

## Chassis & Safety Division

### Intelligent Systems for a Safe Automotive Future

As a leading global technology and systems engineering partner to the automotive industry, the Chassis & Safety (C&S) Division of Continental Corporation combines comprehensive know-how and top quality in the areas of active and passive driving safety, safety and chassis sensors as well as chassis components. With sales of more than € 5 billion (based on 2006 figures) C&S employs more than 27,500 people worldwide (2007).

Chassis & Safety develops and produces electronic and hydraulic brake and chassis control systems, sensors, driver assistance systems, airbag systems and occupant classification systems, windshield cleaning systems as well as electronic air suspension systems. The Division has more than 65 plants, research centers and test tracks in 20 countries. More than 4,500 development engineers work together in a global network. Local customer presence and global knowledge management are turned daily into successful products.

With targeted annual sales of more than €26.4 billion for 2008, the Continental Corporation is one of the top automotive suppliers worldwide. As a supplier of brake systems, systems and components for the powertrain and chassis, instrumentation, infotainment solutions, vehicle electronics, tires and technical elastomers, the corporation contributes towards enhanced driving safety and protection of the global climate. Continental is also a competent partner in networked automobile communication. Today, the corporation employs approximately 150,000 people at nearly 200 locations in 36 countries.

The Chassis & Safety Division is based in Frankfurt am Main, Germany. With its Business Units Electronic Brake Systems, Hydraulic Brake Systems, Sensorics, Passive Safety & Advanced Driver Assistance Systems and Chassis Components the Division concentrates on three core competences:

- Brake, chassis, sensor and driver assistance systems for a future in which traffic accidents and injuries can be prevented
- Vehicle dynamics for cars that are safe and a pleasure to drive are an integral part of our mindset
- Merging superior automotive components and profound systems know-how into one integrated safety concept: ContiGuard®

Chassis & Safety integrates in-depth knowledge of driving stability, brake systems, chassis, dynamics and sensorics. Its unique innovative strengths extend from intelligent, integrated safety and electronic brake systems via life-preserving driver assistance and occupant protection systems to ambitious chassis electronics. Successful technologies include products enjoying a strong market position such as ESC, high-tech products like Adaptive Cruise Control and environmental sensors or forward thinking developments such as Active Rear Axle Kinematics and the accident and injury prevention vehicle fitted with ContiGuard®.

### ContiGuard®

With ContiGuard®, Continental has embarked on an integrated safety system in which every active and passive function of safety relevance, including the corresponding environment sensor system, is fully integrated into a comprehensive safety package. Effective accident prevention (Vision ZERO), the minimization of the consequences of accidents and the risk of injuries, new functionalities through system integration, and reduced cost through the use of common components are some of the outstanding advantages of ContiGuard®. New options are available through the integration of navigation and map data and new telematics functions, as well as through an improved interface to the driver via the cockpit, the so-called HMI (human-machine-interface).

Many of the advantages can already be employed in production vehicles:

- Much shorter stopping distance
- Comprehensive protection against injury for vehicle occupants and pedestrians
- Expanded, optimized functionality through system integration
- Efficient prevention of accidents and/or a reduction in their severity.

ContiGuard® has been specifically designed for continuous expansion and thus offers excellent future potential. Current steps to increase performance involve extended surveillance of the vehicle's immediate environment and steering intervention, with sophisticated camera or radar technology monitoring the area alongside and to the rear of the vehicle. If a vehicle comes up from behind into the critical area, the driver is alerted to the danger of changing lanes by a graduated system of optical, acoustic and sensory warnings. If, despite this, he is unable to avoid an accident, ContiGuard® prepares the passive safety system to react in the optimum way to a possible impact and controls airbag ignition depending on the respective situation.

Combining camera and distance sensors permits better analysis of traffic conditions. For example, by classifying other road users, image processing systems will make it possible for emergency braking to intervene in response to stationary obstacles such as the tail of a traffic jam. Incorporating telematics (communication both between vehicles and with static infrastructure facilities), in particular, opens up important prospects including "ECall", the life-saving automatic emergency call system which transmits the accident location, stating the time and analyzing the damage.



### The Business Units

The five business units which make up the Chassis & Safety Division reflect the integrated management of innovation, application and production, oriented toward providing customer benefits.

#### Electronic Brake Systems (EBS)

This business unit develops and produces innovative electronic brake systems and software solutions for brake control and chassis control functions.

- Electronic brake systems, e.g. ABS and ESC
- Control units for motorcycle brakes
- ABS for motorcycles
- Regenerative brake systems
- Software for control functions
- Hydraulic valves

#### Hydraulic Brake Systems (HBS)

As one of the world's leading suppliers of brake and brake actuation systems, this business unit is constantly developing new and ever better classical brake designs and optimally adapted actuation systems for vehicles of all classes.

- Brake disks
- Drum brakes
- Brake calipers
- Parking brakes
- Electric parking brakes
- Brake boosters
- Tandem master cylinders
- Mechanical, electronic and hydraulic brake assist systems
- Brake actuation modules
- Brake pressure controllers
- Brake hoses
- Duo-servo parking brake systems

### Sensorics

As a global market leader in the field of wheel speed, chassis control and ESC sensorics as well as in other areas of safety and chassis sensorics, this Business Unit offers its customers a broad basis of sensors for varying applications

- Inertial sensors for stability and ESC applications
- Sensors for active chassis control
- Steering angle and torque sensors
- Speed sensors for wheels, engines and transmission
- Sensors and switches for seat belt locks and seat position

### Passive Safety & Advanced Driver Assistance Systems (ADAS)

Pioneering systems for driver assistance safety electronics in a proactive and reactive vehicle will relieve the stress on the driver and allow him or her to overcome complex or critical driving situations.

- Passive safety
- Driver assistance systems
- ContiGuard®
- Occupant classification

### Chassis Components

Chassis Electronics offers a wide range of solutions for active chassis technology, contributing to more driving safety, comfort and driving pleasure. Systems include the controlling of active axles as well as an entirely independent chassis. Electronic steering systems allow for a precise and efficient vehicle control in any driving situation and cleaning systems offer custom-tailored systems for clean headlights windscreens in any weather conditions.

- Steering systems
- Suspension systems
- Chassis electronics
- Electronic components
- Windshield and headlight cleaning systems

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