

Building bridges for more quality

Harness Manufacturing Day in Ingolstadt gives wiring harness designers and manufacturers the opportunity to convene

The engineering system vendor Aucotec had invited those responsible in both areas to an intensive sharing of experiences between wiring harness designers and manufacturers on 30 September in the Audi Conference Centre. The event focused especially on the already enormous and ever-increasing complexity of wiring harnesses both in passenger cars and commercial vehicles. Lectures by Audi, MAN Trucks & Buses and the wiring harness manufacturer PKC Segu illustrated the different requirements of participants with great clarity and ensured increased mutual understanding.

"More scope for innovation"

Reinhard Prechler, Head of Development of Wiring Harnesses, EMC and Antennae at Audi AG gave an insight into his vision of the wiring harness of the future. "Wiring harnesses are the basis of stable and reliable electrical engineering in the automotive industry, but they are also very heterogeneous structures", he explains. In addition to the increasing number of model derivatives, the custom wiring harness includes a huge variety of versions with which wiring harness designers have to be able to cope. Prechler sees better integration of processes and methods as a solution as well as the consolidation of the supplier number, which has already been completed. A more extensive overview would lead to greater project security. "This creates more scope for innovation", says Prechler, who also relies on closer cooperation between OEMs, suppliers and external service providers.

"Masters of module variety"

At MAN Trucks & Buses, a 6.8km wiring harness weighing around 160kg in a bus poses an important challenge for the designer. The high degree of individuality of the bus projects previously revealed an enormous variety of wiring harnesses. Here, the introduction of the custom wiring harness achieved a reduction in the number of wiring harnesses per order from around 180 to about 70. "With the custom wiring harness, we have a more extensive overview and it is much easier to trace the assignment of cable modules to the harness in the event of changes", explains Herbert Schäfer, Head of Development of Electric/Electronic Systems Bus & Coach Body at MAN. "However, the custom wiring harness is especially challenging for designers in the event of changes to the assembly order after the customising wiring manufacturer has been commissioned", he says. In his opinion, the switch to a custom wiring harness necessitates a very high level of discipline in relation to documentation. "The central management must be master of the module variety!"

"Thinking in terms of manufacturing modules"

Lothar Schilling from PKC Segu Systemelektrik GmbH clearly illustrated the point of view of the wiring harness manufacturer. The Finnish PKC Group's Technical Director for Germany showed that the manufacturing aspects are hardly taken into account when the OEMs design the wiring harnesses. "We receive function-oriented documentation from customers. But we have to think in terms of manufacturing modules", he says. Due to the OEM-influenced data, the need to make certain changes would often only be noticed

during manufacturing. "The process requires more effective communication on the part of the OEM with the manufacturer and highly transparent change management", according to Schilling.

The custom wiring harness constitutes another challenge for the manufacturers: a lot less routine work with higher demands on logistics and planning. "There are significant tool-supported optimisation options that save us both time and material", says Schilling who, at the same time, calls for more integration of all those concerned in the processes.

The right track

The presented requirements were an important indication for Aucotec's software developers that they were on the right track. With the database-driven platform Engineering Base, Product Manager Reinhard Knapp presented a solution which makes all information, changes and relationships available at all times for all those concerned, and their model quality is predictable so that controls are already effective in the design. Knapp also explained that the system offers manufacturers the opportunity to quickly and consistently adopt the OEM data in their own modules.

"Standardising instead of copying"

During the breaks, speakers and guests shared their experiences in smaller groups. "We still often have to 'copy' drawings today. Not only the fact that EB eliminates the need for such work, but that you are also automatically supplied with the entire logic greatly simplifies the work", according to a participant from the manufacturing area. Another wiring harness manufacturer indicated the following in relation to change management: "I really see the shared database as the only option here."

"It suits our quality offensive if the data arrives at the manufacturer in a standardised and manufacturing-relevant manner, without error-prone and delaying manual work", says an expert from a sports car manufacturer. Finally, one participant, who provides engineering services for automotive manufacturers as well as for wiring harness manufacturers, summed up the day as follows: "I have seen today how efficiently a bridge can be built between both sides. There is huge potential in this for increased efficiency and quality."

Pictures:



[Figure 1:](#) Reinhard Prechler, Audi, gives an insight into his vision of the wiring harness of the future



[Figure 2:](#) Herbert Schäfer, MAN Trucks & Buses, explains the requirements of wiring harness design for commercial vehicles

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Figure 3: Lothar Schilling, PKC Segu, illustrates the point of view of the wiring harness manufacturer

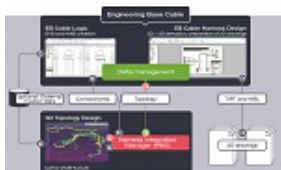


Figure 4: Modern wiring harness development process with database-driven platform "Engineering Base"

If printed, we would appreciate receiving a copy. Thank you very much!

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