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The most innovative machines

with Rockwell Automation solutions

Rockwell Automation

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Aasted is a consolidated, Danish, family-owned company and a worldwide market leading manufacturer of production solutions for the chocolate, bakery and confectionery industries. This year all of Aasted is proudly celebrating their 100 year anniversary. Since 1917 Aasted has been on a continuous journey to provide their customers with innovation, quality and custom-made solutions within the chocolate, bakery and confectionery industries.

Aasted is able to service the global market through a wide product portfolio, and has seen steady growth, especially in developing markets.

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The Energy tempering technology raises the quality of the tempered chocolate to an unforeseen high level

The company's mission for success does not simply stop at the product; it prides itself in its after-sales service, providing flexible solutions adaptable to the needs of individual customers. The Aasted Service Department is an integral unit to the company, which operates worldwide with its own staff of dedicated engineers, technicians and logistics experts.

Many of the machines from the company's extensive range take advantage of the power and flexibility offered to them by an Allen-Bradley® automation solution from Rockwell Automation, including Allen-Bradley CompactLogix™ programmable automation controllers, Allen-Bradley PowerFlex® drives, Allen-Bradley Kinetix® servo solutions and an Allen-Bradley PanelView™ Plus HMIs.

The company's SuperNova Energy tempering machine program is an example of a groundbreaking world-release from Aasted that saves at least 50% in total energy consumption in comparison with traditional machines. The Energy tempering technology raises the quality of the tempered chocolate to an unforeseen high level and handles even high-fat content mass without decrease in capacity. The machine comes in three variants.

The SuperNova Energy Basic model is at the heart of all SuperNova Energy machines. It has capabilities ranging from straight heat exchanging to the highly precise creation of Beta V crystals in high-quality chocolate masses. The SuperNova Energy PreTreat deploys a unique PreTreat zone that helps ensure safe stabilisation of varying temperatures in the chocolate mass pumped from an external tank. Finally, the SuperNova Energy CTS features a built-in compact tempering system with a buffer tank and a mass circulation pump. It offers users complete flexibility to re-circulate mass from an enrober or to perform an automatic production shift to a depositor or an extruder.

According to Dennis Holmud, Senior Specialist Tempering & Chocolate Process at Aasted: "We have a long relation with Rockwell Automation, and over the years we have gained an immense amount of knowledge developing machines running on the Rockwell Automation platform. We see many benefits including a streamlined design process and reduce programming efforts. We also benefit from reduced energy consumption eased maintenance and troubleshooting, remote maintenance, reduced training time reduced changeover time, improved personnel and machine safety and minimised installation and start up time."

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Solutions in Action

ROBOPAC

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The ROTOPLAT 3000 HD EVO is a fully automatic stretch wrapping machine with rotating table for the stabilization of palletized loads

Allen-Bradley CompactLogix
programmable automation controller

Allen-Bradley PowerFlex 525
variable-speed drives

Together with **Robopac**, **Dimac** and **Prasmatic**, **Robopac Sistemi** is a commercial brand belonging to Aetna Group, an Italian manufacturer of stretch and shrink wrapping machines, taping machines, systems and fully automatic stretch film wrapping machines, shrink wrapping machines with film thrusting system, wrap-around case packers, tray packers and combined lines.

The **Aetna** Group was founded by Mr Alfredo Aureli over than 30 years ago, today his sons Valentina and Enrico manage the Group – respecting the original values: to promote the R&D in order to satisfy the customers' needs. Mr Enrico Aureli, Aetna Group's Managing Director, confirms: "Annually we invest 6% of our sales revenue in R&D activities with a clear principle: the customer comes first."

With an annual turnover of 140 million Euros, Aetna Group's worldwide presence also includes: six manufacturing sites, 450 sales agencies and dealers, eight subsidiaries (in France, Great Britain, Germany, United States, Russia, China, Brazil and Spain), two service points in India and Brazil and more than 150,000 machines installed worldwide – all of which give the company a truly international profile.

Robopac Sistemi manufactures systems and automatic machines for the stabilization of palletised loads, using stretch film. Its production capacity range goes from 20 to 200 pallets/hour. The Aetna Group itself manufactures

more than 7,000 machines per year. Robopac Sistemi develops three main technologies: rotating arms, rotating rings and turntables. "Our machines and systems are used wherever there are products to be stabilized and transported," Glauco Moschini, Sales & Marketing Manager of Robopac Sistemi, explains. "Therefore, we have customers in a lot of industrial fields, including: food & beverage, tissue, paper and paperboard, health and personal care, chemical & pharma, logistics and many others."

A strong commitment to innovation and the ability to always be a step ahead of its competitors allow Robopac Sistemi to be a benchmark in the tertiary packaging world. For example, the Cube Technology™ conceived by Robopac Sistemi is a must for those customers who need to combine high performances and savings in energy and film consumption, improving load stabilization.

"This technology was originally designed for higher-performance machines, such as the rotating rings, but it is now applied on any other system of ours," Moschini says. "This technology allows the user to define the maximum strength of the stretch film on the product and to set different pre-stretch and containment force values within the same wrapping cycle, without any interruption."

This precise control offers more uniform stabilization using less material, with savings up to 50% compared to a standard solution. Cost savings have been proven by tests undertaken by several laboratories on different loads with different pallet patterns. "Supply the market high technology, coupled a smart and user-friendly interface. That was our goal and we reached it." Moschini adds.

The company's new **ROTOPLAT 3000 HD EVO**, a fully automatic stretch wrapping machine with rotating table for the stabilization of palletized loads, is characterized by low installation time. The compact overall machine dimensions for transport, the high-production capacity and the long-operating life make this machine the perfect solution for those customers who require efficient and reliable end-of-line systems, with low investment costs.

The wrapping machine features pre-stretch carriages – with single or double motorization – and a rotary table with roller conveyor. It is designed to wrap pallets sized 600 x 800 mm up to 1,000 x 1,200 mm and 2,000 mm high. The machine's output capacity is about 40 pallets per hour. "This wrapping machine represents one of the latest evolution steps of our wrapping technology and applies our patented Cube Technology™. It is the outcome of our strong cooperation with our Northern American company branch; it comes from a brilliant co-sharing of knowledge and expertise: years ago – in the early Fifties – the wrapping technology was firstly introduced in the US-market, while the Italian guys contributed to develop it and lead it to excellent levels of performance and film waste reduction," Moschini says.

The machine deploys a Rockwell Automation-based control solution, with an Allen-Bradley® CompactLogix™ 1769-L30ER programmable automation controller (PAC) at its heart. Communication for the control solution is over EtherNet/IP™ via Allen-Bradley 1769 I/O modules. Operator interactions are achieved using an Allen-Bradley PanelView™ Plus 6 1000 HMI. Motor control is delivered by Allen-Bradley PowerFlex® 525 variable-speed drives, which also communicate with the PAC over Ethernet.

The common software environment provided by Rockwell Automation, with its RSLogixTM 5000 software, allowed Robopac Sistemi to save project development time, while the Logix controller's modularity helped improve the robotic solution's flexibility.

Robopac Sistemi knows Rockwell Automation technology very well. As Moschini states: "Rockwell Automation is known worldwide for its high quality and cutting-edge technology. We purchased single components and integrated them without any loss of time, thanks to a strong cooperation with Rockwell Automation guys," Moschini concludes. "Leveraging strong cooperation with Rockwell Automation we were able to save both design time and programming efforts."

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Solutions in Action

AMProse

Automated with Rockwell Automation
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The company's NR10 Neapolitan wrapper has been developed specifically to wrap small square and rectangular chocolates in fold-wrap style using either single or double wrappers

Allen-Bradley CompactLogix programmable automation controller

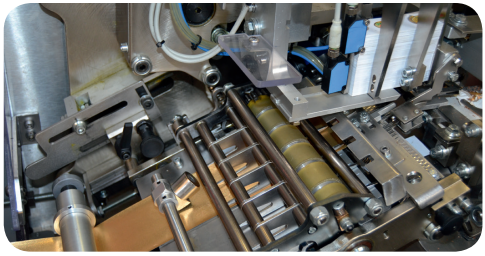
Allen-Bradley Kinetix 5500 servo drives

Allen-Bradley PowerFlex 525 variable-speed drives

Since its inception nearly 40 years ago, **A.M.P-Rose** has developed into one of the world's leading suppliers of machines to the chocolate and confectionery industries, with 80% of its products being exported to more than 80 countries worldwide.

From its new, purpose built factory (built in 2016) the company manufactures a wide range of machinery such as its range of cut and wrap machines for all styles of wrapping, at speeds of up to 1,000 individual pieces/minute. Other machines include horizontal form, fill and seal machines for a variety of different products; including a special machine for packing crisps or snackfoods into multi-packs of six to 24 packets. Its laboratory range of confectionery machines is particularly useful for trials and small-scale production.

Of all the equipment A.M.P Rose produces, it is particularly well known for its specialist skills in the design, manufacture and operation of cut-and-wrap machinery. According to David Mann, Managing Director at A.M.P-Rose: "The secret is not just in the production of the machine, but in adapting it to suit the different product and wrapping material characteristics that can be encountered."



The machine differs from others due to the outer wrapper being fed from stack rather than reel

The company's **NR10 Neapolitan wrapper** has been developed specifically to wrap small square and rectangular chocolates in fold-wrap style using either single or double wrappers, with the outer paper taken from a stack of pre-cut labels rather than the more common reel-fed systems.

In operation the small chocolate pieces are manually fed in a single row by an infeed belt into the wrapper. Photo-electric sensors along the length of the infeed maintain the correct number of products on the belt and when sensors detect a product is in position the foil feeding system is automatically activated and a pair of servo-driven paper feeding rollers delivers the correct length of wrapping material from the reel, where a paper gripper unit takes over. Once the correct length of paper has been fed, it is cut using a pair of scissor knives controlled by a servo motor and pre-cut printed outer labels are then removed one by one by an innovative label draw-off system (patent pending). This unit ensures that each label is placed over the inner foil wrapper in the correct position.

Where gluing is required, one or more spots of hot melt glue are applied to the wrapper before the tucking stages. After the glue has been applied, both foil and label are transferred to the wrapping station, where the chocolate piece is elevated through the pre-cut wrappers. A top control unit is provided to ensure that the product is securely held.

The chocolate piece is held by grippers whilst the side tucker units carefully create the first folds underneath the chocolate. A moving tucker is used for the rear fold, and the final fold is created to finish the wrap as the chocolate is transported to the stacking (discharge) unit. The discharge unit is provided with a stacker which arranges the wrapped products first vertically and then horizontally, providing sufficient pressure to allow the glue to harden, whilst at the same time not damaging the products. The final wrapped products are delivered horizontally flat on an outfeed belt.

This precise movement and control is all obtained through the use of a Rockwell Automation control infrastructure, comprising an Allen-Bradley® CompactLogix™ programmable automation controller (PAC); an Allen-Bradley PanelView™ 6 700 HMI; Allen-Bradley PowerFlex® 525 drives, used the machine's main drive motor; and Allen-Bradley Kinetix® 5500 servo drives for the paper feed. The whole machine uses EtherNet/IP™ as the primary communication protocol.

"This machine is unique compared to our competitors," Mann explains. "Most Neapolitan wrapping machines offered by our competitors feed the wrapper from reels, for both the inner and outer. Where our machine differs is the outer wrapper is fed from stack rather than reel. This is particularly beneficial for customers who use this machine for contract packaging and supply various companies with Neapolitan chocolates with their customer's logos and/or graphics on them. This makes changing the outer wrap to a different printed paper very easy and quick."

"We benefit from easy-to-use software and hardware and support from Rockwell Automation is always excellent," he elaborates. "We also see a streamlined design process, reduced programming efforts, minimised wiring, easier testing and validation an increased flexibility for future changes. Our customers quickly realise reduced training and changeover times, improved personnel and machine safety coupled to minimised start up and installation times. They also gain from the flexibility as we can add new features with very little downtime and minimal programming effort."

