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Packaging automation technology follows trend of “personalized packaging” and lot size 1

The trend toward smaller and more customized packaging units is particularly apparent in the B2C segment. Consumers can even order their own combinations of products, such as customized coffee pods or packages that feature their name. Packaging machine manufacturers must respond to this demand, and many have already done so. This was clearly demonstrated in Düsseldorf, Germany at the 2017 Interpack trade show by the large number of new machines that can accommodate lot sizes of 1, even in low-cost product segments.

Highly flexible packaging machines play critical role

Modular packaging machine design remains the basic prerequisite to meet rising demand for product diversity. This is the only way to achieve the short product changeover times made necessary by this trend. And as more machine functionalities are handled by the control software, these rapid changeovers can be implemented more easily. The eventual goal is to adapt even the most complex workflows to new products with a simple mouse click and minimize the need for mechanical changes.

The benefits of this approach extend to far more than customized products. It also shortens the time to market, which can give the machine’s user a critical leg up on the competition. This is particularly true when new products are introduced.

Software- and PC-based machine controls also play a major role in the ability to implement modern Industrie 4.0 concepts. With their openness to the IT world, they form the ideal basis to send detailed machine and production data to higher-level ERP systems and/or to the cloud. Analyzing this data, in turn, enables highly efficient energy and lifecycle management capabilities, resulting in improved sustainability through minimized energy and resource usage. Opening up new ways for enhancing the efficiency of production planning and control, cloud service solutions also offer enormous saving potentials. By streamlining the available production capacities with production orders, the available production systems, that is, the machines, can be optimally utilized – whether they are located on site or distributed all over the world. In addition, the machines can be selected in such a way that transport distances are minimized.

Linear eXtended Transport System (XTS) for maximized machine flexibility

The prime example for replacing conventional mechanics with software functionalities is the eXtended Transport System from Beckhoff, because it opens the door to a new level of innovation in machine design. Implementing motion and handling tasks with highly flexibly configurable XTS motor modules and movers that can be controlled just like individual servo axes simplifies the machine’s mechanics considerably. In addition, XTS-based machines are much more compact and lightweight, and require a lot less wiring. On the bottom line, machines are more flexible, operate faster, and require less maintenance with XTS. XTS-based machine design also allows equipment manufacturers as well as end users to face the future with confidence. The ability to quickly replace, modify or add modules makes it as easy as possible to accommodate new products and new market requirements.

The flexibility of XTS also shines in connection with other technological trends like digital printing, which offers ideal ways to personalize products and is fully supported by XTS. And because of their huge potential for optimization, collaborative robots that work side-by-side with humans (hence the term “cobots”) will play an increasingly important role in manufacturing as well, which is why the packaging machine industry is already working on the next phase of machine innovation.

Frank Würthner,
Business Management Packaging,
Beckhoff
Designing packaging machines with PC-based control and XTS harbors exceptional potential for innovation

Flexibility, efficiency and sustainable use of resources are the core points that designers and users of packaging machines are currently focusing on in light of Industrie 4.0 and changing customer needs. Beckhoff experts Andrew Plater, Global Market Manager Food, Beverage and Tobacco, and Frank Würthner, Business Management Packaging, explain in this interview how PC- and EtherCAT-based control technology and the eXtended Transport System (XTS) can contribute to achieving these goals.
What are the current industry trends and end user requirements in the packaging environment?

Frank Würthner: In the past, large quantities or units of items like coffee or chocolate bars were produced and packaged uniformly. Today, the trend clearly goes towards smaller lots up to individually personalized products. Examples include individual combinations of items such as coffee capsules, or the ability to personalize standard products with your own name or picture. Packaging machine makers must be able to respond to these market requirements. We refer to this as “lot size 1” production. Based on this trend, more and more big players in the B2C field such as e.g. Amazon will become direct customers of the machine engineering industry in the future.

Andrew Plater: Product diversity has increased significantly for each vendor in recent years and decades. This inevitably leads to the aforementioned smaller lot sizes and shorter production runs. As a result, the time needed to change product setups on the machine is becoming an increasingly critical productivity factor, which means that packaging machines must be even more flexible and modular so that they can be configured more easily. Pure output speed is becoming less of a machine requirement. In addition, new products must carry minimal production risk and have the shortest possible time-to-market, both of which can be realized with the help of simulations and virtual reality.

What new concrete requirements do you see with regard to packaging?

Andrew Plater: As a rule, most consumers reach for products they are familiar with, for example in the supermarket. That’s why you have to create attention for a new product. Accordingly, the packaging industry has been quite innovative, supported by the aforementioned trend to personalization. We already see huge numbers of special sizes, promotional packages for campaigns, etc.

Frank Würthner: Another aspect is particularly important for the pharmaceutical industry. While look and feel are critical for food and beverages as well as for other consumer products, the pharmaceutical industry must comply with regulations like FDA 21 CFR Part 11. According to this rule, a medical product like a new artificial knee e.g. must be totally clean and sterile when it arrives at the hospital, and product traceability enables end users to minimize liability risks.

Do demographic factors like smaller households and the rising average age play a role as well?

Frank Würthner: Rising population numbers and – at least in Europe – the rising average age of consumers lead to increasing demand and changing requirements for modern food packaging. For instance, vendors must employ better printing processes, more see-through windows and more ergonomic package design to compensate for older people’s deteriorating vision and physical strength. One such example are easier-to-use resealing systems even senior citizens with less strength and agility in their fingers don’t have trouble handling.

Andrew Plater: The pharmaceutical industry provides a good example of this. According to a study, roughly 40 percent of older people take approximately 100 pills per month from up to seven different products. If you can’t see so well anymore, you have trouble reading and opening the packages, especially if you have to take many different medications. This is where packaging can help that combines the various medications and tells people exactly when to take them. Accordingly, you need a packaging machine that is able to place the hundreds of pills into patient-specific blisters instead of having a single blister card for each medication.
Frank Würthner: The young population – whose share is growing in Asia, by the way – also poses special demands, because this is a market where modern and stylish packaging increases sales. We are also seeing a trend towards more direct-use packaging, i.e. portion packs, display packages, etc., as well as smaller portion sizes for single households and to-go packaging variants. The demand for vacuum, multi-layer, multi-portion and multi-function packages is also rising. There are even new package types that combine the packaging with electronic components, for example.

