

# Chassis Systems Control ABS and ESP® Generation 9



# 底盘控制系统 第9代ABS和ESP®



## ABS Generation 9



### Characteristics

Generation 9 of the Antilock Braking System ABS and the Electronic Stability Program ESP® is the consistent further development of Bosch active driving safety systems. The most important feature is the scalable product concept with modular software architecture. With ESP® this permits, among other things, the optional integration of the inertial sensors as well as up to three pressure sensors which give precise control even at the lowest brake pressure. If desired, a FlexRay interface is also available.

In addition, Generation 9 offers an optimized micro-processor design as well as a control unit based on printed-circuit technology. The modular software architecture CSMosar incorporates tried and proven features of the previous system. This leads to a significant reduction in the costs incurred by an automaker for testing and application work. Motors that use rare-earth magnets additionally permit a significant improvement of the power-to-weight ratio. It has thus been possible to reduce weight and size of Generation 9 by up to 30 percent compared to the previous version. The most compact ABS will weigh only 1.1 kilograms, the lightest ESP® only 1.6 kilograms.

Generation 9 offers an ideal brake control system for all vehicle segments – whether for small cars or premium vehicles right up to light trucks.

### Customer benefits

- ▶ Scalable product concept for maximum flexibility
- ▶ Small box volume and low weight
- ▶ Extremely good noise behavior and pedal feel
- ▶ Reduced application effort, in particular, with optional ABS/ESP® installation

## 第9代ABS



### 特征

第9代防抱死制动系统ABS和电子稳定程序ESP®来自于博世对于主动行驶安全系统的持续开发。其最重要的特点是采用模块化软件架构的可升级产品概念。使用ESP®还允许选择集成惯性传感器以及多达三个压力传感器，这样即使在最低制动压力下也可以进行精确控制。如果需要，也可以提供FlexRay接口。

此外，第9代产品还提供经过优化的微处理器结构以及基于印刷电路板技术的控制单元。模块化软件架构CSMosar保留了以前系统中经过验证的优良特性。这可以显著减少汽车制造商的测试和匹配成本。使用稀土磁铁的电机显著改善了功率-重量比。因此与以前的版本相比，第9代产品的重量和尺寸减少达30%。最紧凑的ABS仅重1.1 kg，最轻的ESP®仅重1.6 kg。

第9代产品是适用于所有车辆级别的最佳制动控制系统 – 不论是小型车、高级车还是轻型卡车。

## 第9代ESP®



### 客户获益

- ▶ 具有最大灵活性的可升级产品概念
- ▶ 体积小且重量轻
- ▶ 极好的制动噪声表现和踏板感
- ▶ 减少匹配工作量，特别是当选装ABS/ESP®时

第8代和第9代ABS之间的比较

	第8代	第9代
体积	915 cm³	860 cm³
重量	1.3 kg	1.1 kg
控制器存储器	256 kB	256 kB

第8代和第9代ESP®之间的比较

	第8代	第9代
体积	1,620 cm³	1,340 cm³
重量	2.3 kg	1.6 kg
控制器存储器 (最大)	768 kB	2,048 kB

产品系列

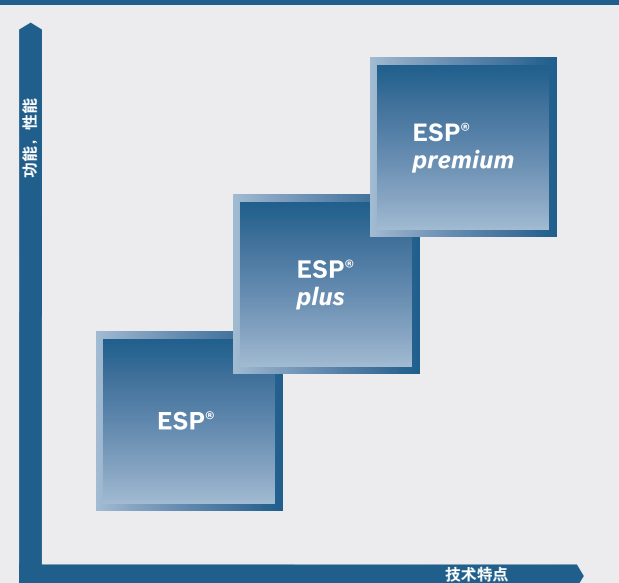
第9代产品系列包含了适用于各种不同车辆类型的ABS和ESP®系统, 可提供广泛的功能范围。ABS主要用于新兴市场 and 低价格车型。它能提供经过验证的基本制动保护。即使是最紧凑的ESP®版本也能提供电子稳定程序的所有安全功能。