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Solutions in Action

Automated with Rockwell Automation
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aranow packaging machinery

Packaging your ideas

ARANOW has established a collaboration with Rockwell Automation, standardising its software, automation and servo solutions

Allen-Bradley CompactLogix programmable automation controllers

Allen-Bradley Kinetix 5500 servo drives

Based in the heart of the Barcelona Packaging School, **ARANOW PACKAGING MACHINERY** is a truly international company specializing in the design and manufacture of packaging equipment for any type of product into stick packaging or flat sachet – regardless of whether this is in granular, pieces, powder or liquid form. This capability allows its customers from pharmaceutical, dairy, food and beverages, cosmetics and chemical industries to reduce downtimes, fulfil their increasingly high production demands and adapt their products to the requirements of the modern distribution.

Its machines are all designed under the same concept: fast and feasible equipment built with high-resistance and long durability components. An OEE of over 95% contributes towards improving the global efficiency of the customer's production line. A compact and simple design allows a fast and easy changeover; and free access without tools to the main components reduces maintenance downtime.

Its machine also offer the possibility of synchronization with end-of-line equipment for secondary packaging, such as flow pack, carton, tray and flowpack, gusset and stand-up pouches, along with synchronization to

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other machine features, including sealers, quality control systems, coders, cleaning and sterilization systems, fillers, etc. – all based on the needs of the customer.

Focusing on the needs of its customers, ARANOW has established a collaboration with Rockwell Automation, standardising its software, automation solutions and servo solutions in order to offer precision control of production and machine parameters.

Outstanding processes, such as stick packaging machine with counting filler for the confectionery industry or ultraclean machines for different flavour yoghurt dosing in the same machine with special unitary counting and grouping systems have all been controlled by Rockwell Automation.

ARANOW's machines use a variety of Rockwell Automation products, including: Allen-Bradley® CompactLogix™ programmable automation controllers (PAC); Allen-Bradley Kinetix™ 5500 servo drives, with EtherNet/IP™ capabilities; and Allen-Bradley PanelView™ Plus human machine interfaces (HMI).

Over the past few years ARANOW has consolidated its presence all over the world, considerably increasing its

turnover. In order to face the increasing demands of the packaging industry, it modernises its facilities, putting a special focus on the integration of the Lean Manufacturing model to improve its competitive advantage in the market. In parallel, it continuously reinforces its team with new engineers to work on improvements to current components and designs in order to more closely match the needs of its customers. Area managers specialise in each market to give better support to agents; and an expanded customer service department improves the quality of its technical service.

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Solutions in Action

Automated with Rockwell Automation
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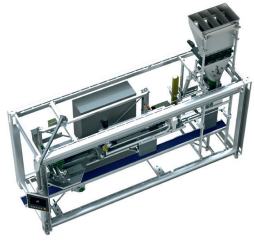
B&B PACKAGING SOLUTIONS MAF

CPH – WPP: **C**loser **P**inch with **H**otair of **W**oven **P**olypropylen bags

Allen-Bradley CompactLogix 1769 programmable controller

Allen-Bradley Kinetix 6500 servo drives

The owner-operated **B&B – MAF GmbH & Co. KG** has been relying on a healthy mix comprising innovation and tradition since its formation: The bag-making and end of line packaging machines made in Hopsten (Germany) and Green Bay (USA) respectively, are on the one hand globally renowned for "traditional" values such as a high level of reliability and a long service life as well as, on the other hand, for future-proof features such as perfect integration capabilities, maximum flexibility and efficiency. "In the long-term, the positive growth of a medium-sized company can only be ensured by means of broad experience and creative solutions concepts," knows Executive Manager Thomas Bruns. As a consequence, together with his in total 185 employees, he constantly seeks feedback from his customers. Their wishes and requirements set the development pace he and his team follow.



Bag filler – aligner – sealer

Generally speaking, the B&B – MAF packaging machines enable the production of a wide range of flexible packaging items. As a result of a modular design of the machines, customer-specific expansions such as punching, perforating, additional welding, bottom-folding units etc. can be realized without problem at any given time. One of the most recent innovations from B&B – MAF addresses the pet food industry, because this industry has been experiencing a trend away from paper bags to woven sacks, as Thomas Bruns reports: "Dog food should in future be increasingly packaged in woven materials. Until now, however, such an approach was not without its very own minor challenges: Due to the fact that a woven material bag must be sealed in a manner differing to that of a paper bag, the existing machine park reached its limitations. We have solved this problem with the **CPH – WPP Sealer**, which can be easily docked to the existing equipment." This machine has been specifically designed to align and evenly seal woven sacks by means of hot air. It can be utilized in-line with existing filling machines and achieves an output of more than 50 bags per minute.

B&B – MAF also offers complete packaging lines consisting of a filling station and the CPH – WPP Sealer. Utilizing such a system design, woven bags can be filled and sealed in an autarkical manner. In this regard, the alignment control unit represents the actual highlight. It is used in combination with existing filling lines. It is also responsible for pushing the utilized CompactLogix™ 1769-L33ERM close to its limit. "Bag-filling does not pose a challenge for an Allen-Bradley® control unit. This is nothing special. And sealing a bag is not really a demanding task for the CompactLogix, either. During alignment, however, synchronization regarding a moving product is required. This is not so easy to achieve," emphasizes Thomas Bruns and adds, by way of explanation: "The bag is undergoing a continuous transport movement. Our servo motors have to adapt to this speed in order for the two photo sensors to be able to identify the upper edge of the bag and to identify a possible tilt during transportation. With the aid of two servo motors the edge is first brought into the horizontally correct position, it is then also aligned in terms of height and fed to the sealer."

In other words, the "name of the game" in this facility is a perfect interplay between control and driver technology. Specifically in this case, it is a CompactLogix, servo motors from the MP-Series™ and Kinetix 6500® servo drives, which have to ensure a seamless sequence of processes during filling, aligning and sealing of the woven bags. "Due to the fact that we are also very active in the USA and even have our own branch office at Green Bay in Wisconsin, we – so to speak – automatically come into contact with Rockwell Automation on a regular basis because American customers mostly demand Allen-Bradley components for their end of line packaging machines," reveals the B&B – MAF executive manager. And these actually match the company philosophy of the German machine manufacturer very well: Allen-Bradley products, just like to solutions from B&B – MAF, are also renowned for their high level of reliability, long service life and perfect integration capabilities.

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Solutions in Action

IMA DAIRY&FOOD BENHIL

Automated with Rockwell Automation
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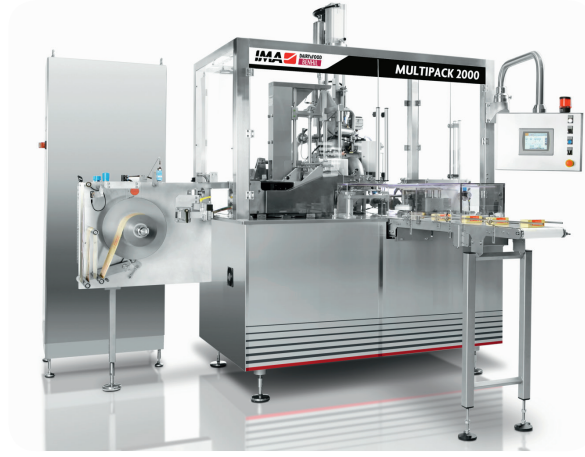

Servo drives ensure precisely managed motion sequences in the new Multipack 2000, an Allen-Bradley® CompactLogix™ functions as the control technology core.

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley Kinetix 5700 servo drives

In the year 1912 a "machine for the production of four-sided, prismatic objects" was still deemed to be revolution. Holding a corresponding patent, **Benhil** was the first company to manufacture semi and fully automatic packaging machines for margarine and butter. Today, 105 years later, the Neuss-based company, which is just as much a part of the IMA DAIRY & FOOD as are Erca, Corazza, Gasti, Hamba, Hassia, Hassia India and Fillshape, is the global market leader for wrapping machines. No matter whether butter, margarine, or other foodstuffs – Benhil knows how products ranging from the consistencies fluid to pasty, also those including particulate content, can be reliably and economically packed into portions or filled into pre-formed respectively.

As an internationally active company with seven production sites and several sales and service entities, IMA DAIRY & FOOD develops, produces and sells individual machines as well as entire packaging lines for the dairy and food industry. The product portfolio ranges from a broad offering of filling machines (FS) to form, fill and sealing machines (FFS), and right up to the wrapping machines mentioned above. "Our machines have a service life of between fifteen and twenty years. Then they are usually subjected to a general overhaul and run for another ten to fifteen years.

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It is therefore important for us to find a manufacturer who can guarantee the availability of spare parts at any given time – and not only globally, but also after several years," states Daniel Cerfreda, Director Electrical Engineering at Benhil, explaining why the company opted to enter into a technology partnership with Rockwell Automation more than ten years ago. "At that time we were looking for a competent, globally active drive technology supplier. Our intention was to replace the mechanical main shaft with individual servo axes," he adds.

A large number of servo drives also ensure precisely managed motion sequences in the new **Multipack 2000**, amongst others during advancing of paper or with regard to the main drive. "We utilize servos whenever it really makes sense. In our machines this is especially the case in the course of all format-flexible movements and wherever behaviors have to remain constant in terms of their timing," reveals Daniel Cerfreda. Specifically speaking, Benhil utilizes MP-Series™ servo motors as well as EtherNet/IP™ servo drives from the Kinetix® 5700 series.

Benhil machines have always been a synonym for extraordinary filling precision. This also applies to the Multipack 2000: "With this machine we have actually rounded off our portfolio more, but without compromising the filling precision – actually the opposite is true," states Daniel Cerfreda, hinting ever so slightly that a return on investment is quickly achieved when purchasing a Multipack 2000. "This is due to the fact that it is available at a relatively competitive price although it is highly effective," he emphasizes. It convinces by means of its low energy consumption and its absolutely precise dosing – not too much and not too little. "The standard deviation amounts to 0.5 grams at 250 and 0.8 grams at a filling weight of 500 grams," says the director of electrical engineering at Benhil, visibly proud of the precision achieved during the filling process. In general, the Multipack 2000 can tackle filling weights ranging from 50 to 500 grams. Its output amounts to 100 packs per minute. Furthermore, the machine features very quick retooling – even the changeover to a different format can be realized in less than half an hour.

An Allen-Bradley® CompactLogix™ functions as the control technology core of the Multipack 2000. "Although this product is actually intended for the mid-range field, it offers a lot of »high-end functionality«. All alerts are fitted with an internal, precise-to-the-microsecond timestamp. This allows for immediate identification of the point of origin of the initial fault as opposed to following the trail of inherited errors," states Daniel Cerfreda, providing positive feedback on the encompassing diagnostic options supported by the CompactLogix. The Multipack 2000 is operated via a seven-inch PanelView™ Plus 7 performance graphics terminal, for which Daniel Cerfreda is also full of praise by way of closing: "In the past the smaller displays had a lower resolution. Thanks to 18-bit color graphics, everything is now also sharp on 7 inches."

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Solutions in Action

BOSCH
Technik fürs Leben

Automated with Rockwell Automation
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With its Two-in-One biscuit packaging system, Bosch Packaging Systems is setting new standards in terms of flexibility and speed

Bosch Packaging Systems AG is a global leader in the development, manufacturing and sales of packaging and handling systems. The portfolio comprises flexible solutions for the food and pharmaceutical industry as well as for various other industries.

"We have been producing packaging machines here for more than 100 years and can look back on 50 years of system know-how in the fields of chocolate & confectionery, bakery products, powder and granulates," emphasizes Pascal Witpraechtiger, Director Software and Electrical Engineering at Bosch Packaging Systems. Bosch Packaging Systems AG in Beringen, Switzerland, is part of Bosch Packaging Technology headquartered in Waiblingen near Stuttgart.