Andrew Plater: Different regional requirements are another factor that increases the need for flexible packaging machines, particularly for product manufacturers that sell worldwide. They spend a lot on R&D to be able to meet local requirements for different regions. For example, while many European products are very popular in Asia and the Far East, they must still be adapted to match local tastes with specific flavors. Portion sizes also make a big difference in many cases. While small 25-gram bags of crisps are popular in Great Britain, Americans prefer larger bag sizes. But then smaller package sizes are becoming more popular in the US, too, as are multi-packs that contain a variety of flavors and special promotion packs, such as printing a sporting event result. All of this requires highly flexible packaging technology.

What are the special advantages of PC-based control from Beckhoff for packaging machine manufacturers and users?

Andrew Plater: Traditional PLC technology increasingly runs into performance problems where modern and highly flexible packaging machines are concerned. PC-based control, on the other hand, has sufficient performance reserves to run such installations efficiently and enable very rapid product changeovers. As a consistent platform, it also provides easy links to visualization systems and higher-level SCADA, MES and ERP systems. PC-based control also makes it easy to implement the current trend towards more demand-oriented production backed by solutions based on IoT, Industrie 4.0 and smartphones, which may be used to directly adjust the production process on the basis of social media surveys regarding flavors, etc. In such a way, it is possible to adapt the production output to the current market demand and to avoid overproduction, especially of products with a limited shelf-life, ultimately enabling minimized waste of valuable resources and increased production efficiency.

Frank Würthner: That’s why PC-based control has already become firmly established in the packaging machine field and Beckhoff offers all the necessary functionalities in its TwinCAT automation software. Another advantage arises in connection with Industrie 4.0 concepts, because they can be implemented much more easily with PC-based machine control than with standard PLC technology.

Andrew Plater: And let’s not forget about the inherent advantages of IPC technology. Due to the high processing power of Industrial PCs, all machine functions down to high-performance motion control can be implemented with a single device. In conventional machines, the separate systems for PLC, motion control, safety control, robotics control and HMI take up much more space and require much more maintenance, which means everything costs more. Additionally, with the advantages of PC Control, we have managed to reduce the use of packaging material by up to 40%.

What support does Beckhoff provide on the road to optimized packaging applications?

Andrew Plater: Traditionally, the component supplier talks to the OEM, and the OEM talks to the end user. We, on the other hand, aim to bring all parties together, because we believe that this is a much better way to deliver critical business benefits like improved product quality, more flexible production, and faster delivery. It is a highly partnership-oriented approach that allows the end user to connect the XTS movers in pairs to ensure dynamic and precise transport of high payloads.
user to specify his requirements in detail and the OEM to build something that matches them perfectly.

**Frank Würthner:** This approach has proved to be very successful for all parties involved in recent years. By working closely together, we have been able to come up with exceptional solutions like e.g. packaging lines with a significantly reduced footprint and maximized availability for 24/7 operation.

**What makes the packaging solution from Beckhoff so special?**

**Andrew Plater:** We offer machine manufacturers a complete solution ranging from an exceptionally broad spectrum of I/O components to HMI systems with high-level control software to high-end motion control and drive technologies. In addition, our systems are open, which means that PC-based control is well-suited for heterogeneous automation environments. One highlight of our solution is the linear XTS transport system, which offers machine manufacturers an exceptional innovation potential, enabling them to implement totally new machine designs.

**Frank Würthner:** Implementing motion and handling tasks with XTS reduces the mechanical requirements significantly. You can also build machines with significantly reduced space and cabling requirements. And in addition the systems are much more flexible with faster workflows and fewer maintenance requirements. The small footprint in particular is very important, because many large end users are older companies with plants that are located in urban areas with limited room for expansion. XTS is a critical factor in such environments, because it does so much more than replace an existing conveyor belt – it makes a totally new machine design possible.

**Andrew Plater:** As we explained earlier, the established business models of end users are increasingly undergoing a transformation at present. XTS is an excellent way to meet their packaging machine requirements, including the need for speedy product changeovers, and future-proof their manufacturing.

**Can you explain in more detail?**

**Andrew Plater:** When we rolled out the first XTS applications, we focused on fairly simple processes. Over time, customers have realized how effectively they can use new motion profiles to improve their machines and change the entire process. At the end of the day, this led very quickly to consistently modular machine designs. And this is what we see in the future: in an XTS-based machine where modules can be easily switched out, modified or added so that new products can be introduced with exceptional ease. Any mechanical changes will be minimal, because the actual modifications are made quickly and easily via software.

**Frank Würthner:** A filling line in the pharma industry explains this huge optimization potential quite well. In addition to filling the product, the XTS-equipped machine employs complex mover functions to test the medicine dispenser’s function. This kind of all-in-one production has been impossible with other technologies up to now.

Further information:

www.beckhoff.com/packaging

In the toothbrush packaging line developed by Koch Pac-Systeme (see p. 14) XTS replaces expensive mechanical systems with software functionalities that make the line more compact and more flexible for extremely fast product changeovers.
XTS in “Hygienic Design” for compact and highly flexible motion solutions with optimal cleanability

XTS Hygienic, the stainless-steel version of the eXtended Transport System from Beckhoff, opens up a wide spectrum of new applications, first and foremost in the primary food and pharmaceutical industries and for processing and filling liquids in general. Enabling optimal cleanability with the high protection rating of IP 69K, very good chemical resistance and without any hidden corners, edges or undercuts, the version in hygienic design offers a lot of potential for innovation in these industries. The advantages of the standard system as a highly flexible motion solution are combined with ease of cleaning, thus enabling process optimisations and maximum production line availability even when the demands made on hygiene are high.
The XTS replaces mechanics with software functionality to allow for a high degree of design freedom in realising completely new machine concepts. As a result, applications with difficult environmental conditions, such as in product handling for the food, pharmaceutical and cosmetic industries and in the production of paints and varnishes, will benefit from the new Hygienic Design.

Benefits for machine builders and end users
Through a significant reduction in mechanical engineering requirements, machines can be set up with the XTS more compactly, at a lighter weight and with less wiring. In addition, compared to conventional solutions, the systems are much more flexible, the processes quicker and maintenance needs lower. Thus, machine builders can now offer smaller, more powerful and more efficient systems and the end user benefits accordingly from a smaller footprint, higher productivity and quicker product switchovers.

These advantages become particularly apparent in the Hygienic Design environment because ease of cleaning is one of the highest priorities. With the XTS Hygienic, which is so much easier to clean compared to more complex mechanical systems, the routine cleaning tasks along with those for product switchover – which are optimally supported by the XTS as standard – can be performed much more quickly. And there’s more: up to now, it was virtually impossible to implement mechanical solutions at all in many applications due to their high requirements for cleaning – the XTS Hygienic now allows for the automation of many of these processes as well.

