Continental brings together four strategies to reduce emissions and cut fuel consumption

More efficient drive systems, electrical components for powertrain and sub-assemblies, weight savings through lightweight design and ergonomic assistance systems: the Automotive Group delivers scalable solutions for the automotive industry.

Lowering the fuel consumption and emissions of cars and commercial vehicles is one of the most important issues for the future of sustainable individual mobility worldwide. The Automotive Group of the international automotive supplier Continental is bringing together four strategies to reduce fuel consumption, and will be able to offer motor manufacturers a comprehensive package of solutions for the low-consumption vehicles demanded by the market. These measures will also ensure compliance with national and international legislative requirements for emission standards and the reduction of CO₂.

“Our goal of enabling resource-efficient motoring with a reduced environmental impact cannot be achieved through individual measures alone. It requires a number of intelligent innovations that cover the full range of systems,” said Dr. Karl-Thomas Neumann, Chief Executive Officer of Continental AG and Head of the Automotive Group. “These innovations also have to be scalable, so that they can be offered in price-sensitive vehicle classes and markets.”

Four strategies for greener driving

Continental AG's Automotive Group is focusing on four complementary strategies to reduce the impact of vehicles on the environment and to ensure the sustainable use of resources. This integrated system approach will help car manufacturers to bring vehicles to market that maximize fuel economy while minimizing environmental impact.

- Continuous optimization of fuel and energy consumption, for example by reducing engine size with the help of turbocharging and direct injection technology
- Electrification of the drive train and other vehicle functions through the development of hybrid and electrical components and electric power steering
- Ergonomic, proactive driver assistance systems and the use of navigational information by the various control units
- Weight-saving design through optimized manufacturing processes and selection of materials as illustrated by the example of our brake calipers and electronic braking systems

More efficient drive systems: lower consumption with a more enjoyable drive

Continental’s turbocharger is now in use for the first time. This new technology is an essential prerequisite for the “downsizing” of engines, i.e. a lower cubic capacity but with greater power. Clever innovations include the automated assembly and the electronically controlled waste-gate that will be available in the future. The turbocharger technology can cut emissions by up to 15 percent.

New direct drive piezo injectors ensure that even diesel engines comply with the Euro 6 standard, while the SCR system for exhaust gas aftertreatment helps to achieve the required reduction in nitrogen oxide. High-performance transmission control systems reduce the fuel consumption of automatic double-clutch transmissions to below that of manual gearboxes.
Electrical components for powertrain and sub-assemblies save fuel

The transition from internal combustion engine to the zero-emission electric car of the future is already well under way. A representative survey of German motorists carried out on behalf of Continental in spring 2009 showed that nearly one in nine car drivers can “entirely” imagine switching to an electric car for their next vehicle.

“The stated aim of Continental is to consolidate its leading position as a supplier in this field,” stressed Dr. Neumann. Continental is the world’s first manufacturer of series production of lithium-ion batteries for use in passenger cars and commercial vehicles. With its modular hybrid approach, Continental covers all essential components and offers complete system solutions. The replacement of conventional hydraulic technology with electrically powered ancillary components, which only consume energy when it is actually required, also cuts fuel consumption. To take power steering as an example, the use of an electric system can save around 0.2–0.4 liters of fuel per 100 kilometers compared with the hydraulic version. Intelligent battery sensors ensure that the battery is only charged when required – reducing the workload of the engine and decreasing fuel consumption – and also take over the electrics’ management for stop-start systems, which are now coming to market in a large number of vehicle models.

Driving foresighted: more comfort, greater safety, lower fuel consumption

Driver assistance systems not only make driving more comfortable and safer, but also help the driver to drive more smoothly and more proactively, thus saving fuel. The AFFP (Accelerator Force Feedback Pedal) is a good example of an intuitive driver-vehicle interface. A light vibration of the gas pedal reminds the driver to keep a safe distance from the vehicle in front, even in heavy traffic, and to maintain as constant a speed as possible.

It also tells him the ideal time to change gear, which can achieve fuel savings in excess of ten percent. Navigation systems also help to reduce energy consumption. They facilitate driving electric cars by automatically planning the route according to the available battery charging or battery changing stations. The “electronic horizon” based on the navigation information provides information on the road ahead to all other on-board systems such as engine control and battery management.

CO₂ reduction starts with weight

Lightweight design makes it possible to reduce vehicle weight: designs which reduce weight and use less material achieve similar effects as the use of lighter materials, which are still prohibitively expensive for many vehicle classes and markets. Optimized housing for braking systems or ESC weigh up to 20 percent less, while aluminum brake actuators can cut weight by as much as 40 percent.

Last but not least: the crucial role of the driver

And finally, it is important that the driver is also fully committed to the idea of fuel economy. This can be achieved by providing clear information about what kind of emissions savings the vehicle is capable of and by means of a central control setting that enables the driver to switch all vehicle systems to an energy-efficient or fuel-efficient operating mode. This approach from the Continental Automotive Group is called “Simplify your Drive.”.