

Press release

November 5, 2009

InCar: Innovations for the automotive future

Project reduces life-cycle CO₂ emissions by 5.500 kilos per car

In the cross-Group research project InCar, ThyssenKrupp engineers from the Steel Europe and Components Technology business areas have developed more than 30 innovations for auto manufacturers. No other automotive supplier has ever launched such an extensive package of independently developed innovations. The first InCar parts are already being tested in auto manufacturers' plants for introduction into production.

InCar brings together the full automotive know-how of the ThyssenKrupp Group. The companies involved in the project employ experts in materials development, design, production technology, part manufacture, assembly lines, tooling and prototyping for the auto industry. The project offers new solutions for the body, chassis and powertrain areas. Using InCar innovations, auto OEMs can conserve resources, reduce costs or build cars with improved functions – depending on their particular development goals. At the same time the innovations have been validated to such an extent that they can be put into production quickly and at low cost.

Substantial reduction of CO₂ emissions

“InCar comes at exactly the right time,” says Dr. Ulrich Jaroni, member of the Executive Board of ThyssenKrupp Steel Europe. In view of the difficult situation currently faced by the auto industry, pressure is growing on manufacturers to make up lost ground with more eco-friendly and more cost-efficient vehicles with further improved functions. New legal requirements such as the average emissions limit of 130 grams of carbon dioxide (CO₂) per kilometer applying EU-wide to new cars from 2012 are a further challenge. Dr. Karsten Kroos, chairman of the Components Technology management board, adds: “The InCar development priorities were closely coordinated with our customers.”

For climate protection, InCar offers innovations capable of reducing emissions by a total of more than 17 grams of CO₂ per kilometer. However, ThyssenKrupp supports taking a more comprehensive view – after all, CO₂ is also generated during the production of cars and parts. That is why the ecological assessment of the InCar solutions prepared by the German institute PE International and certified by TÜV Nord covers the entire product lifecycle. The result: Taking the whole production and usage cycle into account, the “cleanest” InCar solutions together can reduce emissions by around 5,500 kilograms of CO₂ per vehicle compared with the current state of the art.

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Manufacturers wishing to save costs or offer their customers more functionality will also find innovative solutions. When it comes to costs, one of the stars of the InCar ensemble is a newly developed two-stage adjustable damper system. It allows drivers to choose between a more comfort-oriented and a more sporty suspension and is 70 percent less expensive than continuously variable damper systems currently available on the market. Significantly improved functionality is offered by, among other things, the integrated steering concept. Here, the InCar engineers have integrated the steering gear for an electromechanical power steering system into a front axle beam. The current state of the art is to bolt the steering gear to the beam as a separate part. Integration frees up space for additional functions. Dr. Ulrich Jaroni: "The cost side of this is also interesting: The new solution is three percent less expensive than the conventional design."

Cost analysis and production validation

InCar scores not just with the number of its newly developed solutions but also with their extensive validation. "Innovation is putting a new product into practice, not just inventing it," explains Dr. Karsten Kroos, quoting the economist Joseph Schumpeter. The InCar team has done a lot to ensure that auto manufacturers can put the new solutions into production as smoothly as possible. The costs this will involve have been analyzed, as have the methods and tools needed to produce the InCar innovations. Here too, the expertise of the participating ThyssenKrupp companies over almost the full automotive process chain is the basis for reliable cost statements.

Prototypes were produced in purpose-built dies. Crash tests and a large number of loading tests also formed part of the project. The InCar team thus carried out a major part of the tests that otherwise take place at auto manufacturers' plants before new solutions are integrated into production.

The aim of the InCar project is to develop solutions that outperform conventional designs. As a reference standard for the body solutions the InCar team designed a dedicated, virtual auto body for an upper mid-size vehicle, using the same software tools as auto manufacturers use when developing a new car. Dr. Karsten Kroos: "We compare the InCar solutions not with a real vehicle from a specific manufacturer but with a manufacturer-independent reference structure. That makes it easier for our customers to adopt our innovations and match them to their own brand, design and production strategies. At the same time we now possess our own reference for developing and validating future innovations."



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Contacts

Erwin Schneider
Telephone +49 (203) 52 25692
Fax +49 (203) 52 25707
E-mail: erwin.schneider@thyssenkrupp.com

Anja Gerber
Telephone +49 (201) 106 53264
Fax +49 (201) 106 53265
E-mail: anja.gerber@thyssenkrupp.com