

Bosch Engineering

Combustion System Engineering

Gasoline Engines



BOSCH

Invented for life



Our Performance Spectrum

System Definition:

- ▶ Combustion Chamber
- ▶ Injection System
- ▶ Ignition System
- ▶ Air System

Design and Analysis:

- ▶ Emissions and Particulates
- ▶ Performance Optimization
- ▶ Consumption Optimization
- ▶ Simulation

Series Development:

- ▶ On-engine Verification and Optimization
- ▶ Emissions Cycle Demonstration

Outstanding Requirements need excellent Expertise

Tightening legislative requirements and ever-increasing customer expectations for comfort, fuel consumption and performance are resulting in complex engine technology. Based on our long-standing experience and expertise, Bosch Engineering offers you comprehensive development services ranging from design studies to the supervision of vehicle series production.

Our spectrum of expertise ranges from the first system definition- including the appropriate choice of components and the fundamental analysis at the engine test bed,- to the final parameterization of the overall system in the vehicle. Working in competent- and interdisciplinary project teams, we emphasize a holistic view and guarantee a high-quality and efficient project implementation.

Our System Competence – your Advantage

The close collaboration with the product development enables us to efficiently apply our interdisciplinary system expertise in your projects in order to find the ideal solution for your requirements. Thereby, you avoid additional alignment efforts and unnecessary recursions. We guarantee fast processes.



Our Service

Combustion Chamber:

- ▶ Definition Compression Ratio
- ▶ Definition Piston Head Geometry
- ▶ Position of Injector and Ignition Plug
- ▶ Interaction of Spray und Air via CFD-Simulation
- ▶ Combustion process Analysis and Simulation

Injection:

- ▶ Definition of System Pressure
- ▶ Calibration Injector: Sprayform and Characteristics

Air System:

- ▶ Optimization of Intake-Manifold via Simulation
- ▶ Supercharging Concepts
- ▶ Component selection
- ▶ Calibration of Control Time and Charge Cycle

Ignition:

- ▶ Calibration of Ignition System and Component Selection

Engine Measurement:

- ▶ Entire Engine
- ▶ Single Cylinder
- ▶ Optical accessible Engine
- ▶ Parameter Optimization
- ▶ Thermodynamic Analysis

Component Investigation:

- ▶ Spray Diagnostics
- ▶ Ignition Voltage Analysis

Overall Project Handling:

- ▶ Interface for Product Development
- ▶ Coordination Delivery of Samples
- ▶ Combustion Process, Engine Control Unit (Software and Hardware) and Calibration from a single supplier

From the study to the series - all from one supplier

Bosch Engineering provides you comprehensive services. Due to early integration in the development process, we are able to undertake the definition and the simulation of the combustion process as well as the selection of the appropriate components.

We also conduct investigations on single-cylinder engines and transparency aggregates and thereby gain insights for the series engine which we optimize for you. Throughout the entire process, modern development techniques will be applied based on industry-leading tools.

Our development has its focus not only on direct-injection and port fuel-injection gasoline engines but also on CNG-, FlexFuel- and BiFuel-applications. This wide-range of engines is used in passenger cars, utility vehicles, off-high-way and industrial applications.

The latest technologies and research results from our parent company are just as relevant for us as compliance with legal provisions and customer requirements.



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