Developed in close co-operation with the EHEDG
The XTS Hygienic was developed in close co-operation with the European Hygienic Engineering & Design Group (EHEDG). As a result, it meets all the requirements for system certification according to EL Class I AUX. The most important properties of this stainless-steel version include the high IP 69K protection class, which guarantees the highest-possible degree of protection against ingress of dust and water for high-pressure, high-temperature wash down applications.

In addition, it exhibits very good chemical stability so that the surfaces are able to stand up to surfactants, acidic and alkaline cleaning agents, different alcohols and disinfectants and even hydrogen peroxide.

The mechanical components used in the XTS are made of V4A stainless steel, while the seals and covers consist of very resistant plastic materials. In addition, all the joints between the individual components are protected against the ingress of dirt and liquid by a high-quality, elastic joint seal. Once installed, the XTS components form an even, smooth surface together with the machine that is easily accessible in all areas, which also makes it very easy to clean. These properties also apply to the movers, with the rollers placed at such a distance to the mover’s body that the gap can be cleaned with e.g. a finger. The rollers of the mover are sealed against the axis in such a way that it is possible to reliably prevent the ingress of dirt and any leakage of the bearing grease.

Product announcement
estimated market release: 3rd quarter 2017

Further information:
www.beckhoff.com/XTS
EtherCAT P combines ultra-fast communication and power supply in a single cable

With EtherCAT P, Beckhoff is expanding its EtherCAT technology which has become an established global standard. The solution combines ultra-fast EtherCAT communication with 24 V power for the system and peripherals – and optionally with additional power supply capabilities. This means that One Cable Automation (OCA) can now be implemented on the field level, enabling the plug-and-play connection of machines and other equipment ranging from 24 V sensors to 600 V drivers without the need for control cabinets.

EtherCAT P combines ultra-fast communication and power supply in a single cable.

EtherCAT P – the ideal bus for sensors, actuators, and measurement technology components

With EtherCAT P, the Us and Up currents are directly fed into the wires of the 100 Mbit/s line resulting in a highly cost-effective and compact connection. This makes EtherCAT P the ideal bus for sensors, actuators and measurement technology components with benefits for connecting small I/O stations in the terminal box as well as distributed I/O components. Beckhoff developed for EtherCAT P a special M8 connector whose mechanical encoding prevents it from being confused with connectors for standard EtherCAT slaves.

To be able to connect components with higher voltage and/or current needs, a complete EtherCAT P connector family has been designed that covers all applications up to drives with 400 V AC or 600 V DC and up to 64 A ratings. Thus, the new connectors make it easy to connect all field level components. For I/O applications, the interfaces are available with IP 20 and IP 67 ratings. The system is also suitable for AC and DC motors, actuators, valve terminals and sensors such as proximity switches, light barriers, or rotary encoders. For vision applications you can connect cameras, barcode scanners and 3D scanners.

EtherCAT P simplifies system wiring

The fundamental idea of EtherCAT P is to simplify the system wiring by reducing the number of connectors on automation components and devices. The one-cable solution, which is highly scalable according to individual power requirements, can be deployed on the entire field level. For 24 V applications, a standard Ethernet cable can be used. For higher voltages and currents, EtherCAT P is integrated into the respective power supply line. Beckhoff offers a wide range of cables and connectors for these applications.

Eliminating separate power lines reduces the cost of materials and assembly as well as the risk of installation errors. It also minimizes the space requirements.
EtherCAT P provides connectivity across the entire field level with an efficient one-cable solution.

Flexible topology through power supply forwarding
Engineers benefit from the same flexible choice of topologies they are well familiar with from EtherCAT. Linear, star and tree structures can be freely combined to achieve the most cost-effective and efficient system layout. Unlike with classic Power over Ethernet (PoE), EtherCAT P users can also be cascaded and supplied by a single feed-in device. The cascading of EtherCAT P devices is limited only by the voltage drop, but this can be remedied with additional power feed-in points.

To build custom EtherCAT P topologies, many infrastructure and I/O components with IP 20 and IP 67 ratings are already available. Since with EtherCAT P distances of 50 meters and more can be bridged, even widely distributed machine modules can be easily linked. A seamless transition from an EtherCAT to an EtherCAT P network is also possible. Reversely, system and peripherals voltage on an EtherCAT P network can be blocked with a simple adapter to run EtherCAT devices with their own power supply.

To design or plan a machine, the individual users and cable lengths can be configured with a special TwinCAT design tool. Since the system knows the data of all users, it can also take the individual devices’ power consumption over time into account. For example, if for logical reasons two actuators never switch at the same time, they never require full power at the same time. This produces additional potential savings with regard to the feed-ins and power supply units required.

One Cable Automation for the field level
EtherCAT P was developed to enable One Cable Automation across the field level. With its simpler system cabling, it makes machine designs much less complex and reduces engineering and production costs considerably. Automation components, distributed terminal boxes and even individual machine modules...
EtherCAT P: Highlights and benefits

EtherCAT is an open industrial Ethernet technology developed by Beckhoff that has been an international IEC and SEMI standard since 2007. The advanced EtherCAT P technology, which was recently introduced and has already been disclosed via the EtherCAT Technology Group (ETG) in the proven way, is fully compatible with traditional EtherCAT. As a result, the outstanding characteristics of EtherCAT such as 100 Mbit/s full-duplex communication down to the sensor or actuator, data processing on the fly, highly accurate synchronization with distributed clocks, and cycle times of less than 100 µs, will continue to be available without restrictions. Additional EtherCAT P-specific benefits include:

- EtherCAT + 2 × 24 V DC/3 A over only one 4-wire cable
- Power supply forwarding to connected devices
- Scalable connector family from 24 V DC to 600 V DC and 64 A
- Freedom and flexibility in topology selection through cascadability
- Outstanding EtherCAT performance with low connection costs
- Reduced hardware and installation costs
- Fewer sources of errors and minimized wiring cost
- Optimized space utilization for cable tracks, control cabinets and machines
- Elimination of separate power supply lines makes smaller sensors and actuators possible

With numerous EtherCAT P components in IP 20 and IP 67 protection ratings already being available, users can implement the best-possible network topology for their application.
and robots receive their power and their control signals over a single cable. Large control cabinets, previously unavoidable, can be reduced in size or even eliminated. As a result, modular machine and system concepts can now be implemented with lower assembly and startup costs, reduced footprints, and maximized flexibility.

