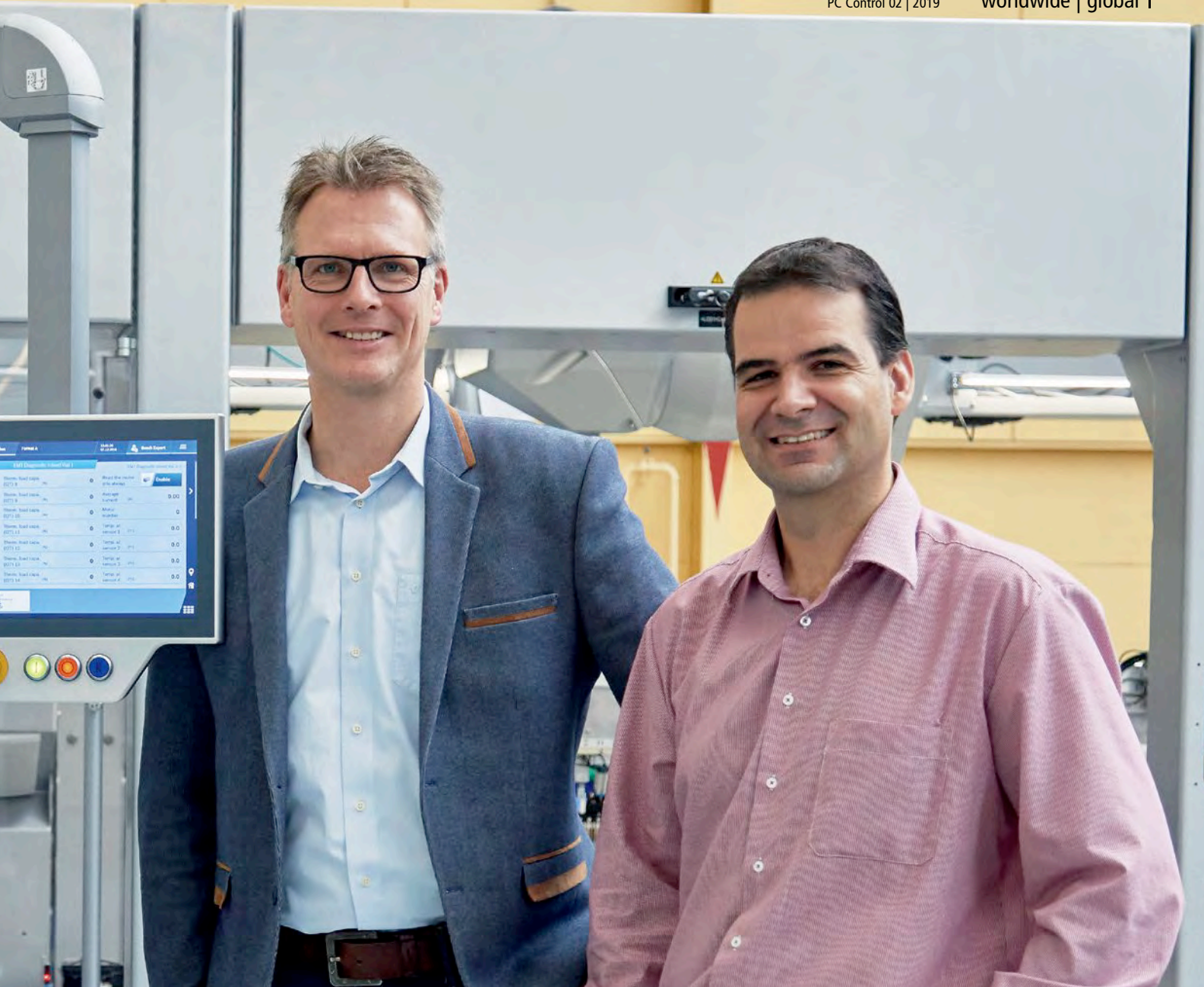




The team of experts involved in the realization of the new packaging operating panels (right to left): Pascal Witprächtiger, Director Industry 4.0 – Lifecycle Solutions at Bösch Packaging, Roland van Mark, Product & Marketing Management Industrial PC at Beckhoff, Thomas Schwendemann, Head of Strategic Procurement at Bosch Packaging, Stefan Keller, Area Sales Manager at Beckhoff Switzerland, and René Zuberbühler, Managing Director of Beckhoff Switzerland



Multi-touch Panel PC as a packaging trademark

## Integrated HMI for Bosch packaging machines in the food industry

Bosch Packaging Technology, Business Unit Food, specializes in packaging systems for the food industry. These systems are used by multi-national food producers, which is why in many cases a consistent, integrated operating concept is essential. The packaging experts therefore developed a new user interface referred to as HMI 4.0, which together with a multi-touch Panel PC from Beckhoff serves as a global operating standard for Bosch food packaging equipment.



In Bosch packaging machines, the Panel PC version with illuminated push-buttons is used at a percentage of about 40%.



The Control Panel can also be used as a mounting arm version without electromechanical buttons (shown here) or as a built-in version, as required.

