

# Bosch Engineering GmbH

## Hybrid systems and Start/Stop



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Invented for life

### Hybrid systems

Hybrid systems are distinguished by their ability to support the internal-combustion engine or, to some extent, even to replace it.

#### Mild hybrid

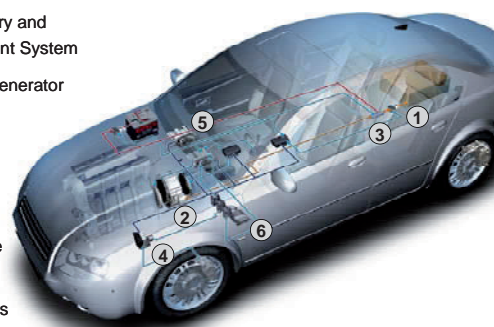
The electric motor is used to provide short-term support of the internal-combustion engine during peak loading. Kinetic energy is fed back via recuperation into the accumulator, where it is available for the next boost operation.

#### Strong hybrid

The power of the accumulator and the electric motor is sufficient to replace the internal-combustion engine for certain purposes and for short periods.

When increased part-load or full-load performance is required, or when performance is required for longer periods, the internal-combustion engine is re-started.

- ① High Voltage Battery and Battery Management System
- ② Integrated Motor Generator System
- ③ DC/DC Converter
- ④ Regenerative Braking System
- ⑤ Hybrid- and Engine Control System
- ⑥ Pedals and Sensors



### Services from Bosch Engineering GmbH

Bosch Engineering can support manufacturers of engines and vehicles in the hybridization of existing power units.

- Advising, in coordination with the other business divisions of Robert Bosch, on the selection of a suitable configuration matching the planned utilization profile
- Developing the operation strategy for the planned utilization and adapting the electronic control units as well as integrating the additional functions
- Building prototypes to present and test the desired functions
- Carrying out exhaust-gas and fuel-consumption measurements
- Series development and certification
- Handing over the results of the developments to Robert Bosch GmbH for series production and supply to the customer

		Hybrid Systems	
		Mild Hybrid	Strong Hybrid
Functions	Start/Stop	X	X
	Regenerative Braking	X	X
	Torque Assist	X	X
	E-Drive		X
Primary Value:		• Fuel Saving / CO <sub>2</sub> Emission	• Fun2Drive
Secondary Value:		• Fun2Drive	• Fuel Saving / CO <sub>2</sub> Emission