由于高耐用性和对流量及压力的精确控制, ESP®系统的应用扩展使大量安全和驾驶员辅助功能成为可能。特别是至尊型ESP®, 它带有6个活塞泵, 可提供最大的行车舒适性。它可以很快建立制动压力, 同时又很安静且几乎没有振动。

通过网络进一步扩展

进一步增强驾驶安全性一直是博世最重要的目标之一。一切从ESP®与以前独立工作的其他系统(例如安全气囊控制或驾驶员辅助系统)联网开始。该网络连接为事故预防、乘员保护、其他道路使用者保护、增加舒适性和改善驾驶动态性等方面的新功能提供了基础。

第9代ESP®产品系列



ESP®

提供经过验证的ESP®安全功能  
选装:

- ▶ 集成式惯性传感器
- ▶ FlexRay接口

升级型ESP®

提供大量安全和驾驶员辅助功能选装 (ESP®选项之外):

- ▶ 优良的电机控制
- ▶ 超紧凑的压力控制阀
- ▶ 两个附加压力传感器

至尊型ESP®

带有6活塞泵, 可提供最大的舒适性  
选装 (ESP®/升级型ESP®选项之外):

- ▶ 高级灵活性功能组件, 满足建压动态性的最高要求

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Comparison between ABS Generation 8 and Generation 9

	Generation 8	Generation 9
Box volume	915 cm³	860 cm³
Weight	1.3 kg	1.1 kg
Controller memory	256 kB	256 kB

Comparison between ESP® Generation 8 and Generation 9

	Generation 8	Generation 9
Box volume	1,620 cm³	1,340 cm³
Weight	2.3 kg	1.6 kg
Controller memory (max.)	768 kB	2,048 kB

Product family

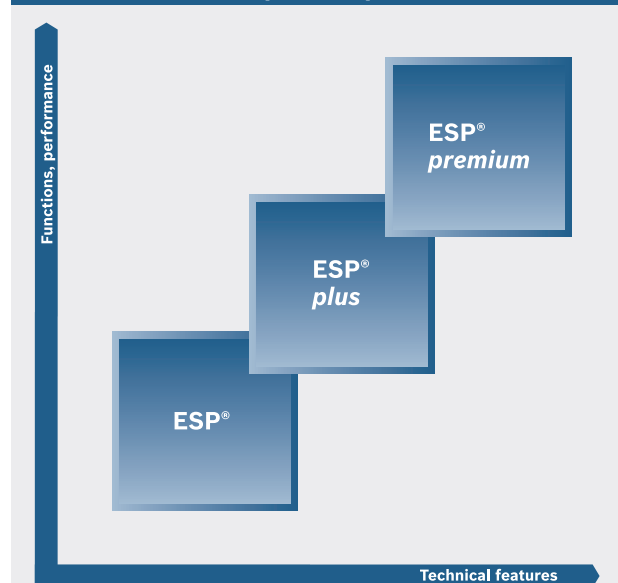
The product portfolio of Generation 9 comprises ABS and ESP® systems for a variety of different vehicle types and offers extensive functional scope. ABS is mainly intended for operation in the emerging markets and for vehicles in the low-price segment. It offers proven basic protection when braking. Even the most compact ESP® version offers all safety functions of our Electronic Stability Program.

Thanks to high durability, flow rate and pressure control accuracy actuation, the extensions of the ESP® system make a large number of safety and driver assistance functions possible. ESP® premium with a six-piston pump, in particular, features maximum comfort. It can build up braking pressure very quickly and is, at the same time, extremely quiet and nearly free of vibration.

Further development through networking

The further enhancement of driving safety is and will remain one of the most important goals of Bosch. This starts by networking of ESP® with other systems previously working independently such as airbag control or driver assistance systems. This networking provides the basis for new functions not only for accident avoidance, occupant protection and the protection of other road users, but also for increased comfort and improved driving dynamics.

ESP® Generation 9 product portfolio



ESP®

for the proven ESP® safety functions  
optional:

- ▶ integrated inertial sensors
- ▶ FlexRay interface

ESP® plus

for a large number of safety and driver assistance functions  
optional (in addition to ESP® options):

- ▶ motor control premium
- ▶ extra tight pressure control valves
- ▶ two additional pressure sensors

ESP® premium

with a six-piston pump for maximum comfort  
optional (in addition to ESP®/ESP® plus options):

- ▶ premium agility package for functions with highest requirements on pressure built-up dynamics

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