Pluggable automation will deliver maximum efficiency in the future. As EtherCAT P connectors for various power requirements become established as a standard, the idea of industrial connector strips for 24 V and higher power classes is not farfetched, but a viable solution. Machine designers could distribute such strips with great flexibility and at low cost in an machine or installation according to the individual application requirements. Such a plug-and-play design which requires only the insertion of a matching EtherCAT cable would make it easy to connect all required sensors and actuators as well as distribution boxes and standalone machine modules.

Thomas Rettig, Senior Product Manager EtherCAT Technology, Beckhoff

Further information: www.beckhoff.com/EtherCATP
Koch Pac-Systeme: Compact machine module delivers quick, software-supported product changeovers

XTS at the core of a labeling and grouping unit in a packaging line for toothbrushes
Koch achieves a seamless, fully integrated and efficiently executed packaging process with customized equipment ranging from blister machines to product infeed and blister grouping modules to end-of-line packers. Customers receive solutions that meet industry-specific requirements and are perfectly matched to the size and shape of the respective products. A line for packaging toothbrushes that is fully controlled via Beckhoff TwinCAT automation software and processes up to 320 toothbrushes or 240 blisters per minute is an especially innovative example of the expertise demonstrated by the “Koch Packaging Lines”.

Project Manager Gert Müller explains the functional scope and complexity of the line with a total length of 28 meters (92 feet): “In a first step, the line will be operated with two different formats for which the customer uses two different foil thicknesses. What makes the line so attractive is its superior flexibility, because an automatic foil width adjustment feature allows the customer to use different foil sizes to produce additional blister sizes in the future. After the blisters have been formed, the toothbrushes are supplied via a high-speed pick-and-place (HSPP) system that uses a camera to control their position. Next, another HSPP places the cardboard backing and uses ultrasonic spot sealing to keep it in place for the actual sealing process. A laser system applies a code to the back of the card that is verified downstream via a camera system. After the blisters have been separated in a punch station, they are transferred via a two-axis portal to the central labeling and grouping unit before another HSPP system groups and transfers them to a cartoning machine. The packaged blister packs are then transferred to the customer’s downstream packaging steps.”
XTS makes labeling and grouping unit more efficient
The labeling and grouping unit is a prime example of Koch’s expertise in developing highly innovative solutions. Gert Müller: “We installed an XTS circuit that is 11 meters long and equipped with 24 movers with special carriers for single and twin blisters. When the product changes, only the carriers have to be switched out. Since this is a very quick and easy process, setup changeover times are reduced considerably.” Wolfgang Braun, Global Account Manager at Koch, adds: “The end customer wants to produce different formats with our packaging line, and therefore very fast and flexible format changeovers are required.”

Jürgen Welker, Director Automation and Technology at Koch, lists two more factors that convinced the company to use XTS technology: “The high throughput rate requiring the ability to adapt to varying labeling speeds at the labeling station are great benefits of XTS. In addition, the system can be very easily adapted to the various blister formats, since XTS enables flexibility for a wide range of products to be packaged. It is also highly reliable, which is critical, because the end customer requires 24/7 operation with 95 percent system availability.” Jürgen Welker also mentions machine design-related benefits: “Without the compact XTS, the labeling and grouping unit – and therefore the entire line – would have been 2 meters longer and much more complex due to the additional mechanical components that would have been required. It also would have been much less accessible for the operators when format changes need to be executed.”

Wolfgang Braun considers the high level of flexibility and the ability to convert the line very quickly to be key benefits from the end customer’s perspective: “The original plan called for a conventional solution based on a so-called bucket chain. While it was designed to be width-adjustable, it quickly encountered limitations because of the constantly expanding product spectrum. One – much more expensive – solution would have been to add a second bucket chain or even a split line with two separate packaging machines. As a highly flexible and software-based transport system, XTS turned out to be a better and much more cost-effective solution – also for future requirements.

XTS ensures high flexibility with software functionality
Gert Müller explains the flexible motion sequences within the labeling and grouping unit: “Depending on the format, the two-axis system transfers eight or 12 blister packs to four or six movers. These movers then travel to the labeling station. Another HSPP system places the blister packs in multiple layers into the cartoning machine’s product chain in accordance with the outer packaging type and the number of blisters that fit in there. The system stands still for loading and unloading while the labeling process runs continuously. With XTS, all these different movements can be programmed very easily.”

The software functionality of XTS also supports the quick product changeover requirement, because each blister format has its own recipe, including the precise processing positions that can be easily selected with a mouse click. In addition, the machine module has two labeling devices. Depending on the format, the software tells the XTS to which of these it needs to travel.

Powerful PC- and EtherCAT-based control technology
A single control cabinet PC from Beckhoff is all that’s needed to control the 24 XTS movers dynamically and with perfect precision. The C6930 PC is powerful enough to also control two Delta robots, handling the robots as additional TwinCAT NC tasks. Both HSPP systems are equipped with servo drive technology.
from Beckhoff. Jürgen Welker confirms the benefits: “TwinCAT provides all necessary functionalities. For example, we use the complete TwinCAT XTS Extension with functions like collision avoidance and cam plate. The fact that each mover is mapped as a separate servo axis in TwinCAT is hugely advantageous for us. That way, we can program and adjust each mover separately, which is convenient and also safe due to integrated higher-level functions like collision avoidance. And to top it all off, there is EtherCAT’s exceptional performance. The controller makes full use of EtherCAT’s extreme speed, particularly where the communication with the many servo drives in the system is concerned.”

Packaging technology on the road to Industrie 4.0

The openness of PC-based control systems helps Koch Pac-Systeme deal with future-oriented issues like Industrie 4.0. For example, the new toothbrush packaging line will exchange status information with the end customer’s ERP system via an OPC interface. A demo installation at the 2017 Interpack trade fair that was developed in cooperation with Beckhoff will show how heavily involved Koch’s packaging experts are in Industrie 4.0 concepts. The system will collect data on the consumption of power and compressed air in a small packaging machine via EtherCAT Terminals, transmit it to the Amazon Web Services (AWS) cloud, and display it on a mobile device app.
The multifunctional GMS 500 portioning system, which is a central component of modular TVI meat processing centers, is operated via a customized CP6901 Control Panel from Beckhoff.
Part of the basis for the company’s success, says TVI, is the high performance of PC- and EtherCAT-based control technology. These solutions helped elevate the company as the market leader for red-meat portioning machines and lines.