With the version of the **Two-in-One Biscuit Packaging System**, a technology that was introduced at interpack 2014, Bosch Packaging Systems is now expanding the system family to include a dual-lane high-performance version. No matter whether the biscuits are round, square, filled, coated or very fragile – this system guarantees maximum productivity and quality throughout the entire packaging process.

For the first time a biscuit packaging system can produce single, pile and slug packages on two lanes that function independently of each other. In addition, a different number of biscuits can be packaged on each lane. The system stands for maximum efficiency, flexibility and productivity – in a highly compact form. The total output reaches up to 2,400 biscuits per minute. The Two-in-One Biscuit Packaging System is designed for quick format changes – from slug to pile and vice versa.

Allen-Bradley ControlLogix programmable automation controller

Allen-Bradley Kinetix 5700 servo drives

LISTEN. THINK. SOLVE.®

Allen-Bradley • Rockwell Software

Rockwell Automation

"The core competence of Bosch Packaging Systems in Beringen is the development of seamless systems. Our Two-in-One Biscuit Packaging System consists, for example, of a product distribution system with a storage unit, a horizontal flow wrapping machine for primary packaging, a topload cartoner for secondary packaging and a case packer," describes Pascal Witpraechtiger.

The important factor when combining individual machines to create complex manufacturing plants is a perfect interplay between technologies and good connectivity in all directions. "We engineer and build around 25 different machine types and it is important for us to be able to utilize the same hardware and software everywhere. The »seamless system« approach that we offer is something we also want to see implemented in our control architecture. The scalability we require is provided by the Allen-Bradley® CompactLogix™, ControlLogix® and GuardLogix® controllers. With regards to connectivity, and thanks to EtherNet/IP™, there are no restrictions," explains Pascal Witpraechtiger, proving that he is familiar with all three control platforms offered by Rockwell Automation.

Bosch Packaging Systems AG builds highly flexible systems. The Overall Equipment Effectiveness (OEE) is a key factor for all manufacturers and plays an important role in the development process. Furthermore, all technologies need to be Industry 4.0-capable. Corresponding connections to the ERP system, into a Cloud or to a remote service are established via EtherNet/IP and Stratix™ Ethernet switches.

"In our systems, we also utilize machine modules manufactured at other business locations. Instead of having to wire up countless modules, we benefit from running as many connections as possible over an Ethernet line," says Pascal Witpraechtiger, advocating a seamless communication solution with Integrated Safety and Integrated Motion possibilities. The Allen-Bradley Kinetix® 5700-EtherNet/IP-Servo drive, for example, can even control servo and asynchronous motors.

This is something that Bosch Packaging Systems AG recognizes: "The trend is definitely shifting towards using servo motors exclusively. Nevertheless, there are a few exceptions to the rule. This is where we benefit from the adaptability of the 5700-generation. Furthermore, the Kinetix 5700 servo drive brings us closer to a design no longer featuring switch cabinets," says Pascal Witpraechtiger. He prefers a solution that offers performance while remaining compact. Another benefit: The wiring effort is reduced thanks to the single-cable technology.

Generally speaking, Bosch Packaging Systems AG and Rockwell Automation are two companies that complement each other well. They are both global players and leaders in their own field of expertise. Both companies stand for future-oriented solutions providing the highest quality.

"Bosch Packaging Technology is one of the leading suppliers of process and packaging technology at over 30 locations in more than 15 countries worldwide. It is ideal that we can count on the competent GOTC support offered by Rockwell Automation just as much in Thailand or in South Africa as we can in Switzerland, in Germany or America," says Witpraechtiger. This is a technology partnership, which continuously brings forth unique solutions, such as for example the Two-in-One Biscuit Packaging System.

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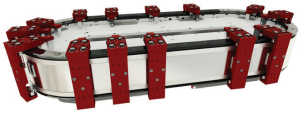
Solutions in Action

Bradman Lake Group
Integrated Packaging Technology

Rockwell Automation
Machine Builder Partner

The VGR2000 is a vision-guided robotic pick-and-place system, which uses a smart camera with delta robots controlled by a Rockwell Automation PAC

Allen-Bradley ControlLogix programmable automation controller



iTRAK intelligent track system

Allen-Bradley Kinetix 5500 servo drives

With more than seven decades of experience, the **Bradman Lake Group** is a major supplier of packaging technology, specialising in the design, development, fabrication and deployment of packaging machinery to a wide range of global organisations in the bakery and biscuits, chocolate and confectionery, dry foods, frozen foods, consumer and healthcare sectors.

Operating from its headquarters and manufacturing plants in the UK and USA, with regional offices in India and Russia and representatives and partners worldwide, it can offer stand alone or fully integrated systems custom-engineered to meet the exacting standards demanded by today's fast moving worldwide consumer markets.

The company has taken an innovative approach to its machine design with its Integrated Packaging Technology concept. In all instances its machines have been designed to seamlessly connect and interact with each other all across a common automation platform – the Allen-Bradley® Logix platform from Rockwell Automation.

By adopting this common, scalable solution, Bradman Lake is able to develop simple machines, through medium-capacity Allen-Bradley CompactLogix™ powered machines, right the way up to full, 1,200

parts-per-minute production lines running on Allen-Bradley ControlLogix® PACs. It also standardises, where feasible, on Allen-Bradley Kinetix® 5500 CIP Motion™ servo controllers and VP Series™ servo motors, making its customers' stock/spares holding far simpler.

Showcasing this interconnectivity and common-platform approach, Bradman Lake can demonstrate a complete, interconnected, single-control-platform primary, secondary and tertiary packaging line in action. The packaging line would start with a **VGR2000** Vision Guided Robotic pick-and-place system, which can load products into the infeed of a flow wrapper, a cartoning line or a case packer. Using a smart camera with delta robots controlled by a Rockwell Automation PAC, using pre-loaded customised add-on instructions, and Kinetix servo drives, products can be picked in single piece or a collation. There are no black box controllers!

The **FT120 Multipack Flow Wrapper** that follows operates at the highest level of efficiency and seal integrity and can include twin film reel holders, automatic film reel-to-reel splice, splice detection and rejection, print registration, automatic film web alignment, film printing, empty and deformed pack identification and rejection, four pairs of longitudinal seal crimp rollers provide hot- or cold-seal options and a robust end-crimp sealing module.

The next step – the compact-footprint **IMSL End Load Cartoner** – is Bradman Lake's latest machine. Incorporating a Rockwell Automation iTRAK unit, it provides a fully integrated variable-pitch product infeed system. The iTRAK, in combination with a **Linear Motion Loader** (which side loads the cartons) negates the need for a traditional 'barrel loader', thus ensuring minimal product transfers. Once the carton is sealed it is transferred to the new **ZX600 Case Packer**, which is a small footprint, top-loading machine that also includes a highly efficient Nordson Liberty hot melt glue-delivery solution tied into the controlling PAC. This unit is also aggregation and serialisation enabled – for applications that require traceability and/or track-and-trace capabilities.

All machines in the this packaging line deploy an integrated Allen-Bradley automation infrastructure, including Logix PACs, Kinetix 5500 CIP Motion servo controllers and VP Series motors, Allen-Bradley PanelView™ HMIs and Allen-Bradley PowerFlex® 525 variable-speed drives. The benefits to customers that this Integrated Packaging Technology approach provide include: common parts, minimal spare parts inventory, ease of maintenance and commonality of engineering, human-machine interface screens and navigation as well as operator familiarity when running any part of the system. Bradman Lake also uses common wiring layouts on all machines to make maintenance even easier.

"Rockwell Automation helps us with our mission of openness and transparency," explains John Marlee, Managing Director at Bradman Lake. "We also exploit their worldwide presence. If a customer needs a spare, they can speak to a local Rockwell Automation representative, they do not need to go through us. This is one of the primary reasons for our adoption of an open, internationally accepted automation solution.

"We also like the fact that our engineers only need to 'talk' one automation language and it is the same for our customers," Marlee elaborates. "They may have separate machines that all go to make up a complete line, but they all run on one language, one platform and one protocol, which also offers further connection into The Connected Enterprise. Rockwell Automation's product development has mirrored our machine development and suits our diversity from the simplest machine up to the most complex production line. What we want is happy customers that have no hesitation in coming back to us and Rockwell Automation helps us achieve this."

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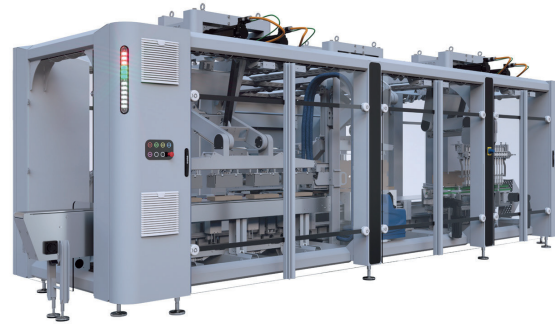
Solutions in Action

cama GROUP
Innovation meets Experience

Rockwell Automation
Machine Builder Partner

Allen-Bradley ControlLogix L8 programmable automation controller

Allen-Bradley Kinetix 5700 servo drive



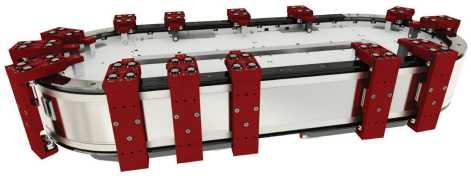
The IF318 deploys the innovative iTRAK system from Rockwell Automation

Cama Group is known globally for the cutting edge technology and reliability of its packaging systems. The packaging machines and the robotised lines, designed, manufactured and installed by the Italian company worldwide, can be used in food and non-food industries and cover the whole primary and secondary packaging processes, from the line entrance to the end-of-line packaging operations, before palletising.

The company's new **IF318 Robotized Monoblock Loading Unit** features a host of innovative CAMA technologies which, the company claims, will define a new standard in the world of secondary packaging into carton/corrugated cartons. It also incorporates many of the features that make Cama's machines standout, including cabinet-free technology, ergonomics and friendly use. Of particular interest in this machine is Cama's use of the innovative iTRAK® intelligent track system from Rockwell Automation.

iTRAK is revolutionising the design and build of track-based solutions for packaging and materials handling. By combining linear and rotary motion, it delivers a flexible, fully integrated solution that helps machine designers achieve a new paradigm in packaging and handling efficiency and throughput.

Thanks to iTRAK, each operating station can work independently of the other stations, giving operators of the IF318 the flexibility to choose a



iTRAK, a modular, scalable motion control system

specific quantity of cartons being handled, according to the carton size, at each of the three machine stations: forming, loading and closing. Thanks to buffer zones located before each station, boxes are held by the movers, which stop and wait for the next programmed working step at the following working station.

Cama has specifically developed a variable-box handling device for the movers, which delivers automatic 'tooless' changeover for all required carton/case size along the track, regardless of their shape and size.

At the forming station, a robot picks up the flat blanks from the magazine and forms and glues the cartons. Formed cartons are then conveyed on iTRAK movers to the first buffer zone, where they wait in the desired quantity before moving to the loading station. A multiple-pocket in-feed system then conveys products, which the second robot loads into the cartons in the required configuration. After moving through the next buffer zone, the loaded cartons enter the closing station (in set quantities) where they are finally sealed with a final glue stream.

In addition to the iTRAK system – comprising 32 sections and 20 Movers – the machine features a range of Allen-Bradley® products for overall automation, safety and motion operations. At the heart of the control system is an Allen-Bradley ControlLogix® L8 programmable automation controller (PAC) and a ControlLogix L7 PAC for the safety system. Additional motion and robotic control is provided by Allen-Bradley Kinetix® 5700 servo drives and Allen-Bradley VPL servo motors, while the AC motors are controlled by Allen-Bradley PowerFlex® 527 variable-speed drives. Primary communication is via Allen-Bradley POINT™ I/O modules, with EtherNet/IP signals being managed by a Stratix 5700 switch. An Allen-Bradley Panel View Plus 7 Performance HMI completes the installation.

