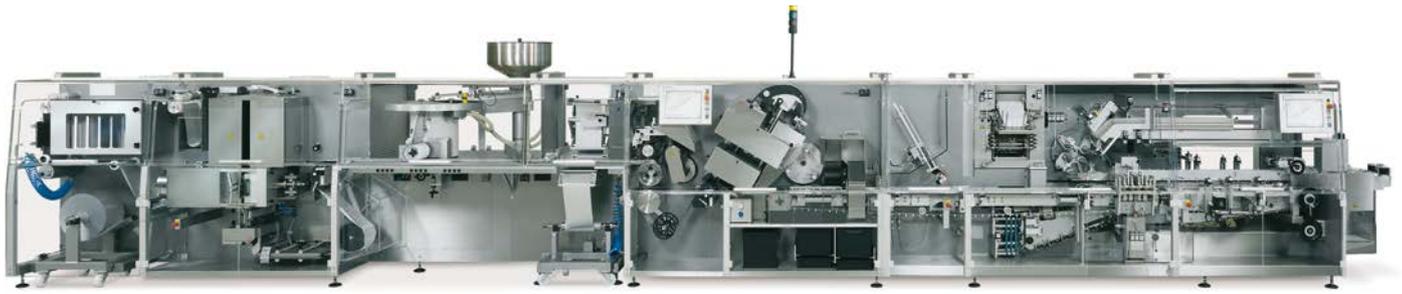




Far greater than the sum of its parts

Working with a single, all-inclusive project is not always the best way to manage the monstrous task of engineering control software for machines whose design requirements vary greatly from customer to customer. According to Ulf Leineke, R&D manager at Mediseal GmbH, there is a better solution. With a pool of thoroughly tested software modules and B&R as an automation partner, the packaging machine manufacturer has greater agility to deliver new solutions with minimal cost and risk.



High-performance blister packaging line from Mediseal GmbH. Encapsulated, reusable hardware and software modules minimize the cost and effort involved in the customer-specific modifications frequently required in the pharmaceutical industry.



"For our customers in the pharmaceutical industry, product quality and system reliability are absolute priorities," explains Mediseal's RSD manager, Ulf Leineke. "Nevertheless, the substantial variations in requirements mean that up to thirty percent of each machine is either modified or newly developed."

Leineke argues that the approach frequently taken by manufacturers of series-produced machines – maintaining a single software project that incorporates multiple machine series and all of their options – would not have the same benefits for a company like Mediseal. "Considering the number of custom modifications that we deal with, an all-inclusive project would quickly balloon to unmanageable proportions. It would also result in us carrying an unnecessary load of disabled modules in every project or having to decouple parts of the main development line." Leineke also believes that customer acceptance would be problematic. "Our users in the pharmaceutical industry expect state-of-the-art custom solutions and updates, but they don't want to have to test and validate the entire project after every modification."

Pool of tested software modules

Mediseal draws from a pool of software modules with clearly defined interfaces to create the bulk of each new machine. "Since this part is not modified in any way, only the newly added components and any interdependencies require testing and validation. This saves a great deal of time and effort for both us and our customers," says Leineke.

Mediseal's software modularization has been even easier since switching to version 3 of B&R's Automation Studio engineering environment five years ago. "Encapsulating the software in reusable modules accompanied by corresponding libraries is a very simple matter," says Leineke. "Plus the projects are available as ASCII text, not just binary files." Leineke considers this to be one of the most important factors, as it allows efficient use of a source control tool to manage the various software modules. Once a version has been tested and released, it can be frozen and reused over and over.

Not forced to change products

It was because of these clear advantages that Mediseal became an early adopter of Automation Studio 3. "Whenever we see a new technology take a significant innovative leap, we're quick to implement it to our own advantage and to the advantage of our cus-

tomers. We expect our automation partner to incorporate our feedback and inform us promptly of any issues – and B&R does an exemplary job of this," reports Leineke. It is important to him that he is never forced to change products, but rather is free to choose whichever time is most convenient. He appreciates that his development team is able to continue using earlier versions of Automation Studio with B&R providing updates long into the future. "Another huge advantage is that we hardly ever have any issues with firmware incompatibility," says Leineke, noting that Mediseal can rest assured when it comes to product availability as well: "Even B&R's oldest products are generally still available." And he ought to know – after all, Mediseal has relied on B&R automation technology as standard equipment on all of its machines for over seventeen years now.

An open solution, an open partnership

Mediseal originally switched to B&R in order to implement an innovative machine architecture based on distributed drive technology and flexible motion control. "Even back then, B&R had a control solution with integrated servo technology that allowed us to change cam profiles at runtime as well as unifying PLC and motion functionality in a single system," recalls Leineke. "These factors, plus the openness of the solution and B&R's readiness to accommodate our special requests, were the foundation of our decision to work with B&R as our automation partner."

