Leoni reduces weight of wiring systems by 20 per cent

Light weight and high voltage as key topics on IAA booth

Nuremberg, 29 August 2013 – Leoni, the leading European provider of cables and cable systems to the automotive sector and other industries, will display a collection of innovative solutions at IAA 2013. Following the motto “Leoni beyond harness”, the company will display a technology carrier, which will incorporate~~s~~ key innovations such as aluminum wires and alternative conductors, pre-formed wiring elements, tool-optimized harness architecture~~s~~, a tailored harness with sensor technology as well as power distribution units and other electro-mechanical components. Furthermore, Leoni will present a variety of high voltage solutions.

“Our customers can save up to 20 per cent weight of a vehicle’s wiring system by using our innovative technologies. This means six to eight kilos less in a mid-size passenger car”, states Dr Andreas Brand, member of Leoni AG’s Executive Board with responsibility for the Wiring Systems Division. On its IAA booth (D06, Hall 4.1), the company will show its major solutions integrated in a fully-equipped wiring system on a 2x4 meters carrier board.

Aluminum wires for all power segments

Key factor for reducing the harnesses’ weight is the substitution of conventional copper wires. Besides copper wires with reduced cross-sections, Leoni mainly offers wires made of aluminum for all three power segments, i.e. with cross-section smaller than 2.5 mm2, up to 10mm2 and bigger. In spite of the fact that aluminum conductors have a higher cross-section in order to ensure the same electrical conductivity, the aIuminum technology allows a weight reduction of approximately 50 per cent compared to copper wires. The utilisation of aluminum products, wherever reasonable, will slim the wiring system’s weight by about 10 per cent.

Leoni will also demonstrate a variety of alternative conductors based on copper alloys like copper-tin, copper-silver and copper-magnesium. Those cables can be used when the application requires mainly mechanical strength rather than high conductivity. As an example, a copper wire with a cross-section of 0.35 mm² can be replaced by a low-alloyed copper-tin wire with only 0.13 mm². Moreover, the use of smaller cross section alloys leads to an optimized bundle size and wire diameter, which requires less space. These trends will lead to a further miniaturization of terminals and connectors.

Simulation makes harnesses significantly lighter

At this year’s IAA, Leoni will also present the effect of its in-house CAD tool TOODEDIS, which is used in order to optimise the wiring system for new car models in the design phase with the help of electrical and thermal simulations. By doing so, it ascertains the most favourable conductor cross section within the cable harness. The TOODEDIS tool helps to optimize the wiring harness’ total weight by up to 15 per cent.

Customer-specific electro-mechanical components

The technology carrier on display at IAA 2013 will also incorporate a choice of electromechanical components like customer specific fuses, relay and junction boxes for low-voltage applications, hard-wired fuse units as well as a hybrid design power distribution unit based on PCB (printed circuit board) and fret technologies. For the first time, the company will show a new and compact high-voltage power distribution box. This innovative solution can be adapted to different wire sizes and configurations thus offering customers a customized power distribution unit for alternative drives and high voltage electrical components architecture.

Visitors can also look at a multiple fuse unit, a power distribution box incorporating a one piece fuse, greatly reducing the parts count compared to a conventional box thus delivering weight and cost savings to the customer.

High-voltage (HV) solutions

In response to the rising demands of its customers, Leoni will exhibit its growing range of high-voltage solutions for vehicles with alternative drives such as HV wiring systems, HV power distribution boxes and other related HV components.

Last but not least, the technology carrier will incorporate an over-moulded sensor harness, fiber optic solutions, an Ethernet concept with alternative conductors, an over-foamed grommet and an automated module harness with splices and miniaturized components.

*(4,380 characters incl. blanks)*

☞ *Related illustration material can be downloaded from*[*www.leoni.com/IAA-2013.16329.0.html?L=1*](http://www.leoni.com/IAA-2013.16329.0.html?L=1)

About the Leoni Group

Leoni is a global supplier of wires, optical fibers, cables and cable systems as well as related services for the automotive sector and further industries. Leoni develops and produces technically sophisticated products from single-core automotive cables through to complete wiring systems. Leoni’s product range also comprises wires and strands, standardised cables, special cables and cable system assemblies for various industrial markets. The group of companies, which is listed on the German MDAX, employs more than 60,000 people in 32 countries and generated consolidated sales of EUR 3.81 billion in 2012.

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