The combination of Cama's machine design expertise, coupled to class-leading automation solutions from Rockwell Automation has resulted in the development of a packaging machine that offers a pitchless box indexing system that offers three phases – forming, loading and closing – that are independent of each other.

According to Annalisa Bellante, Marketing Manager at Cama Group: "We work according to our customer's technical specifications and our prominent customers – most of whom are multinational companies – have Rockwell Automation as a preferred automation supplier. Our cooperation with Rockwell Automation goes beyond technology. Over the years we've built a strong relation, sharing our respective know-how with each other."

"Rockwell Automation is recognised all over the world as a leading automation, motion and safety supplier to the packaging industry, so it makes sense that Cama uses a company that can offer us the same levels of supplies and services that we offer our customers," adds Riccardo Panepinto, Operations Director.

"In addition to reduced wiring, troubleshooting, testing and changeover times, we also have to mention improved man and machine safety, reduced floor space requirements and a shorter time needed for machine installation and start-up," Panepinto concludes.

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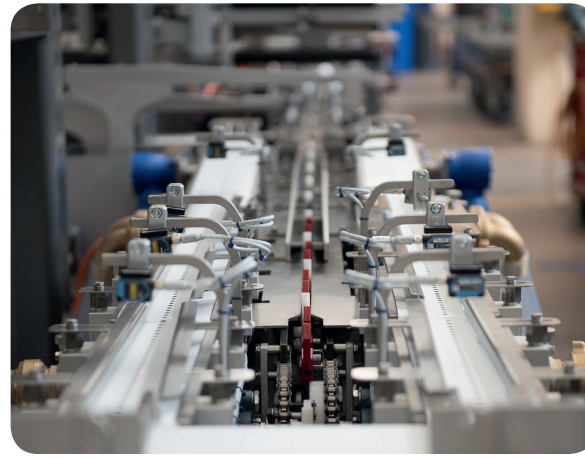
Solutions in Action

Rockwell Automation
Machine Builder Partner

cavanna
All Around Your Flowpack



Innovation is at the core of Cavanna's new flow wrapper packaging system, which includes the PI.CO. loader and ZeroX

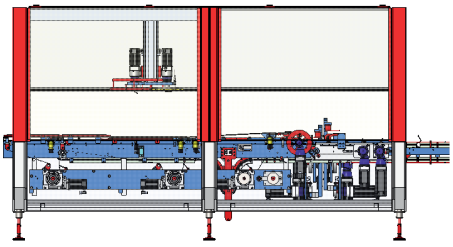
Allen-Bradley Compact GuardLogix programmable automation/safety controller

Allen-Bradley Kinetix 5500 servo drives

Cavanna is headquartered in Prato Sesia, near Novara. The Italian company has been designing and manufacturing integrated flow-wrapping systems for the food and non-food industries since 1960. Today, this leading Italian machine builder has over 100 patents, counts over 5,300 full-lines and single machines installed globally and supplies its solutions to more than 900 customers around the world. The Group has subsidiaries in Brazil and USA, too and works together with worldwide companies in bakery, confectionery, snack food and pharmaceutical industries.

"Cavanna, All Around Your Flowpack" is the new claim of the company, which has invested more than 12 million Euro in new technologies in the past five years. "Competition has become fierce in these years," they say at Cavanna, "and customers ask for complete and customized lines, turn-key plants and more flexible solutions, which have to be able to manage different shapes, sizes and batches."

Flowpack is still the core business of Cavanna, but consistent resources have been invested in developing loaders, buffers, delta robots and robotized end of lines, according to the idea that efficiency, productivity, TCO and freedom in packaging design can be achieved, as already said – "All Around Your Flowpack".



An advanced control, motion and safety technology is critical to provide customers with high performing, flexible and efficient machines

Indeed, innovation is at the core of Cavanna's new flow wrapper packaging system, which includes the **PI.CO. loader and ZeroX**, a new generation flow wrapping machine. The system is suitable for round and square biscuits, sandwiches and wire-cut cookies (in special applications rectangular biscuits can be flow-wrapped too). Flexibility is its peculiarity, as a quick changeover from slug to pile is possible. In this case "quick" means that a few minutes are required instead of some hours: this is a big advantage for the user, who can save a lot of time, reduce costs and obtain a better OEE. The production speed is 200 PPM in case of slugs and 375 PPM in case of piles (2HX2L). The system can assimilate 1,500 pcs/min in two rows and includes a product infeed system, a product stacker, a dynamic pilling system and a wrapper.

Since an advanced control, motion and safety technology is critical to provide customers with high performing, flexible and efficient machines, Cavanna selected Rockwell Automation products to build the control, motion and safety core of its new flow wrapping solution. The automation system designed by Cavanna includes an Allen-Bradley® ControlLogix® programmable automation controller (PAC), an Allen-Bradley GuardLogix L7xS safety controller and several safety sensors, such as the Allen-Bradley 440N SensaGuard™ non-contact Interlock Switches, which feature the latest generation of RFID technology for coding and inductive technology for sensing, and the 440G-LZ Guard Locking Switches, used for partial body access guard doors.

Allen-Bradley Kinetix® 5700 servo drives and VPL Low Inertia servo-motors are used for the motion system, while visualization is based on a 10" Allen-Bradley PanelView™ Plus 7 graphic terminals. Such an integrated control, safety, motion and visualization system allows Cavanna to improve machine performance and to develop an easy-to-use solution for the customer. All the devices are connected through EtherNet/IP™.

By using Rockwell Automation components, Cavanna gained a lot of advantages in designing and building the machine: firstly, Cavanna engineers could save design time and reduce their programming efforts. Wiring has been minimised, too and operation problems troubleshooting, testing and validation have been easier. Machine flexibility also has been increased thanks to Rockwell Automation control and motion devices. Cavanna's customer can see multiple benefits, too by using the wrapping system equipped with Rockwell Automation products: maintenance is easier and can be even remotely managed; training time is reduced and installation and start-up times are shortened. In addition to a higher level of machine and personnel safety, which can be reached in a smaller floor space, higher speed and throughput, integration, quality and flexibility, the end user can also achieve a lower TCO, reduce changeover time and get a more effective production management, delivering different packing styles in parallel by using a common platform.

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Solutions in Action

CLEVER MACHINES

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

Thanks to the CompactLogix or ControlLogix controllers talking directly to the PanelView HMIs, operators can set up heat shrink temperature and steam parameters automatically

Allen-Bradley ControlLogix programmable automation controller

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley PowerFlex 525 variable-speed drives

Since 2000 **Clever Machines** has been designing and manufacturing machines for automatic sleeve application and heat shrink tunnels. The Italian machine builder, which is headquartered in Altavilla Vicentina, near Vicenza, supports customers in food, chemical, pharmaceutical and cosmetic industries to dress up and personalize their products using heat shrink sleeves.

"Heat shrink sleeves are replacing traditional labeling, in particular for decorative purpose, safety seal reasons and promotional systems," Luca Cracco, Head of Clever Machines' Sales Department, explains. "We engineer and produce our machines for sleeve application in Altavilla Vicentina: here we manage the entire process, from the design to the construction of the electrical cabinet, from software programming to the machine assembling and testing."

Clever Machines supplies different models, such as linear and rotary machines, for different applications and production speeds, from 3,000 up to 52,000 pieces/hour. The company's heat shrink technology uses electric and steam tunnels. "We provide a wide range of machines, featuring multiple types of sleeve applicators and heat shrink tunnels. Our machines perform the different type of sleeve applications required

by the customers, at variable production speeds," Cracco says. "Furthermore, our machines support customers to put sleeves even on products with complex outline or irregular surfaces, without deforming printed images, text or even barcodes. Our systems actually provide precise and personalized heat-shrink processes to ensure the best quality sleeve application, as our customers require uniform and wrinkleless packaging."

To reach the maximum flexibility in sleeve application, production speed and an excellent quality output, Clever Machines decided on a complete automation and motion control platform supplied by Rockwell Automation for three of its most recent machines: the GS206 and the GS321 sleeve applicators and the Steam Jet 2 heat shrink tunnel.

The GS206 machine is designed for full sleeve and safety seal applications on round products and can reach a capacity of 6,000 pieces/hour, while the GS321 version for full-sleeve applications works at a maximum speed of 12,000 pieces/hour and can also put sleeves on rectangular or square products, featuring a specific system to adjust the sleeve precisely on the four sides of the product.

The two models feature a sleeve-reel unwinding unit, a sleeve-cutting unit and an application unit. The heat shrink tunnel Steam Jet 2 is engineered with a modular layout, as it can vary in length for different applications and production speeds. The tunnel features glass locking doors, which allow operators to visualize internal production conditions, a centralized exit for the overproduced steam, and a centralized condensation drainage system. The tunnel is designed for heat shrink operations for complex-outline products that require full decoration.

The Rockwell Automation control platform selected by Clever Machines for its three systems includes Allen-Bradley® CompactLogix® and ControlLogix® programmable automation controllers (PAC), which are directly interconnected to: Allen-Bradley Kinetix® 5500 servo drives, Allen-Bradley PowerFlex® 525 inverters and Allen-Bradley PanelView™ HMIs.

Thanks to an EtherNet/IP™ communication network, the GS206 or the GS321 can be directly connected to the Steam Jet 2 tunnel being directly managed by operators through the PanelView HMIs. "Thanks to direct, integrated controlling tasks, it's possible to perform even difficult sleeve applications with an excellent output: operators are able to insert the sleeve, reach minimum tolerance and obtain the most appropriate and synchronized setup of tunnel operations," Cracco states.

"We equipped the Steam Jet 2 tunnel with a fully electronic management and regulation system, which allow constant heat shrink operations. Thanks to the CompactLogix or ControlLogix controllers talking directly to the PanelView HMIs, operators can set up heat shrink temperature and steam parameters automatically, and save these parameters among several other 'recipes' for more than 100 different product formats and sizes.

"We consider the Rockwell Automation platform an excellent choice for the GS321, the GS206 machines and the Steam Jet 2 tunnel because we are really impressed by the savings in design time and the reduced programming efforts we obtained using the Rockwell Software® RSLogix™ 5000 programming environment," Cracco points out. "The Rockwell Automation team supported us continuously to develop the most suitable software platform for our machines and to increase machine flexibility for future changes. Our customers also appreciate the software control platform, as now they can use it more easily to increase their machine performance."

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Solutions in Action

CM FIMA Carle&Montanari 10 Anniversary

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

CM-Fima's S-Pack is a brand-new, patent-pending machine, which can be installed in an automatic wrapping line for chocolate bars

Allen-Bradley ControlLogix programmable automation controller

Allen-Bradley Kinetix 5700 servo drives

CM Fima is based in Ozzano dell'Emilia, in the so-called Italian packaging valley in the Emilia Romagna region. The company is a merger of two former competitors: Carle & Montanari Wrapping Systems and Fima. With a 61 years' background, the company has been involved with candies and chocolate wrapping market since its beginning.

The production in CM-Fima is based on alternative-motion machines that can work at speeds between 200 and 1,000 rpm. The machines were originally mainly mechanical, but about twenty years ago, servomotors began to be implemented, working as mechanical cams, and applied electronics became even more significant.

The CM-Fima portfolio includes wrapping machines for chocolates, pralines, chocolate eggs (Easter eggs included), chocolate tablets and hard and jelly candies, in all dimensions and styles of wrap. Food corporations and chocolate and candies manufacturers are the biggest CM-Fima customers.

"The thing that our customers appreciate most in our products is our ability in designing and manufacturing simple solutions even for complex packaging processes," Fabio Frabetti, General Manager CM-Fima, says. "Our machines are very user friendly. They are ergonomic and easy to manage, too, as they include a few operating devices."