“In light of ever-changing market demands, our traditional technology had reached its limits. The PLCs we used at the time offered cycle times of up to 20 milliseconds. A linear servo axis can only move 10 millimeters in this time span. That’s no longer sufficient for today’s positioning and portioning requirements,” explains Thomas Völkl, Managing Partner at TVI. “To ensure success today, PC-based control technology from Beckhoff is exactly what we need, because in our case it operates with a cycle time of 1 millisecond and easily enables synchronous control of seven axes.” PC-based control also helped TVI combine energy-efficient and accurately controlled servo axes with fast single pneumatic valves to replace conventional pneumatic and hydraulic actuators.

TVI decided to replace conventional PLC technology with PC-based control back in 2008. The company started with one machine, the GMS 500, but others quickly followed. Today, TVI uses PC-based controllers exclusively. “We place our trust in Beckhoff, because we have already experienced the high level of innovation provided by the company. We highly value the direct line of communication and rapid response times we get from Beckhoff, especially when we need service,” adds Thomas Völkl.

**Reliability, speed and precision are all essential requirements**

Meat portioning machines must be super-fast and super-accurate while maintaining total cleanliness. Because meat spoils quickly, the window of time for processing is very small. Large meat processing plants in Germany produce fresh red meat classics like cutlets, schnitzel, minute steaks, goulash and roulades every day. Since these foods only stay fresh for about a week, speed is always of the essence.

When retailers run special promotions, the entire processing and logistics chain faces even tougher challenges. Thomas Völkl explains: “Fixed-weight packages make it easier for discounters to run specials and change the price at the register with the push of a button. Offers like ‘buy two, get one free’ pull many customers into the store and increase all product sales, not just for meat. For example, if a major discount chain places its order by 5 p.m., the goods must be delivered to all German distribution centers by 6 a.m. the next morning. That is why all major meat processors aim to serve 80 percent of the demand...
Managing Partner, Thomas Völki explains future meat portioning requirements to Stefan Lorenz, Beckhoff head of sales for southern Bavaria in Germany.

Currently with 86 employees, TVI develops and manufactures roughly 180 machines and systems annually in its Irschenberg, Germany plant, all of which feature PC- and EtherCAT-based control and automation technology from Beckhoff.

The AIR 520 automatic tray filler from TVI minimizes cabling costs using Beckhoff servo motors that feature One Cable Technology (OCT).
Further information:
www.tvi-gmbh.de/en

during the day shift, taking weather, upcoming holidays and other factors into account. The remaining 20 percent is produced by the night shift. Logistics like these require maximum equipment availability, reliability and flexibility, paired with quick changeover times and ease of operation and cleaning."

Above all, the portioning machines must be able to accurately weigh and cut the meat, preferably without creating any excess or waste. With the GMS 500 portioning machine, meat that has been cooled or warmed to a specific temperature is placed into tubes, where it is pressed into shape and measured. Next, a rotary knife cuts the meat into slices with the thickness determined by a linear axis. Control and servo drive technology from Beckhoff ensures that the process is executed with the utmost speed and precision. A single cut takes between 250 and 500 milliseconds, which means that the machine can produce up to 14,000 meat slices per hour. The GMS 500 portioning system operates with seven servo axes powered by four AX5206 servo drives, and AM3021 servo motors with AG2210 planetary gear units. The machine is controlled by a CX1030 Embedded PC running TwinCAT 2 NC software. The Control Panel is an integrated CP6901 with a stainless-steel bezel and a flush-mounted 12-inch touchscreen.

PC-based automation everywhere
A complete TVI meat processing system comprises tempering (including shock-freezing), cutting, portioning and fanning, placing in trays, final control with discharge and rework, and transfer upstream to packaging machines. The individual machines can be combined to form complete processing lines. A major reason for the consistency of the solutions from TVI is the broad product portfolio offered by Beckhoff, which ranges from AM3021 servo motors, AX5000 Servo Drives and EL72xx servo terminals to EtherCAT I/Os and Embedded PCs from the CX20xx and CX51xx series, coupled with TwinCAT 3 software and 12-inch touchscreen displays in stainless-steel. "We employ these components in all our new equipment designs because they meet our needs in terms of performance, hygienic requirements and ease of installation. We have also implemented TwinSAFE in some of our machine series, and the AM8000 servo motors with One Cable Technology (OCT) are used in our AIR S20 tray fillers," says Thomas Völkl.

Business relationship with a great future
"We began working with Beckhoff eight years ago based on the consistent, modular design of the company’s control and drive technology. We continue to support this partnership wholeheartedly because we are happy customers," summarizes Thomas Völkl. "Since we are highly innovative ourselves, we need an innovation-oriented partner like Beckhoff that acts in concert with us. As today’s machine developments focus heavily on flexibility, I want to see as many pre-finished templates and software modules as possible. This enables us to focus on what we do best as machine manufacturers."

Völkl adds: "For some time now, TVI has cooperated more closely with MULTIVAC Sepp Haggenmüller SE & CO. KG to offer complete lines which handle entire processes, from provisioning of meat all the way to arranging the finished product and filling pallets. As part of this relationship, TVI will make use of MULTIVAC’s strong sales and service network in order to make inroads into new markets. Since both companies decided years ago to use Beckhoff controls technology, sharing our respective hardware and software expertise will be easy. As part of our first joint project, four gantry robots with four axes each place approximately 1,600 kilograms of pork chops per hour into thermomolded trays. The hardware and software, which were originally developed for delta-3 kinematics, was adapted to the gantry robots' X/Y/Z/C travel axes. Since the shared hardware and software foundation made the process relatively easy, development of the project didn’t take long. As a result, MULTIVAC and TVI can focus even more effectively on customer-specific needs in the future. At the end of the day, our partnership has been extraordinarily successful."

Another challenge TVI wants to face in cooperation with Beckhoff is the integration of safety technology. To meet safety requirements, TVI will implement TwinSAFE in all future machines. Thomas Völkl: "We will also work even more closely with Beckhoff to leverage other innovative automation technologies like TwinCAT 3, OCT and multi-touch panels in our new developments."