Currently, new packaging machines of the company are equipped with the new operator interface. Pascal Witprächtiger, Director Industry 4.0 – Lifecycle Solutions at Bosch Packaging, explains: “The software and hardware are perfectly matched, which is why HMI 4.0 is only used in conjunction with the multi-touch panel PC from Beckhoff. On the one hand this ensures full functionality, on the other hand machine operators can familiarize themselves very quickly with any of our machines – due to the consistent look and feel and our integrated operating philosophy.”

Primarily, the 15.6-inch control panel from Beckhoff is used in three different versions: the CP3716 IP-65 mounting arm version, with or without keyboard extension, and the CP2716 variant for control cabinet installation. This flexibility in terms of the device range was an important selection criterion for Pascal Witprächtiger: “We prefer the two mounting-arm versions, and we expect these to be used in about 80% of all applications. In the remaining 20% of cases the built-in version is likely to make more sense, for example in situations where a suitable control cabinet already exists, so that the costs for the mounting arm can be saved or benefits in terms of hygienic design can be achieved.” Roland van Mark, Product & Marketing Management Industrial PC at Beckhoff, adds: “A key aspect are the practical application requirements. After all, a mounting arm not only costs money, it also takes up space, represents an additional mechanical unit, and its maneuverability does not necessarily provide added value in all situations.”

### Standard hardware with custom adaptations

The control panel from Beckhoff is a custom device that is available worldwide, as Roland van Mark explains: “The key is that all specific user requirements are met, while at the same time optimum customer support is available worldwide. This is achieved through a control panel that largely consists of standardized components.” Pascal Witprächtiger says: “This is particularly important for multi-national companies with production facilities around the world. In this way, for example, even users in China or Australia don’t have to wait several weeks for a special version.”

In addition to the extension with electromechanical buttons and customer-specific imprints on the glass front, Pascal Witprächtiger highlights a further application-specific aspect: “Our machine design features a particularly attractive mounting arm adapter. Since it is very slim and has a narrow bending radius, the connection level had to be adapted for the panel version with push-button extension. The cooperation with Beckhoff in this respect was exemplary, e.g. when it came to the Windows 10 IoT operating system or the thermal configuration.” Roland van Mark illustrates the underlying basic concept: “The sophisticated device design has clear advantages for us. The suitably dimensioned aluminum enclosure houses the motherboard on one side, the hard disk on the other side, and the connection hardware in the center. All components are thermally decoupled. Through this modularity it is possible to implement special customer requirements, such as the slim mounting arm, easily, quickly and without restrictions in terms of availability.”



The compact connection level of the touch panel (shown here) fits into the slim mounting arm adapter from Bosch; it can easily be adapted for applications where the push-button extension is required.

### Seamless HMI portfolio with attractive design

Due to the preference for devices with mounting arm, according to Pascal Witprächtiger the availability of a seamless portfolio, including IP 65 versions, was a key selection criterion for Bosch Packaging: "There are not many suppliers in the market who offer such a wide range of devices, and above all encapsulated versions with IP 65 protection. Additional benefits offered by Beckhoff are the attractive design and the excellent product quality, based on the high level of production expertise. Another factor for us was the assurance that the highly scalable HMI range would be able to cover all our future requirements, including any special request we may have."

According to Pascal Witprächtiger, the design also plays an important role: "Although the performance of our packaging machine has top priority, the HMI design – in terms of hardware as well as software – should not be underestimated, not least because HMI 4.0 is much more than just a new interface: it redefines the interaction between humans and machines. The main focus is on simplifying the operation, i.e. the aim is for the HMI to provide only a minimum amount of information, but in each case precisely the information that is required. In other words, the user experience has top priority." Roland van Mark agrees: "Reduction to the essentials is crucial for efficient and reliable machine operation. An attractive, high-performance hardware contributes to fast and targeted operation."

### Future potential, including Industrie 4.0

In the Panel PCs used in the Bosch packaging machines, an Intel® Atom™ CPU with four processor cores provides plenty of computing power. According to

Pascal Witprächtiger, it not only provides the required performance, it is also cost-effective, can be operated without fan, and features a graphics engine that is eminently suitable for the HMI application: "The widescreen format is ideal for our machine design and operating concept, and thanks to multi-touch support e.g. for 3D representations, we were able to implement all our requirements. Plus, we are well prepared for future developments. The advanced Windows 10 IoT operating system offers a wide range of options for implementing Industrie 4.0 ideas. Ultimately, we aim for an integrated approach with optimum user interface and rapid troubleshooting capabilities, resulting in maximum machine efficiency."

Pascal Witprächtiger refers to a control system application as an example for the early implementation of an Industrie 4.0 application: "The individual control panels synchronize themselves automatically via Windows Communication Foundation (WCF) technology, without the need for a remote master computer. Each HMI can also display information, commands and recipes from other machines. In this way, end users can benefit from system networking without the need for a costly conventional server system. Troubleshooting in the packaging systems, which can be more than 100 yards long, is also simplified because the machine operator no longer has to walk to a remote control panel, but can check the whole system from a single HMI. The combination of Beckhoff multi-touch Panel PC and our HMI 4.0 user interface forms the ideal platform for all this."

Further information:

[www.boschpackaging.com](http://www.boschpackaging.com)

[www.beckhoff.com/cp37xx](http://www.beckhoff.com/cp37xx)