CM-Fima's **S-Pack** is a brand-new, patent-pending machine, which can be installed in an automatic wrapping line for chocolate bars and features two innovative modules for wrapping and sealing. "The naked chocolate bar enters the wrapper and comes out hermetically wrapped," Frabetti explains. In designing the S-Pack, which is devoted to air tight wrap of chocolate bars, CM-Fima paid lot of attention to its ease-of-use: "Its main advantage is the simplicity of the wrapping concepts, which combine ease of operation and maintenance in a smaller floor space." This is a big plus for the customer, who can use an innovative machine, which can offer a high level of product protection for a longer shelf-life, even if the bar wrap looks like a traditional one.

When it came to design the automation core of the S-Pack, CM-Fima turned to Rockwell Automation. "We already knew its good products and services, which are available worldwide, as well as its high-quality technical support," Frabetti points out. "Rockwell Automation product's flexibility together with our market demands were key drivers in selecting its control and motion devices for our machine." Finally, Rockwell Automation solution's ease of use and faster implementation could best fit CM-Fima's commitment to building user-friendly machines.

For the control and safety system of its wrapping machine, CM-Fima selected an Allen-Bradley® ControlLogix® 5580 programmable automaton controller (PAC), with Allen-Bradley POINT I/O™ modules and communication modules, and an Allen-Bradley GuardLogix® 5570 Controller with Point Guard I/O™ safety modules. Seven Allen-Bradley Kinetix® 5700 servo-drives were selected for the 13 axes motion system of the S-Pack, which includes: feeding belt management, paper unwinding and paper cutting system, main motor, feeding belt, tear band unwinding, engraver, central folder, output belt and the paper pre-unwinder.

Control, motion and safety are all connected through EtherNet/IP™ and use a Stratix® switch. The machine can also be connected to the wider factory network. Such an integrated control, safety and motion system makes the machine achieve good levels of performance and productivity and allows CM-Fima to meet the growing demand for smart solutions for the packaging industry.

By implementing Rockwell Automation products, CM-Fima gains several benefits relating to the design of the machine: "We saved design time and reduced programming efforts thanks to the common software environment provided by Rockwell Automation," Frabetti adds. Wiring was minimized too, while operation problems troubleshooting as well as testing and validation were easier. Finally, the customer also will see important advantages using the S-Pack with its Rockwell Automation control core: installation, start-up and training time will be shorter, while personnel and machine safety will be improved. As Frabetti concludes: "The S-Pack is synonymous with integration and quality and can satisfy even the most demanding customer."

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Solutions in Action

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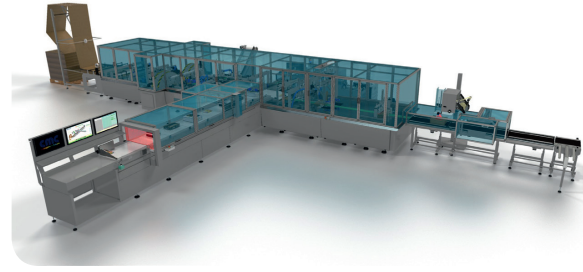

The CMC CartonWrap 1000, one of the core products of CMC's machine production for e-commerce fulfilment

Allen-Bradley CompactLogix
programmable automation controller

Allen-Bradley ControlLogix
programmable automation controller

Allen-Bradley PowerFlex 525
variable-speed drives

CMC Machinery has gained a long-standing experience in the packaging market. Headquartered in the Umbria area, in Città di Castello, near Perugia, this Italian company has been strongly developing its technologies, working towards innovation and machine range's diversification since 1980.

"At the beginning, we designed on-demand packaging solutions for food and paper industries, afterwards we diversified our offer, engineering film wrapping systems for magazines and newspapers, and envelope inserting high-speed systems both for transaction and direct mail", Tania Torcolacci, CMC's Marketing Manager, says. "In 2013, combining these different technological expertise – pioneering systems featuring up to 30,000 items/hour – we introduced the innovative system CMC CartonWrap, to automatically pack single order items – featuring different formats and sizes - in perfect size boxes. The CMC CartonWrap was followed by a second, unique, innovative system, the CMC CartonPack, which is designed to automatically pack multiple order items, featuring variable formats and sizes. Boxes are formed in the scale 1:1, according to each order size".

These CMC machines are designed specifically for e-commerce, fulfilment and POD industries. "In the latest three years, we have been deeply investing in R&D activities to engineer innovative solutions for these markets, particularly for the e-commerce fulfilment, where our customers are experiencing highly-increasing orders' volumes (currently, +30 percent on average year by year) and multi-item orders' variability. When it comes to consolidating and packing different size and shape items for shipment it is a hard challenge", Tania Torcolacci adds. "CMC worked also to boost machines cycling speed, from 500 boxes/hour using cardboard from reel to 1,000 boxes/hour, using fanfold fed corrugated".

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The CMC **CartonWrap 1000** is mainly intended to process single or multiple items fixed together, creating dynamic boxes from fanfold fed corrugated. Incoming order items dimensions are scanned by a 3D-scanning system, to create the right size box, with minimal waste of corrugated and void fillers. One box is processed in 3,6 seconds. The overall machine cycling speed is of 1,000 boxes/hour, with box specifications of 240x150x25 mm (minimum) and 600x350x200 mm (maximum).

During the process, product is initially fed and then scanned by the 3D Scanner, which detects the 3-dimensions and trigs the fanfold feeder, so that cardboard is unwound on demand, based on the box size to be produced. In the following unit, cardboard is cut, scored and trimmed, while inside panels are closed with hot melt glue. Product is then filled into the preformed box and other panels lifted and folded. Finally, invoice are printed, and up to 4 enclosures can be added selectively to boxes; boxes are closed with hot melt glue.

"The entire CMC CartonWrap 1000 machine workflow processing units are automatically managed and servo driven, without required operator adjustment during format changes. The machine features extremely compact electrical cabinets, easier and minimized wiring. These improvements are deployed by a Rockwell Automation®-based logic and motion control solution", Fabio Porrozzi, CMC's Technical Manager, states.

In the CMC CartonWrap 1000 machine's logic control, two main controllers are used, which are one Allen-Bradley® L83 ControlLogixTM and one L36 CompactLogixTM, together with several Allen-Bradley interconnected motion components, driving the machine axes on the whole. The machine comprises 20 Allen-Bradley 5700 Kinetix® and two 5500 Kinetix servo drives, eight Allen-Bradley 527 PowerFlex® and one PowerFlex 525 inverters. The control architecture includes also some Allen-Bradley POINTTM I/O, to manage both safety and standard logic I/O. Two Allen-Bradley Stratix 2000TM and 5700TM switches are integrated in the machine Ethernet/IP-based communication network.

"This electronic machine configuration is extremely modular and customizable: according to the requested units, we are able to eliminate or add components in the control layout", Fabio Porrozzi adds. "Standardizing on a Rockwell Automation's solution helps us to design significative compact cabinets, and to gain in speed cycling and flexibility. Only in the box forming, filling and closing are working 42 servo motors and 42 axes are to be highly synchronized: motion control is one of the most challenging machine designing effort: Rockwell Automation's servo technology performs excellent precision reliability in axes controlling and regulation, down to each single guide", Fabio Porrozzi details. "We are able to integrate quickly further axes to manage any CMC ancillary equipments and solutions, for example our integrated Packvertizing patented technology, which is a digital printing system for branding and personalized messages on the boxes on the fly".

CMC's programmers observe a remarkable reduction in software development efforts and times, as they are now able to develop logic and motion control tasks in the unique programming environment Rockwell Software® Studio 5000TM. "Studio 5000 is a very easier yet powerful software tool, which allows us to program and define new software blocks more quickly", Fabio Porrozzi adds. "Concerning machine connectivity, the integration of Stratix switches was an excellent change of course. They deploy a reliable connection to the customer's line plants for remote assistance; at the same time, they create a 'secure zone' for machine logic".

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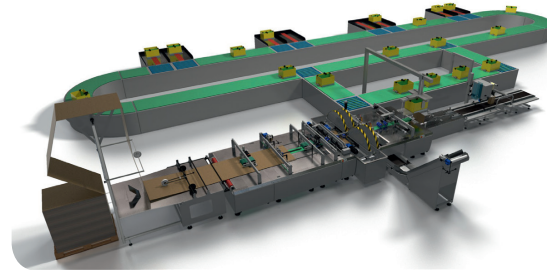

The entire CMC CartonPack machine workflow processing units are automatically managed and servo driven

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley ControlLogix programmable automation controller

Allen-Bradley PowerFlex 525 variable-speed drives

CMC Machinery has gained long-standing experience in the primary and secondary packaging market. Headquartered in the Umbria area, in Città di Castello, near Perugia, this Italian company has been strongly developing its technologies, working towards innovation and its machine range's diversification since 1980.

"At the beginning, we designed on-demand packaging solutions for food and confectionery industries, afterwards we diversified our offer, engineering envelope-inserting systems and film-wrapping systems for magazines, newspapers, catalogs and direct mail," Tania Torcolacci, CMC's Marketing Manager, says. "In 2013, combining these different technological expertise – pioneering systems featuring up to 30,000 envelopes/hour – we introduced our new Box on Demand Machines, the CMC CartonWrap and the CMC CartonPack, to dynamically pack single or multiple items fixed together, in perfect size boxes."

CMC Box on Demand Machines are designed specifically for e-commerce, retail, B2B and B2C markets. "In the latest three years, we have been heavily investing in R&D activities to engineer innovative solutions for these markets, particularly for e-commerce fulfilment, where our customers are experiencing highly-increasing order volumes (about +30 percent year by year) and multi-item order variability. When it comes to consolidating and packing different size and shape items for shipment it is a hard challenge," Torcolacci adds. "CMC worked also to boost the machines' cycling speed, from 500 boxes/hour using cardboard from a reel, to 700/1,000 boxes/hour, using fanfold fed corrugated."

Released in 2016, the **CMC CartonPack** is mainly intended to process different size multi-item orders and odd shapes, saving 30% corrugated and reducing up to 60% volume in a standard folded carton. The overall machine cycling

speed is of 700 perfect size boxes/hour, with box specifications of 250 x 200 x 60 mm (minimum) and 800 x 500 x 350 mm (maximum). Core of the CMC CartonPack is the "Vary-Tote", a CMC-designed-and-patented transport tote system, featuring two inner adjustable guides, which are used to compact the picked items to the minimum possible volume and to define orders dimensions. The Vary Totes move on a carousel, which brings full totes to the machine-induct section and, once empty, conveys the totes to the picking area for refilling.

During the process, a consolidated multiple-item order is initially placed in a Vary Tote and enters the machine. A 3D Scanner placed in the CMC Vary Tote induct area reads the three dimensions of the order set by the adjustable guides. Data is sent to the CMC CartonPack, which creates the exact size flat blank. The necessary corrugated sheet comes from a dedicated star-shaped device that smoothly unwinds the fanfold and keeps the cardboard flat to avoid creasing. Flats are dynamically scored and cut. A dedicated pick & place mounted in the picking area then places the Vary Tote above the flat cut on demand. The bottom of the Vary Tote automatically slides and items are accurately placed on the pre-formed blank, while the box panels erects and wraps the items. The on-demand box is formed, closed and sealed with hot melt glue.

"The entire CMC CartonPack machine workflow processing units are automatically managed and servo driven, without requiring operator adjustment during format changes. The machine features extremely compact electrical cabinets, easier and minimized wiring. These improvements are deployed by a Rockwell Automation-based logic and motion control solution," Fabio Porrozzi, CMC's Technical Manager, states.