Further information:
www.tvi-gmbh.de/en
XTS optimizes end-of-line packaging machine for the pharmaceutical industry

Today’s packaging machines must deliver maximal flexibility for small lots along with exceptional speed, a space-saving design, and comprehensive track-and-trace capabilities. Swedish specialist Graniten Engineering has introduced an innovative end-of-line packaging solution for pharmaceutical products that features the eXtended Transport System from Beckhoff at its core. With the linear transport system, the machine is not only extremely compact in design, but moves products with outstanding speed and flexibility. And its integrated serialization feature provides consistent traceability.
For Graniten Engineering, headquartered in Uddevalla, Sweden, which is located approximately 80 kilometers north of Gothenburg, the pharmaceutical industry is one of its most important market segments. “The end-of-line packer we built for a large customer in the pharma industry registers each product with a serial number. This applies to each individual medicine package, the boxes containing multiple packages, and the pallets on which the boxes are shipped. Based on these codes, the recipient can trace each package back to its origin, which is a great help in the fight against product piracy,” says Fredrik Sollenby, CEO of Graniten Engineering, describing the track-and-trace function of the end-of-line packer. At the core of this flexible and highly dynamic packaging system is the linear eXtended Transport System (XTS) from Beckhoff, which handles up to 250 products per minute.

**XTS meets all requirements**

Graniten Engineering has a track record of many years in developing smart packaging solutions for the pharma industry. The company has always been open to innovative technologies. “When we received the order to develop a new end-of-line packaging solution a few years ago, we faced challenges that our traditional machine concepts were not equipped to handle: fast and flexible product changeovers, rapid material movements, and all of it in a small footprint,” remembers Daniel Brännwik, Design and Engineering Manager at Graniten Engineering. “To allow more quality checks and additional control functions, you also need more mechanical components in conventional production lines. Since in a best-case scenario all these features would have to be accommodated in the same available space, our new machine had to be exceptionally compact.
Two movers are connected to provide higher force and control of the high payload.

End-of-line packer with XTS from Graniten Engineering.
At the same time, the customer demanded a high degree of flexibility, various options to control the flow of materials, and variable speeds. Last but not least, the machine had to be highly scalable and easily adjustable to accommodate a wide range of lot sizes. As we worked on the concept, we quickly came up with a solution approach that in retrospect seems like a blueprint for a system like XTS. And when we saw the linear transport system from Beckhoff for the first time at a trade show, we recognized its benefits on the spot. XTS truly opened the door for us to an entirely new approach in packaging machine design.

“An in-house development we added to the XTS enables us to move loads weighing up to 10 kilograms. We are also very proud of the fact that we already have several developments on the market with XTS as the core of a highly dynamic and flexible material transport solution,” adds CEO Fredrik Sollenby. “Our close relationship with Beckhoff turned out to be very helpful when we developed our first end-of-line packer.” More orders followed, and the future looks highly promising for Graniten Engineering, because the market potential for such solutions is very high, Sollenby believes. “Initially we are focusing on the European market, but our packaging lines meet requirements that apply all over the world, and not only for the pharmaceutical industry. You may even say that the pharma industry functions as a model for many others, which makes our solution with the eXtended Transport System an important reference project,” concludes Fredrik Sollenby.

Further information:
www.graniten.com/en
www.beckhoff.se
PC-based control platform revolutionizes vertical form-fill-seal machine concept

Fast and flexible format changes paired with high speed
At the Interpack 2017 trade show, Italian packaging machine manufacturer MBP, a subsidiary of PFM Packaging Machinery S.p.A., will present a revolutionary development. Their new vertical form-fill-seal machine combines the high speed common in continuously operating machines with the fast and flexible format change capabilities of intermittent-operation solutions. The totally new design of the machine is based on PC-based control and an automation architecture from Beckhoff, taking full advantage of its high performance.

MBP was established in 1980 and initially specialized in designing and building multi-head weighers. Its acquisition by PFM in 2002 gave MBP access to the parent company’s experience and expertise in technology, process engineering and R&D. The PFM Group, founded in the 1960s with headquarters in Vicenza, Italy, is represented in 70 countries and considered among the world’s leading builders of packaging machinery. The portfolio ranges from horizontal flow-wrap machines, vertical form-fill-seal (VFFS) machines and horizontal stand-up pouch packaging machines to complete packaging systems with multi-head weighers for multiple industries.

**R-Series: The new VFFS concept from MBP**

For Andrea Fioravanti, CEO of MBP and Head of Research and Development within the PFM Group, the decision to select automation solutions from Beckhoff was an important step in the development of the new intermittently operating R-Series packaging machines. The new design had to combine the speed and simplicity of continuously operating VFFS machines with the flexibility of intermittently operating machines. For comparison, a conventional VFFS machine can pack between 80 and 100 small bags per minute during intermittent operation, while the new R-Series machines output up to 150 bags per minute in test mode – a productivity increase of approximately 50 percent.

“We have already shipped more than 30 R-Series machines, all of which package 120 bags per minute with maximum reliability. Customers are completely satisfied with this solution,” Andrea Fioravanti declares proudly.

High throughput is not the only outstanding feature of the new model series, however. MBP engineers also worked hard to improve the machine’s ergonomics and reduce its footprint so that end users can more effectively utilize valuable factory floor space. For this achievement to become reality, the new foil reel control concept was critical. It employs a movable triangular foil turning device, which reduces the number of calender rolls. This makes the machine smaller while also increasing flexibility. The machine also features an electronically controlled dancer roll. TwinCAT NC PTP software, with the appropriate libraries for dancer control and register control, automates the continuous movement of the foil and diverts it toward the discharge belts – with continuous momentum and precision.

**One CPU for weighing and packaging**

“A major advantage of the Beckhoff automation solution is the possibility to use a single CPU to run all logic and control functions for all axes across the entire system, from weighing to packaging, as well as its extremely clear and
easy-to-use interface,” says Andrea Fioravanti. MBP decided to use a CP3716 Panel PC with a multi-touch display that complies with protection class IP 67. The Panel PC, which is equipped with an Intel® Atom™ dual-core processor, was customized by adding a specific button and the MBP logo. “Due to the high performance and flexibility of the Beckhoff automation architecture, we are now able to run both the weighing system and the packaging machine with a single Industrial PC with integrated screen for HMI. This offers several benefits for us as a machine builder as well as for our customers. They now have an easy-to-operate, yet powerful system that features an open design and works with all common TwinCAT 3 Motion Control software modules,” underscores Andrea Fioravanti.

The transition from a traditional PLC-based system to a PC-based control architecture has definitely made life easier for MBP: “The new architecture includes Industrie 4.0-related concepts that employ IoT communication as a major productivity catalyst. The PC-based platform enables us to take an integrated approach to control- and communication-related aspects of the machine. Whether for pneumatics, stepper motors, brushless motors, sensors or data acquisition, the entire control and monitoring architecture runs on standard hardware in the form of an Industrial PC. The software is integrated not only conceptually, but functionally, for example by employing TwinCAT 3 as a consistent development environment,” explains the CEO.

