Chassis Systems Control
Make skidding a thing of the past
with the Electronic Stability Program ESP®

safe

BOSCH
Invented for life
Skidding is one of the main causes of major traffic accidents. A wet, dirt-covered or slippery road surface; a sharp bend that takes you by surprise; the sudden appearance of an obstacle in the road that forces you to perform an evasive maneuver—all of these things can cause you to lose control of your vehicle and begin to skid. The Electronic Stability Program ESP® can provide effective support in critical driving situations such as these. It can detect a loss of control at an early stage and within physical limits, stabilize your vehicle.

Numerous international studies commissioned by well-known automotive manufacturers and safety authorities confirm the effectiveness of ESP®: up to 80 percent of all skid-related crashes could be prevented if all vehicles were equipped with this life-saving technology. In Europe alone, standard installation of ESP® could save up to 4,000 lives and prevent as many as 100,000 injuries every year*.

* University of Cologne, 2007

In many countries, including the USA, Canada, Australia, Russia, Israel, Japan, Korea and the European Union, positive results of effectiveness studies have already led to the introduction of statutory regulations.

The United Nations (UN) has declared the period from 2011 to 2020 as the “Decade of Action for Road Safety.” The aim of this initiative is to half the number of road traffic casualties worldwide by 2020. The initiative action plan recommends fitting all vehicles with ESP®. Just like seat belts and airbags, ESP® plays an important role in saving lives.
Sudden maneuvers such as sharp steering and countersteering, an unexpected lane change or avoidance of a sudden obstacle all dramatically increase the risk of skidding — even for experienced drivers.

ESP® provides support in critical driving situations

The Electronic Stability Program ESP® uses intelligent sensors to check 25 times a second, whether the driver’s steering input corresponds to the vehicle’s direction of travel.

If ESP® detects an incompatibility and identifies that the vehicle is likely to become unstable, the system intervenes: it reduces engine torque to restore vehicle stability. If this action is not sufficient, the system additionally brakes individual wheels.

This approach allows ESP® to generate the necessary counterforce so the vehicle reacts as the driver intends.

If ESP® detects that the vehicle is understeering when going into a bend — e.g. the vehicle is following a straight-line trajectory at the front axle despite the wheels having been turned — the system reduces the engine torque and brakes the rear inside wheel to stabilize the vehicle.

If the driver has to perform an evasive maneuver to avoid an obstacle that has suddenly appeared in the road, the vehicle may begin to oversteer — e.g. to swerve out at the rear. If ESP® detects the occurrence of this situation, the system reduces engine torque and systematically brakes the front outside wheel. This action produces a stabilizing counter torque to counteract the oversteer tendency.
ESP® can do so much more too

If your vehicle is equipped with ESP®, you also have the added benefit offered by the Antilock Braking System (ABS) and the Traction Control System (TCS). ABS prevents the wheels from locking, ensuring that the vehicle remains steerable and stable during braking. TCS ensures that the drive wheels do not slip when pulling away and accelerating, ensuring optimum traction.

While ABS and TCS influence the longitudinal dynamics of the vehicle, ESP® additionally improves the lateral dynamics, ensuring that the vehicle remains stable in all situations.

The Bosch Group developed ABS, TCS and ESP®, and was the first manufacturer to introduce them in a passenger car. The first ESP® system was launched in 1995.

**ESP® value-added functions**

The main task of ESP® is to prevent the vehicle from skidding, but it has potential to do so much more.

ESP® features value-added functions that further increase driving safety and comfort. Among these is Hill Hold Control, which helps the driver to pull away when on an incline by preventing the vehicle from rolling backward when the brake pedal is released.

Another function is Load Adaptive Control, which adapts the ESP® interventions and the ABS and TCS function to the vehicle load in light commercial vehicles.

If ESP® is known by any other names?

Yes. Some vehicle manufacturers use the names VSA (Vehicle Stability Assist) or VSC (Vehicle Stability Control), for example. In the USA, Canada and Japan it is referred to as ESC (Electronic Stability Control). Despite the different names, the functionality and the added value that these systems offer in terms of driving safety are the same.

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Do I need to activate ESP® when starting the engine?

No. ESP® is automatically on and enabled as soon as the engine is started. Some vehicle manufacturers offer an “ESP® off” button in their vehicles. At the touch of a button, in most cases the Traction Control System (TCS) is switched off; the stabilization functions provided by ESP® remain active.

Can I have ESP® retrofitted in my vehicle?

No, it is not possible to retrofit ESP®. That’s why it is important that you make the right decision when purchasing your vehicle and select a model equipped with ESP®.

Further information is available at: www.bosch-experience.com
Road traffic crashes take the lives of nearly 1.3 million people every year, and injure millions more. The goal of the Decade of Action for Road Safety is to stabilize and reduce the number of lives lost by 2020, ensuring that the vision of a world in which mobility is safe for all who use the world’s roads becomes a reality.

www.decadeofaction.org