In the CMC CartonPack machine's logic control, two main controllers are used; one Allen-Bradley® ControlLogix™ programmable automation controller (PAC) and an Allen-Bradley CompactLogix™ PAC, together with several Allen-Bradley interconnected motion components, driving all the machine's axes. The machine comprises 20 Allen-Bradley Kinetix® 5700 and two Kinetix 5500 servo drives, 13 Allen-Bradley PowerFlex® 527 and one PowerFlex 525 inverters and 42 Allen-Bradley VPL-Series® servo motors. The control architecture also includes Allen-Bradley POINTTM I/O, to manage both safety and standard logic I/O, while an Allen-Bradley Stratix 5700™ EtherNet/IP switch is integrated in the machine's EtherNet/IP-based communication network.

"This electronic machine configuration is extremely modular and customizable: according to the requested units, we are able to eliminate or add components in the control layout," Porrozzi adds. "Standardizing on a Rockwell Automation solution helps us to design significantly compact cabinets, and to gain in speed cycling and flexibility. The box forming, filling and closing processes alone use 42 servo motors and the 42 axes have to be highly synchronized. Motion control is one of the most challenging elements of machine design, but the Rockwell Automation servos deliver excellent precision and enhanced reliability in axes controlling and regulation, down to each single guide," Porrozzi details. "We are able to integrate quickly further axes to manage any CMC ancillary equipment and solutions, for example our integrated Packvertizing patented technology, which is a digital full-colour printing system for branding and personalizing messages on the boxes on the fly."

CMC's programmers observed a remarkable reduction in software development efforts and times, as they are now able to develop logic and motion control tasks in the unique programming environment delivered by Rockwell Software® Studio 5000TM. "Studio 5000 is a very easy to use yet powerful software tool, which allows us to program and define new software blocks more quickly," Porrozzi adds. "Concerning machine connectivity, the integration of the Stratix switch was an excellent change of course. It deploys a robust connection to the customer's line plants for remote assistance; while at the same time, it creates a 'secure zone' for machine logic."

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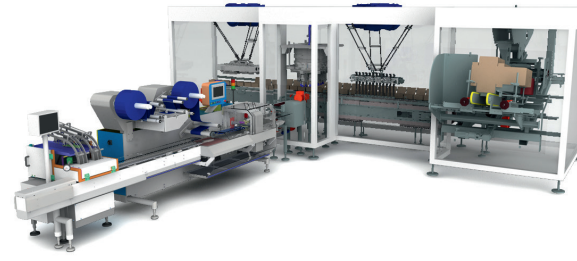
Solutions in Action

Rockwell Automation
Machine Builder Partner

CT PACK



The high innovation level comes from its compactness and its modular configuration and design

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley Kinetix 5700 servo drives

CT PACK, founded in 1996 in the well-known Italian Packaging Valley, has the goal of establishing a strong leadership in the food packaging industry. To provide full-service solutions, CT PACK incorporated three leading companies: Mopa – an expert in distribution systems and product alignment; Otem – a pioneer company in high-performing horizontal, single and multi-lane, flow-wrappers; and Vortex Systems – a group with strong expertise in robotic systems for high-speed handling, boxing and cartoning.

It counts on a dedicated, skilled after-sales team, which pays exceptional attention to the specific requests of each customer and continues to strengthen its local presence around the world in order to provide its customers superior quality, technical support service and 24/7 availability.

Nowadays CT PACK engineers and manufactures food packaging systems for primary, secondary and end-of-line applications, with a strong focus on ice cream, bakery and chocolate, providing complete, turn-key packaging lines, from the single, unwrapped products through to case packing, featuring specially designed and customized groups.

"We realise modular, flexible machines, which fit easily different types of materials and pack styles," says Gabriele Canini, CT PACK's Technical Manager. Other specific attributes which Canini underlines are traceability and product safety, thanks to innovative tracking systems and to the "hygienic design" layout of CT PACK machines.

Among the most recent CT PACK projects is a small and compact packaging line – from naked products up to the creation of final boxes of items – which includes two main machines: a **HCI 800 flow-wrapper** for primary packaging, with input/output rate of 500 to 800 products/minute, and an **"all in one" boxing system** for secondary packaging, with input rate of 500 to 800 products/minute and output rate of 21 to 34 boxes/minute. The boxing machine forms, fills and seals boxes, which can contain 24 items packed on two, three or four different layers.

"The high innovation level of our line comes from its compactness and its modular configuration and design, which are combined with maximum operator visibility," Canini adds. "This line is designed to be used by customers like big multinational groups, but also by smaller manufacturers, due to the great scalability of its layout."

Using standardised hardware components and software modules, CT PACK is able to be more competitive in minimizing lead time and boosting the reliability of the line. Canini stresses the introduction in the line of new transfer equipment based on "Orbitrak", a special rotating device which picks the product coming out from the flow-wrapper and places it at a very high speed on the in-feeding "slat" conveyor. This transfer system contributes to quicker, continuous production and avoids product collisions or displacements.

"Without the help of an automation provider like Rockwell Automation, we couldn't have introduced this great innovation," states Canini. He explains that the new CT PACK line integrates different Allen-Bradley® components from Rockwell Automation, to deliver a complete automation, motion, safety and visualization platform.

The line deploys Allen-Bradley CompactLogix™ programmable automation controllers (PAC) and an Allen-Bradley GuardLogix® safety controller, which are directly connected to the motion-control devices: Allen-Bradley Kinetix® 5700 servo drives and Allen-Bradley VP-Series Low-Inertia Kinetix servo motors. An Allen-Bradley PanelView™ Plus 7 display delivers visualization and HMI tasks and Allen-Bradley POINT IO™ modules and Stratix™ switches handle communication over CIP Motion™ and EtherNet/IP™. As a result, logic, motion control and safety are seamlessly integrated in a unique environment; the result being maximum synchronization of machines groups in the line, and more immediate information visualization.

"Rockwell Automation's approach to automation allows us to deliver customers improved product quality and integrity across the line, minimizing incidents of waste products and boosting working speed," states Canini. "We also achieve more compactness and reduced floor space. At the same time, our customers are able to ease maintenance and troubleshooting operations. We've optimized the safety equipment on the line, too, introducing the safety PLC instead of electromechanical components".

"Rockwell Automation's support is fundamental for us, considering the number of machines we deliver annually." explains Canini. "We can significantly reduce our programming and testing efforts and can redesign new machines very quickly, following a modular approach in defining mechanic groups: we use the same, standardized hardware components in the line and set up the required software functions, according to the customer's manufacturing process for batch production. Rockwell Automation also has a global presence and our customers are rely on the availability of spare parts and continuous assistance in every corner of the globe," concludes Canini.

Finally, thanks to the EtherNet/IP network, CT PACK is also able to more easily connect the Rockwell Automation components with other devices used by its customers in their plant, giving them the choice to extend enterprise-data transmission and machine-data-collection tasks.

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Solutions in Action

Dara Pharmaceutical Packaging

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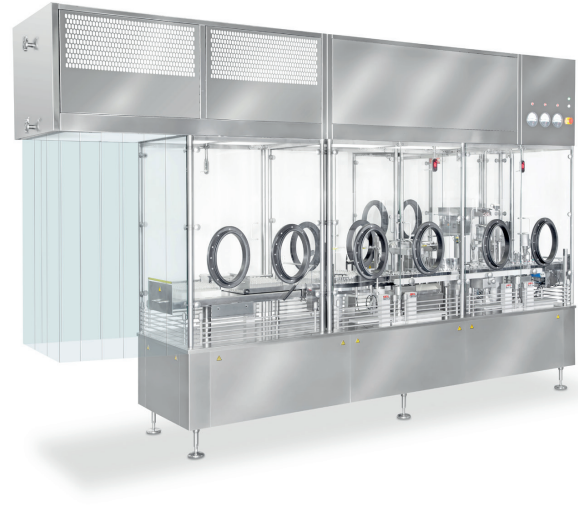

The HSL-PP/8 is specifically designed for aseptic filling and capping of pharmaceutical drugs or vaccines

Allen-Bradley ControlLogix programmable automation controller

Allen-Bradley Kinetix 5500 servo drives

Quality, innovation and technological excellence are the distinguishing features that allow **Dara Pharmaceutical Packaging**, located in Granollers (Barcelona, Spain), to be a market-leading company. Established in 1996, it specializes in the manufacturing of washing, sterilization, filling and capping machines for bottles, vials, cartridges, syringes and bags to process liquid, semi-solid, and powder products in sterile conditions. The machines can work either individually or as a complete production line. The company's international focus is a key point: it exports a 90% of its output and has a presence in more than 80 countries.

All the machines marketed by Dara Pharmaceutical Packaging are characterized by their modularity. According to Joan Melé, Commercial Director of the company: "Our modular approach means that no two machines are identical. Each module is independent from the others, due primarily to the built-in servo technology, so our customers are able to combine the modules as desired in order to achieve the final unique configuration to suit their needs." These equipment modules include weight dosing control, indexing, filling and capping.

All the machines marketed by Dara Pharmaceutical Packaging are characterized by their modularity (HSL-PP/4)

A clear example of a modular machine is the **HSL-PP/8** model, specifically designed for aseptic filling and capping of pharmaceutical drugs or vaccines, with dosing values between 0.1 and up to 1,050 ml, and a throughput of up to 24,000 units per hour. Its design complies with the cGMP and US FDA standards according to the requirements of the pharmaceutical, biotechnology, cosmetics, chemical and related industries. "It's a high-performance machine capable of reaching 400 units per minute. In fact, only 20% of our customers handle these speeds, so it's one of the fastest in the market," states Melé, who adds: "These performance parameters are made possible by the integrated electronics and servo technology."

In order to achieve these performance figures, the company has, for many years, relied upon products from Rockwell Automation. This machine features Allen-Bradley® Kinetix® 350 servo drives for one axis and Kinetix 5500 for up to 40 other axes. In both cases, their compact and innovative design helps to minimize the module size, as well as simplifying the system cabling. In addition, Allen-Bradley CompactLogix™ L33 and L36 programmable automations controller (PAC) prove ideal for small- and medium-size control applications not requiring motion and security features; and Allen-Bradley ControlLogix® L72 PACs are suited for applications that require high-performance communications, I/O and motion control.

This machine also features also Allen-Bradley POINT™ I/O modules and Allen-Bradley PowerFlex® 4M AC drives, which stand out due to their high flexibility in a wide range of applications. Last but not least, the system has EtherNet/IP™ connectivity, which allows the seamless integration of all electronic components, and the connection to Dara Pharmaceutical Packaging facilities to perform remote diagnostics when necessary.

All these Rockwell Automation products provide the machine, according to Melé, "with accuracy, a compact size, high-performance and a high data transfer rate." For him, a plus is the relationship with a provider that supplies a global service and support. "Rockwell Automation has become our standard because the products provides us with all the technical features we need. In addition, the compact size increases the flexibility of assemblies and handling inside the equipment," he adds.

"This also has an impact on the benefits for our customers when installing these machines," Melé explains. "First it provides reduced energy consumption, low maintenance and high flexibility, since formats are easily changed, and as many modules as necessary can be integrated, all within this reduced floor space. Second, operation is easy, as is cleaning. Finally, customers can create full reports from the data generated by the machine, as well as performing data analysis for troubleshooting and operational appraisals of the equipment."

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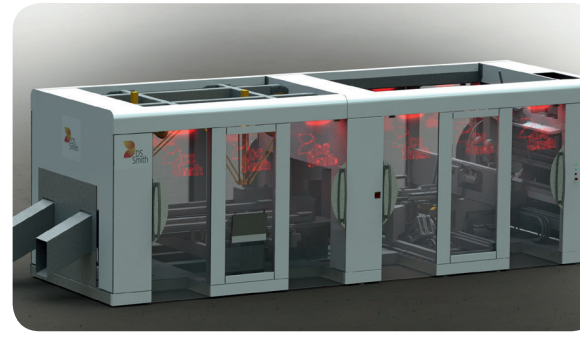
Solutions in Action

Rockwell Automation
Machine Builder Partner

DS Smith



The Combi 150R combines a fast and efficient mandrel case former with a high-speed robotic packing and sealing unit in a compact, energy-efficient line.