Unrestricted communication via EtherCAT and the cloud
Another major factor in the development of the new R-Series was the availability of a communication network like EtherCAT, which can transmit information via very simple (e.g., CAN-based) protocols. EtherCAT can also provide links to higher-level layers that are typical in the IT world, such as Ethernet, remote maintenance tools and ERP systems. “The open system design, which accommodates a wide range of communication standards and cloud computing, makes the R-Series machines definitively ready for Industrie 4.0,” adds Andrea Fioraventi.

With the TF6730 TwinCAT IoT Communicator from Beckhoff, MBP is able to transmit process data from the machine to any device, such as a smartphone or tablet. Plus, with the TF6735 TwinCAT IoT Communicator App, Beckhoff provided

The new foil reel control concept makes the machine much more compact and flexible through a movable, triangular foil turning device, which in turn enabled the designers to reduce the number of calender rolls, while also making the system more dynamic.
a simple solution for monitoring and analyzing this data. In addition, by going through the cloud, MBP can facilitate remote support quickly and efficiently, as having real-time access to machine data makes technical services significantly faster and less expensive. The head of the support department uses an MBP-developed application to generate e-service tickets for support technicians. This enables a technician to efficiently download the information needed to perform the required service.

With these capabilities, MBP is able to offer its customers continuous machine monitoring via the cloud while keeping an eye on operating parameters like power usage, start-up current and more in its control room upon request. The data can also be used to continuously improve machine performance based on key performance indicators and proactive maintenance.

A relationship with good prospects for the future

"Without a doubt, using PC-based control technology provides huge benefits," says Andrea Fioravanti. It enables MBP to scale the CPU depending on the size, protection class and rated performance of each individual application. The solution becomes even more ergonomic because of the wide selection of electronic interfaces, EtherCAT I/O modules, communication interfaces and servo drive solutions from Beckhoff. "We thus have at our disposal a solution that allows us to satisfy all technical requirements of today’s packaging industry in the best way possible," concludes Andrea Fioravanti. "This is why it’s only natural that we will work even more closely with Beckhoff in the future."

Andrea Fioravanti, CEO of MBP and head of R&D within the PFM Group, calls the decision to use a PC- and EtherCAT-based automation solution an important step in the development of the new R-Series vertical form-fill-seal machine.
PC-based control ensures the highest precision in doypack production for liquid food products

New generation of packaging machines doubles production speed to 120 pouches per minute

The Octo-1 is a new machine generation from the Belgian packaging specialists Scaldopack for the production of stand-up pouches for liquid foods products. A total of 43 Beckhoff servo drives and motors ensure maximum production accuracy and reliability. Moreover, the comprehensive digitization of the machine demonstrates Industrie 4.0 concepts in practice.
Stand-up pouches, also referred to as “doypacks”, are becoming increasingly popular for packaging of beverages and liquid foods such as soups. The aroma-proof lightweight packs provide benefits from ecological and economic perspectives, since they consume less material than PET bottles, for example, and are easily recyclable. In addition, the stand-up pouches are easy to fill in production facilities and just as easy to present on store shelves. The easily resealable packaging offers further benefits for consumers.

“The production of stand-up pouches requires high process accuracy and therefore places substantial demands on the automation technology used,” says Harald Saelens, Managing Director of Scaldopack. After three years of development, the company created a machine solution that uses advanced servo drive technology from Beckhoff and fully exploits the benefits of digitization: From each pack that is produced, almost 4,000 measured values are stored in a database. The machine settings themselves are also stored in a database and retrieved automatically at the start of each production run.

**PC-based control platform with integrated servo drive technology guarantees high-precision positioning**

“Due to the modular design of the Octo-1 and its PC-based automation platform, production steps can be adjusted quickly and efficiently to achieve varying pouch types or closure systems,” points out Harald Saelens. The starting point for the production of doypacks are plastic pouches which are already sealed on three sides. The machine picks up the pouches, opens them and attaches the closure. A C6925 Industrial PC (IPC) from Beckhoff with TwinCAT automation software and EtherCAT as the communication system provides advanced centralized control. A PLC cycle time of 2 ms is required in order to support the registration of the measured values and other tasks. Various third party-components, such as load cells and cameras, are integrated into the controller via the EtherCAT network. The TwinCAT NC Camming Motion Control library also runs on the same CPU. A total of 43 axes are synchronized with a cycle time of 250 ms.

“The Beckhoff AX5000 Servo Drives with integrated safety functionality and AM8xxx series servomotors controlling the sealing process are equipped with high-precision external encoders with a resolution of a few tenths of a micron. They provide precise feedback covering everything that happens in the machine; each step can be accurately controlled and corrected.” When a pouch is picked up, its exact position is measured with photocells. The nominal and actual positions are compared when the closure is applied in the next step. If necessary, the pouch position is adjusted in order to enable precise sealing. “The machine is able to detect any deviation in the production process,” says Harald Saelens.

The Octo-1, developed by Belgian packaging machine builder Scaldopack, is a system for the production of stand-up pouch packs.
For example, the machine detects film overlaps or missing material, in which case the product is rejected.

Optimum process control ensures top quality
Instead of a visual inspection of the end product, which is still the preferred method of quality control for many conventional packaging machines, the Octo-1 continuously monitors each process step. In this way, higher reliability and quality of the pouch packs can be guaranteed, since faults can be detected that otherwise may be missed by optical sensors. Moreover, the number of rejects is reduced, since the machine can use the measured values to adjust the parameters for the subsequent production steps.

Harald Saelens: “Most of the 4,000 measured values are acquired during the sealing of the closure. All positions are recorded every 2 ms, providing visibility of the complete profile of the sealing process, which leads to perfect control over the process.” The large data quantities generated by the machine are compiled in CSV files that the C6925 IPC sends to a data server. From there, the machine can retrieve the settings parameters.

Servo drives double production speed to 120 pouches per minute
“The output of the Octo-1 is much higher than that of a conventional machine,” says Harald Saelens. “We can produce 120 pouches per minute, compared with machines that have mechanical and pneumatic drives which provide an output of 40 to 60 pouches. The additional investment outlay for advanced drive technology quickly pays off, not to mention the reduced maintenance effort for the machine. The biggest gain is in the reliability of the production: Recalls due to pouch pack defects are a thing of the past,” reports the Managing Director of Scaldopack.

