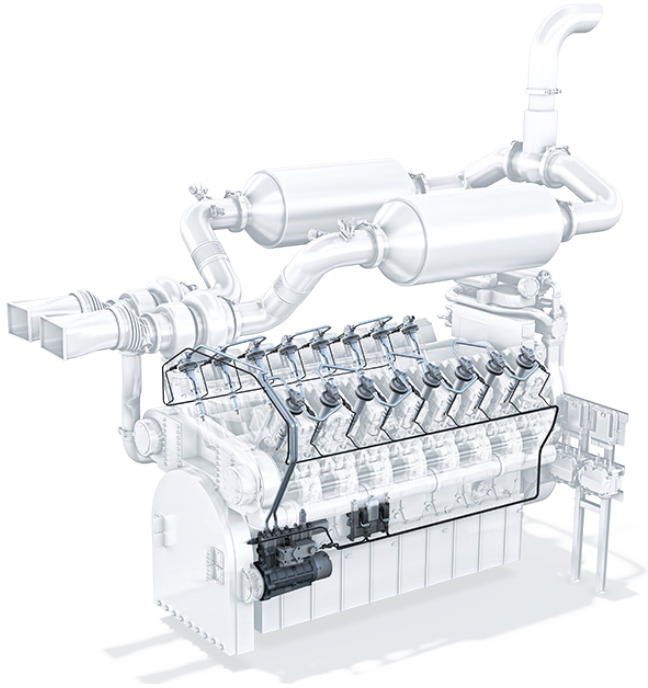



## Reliable

**dependable operation up to 20,000 h**

## Additional $CO_2$ reduction

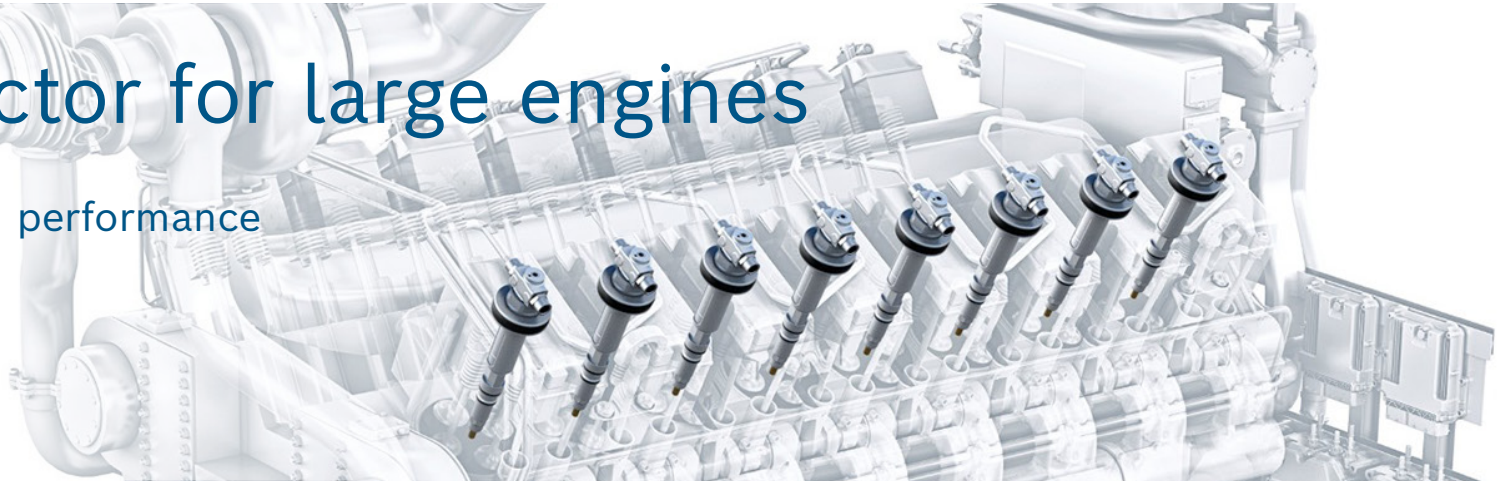
**through the use of e- and biofuels**

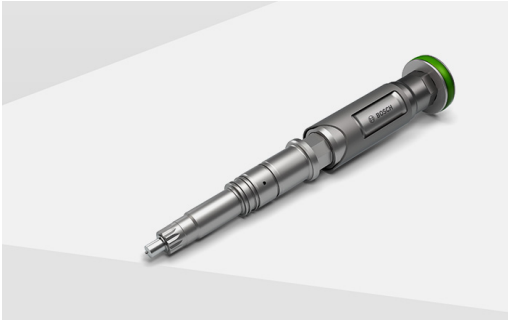


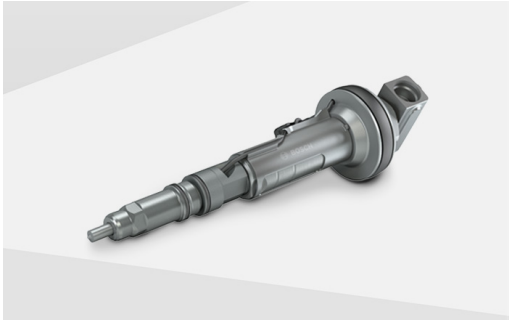
- The modular common-rail system (MCRS) for large engines supports compliance with emissions standards and also offers savings potential: it ensures excellent mixture preparation and combustion of fuel with specific high performance to help reduce emissions and fuel consumption
- The right injection system can be provided for all power outputs within a range of 50 to 500 kW/cylinder
- The MCRS is a modular common-rail system with high-pressure accumulators integrated in the injectors and the pump without additional rail