Tucked away in Burgundy, near Dijon in France, is one of the world's leading makers of packaging machinery – **DS Smith Packaging Systems**, part of **DS Smith Group**. The company is world-famous for having invented the mandrel technique of forming cardboard cases – and this is the secret of its success.

The technique involves a mandrel – a type of mould that perfectly fits the case to be made – around which the DS Smith machine wraps and seals the case. The finished box is then ejected from the mandrel. The benefits of the mandrel technique include an extremely high level of accuracy – 98.5% – which in turn reduces rejects and downtime. The finished boxes are perfectly squared and glued, even at the machine's top speed of 65 boxes per minute.

Along with its mandrel formers, the firm also designs and makes tray formers and bag-in-box containers for liquids, among other products. As DS Smith Packaging Systems can provide full end-of-line systems tailored to customers' needs, its solutions are suitable for a wide range of markets – from food and beverage to pharmaceuticals, home and personal care.

A key part of the end-of-line packaging system is DS Smith's new **Combi 150R** machine. Featuring mandrel case formers, division inserters and top sealers, it can shape several different case formats on the same machine. Customers can make boxes with 4, 6 or 8 sides – maximising the printable area for messaging – or even with rounded corners. The machine can also produce shelf-ready cases, such as those with a high back and low front to better display products.

Allen-Bradley CompactLogix 5380 programmable automation controller

Allen-Bradley Kinetix 5700 servo drives

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The flat cardboard die-cuts are conveyed to the mandrel case former, with the products to be packed entering on a separate conveyor. In a second or two, the mandrel former shapes the case in the desired format, glues the sides and ejects it. A robotic pick-and-place system selects the products to be packed from the second conveyor and places them in the empty box. Once filled, the box is sealed along the top. "We believe this is a world first," notes Gilles Deschamps, Sales and Marketing Director at DS Smith Packaging Systems. "The Combi 150R combines a fast and efficient mandrel case former with a high-speed robotic packing and sealing unit in a compact, energy-efficient line." The underlying Allen-Bradley® CompactLogix™ 5380 programmable automation controller (PAC) controls an Allen-Bradley® PowerFlex® 527 variable-speed drive and a 10-axis motion solution driven by Allen-Bradley® Kinetix® 5700 servo drives.

In the DS Smith Combi 150R, this combination drives the bottom axis of the feeder that picks up and places the cardboard die-cut on the conveyor, while the linear axis is activated in the gluing line that seals the sides of the cases. A robotic arm slips the die-cut under the mandrel and wraps the cardboard around it – in about a second. The Kinetix-based solution supports a single conveyor for the customer's products along with a double conveyor for the cases. It also drives the pick-and-place robot that fills the cases, as well as the conveyor moving them to the top sealer unit. The solution benefits from optimised network architecture based on Allen-Bradley® POINT I/O™ modules and an Allen-Bradley® Stratix™ 5700 industrial managed Ethernet switch.

"We sell our machines all over the world, so it's important to us and our customers to work with an automation supplier that has global operations," comments Gilles Deschamps. "Using the Rockwell Automation platform has enabled us to shorten the design, development and testing cycle while maintaining flexibility for future evolutions of our machine."

From the customer's perspective, the new Combi 150R reduces the time needed for commissioning and maintenance, while accelerating changeover time for different box formats. The precision and reliability of the machine also bring cost savings in their wake – there is less waste with rejects, as even the first box of a new series is perfectly formed. As every box in a series is exactly the same size, they are easier to stack on pallets, saving space. Additionally, customers can differentiate their products more easily on supermarket shelves with disruptive formats

"The Rockwell Automation platform helps us keep the machine compact, which customers like because it saves floor space," notes Gilles Deschamps. "It also provides the speed and reliability we need to drive our mandrel case former – and that's one of our principal differentiators on the market," he concludes.

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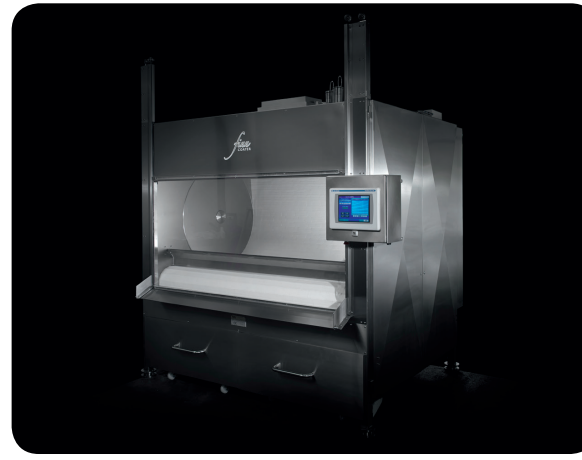

The Enhanced Finn Coater, fitted with integral spray and drip Systems is operated via a recipe-driven control solution running on an Allen-Bradley automation solution from Rockwell Automation

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley PowerFlex 525 variable-speed drives

DTG Limited Finn, UK, is a company with a 50-year history of excellence in the design, manufacture and supply of confectionery equipment.

Due to continued innovation, the application of a continuous belt has been applied to Finn confectionery machines. This delivers increased production and food safety and reduces risks along with a dramatic decrease in sanitation and cleaning times and costs.

Improving all aspects of food production now and into the future, this innovation is key to expanding the product base from Finn machines to include sugar coating and the company's FINN name continues to lead development and design.

The company has continually looked to innovate and improve, building on the strong design and engineering traditions established by the late Mr Frank Finn. Always providing a variety of quality production equipment to the confectionery industry, establishing itself as a market leader with Finn Belt Coaters & Finn Belt Polishers.

Today, with hundreds of machines in reliable, daily operation globally, Finn continues to set the standard in belt coating technology, with machines that increase production and lower the man hours in panning

environments. Now available in various capacities from 78 to 710 litres, Finn belt coaters are used to cover various centres with chocolate, yoghurt or chocolate-flavoured compounds all over the world, and now offer the opportunity to sugar coat too.

Customers include global confectionery industry leaders. The company also supplies to smaller niche chocolate confectionery producers and those developing their brands in high-growth developing economies. The tradition of design, build, installation and commissioning has developed a highly skilled workforce, which supports across all aspects of production to ensure best practise and highest return on investment.

The Enhanced Finn Coater, fitted with integral spray and drip Systems is operated via a recipe-driven control solution running on an Allen-Bradley® automation solution from Rockwell Automation. Major elements include a drip system for medium batch production work. This is designed to coat typical assortments such as peanuts, hazelnuts, almonds, raisins, soft fruits, toffee balls, biscuits, wafers, fondants, coffee beans and freeze-dried products using an internal Drip Bar with chocolate or chocolate-like masses and sugar.

The spray system provides the additional facility to spray various small and intricate products such as corn or bran flakes, corn balls, puffed rice and various types of health seeds (for example sunflower and pumpkin seeds). It is also capable of coating irregular and flat shaped products such as freeze dried banana, popcorn and walnuts.

In operation, once the product has been loaded into the machine, the recipe is initiated and the tumbling of the product begins on the belt, with timings and parameters all being bespoke to suit the product to be coated and to customers' specific requirements. Next the chocolate supply is energised, allowing small amounts of chocolate to drip or to be spray-fed onto the confectionery product. Assisted by the addition of chilled air, the product is coated, typically using a drip or spray system, a ratio of anywhere from 0.5:1 to 7:1 can be achieved.

The machine uses a variety of Allen-Bradley® products, including an Allen-Bradley CompactLogix™ programmable automation controller (PAC), an Allen-Bradley PanelView™ HMI and Allen Bradley PowerFlex® 525 inverters.

Finn Coaters and Polishers are a valuable, reliable, cost-effective and efficient addition to the confectioner's production process, replacing the traditional "pan" style machines which can be costly and inefficient in operation. Confectioners benefit from consistent quality, high performance on a daily basis with minimal down time, reversible and a variable-speed hygienic polypropylene belt, now available in a continuous design as well as modular. Quick unloading, easy cleaning and rapid cooling of the chocolate make the product ready for polishing as soon as possible, with visible results for simple quality inspection and control, low labour requirements, bespoke programming through control panel technology and excellent machine residual value.

According to Lyn Pitt, Managing Director: " DTG Limited Finn has invested in technology and design to bring a specific machine as required by the industry and along with Rockwell Automation technology, the system will deliver solution-led products, responsiveness and ongoing partnership and support."

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Solutions in Action

ESSEGI ITALY packaging system www.essegi.com

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The F1200 Motion SU&SO machine is ideal for processing up to 30 pillow or gusseted bags per minute

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley Kinetix 5700 servo drives

Headquartered in Galliera Veneta, near Padova, Northern Italy, **Essegi** designs and manufactures vertical packaging machines (VVFS), mixing lines for soil, dosing and weighing systems, product loading and transportation lines and industrial automation solutions to process different products, covering a wide range of weights and formats.

"For more than 30 years we have been working to provide customers targeted and effective solutions, to meet their packaging and automation requirements," explains Paolo Gasparin, one of the co-founders of Essegi. "Our packaging lines are run by customers acting all over the world in food, chemical and agricultural industries, in particular in the production of soil, pellets for heating systems, sand and granular plastics."

Essegi keeps on investing in R&D activities to boost its machine's working cycles through the adoption of best-in-class technologies and components, in order to provide its customers more reliable machine operations and premium quality packaging.

The Italian company engineered a continuous motion Vertical Form-Fill-Seal machine – the **F1200 Motion SU&SO** – which has the ability to automatically form, fill and seal polyethylene bags starting from a

single-sheet film reel, processing packages in multiple sizes, formats and types, such as granular products, powder or similar products like soil, compost, bark, peat, sawdust, etc.

The F1200 Motion SU&SO machine integrates an upper unit with the volumetric-belt dosing system (DTS80 MAX) for soil, bark and similar items, and a lower station where bags are formed, filled and sealed, starting from flat polyethylene film reels with a maximum width of 1,280 mm. The machine is available in different versions, integrating multiple electronic dosing systems according to any granular products packaging. Maximum bag size reaches 1,080 x 620 mm, while maximum bag volume ranges from 10 to 80 litres.

The F1200 Motion SU&SO machine is ideal for processing up to 30 pillow or gusseted bags per minute, according to their sizes and formats. "This F1200 Motion SU&SO version, with a painted steel or stainless steel 314-316 frame, features a film-driving system with continuously variable speed, a longitudinal sealing group with continuous warm air and a transversal sealing group mounted on mobile cart with synchronized speed," adds Gasparin.

"The F1200 Motion SU&SO is driven by advanced and innovative mechanical solutions and an control platform from Rockwell Automation, which maximizes machine performance and working speed, ease of use and reliability, while improving package quality," says Gasparin.

For the F1200 Motion SU&SO Essegi selected an Allen-Bradley® CompactLogix™ L33Erm PAC, which controls the Allen-Bradley Kinetix® 5700 servo drives managing four Allen-Bradley VPL-Series® brushless motors. Each motor manages a specific machine movement. The first drives the film reel unit with continuously variable speed, the second manages the up and down movement of the mobile cart mounting the transversal sealing group, the third manages the opening and closing movement of the transversal sealing group, while the fourth drives the up and down movement of the bag holding and vibrating system.

The control platform is completed by an Allen-Bradley PanelView™ Plus 7 performance terminal for the HMI application.

"We preferred a Rockwell Automation platform because of the advanced hardware and software performance, the excellent company reputation and the customer service. We could minimize machine cabling and overall machine footprint. Furthermore, our engineering and programming team gained immediately great self-confidence with the Rockwell Software® programming environment Studio™ 5000. The open and integrated environment also allowed our engineers to more easily manage changes in the machine control layout. Using the Studio 5000 platform allowed us to minimize installation and startup time and to improve machine flexibility for future changes," Gasparin says. "Rockwell Automation brilliantly supported our engineering team in motor sizing, according to the different movement and mechanical stroke required, in selecting the correct power rating range and in choosing the most appropriate PAC & servo drive configuration."

