

## Benefit from extensive expertise for your mobile working machines from a single source

Our Off-Highway applications consist of individual solutions and products for agricultural, construction and forestry machinery, communal vehicles and materials handling equipment.

This brochure offers just a few samples of the diverse range of products and services we could supply. If you would like to find out more about our complete portfolio, please do not hesitate to contact us. We would be delighted to demonstrate our proven solutions that you can benefit from.

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## Bosch Engineering Individual solutions for Off-Highway applications



## Tailor-made engineering services for unique products

Since 1999, Bosch Engineering has developed customized solutions for electronics systems in the fields of powertrain, safety and comfort, electrical and electronic integration, testing services, project and quality management as well as consulting.

Based on proven Bosch components, we support our customers with specific applications for their systems that ideally match their requirements. In this regard, we place particular emphasis on providing personal attention and advice—from the first studies to the start of production.

By supplying innovative engineering services, our goal is to optimize our customers systems. What began in the automotive sector we have successfully carried over to Off-Highway applications.

## Examples of **Off-Highway applications from our portfolio**



### **Core area 1: Engine control**

High engine performance, low emissions and optimum efficiency can only be achieved with proficiently adapted engine control. We provide system design suggestions and comprehensive advice on combustion development, air system design and exhaust-gas treatment. Right up to the very start of production, we design integral concepts for engine and exhaust-gas treatment control. These include selection and adaptation of the control unit, development of suitable software and system applications.

The advantages:

- ▶ Use of proven high-volume technology
- ▶ Skills and broad wealth of experience from successful production projects
- ▶ State-of-the-art development methods drive shorter design cycles

### **Core area 2: ABS and Functional Safety**

The active safety functions of modern vehicles are based on the networking of all systems involved in the driving dynamics. We develop dynamic driving systems and software functions, and adapt them to suit your application through use of suitable components from the Bosch, and/or Bosch Rexroth portfolios. Particularly in the field of functional safety, we provide a comprehensive consultant service for the development of safety critical systems which conform to your required standards. An example of this is an anti-lock braking system individually tailored to your requirements.

The advantages:

- ▶ Increased safety for mobile working machines
- ▶ Driving stability during full brake application in all road and weather conditions
- ▶ Compliance with the legal standards for braking systems in vehicles that exceed the 60 kph limit

### **Core area 3: Sensor Systems**

Nowadays a modern mobile working machine requires efficient sensor systems. Bosch Engineering has expertise in various sensor technology fields to address these latest needs. Some examples of this include the inertial sensor technology for determining inclination angles, stabilizing crane booms and a navigation system for controlling the coordinates of work arms in limited spaces.

The advantages:

- ▶ Increase in efficiency
- ▶ Enhanced safety and availability
- ▶ Reduced workload

### **Core area 4: Alternative fuels and drives**

In the future the use of alternative drive technologies begin to enter in the Off-Highway field. Whether it's an electrical machine, power electronics or battery; we adapt components to suit the specific needs and requirements of our customers – and, of course, we also handle custom development tasks. In doing so, we can often build upon basic versions from Bosch that we customize accordingly to extend their functionality and develop the appropriate software. From prototype build up to comprehensive testing, it is all carried out in our own workshops and test facilities.

The advantages:

- ▶ From system development to prototype construction, everything comes from a single source
- ▶ Latest trends generated from Bosch research & development can be applied to your products