Utilizing multi-core capability
In due course, Scaldopack intends to convert to TwinCAT 3, the latest software generation from Beckhoff, in order to fully leverage the performance of Beckhoff multi-core IPCs. “The separate data server will become redundant in the future — largely due to the fact that we will send production data into the cloud for further analysis, where required,” Harald Saelens explains. “For cloud communication and data analysis, we will use the Beckhoff software modules.
TwinCAT IoT and TwinCAT Analytics, with a view toward reducing production costs and losses while enhancing product quality even further, based on optimum data evaluation."

The machine parameters will remain stored locally, so that data availability does not depend on Internet access. They can be stored easily in the C6925 IPC: The multi-core environment of the IPC facilitates additional functionality without impacting the control performance. Also, the included web server utility will enable local or remote access to the machine database.

**Digitization creates new methods of collaboration**

"In addition, digitization facilitates new types of collaboration between machine manufacturers and end customers," says Harald Saelens. "It enables us to implement specific customer requirements in a very short time. Plus, we can use production data analysis as a basis to further optimize the machine. The machine automatically retrieves the new parameters from the database, without interrupting production. For new products, we can test packaging processes in-house before the machine is delivered to the customer, so that when it arrives on-site it runs with optimized settings right away." "We strive to offer this high level of service to our customers – a truly unique selling point," adds Wouter Malfait, Sales Manager at Scaldopack.

Further information:
www.scaldopack.be/en
www.beckhoff.be

The modular design of the Octo-1 machine enables fast, convenient adaptation to new products.

Stand-up pouches, also referred to as "doypacks", are becoming increasingly popular for the packaging of beverages and liquid food products, such as soups.
Faster processes, lower costs: PC Control optimizes visual inspection system

Inspection system meets highest quality standards for pharmaceutical product packaging

The production and packaging of medical products are subject to some of the strictest hygiene regulations in any industry. To ensure patient and consumer safety, any possibility of product contamination must be ruled out through stringent quality checks. Particle Inspection Technologies and Wierciszewski Controls specialize in the medical inspection and quality assurance market segments. Developed as a joint venture by the two American companies, the SASI-30 machine, a high-performance, automatic visual inspection solution for syringes and vials, can inspect 120 products per minute.

Particle Inspection Technologies (Pi-Tech), developer of customized packaging systems, and Wierciszewski Controls, a company that specializes in custom machine design and advanced vision inspection solutions, pooled their expertise to build these high-tech machines. “Sharing the results of more than 30 years of combined engineering experience, Pi-Tech creates robust, innovative and easy-to-use inspection machines that cater to the individual needs of each customer,” states Jerry Wierciszewski, President of Wierciszewski Controls.

Eliminating human error and increasing throughput
The SASI-30 (Semi-Automatic Syringe Inspection) from Pi-Tech provides comprehensive 360-degree inspection of syringes and vials, certifying that products are free from cracks, scratches, contamination or other manufacturing defects. “You could say that Particle Inspection Technologies is rewriting the book on particle inspection, which today is still mainly carried out manually,” says Jerry Wierciszewski. “By combining the latest in PC-based control technology with..."
our companies’ collected experience, we developed an innovative solution to automate visual inspection processes and largely eliminate human error.”

The inspection principle that forms the foundation of the SASI-30 system is called “image subtraction,” where a product test image is compared with a template image to discover defects, e.g. in the form of loose particles or defects. "There are benefits and challenges when utilizing this technology," Jerry Wierciszewski explains. The most significant benefit is that any static inclusions or bubbles on the wall of the vial or syringe are reliably ignored, since they do not represent a quality defect. Only the problem particles that are in motion are considered as potential rejects. "Reliable inspection performance requires the perfect coordination of machine control and vision system control," says Jerry Wierciszewski.

Highly sophisticated error detection via seven cameras
To achieve this highly-reliable error detection, the SASI-30 employs seven separate cameras, each performing a specialized part of the inspection process. At the start of the inspection run, Camera 1 provides detection of scratches and Camera 2 looks for contaminant particles against a light background. Moving on, Camera 3 checks for cracks in vials and syringes and passes the products on to Camera 4 for contaminant particle detection against a dark background. Depending on the particular application, Cameras 5, 6 and 7 join the process at this point. Camera 5 provides inspection of the printed labels. Cap and/or label position inspection falls to Camera 6, while Camera 7 completes the process with a thorough inspection of the syringe plunger, where applicable.

EtherCAT and TwinCAT ensure exact timing in image processing
The centerpiece of the machine is TwinCAT automation software. It controls the machinery in concert with multiple USB-3 cameras present in the system. "The SASI-30 system acquires 50 images every 20 ms, buffers them in memory, and displays the processed images to the user at 50 ms intervals. What makes the system unique is that it allows the user to process the images in manual mode at up to 30 images per second, so that they can be captured by the human eye. In automatic mode, up to 600 images per second can be processed," says Jerry Wierciszewski. When achieving 360-degree inspection of a traveling syringe while it rotates, exact positioning and precise timing are prerequisites for such fast image analysis. "This can be realized based on the speed and positioning accuracy of TwinCAT NC PTP software and EtherCAT communication," points out Jerry Wierciszewski.

Compact and easy to program: drive technology from Beckhoff
AM8000 series servomotors combine with AX5106 EtherCAT Servo Drives and compact EL7201 servo terminals to provide motion control for the inspection system. "The EL7201 terminals, measuring just 12 mm wide, are exceptionally compact and therefore ideal for space-constrained applications," as Jerry Wierciszewski explains. "We chose the Beckhoff servomotors and drives because they offer an excellent price-to-performance ratio and ease of integration. Automatic device configuration through TwinCAT saves us weeks of programming time."

High performance gains and cost reductions at the same time
Jerry Wierciszewski regards the system control based on EtherCAT and TwinCAT as a milestone in the company development of PI-Tech: "With the PC- and EtherCAT-based automation solution, we are able to achieve much higher benchmarks than we previously thought possible." In addition to extended functionality and higher performance, Jerry Wierciszewski also welcomes the reduction in component costs by approximately 30 percent. "With the combined benefits of powerful operation and a lower price point, we are able to provide exceptional value to our customers," he continues. "With even more plans to integrate Beckhoff solutions moving forward, including an upgrade to the more advanced TwinCAT 3 automation software platform, the innovations have by no means ended," concludes Wierciszewski.