PRESS RELEASE

The Lapp Group offers solutions for designing a more efficient and flexible factory of the future

Flexible production with "plug & produce"

Stuttgart, 20 March 2014

Industry is currently undergoing a fundamental change: we are seeing the integration of all components of the value chain into the corporate network. The radical changes associated with this sea change do not just affect companies in the IT sector, even if the development of intelligent factories is often seen primarily in terms of IT. Even manufacturers of cables and connectors can make a considerable contribution to this new era with intelligent solutions, thereby supporting industry and increasing efficiency and flexibility.

Machines, plants and devices are made "intelligent" by connecting them to one another using the "Internet of Things". The resulting cyber-physical systems form the basis of the intelligent factory of the future – its vision: to generate maximum flexibility and efficient production with batch size 1. Cyber-physical systems are functional units with embedded hardware, software and mechanics. The fact that they are capable of communicating with one another is opening up new horizons for plant and machinery manufacturers, who can break plants down into individual modules that only have to be programmed and tested once. Depending on the customer's requirements, a mechanical engineer can then assemble the standardised

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modules in a flexible and personalised way and feed in the data that is required for production – plug & produce.

This leads to fundamental changes in the cabling of an industrial plant. A network cable no longer ends in the control cabinet; instead, it is run directly to the motor of a machine, for example. For the manufacturers of connection technology, this means that the cables with inserts that have previously been used primarily in office environments now need to be suitable for industrial applications. The cables must be able to withstand high mechanical stress, extreme temperatures, vibrations and contamination. In this kind of environment, they may also be exposed to aggressive media. Ethernet cables used in industrial applications must also be shielded against much stronger EMC interference, such as that found in the vicinity of motors or live cables that are generating an electromagnetic field.

"We are certain that the "fourth industrial revolution", by which we mean the increasing networking within production facilities and the associated transition to a more flexible type of production, as well as the increasing customisation of product variants, will be the defining development in German industry over the next few years", says Siegbert Lapp, Member of the Board at Lapp Holding AG. Because of this conviction and its aspiration to help fashion the industrial production methods of the future, the Lapp Group is taking part in a number of research projects on the topic. Together with project partners, Lapp is researching "production work 4.0" under the leadership of the Fraunhofer IAO. The research mainly focuses on the following questions: how could the work environment look in a factory of the

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future, what kind of tasks will factory workers undertake and how can they be supported in fulfilling their tasks? "This is important for understanding the entire production system, that is the plants and operators. We want to use our findings to develop solutions that are even more suitable for the factory of the future," explains Siegbert Lapp.

In addition to this, Lapp is involved in the SmartFactory^{KL} e.V. technology initiative run by the German Research Center for Artificial Intelligence (DFKI). The SmartFactory^{KL} is a demonstration factory inside a laboratory, where researchers from the DFKI can use technologies for the intelligent factory of tomorrow in a production environment as close as possible to the real world. The DFKI and the companies involved hope that the resulting findings will help to realise the vision of the new industrial era, with totally flexible factories manufacturing heavily customisable products. The solutions developed in this context aim to support companies in achieving resource efficient and ergonomic production, with dynamic integration of their customers and business partners into the value chain.

Lapp is taking the lead on the quality inspection module for the research and demonstration platform, which will involve testing innovative cabling and connection solutions for data network cables. Quality inspection includes the use of a high-resolution camera, which raises a particular challenge in itself as it must be able to transfer data consistently and reliably at the highest data rate in the demanding conditions of a production environment. In this case, the highly flexible ETHERLINE ® FD Cat.6$_A$ cable, together with the field-configurable X-coded M12 data connector, ensures this function. Data rates

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of up to 10 Gbit/s are possible for high-resolution cameras in moving applications. Industrial Ethernet assemblies comprising robust, resilient cables with M12 connectors, also ensure a reliable connection in areas where contamination and damp must be taken into account. This extensive networking paves the way for new possibilities in maintenance and storage, as well as in production. With this in mind, Lapp is planning on attaching RFID chips to its cables, among other innovations. If a replacement were required, a service technician would be able to scan the exact data directly from the cable and then immediately initiate an order for the required part from the e-shop.

The "fourth industrial revolution" has many challenges in store for machinery and plant construction firms, hardware and software suppliers and, last but not least, manufacturers of connection technology. To achieve the flexible and customised vision of production that lies at the heart of the futuristic intelligent factory concept, companies are going to need innovative solutions that allow the vertical and horizontal integration of their value creation processes. Developments that facilitate the processing of large data volumes and communication between the various components are spurring this revolution on.

About the Lapp Group:

Headquartered in Stuttgart, Germany, Germany, the Lapp Group is a leading supplier of integrated solutions and branded products in the field of cable and connection technology. The Lapp Group has remained in continuous family ownership since it was founded in 1959. In the 2012/13 business

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year, it generated a consolidated turnover of 830 million euros. Lapp currently employs approximately 3,200 people across the world, has 18 production sites and over 40 sales companies. It also works in cooperation with around 100 foreign representatives.

Lapp Group North America:

As part of the worldwide Lapp Group, Lapp Group NA offers a complete one-stop automation solution for cable and connector needs. Lapp has the broadest range of products, including OLFLEX®, UNITRONIC®, and SILFLEX® flexible and continuous-flex cables, SILVYN® cable track and accessories, EPIC® rectangular, circular, and Pin & Sleeve Connectors, SKINTOP® strain relief cable glands, FLEXIMARK® Cable Marking Systems, remote access ports, and custom harness assemblies. From its state-of-the-art manufacturing facilities in Florham Park, NJ, Lapp Cable Works manufactures custom cables for unique applications.

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