Pharmaceuticals

The perfect match

Photo © InnoScan

After terminating a long-term cooperation with a machine builder, InnoScan took the opportunity to rethink both the mechanical and electrical design of its high-speed vision-based inspection machines – a pursuit that called for both expertise and creativity. In addition to the cutting-edge automation components needed to handle the pharmaceutical industry's demanding requirements for speed and versatility, B&R offered the development support and flexible partnership InnoScan was looking for.

To maintain its competitiveness, InnoScan decided to terminate a long-term cooperation with a local machine builder back in 2003. In the wake of the termination, InnoScan redesigned parts of its machines and started looking for automation components suitable for upgrading the old control system. With demand for improved speed, complexity and flexibility growing by the day, InnoScan was looking for an automation provider able to meet these challenges long into the future. In 2006, the company turned to B&R. The goal was to test whether the selected components were compatible with the high speeds of the inspection machines as well as the communication protocols already in use. After proving its expertise in these matters, B&R has played an important part in the redesign and continued development of the entire InnoScan control system.

Critical speed requirements

InnoScan is active in one of the most demanding pharmaceutical segments. Through intelligent software, advanced mechanics and specialized know-how, InnoScan meets the highest standards with regard to speed and complexity. An InnoScan inspection machine typically inspects 10 to 25 different attributes on filled vials – at speeds approaching 650 vials per minute. The machine vision algorithms must therefore be processed in milliseconds, leaving no time

for communication delays of any kind. True real-time processing is crucial for an InnoScan inspection system.

From mega-volumes to smaller batches

"We see ourselves as the perfect match for demanding customers who require the highest degree of complexity in combination with extreme speeds," says director Gert Nielsen, who has been with InnoScan since 1988. "The success of our inspection machines depends heavily on reliable system components that interact efficiently at high speeds." Changes in the market, such as drastically shrinking batch sizes, have had a significant impact on InnoScan and the design of its solutions. "The development has gone from mega-volumes to much smaller batch sizes," observes Nielsen, "while at the same time inspection machines are expected to handle an increasing range of different products. So, while speed and complexity are still important drivers, our solutions need to be extremely flexible as well."

Complementary expertise

An inspection machine has a multitude of moving and spinning parts, which need to be very tightly synchronized to deliver the mind-boggling speeds at which vials and are inspected. Motion control is therefore a crucial element of the control system. Servo drives offer the necessary precision and the ability to changeover quickly and easily between batches. In fields like motion and servo control, InnoScan recognized that it had reached the limits of its expertise. "The fact that we can draw on B&R's programming know-how in situations where either our experience or resources are limited is of tremendous importance to us," praises Nielsen. "It allows us to focus on our specialty – machine vision – while drawing on B&R's expertise for specific automation challenges. As a partner, B&R possesses the know-how and flexibility to perfectly complement our own R&D."

Helge Jacobsen
R&D manager, Innoscan

"Our customers demand high speed combined with the inspection quality of the human eye. That's why we need an automation partner who understands our needs and who can supply us state-of-the-art automation products and automation experts to assist us in our R&D."

A flexible partner

Today, B&R components are used widely in every inspection machine from InnoScan. The cooperation involves motion, I/O, safety, HMI, PCs, sensors and a very close partnership in software development. InnoScan still makes use of B&R experts from time to time; however, today they usually come from the local B&R Denmark office, which has grown significantly since the partnership began back in 2006. "Before the redesign, we examined the possibility of proceeding with our previous automation provider," recalls Nielsen. "However, we could not come into terms with their take-it-or-leave-it approach. B&R turned out to be a much more flexible solution provider, with the combination of the high speed real time bus Ethernet POWERLINK and openness to the communication options we needed for our own developed hardware. The most important for us was the willingness to find solutions to our specific challenges." ←

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