This kicked off a long series of innovative machine developments, as demonstrated by the CP600. This was the first Mediseal blister packaging machine to be equipped with digital servo drives, and with an output of 600 blisters per minute it is among the fastest on the market.

Mediseal has more experience than any other company in the world when it comes to the implementation of digital servo technology. As a result, its users profit from an unparalleled level of flexibility and production efficiency. Direct drives replace mechanical moving parts and reduce the time for format changeovers between PVC/ALU and ALU/ALU blisters to under 35 minutes. The modular construction and clearly delineated zones make it easy to implement optional function modules – with optimal support from open B&R technology. The full performance of the CP600 can be best utilized by pairing it with a Mediseal cartoning machine.

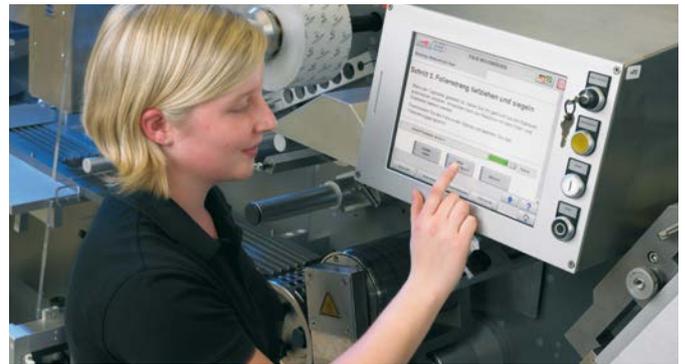


As a manufacturer of packaging machines for the pharmaceutical industry, Mediseal develops or modifies up to thirty percent of each machine to accommodate its customers' needs. Thanks to B&R's Automation Studio engineering environment, Mediseal has been able to reduce the amount of software engineering this requires to an absolute minimum. In particular, Mediseal values Automation Studio's ability to encapsulate software into reusable modules and add the corresponding libraries.

Ulf Leineke

R&D Manager, Mediseal GmbH

"B&R provides excellent single-source support to accompany its products and solutions. This helps us minimize engineering expenditures for our highly customized machines and still be able to respond quickly to new trends."



The operator console for the CP600 blister machine is based on a decentralized Automation Panel, which B&R modified according to Mediseal's design requirements to fit directly into the console housing.

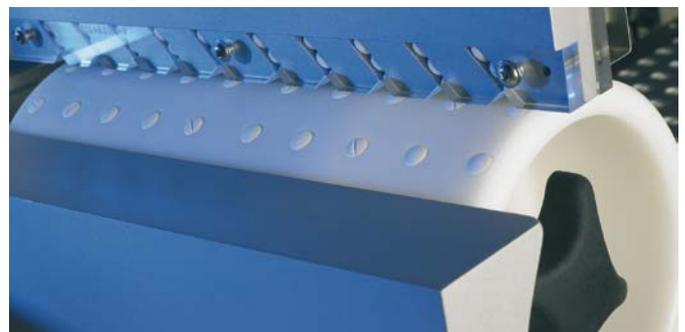
Development and commissioning in parallel

Each machine in a Mediseal line is controlled by a CPU module from B&R's X20 system. "This decentralization makes it easier for us to develop the software in parallel and commission a line's machines independently, which is much more efficient than dealing with a single centralized controller," says Leineke. "We're currently evaluating Automation Studio 4, which would allow us to work concurrently on a single controller. If that pans out, it's possible that we may soon move to an architecture with a central controller." This step would also eliminate the need for cross-communication between the line's controllers – a welcome side effect.

Communication between the controllers and the distributed servo drives, as well as networking of the local and remote I/O stations from B&R's X20 system, is all provided by POWERLINK. "The B&R solution gives us virtually unlimited possibilities for integrating other bus networks and 3rd-party systems, as well as complete freedom for selecting the type of motor to use. With Automation Studio, we can control linear, servo or stepper motors using the same software interface," says Leineke. "Yet even though we use B&R technology across the board – from control and I/O to HMI – what's more important to us is that B&R provides excellent single-source support to accompany its products and solutions. This helps us minimize engineering expenditures for our highly customized machines and still be able to respond quickly to new trends." ←



Fully equipped with POWERLINK and B&R servo technology, the CP600 produces up to 600 blisters per minute



The CP600 fulfills the most stringent demands on quality. Not a single defective blister is permitted to leave the machine undetected. B&R technology makes it easy to integrate external inspection equipment such as cameras and scales.