

# Active safety systems

## ABS 9 enhanced



**BOSCH**  
Invented for life



### Product benefits

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- ▶ Improved ABS performance
- ▶ Optimized brake force distribution through eCBS
- ▶ Excellent vehicle stability during braking with significant reduction in stopping distance
- ▶ eCBS switches off automatically at low speeds so there is no impact on the handling in tight curves
- ▶ Intelligent rear-wheel lift-up control
- ▶ Improved comfort due to value-added functions

### Vehicle segments

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- 1** Hydraulic unit
- 2** DC motor
- 3** Connector
- 4** Electronic control unit

# 26%\*

of all two-wheeler-accidents in Germany involving a fall or collision could be **prevented** through ABS.\*

\*Based on a case-by-case analysis of 228 representative GIDAS cases (2001–2004)

# additional comfort

ABS enhanced allow the addition of value-added functions for **increased riding and safety performance**.

**Task** For increased riding safety, especially on large and heavy two-wheelers, Bosch has developed ABS 9 enhanced, which includes the electronic combined brake system (eCBS). With a weight of approximately 1.4 kilograms and a volume of 1.11 liters, this antilock braking system is one of the smallest and lightest hydraulic units with eCBS worldwide. ABS 9 enhanced allows riders to enjoy a safe and more comfortable ride by efficiently distributing the rider's braking force between the front and rear wheel – independent of which brake is activated.

**Function** ABS 9 enhanced is available as a 2-channel system for active pressure buildup on the rear wheel, or as a 3-channel system for active pressure buildup on both wheels. For the eCBS function, additional valves and up to four pressure sensors are integrated into the ABS hydraulic unit. Measuring the rider's brake input and other parameters such as speed, the system calculates the optimal brake force distribution in every braking situation. ABS 9 enhanced automatically applies the second brake without the rider having to apply more pressure and without changing braking force. The two-wheeler can thus brake safely both on wet and dry surfaces with a good grip.

**Value-added functions** ABS 9 enhanced can easily be expanded with additional functions. When combined with Bosch traction control, ABS 9 enhanced can prevent the rear wheel from spinning during acceleration, and counteract front-wheel lift. The traction control can even be adapted to motocross machines for dirt racing. Bosch off-road control is designed for loose surfaces. In this function, slip thresholds and other parameters have been adjusted to give riders optimum braking performance on rough terrain as well, without compromising the off-road experience. To prevent lifting of the rear wheel during full braking, ABS 9 enhanced uses the rear-wheel lift-up control to evaluate how much each of the two wheels is slipping. If the two-wheeler is in danger of falling over, braking pressure on the front wheel is reduced. The hill hold control function prevents the two-wheeler from accidentally rolling backward. Based on information from a longitudinal-acceleration sensor, hill hold control determines if the two-wheeler is on a slope and at a standstill.

## Technical characteristics

<b>Size (w × h × d)</b>	124.6 × 83.5 × 106.8 mm
<b>Weight</b>	1.4 kg (2-channel system) 1.5 kg (3-channel system)
<b>Volume</b>	1.11 liters
<b>Channels</b>	2 or 3
<b>Pressure sensor</b>	integrated (3 or 4)
<b>Longitudinal-acceleration sensor</b>	optional
<b>Valve</b>	3 × inlet, 3 × outlet, 2 × switching, 2 × high-pressure switching valve (3-channel system)
<b>Exchangeable ECU</b>	yes
<b>Connector</b>	26 pins