# CRIN-LE injector for large engines

## Maximum service life and performance







- The robust CRIN-LE common-rail injector injects exactly the right amount of fuel required for efficient combustion into the cylinder
- The engine's fuel consumption as well as $CO_2$, pollutant and noise emissions can be reduced using high injection pressure and multiple injections
- A pressure accumulator integrated in the CRIN-LE injector ensures a consistently high injection pressure and reduces pressure fluctuations
- For every power output within a range of 50 to 500 kW/cylinder
- Single and dual-fuel optimized
- Furthermore it is qualified for specified drop-in bio,- and e-fuels

Up to

**2,200 bar**

**Efficient combustion with a maximum of five injections per injection cycle under high pressure**

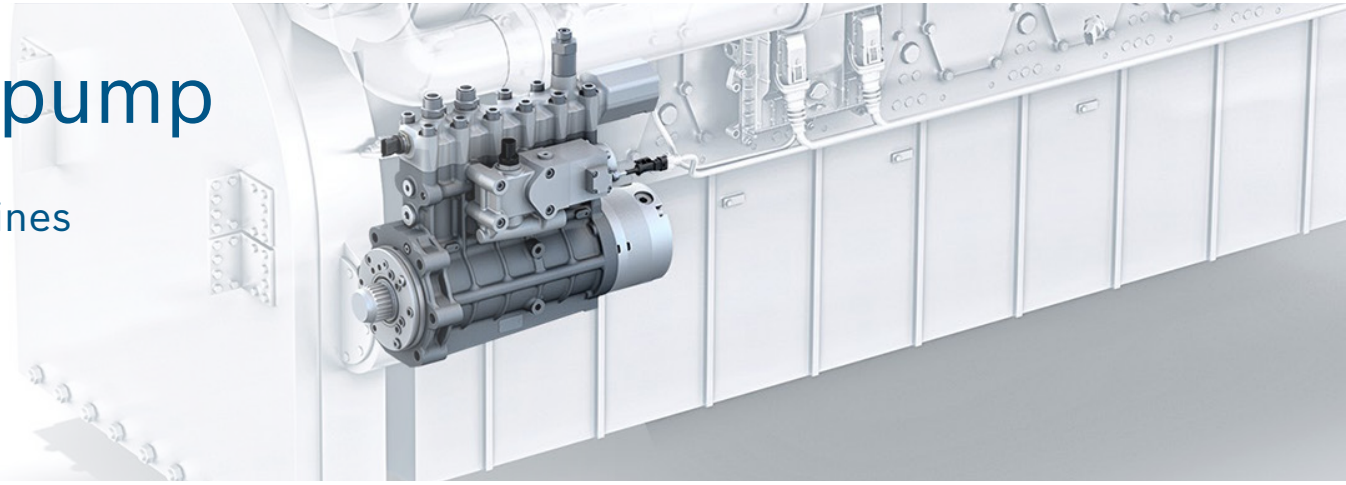
Up to

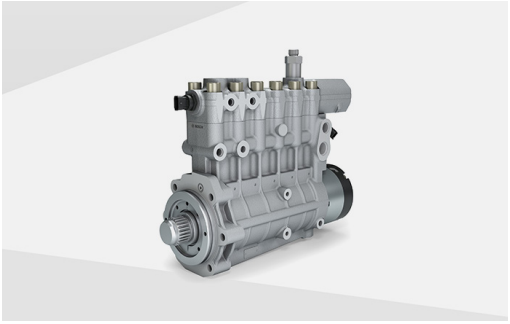
**20,000 h**

**Injector designed for a long service life**

# CP9 high-pressure pump

## For common-rail systems in large engines





- The oil-lubricated CP9 high-pressure pump delivers the fuel into the piping system leading to the injector under high pressure
- The CP9 is a highly successful common-rail pump on the large engine market. It has a modular construction and can be adapted to meet the engine's requirements
- The CP9 is suitable for pressure levels ranging from 1,600 to 2,200 bar
- The CP9 consists of up to five high-pressure elements, each integrated in a housing with separate engine driven camshaft
- Furthermore it is qualified for specified drop-in bio,- and e-fuels

Up to

**2,200 bar**

**system pressure for efficient combustion**

Up to

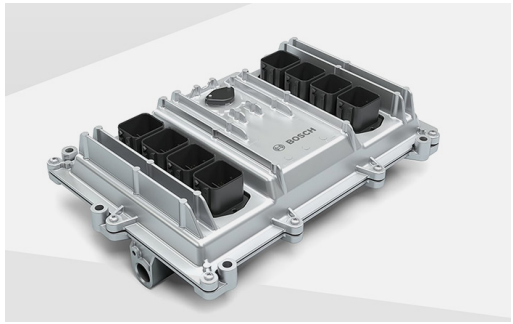
**20,000 h**

**lifetime due to robust design**

BOSCH

# Electronic engine control unit for large engines

## Core of the engine management system



- The MD1CE200 electronic engine management is the central control unit and the core of the engine management system for large engines
- It forms the communication interface between the superordinate control unit and the engine and controls the fuel supply, air control and fuel injection
- The electronic engine control unit was developed for use in diesel, dual-fuel and gas engines. Furthermore it offers a compact hardware for applications with alternative fuels like hydrogen or methanol

Up to
**24 cylinders**

**can be controlled by two paired electronic engine control units for efficient combustion**

From
**48 bis 80 V**

**booster voltage range (adjustable via a software program)**