Standardizing on a Rockwell Automation platform, Essegi technical department is able to design and develop new machines and control layouts more quickly, in order to provide customers higher production speed cycles than the previous conventional non-continuous motion versions.

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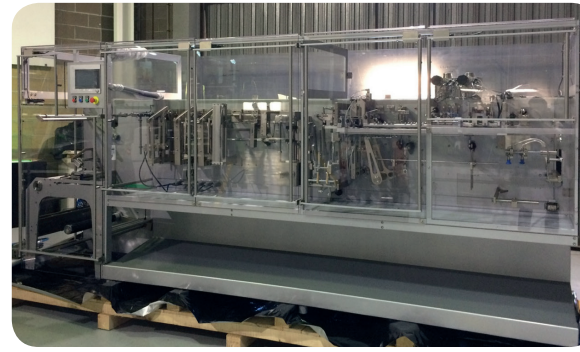
Solutions in Action

FLEXPACK
Flexible Packaging Machines

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

Allen-Bradley CompactLogix 1769 programmable controller

Allen-Bradley Kinetix 5500 servo drives



The Flexpack NF-180 Duplex is a flexible, efficient and high-performance packaging machine ideal for medium size sachets with a throughput of 180 sachets per minute

Flexpack is a company located in Barcelona (Spain) that specialized in the design, manufacturing and commissioning of Horizontal Form, Fill and Seal (HFFS) for flexible packaging. "We develop simple, efficient, and innovating solutions tailored to cover the needs of our customers, and that allows us have a presence in virtually every industrial sector, like food and beverage, pharmaceutical, cosmetics, and chemical," states Esteban Sola, Operations Manager.

The company has specialized in the development of high-performance machines that feature an easy and quick changeover, being also flexible, efficient and environmentally friendly. Furthermore, they stand out for their versatility, since all of them handle sachets of up to 800 ml, with unitary cutting, double cutting, top valve, zipper, and different formats. Therefore, as Esteban Sola explains, "these machines can package all kinds of products: powders or granules, liquid and solid, grains, seeds, cookies, pasta, drinks, sauces, creams, etc."

The Flexpack NF-180 Duplex can package all kinds of products: powders or granules, liquid and solid, grains, seeds, cookies,pasta, drinks, sauces, creams.

Within the wide range of machines sold by the company worldwide, the model **Flexpack NF-180 Duplex** stands out particularly. It's a flexible, efficient and high-performance packaging machine, ideal for medium size sachets, with a throughput of 180 sachets per minute. "It's a machine able to form, fill and seal four-sided flat pouches filled with unitary items (like sweets) and operated by intermittent motion from a heat-sealed reel so, being duplex, can manufacture two products per cycle," explains Esteban Sola.

In order to perform this task, this model includes features such as an ergonomic and reinforced monoblock, a motorized unwinder with end of reel detector, expandable reel support for easy mechanical adjustment, splicing table for quick reel changeover, servo driven stroke system by rollers, and several easy-to-use systems which provide clean and accessible filling stations, watertight hoppers, vacuum control or static pouch stretching prior to seal, among other features.

The Flexpack NF-180 Duplex integrates several Rockwell Automation® components, such as Bulletin 1769-L27ERM Allen-Bradley® CompactLogix™ 5370 controllers, with built-in security and the same programming software, network protocol, and information resources as all Logix controllers. Moreover, they operate together with Bulletin 2198 Allen-Bradley Kinetix® 5500 Servo Drives, thus supporting the motion integrated in EtherNet/IP™, minimizing the size of the machine, and simplifying the system wiring. In addition to this, this machine integrates Allen-Bradley PowerFlex® 525 AC Drives, which offer EtherNet/IP communication, USB programming, and built-in standard security features. Thanks to this connectivity, the machine can be remotely controlled and managed in real time.

For Esteban Sola, "the main advantage is that, since all Rockwell Automation products have become an automation standard, many companies demand this type of components for their design, performance, and price." Furthermore, they provide other benefits: "They reduce the design and programming efforts, help to solve operation problems, simplify maintenance and, with them, tests and validations become easier."

These results enable the customers to improve their process automation, increase their production rates, optimize quality, efficiency and production, and save labour and operational costs. In fact, for Esteban Sola, "all of this can be quantified in an overall efficiency of the machine between 85% and 95%, and in benefits in material costs of up to a 50% in pre-manufactured pouches and reels." And last but not least, the fact that, due to the quality of the components that make up the machine, "it enables less product to be wasted and allows a better control," he concludes.

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Solutions in Action

futura robotica

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The company is particularly well-known in the packaging market for the development of unique and innovative robotized applications for the food industry

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley Kinetix 5700 servo drives

Futura Robotica specializes in the production of end-of-line automatic machines and complete systems. For more than 15 years, this Italian machine builder has been investing in R&D activities and innovation in handling applications, manipulators and robotics, to answer the market's demand for machine flexibility and modularity, minimum space layout, maximum productivity and quick and easy automatic changeovers.

The Company, headquartered in Alseno, in the Northern-Italian Piacenza area, engineers and manufactures vertical case packers (case/tray) on pre-glued or flat blank cardboard, modular lines featuring high-speed robots and vision systems, integrated lines (packaging/pallettizing), pallettizers, manipulators for flow-pack machines and thermoforming machines.

The company is particularly well-known in the packaging market for the development of unique and innovative robotized applications for the food industry – diary and milk, pasta and coffee – where it pays great attention to stretch film packages (bags, flowpacks, doypacks, display boxes, trays and plastic cases) and thermoformed or tubes packages.

"In our end-of-line systems, we integrate robots (manipulators and pick & place ones), which are both self-designed and manufactured and commercial systems, in order to gently handle even fragile packages, and to perform quick changeovers without slowing down productivity. These remarkable traits make

our machines appreciated by customers, moreover for their well-known modular design," Andrea Della Monaca, Futura Robotica's Technical Sales Manager, says.

These technical traits are deployed in the **MPC/L Display Box cartoning machine** – which Futura Robotica engineered for secondary packaging applications for any kind of coffee capsules – from flat blank cardboard, featuring medium/low speed rate, a capacity of 250 capsules/minute, and an output of 25 display boxes at a time. Futura Robotica also developed lines with higher capacity, up to 500 capsules/minute.

Capsules enter the machine in a single row and are divided onto two conveyors. Capsules from the first conveyor are transferred to a vertical star device, which rotates them 180° (with capsule lid at the top) and places them – at fixed speed – in the machine in-feeding module, leaving an empty filling-cell between each capsule. Capsules from the second conveyor are placed in the machine in-feeding module – exactly in the empty filling-cell between each of the previous inserted capsule – by a synchronized horizontal star system (capsule lid at the bottom). Thus, the machine in-feeding module features a single row of capsules, which alternately present capsules lid at the top and lid at the bottom. For this advanced capsules Feeding and Orienting System, Futura Robotica has already presented a patent-pending request.

Capsules are then automatically transferred to display boxes, by a highly synchronized pick & place unit, picking capsules with belt tracking function.

The MPC/L system includes three main modules on the same machine framework. In the first forming unit, display boxes are formed from flat blank cardboard by a three-axis polar robot; in the second filling station, capsules are picked from the feeding unit and placed by a second robot in the display boxes. Finally, in the box-closing unit, display boxes are closed and hot-glued by another three-axis polar robot. The robots are mounted in hanging configuration: this delivers improved machine accessibility, considering the saved floor space.

"This extremely modular machine's design features an 11-axis control layout," Della Monaca adds. "In order to perform this control layout, we selected a Rockwell Automation®-based automation solution. The entire MPC/L machine logic is managed by an Allen-Bradley® CompactLogix™ PAC, which is directly interconnected to six "double" Allen-Bradley Kinetix® 5700 servo drives to drive the 11 axes. The motion architecture is completed by Allen-Bradley VPL-V-Series® brushless servo motors, which are driven by the Kinetix 5700."

Futura Robotica's engineering team uses an Allen-Bradley PanelPC™ 6181 for the HMI application; the I/O connectivity is provided by Allen-Bradley POINT™ I/O modules, while the machine communication is based on an EtherNet/IP™ network. The technical team also provides a remote-assistance machine connection: Futura Robotica's technicians are thus able to directly access to machine panels, to display or event change control parameters.

"Logic and motion control tasks for the axes driving the picking polar robots are entirely programmed with the Rockwell Software® Studio 5000™ programming environment, which our software engineers highly appreciate, as it is an extremely immediate and user-friendly software environment," Della Monaca says. "They find, in particular, Motion Software Libraries very useful, as they are easier to use and help them to boost single-axis and interpolation management. Motion Libraries support our team in developing highly synchronized axes movements, which are at the same time balanced, continuous and fluent, without annoying or sudden jerks. This fluid motion transfers into the whole machine process and, thanks to well-defined trajectories, carries out excellent working cycles and line productivity for our customers."

When selecting Rockwell Automation as the preferred automation solutions provider, its global presence and local support assistance services were also decisive key points for Futura Robotica's team, as Della Monaca explains: "The continuous, skilled support from Rockwell Automation's technicians actively contributes to not making our customers feel abandoned in the field, wherever their industrial packaging plants may be based."

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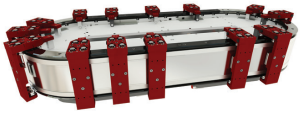
Solutions in Action

GEBO CERMEX

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

Gebo Cermex selected Rockwell Automation's iTRAK as the foundation of its innovative CareSelect solution



iTRAK intelligent track system

Allen-Bradley Kinetix 5500 servo drives

Located in the symbolic heart of Europe, near Strasbourg in France, **Gebo Cermex** is a leading specialist in packaging line engineering with a long history of innovation behind it. It serves a range of market segments from beverages and food to pharmaceuticals, home and personal care.

Gebo Cermex is noted the world over for the flexible and modular architecture of its machines, making them suitable for modernisation projects as well as greenfield sites requiring a from-scratch solution. One of the company's latest innovations is **CareSelect™**, a modular infeed system that fits into practically any robotic or traditional case packing or shrink wrapping solution and can handle any bottle shape and dimension. Depending on the bottle shape and weight, it feeds up to 400 units per minute into the downstream packing system.

With a traditional "endless screw" method of grouping bottles and other containers to the packing lines, they are subject to friction – sometimes significant – from the screw's surfaces. As the bottles spend anything up to about 12 seconds in the screw infeed, the process can result in the labels, or the bottles themselves, becoming scratched, marked or dented. That can increase the number of rejects and affect productivity. To resolve this challenge, Gebo Cermex has developed CareSelect™ technology as a

CareSelect™ is a modular infeed system that fits into practically any robotic or traditional case packing or shrink wrapping solution

revolutionary new way to group bottles, where the movers are only in contact with the bottle for 0.3 seconds – 20 times less than with a screw approach. CareSelect also stands out with its extreme precision, using a series of gentle movers to turn each bottle carefully by 90°, position it accurately, group the bottles and send them on to the cardboard and/or film wrapping station.

"As the movers act independently, our customers can use CareSelect for any shape of bottle, even unusual shapes sometimes used in home or personal care products," notes Didier Saussereau, Packing Product Manager at Gebo Cermex. "We've designed the system with intelligent bottle flow management that avoids products piling up and bumping into each other – another way to avoid damaging the product or its label."

Along with protecting the integrity of products and labels, CareSelect enables manufacturers to make product or format changeovers fully automatically – in less than one minute. This increases productivity and throughput, especially as operators do not need to make any mechanical adjustments or change heavy sets of screws, which they previously had to do to accommodate products of a different size. As a result, no cranes or tooling is needed, freeing up scarce floor space. This flexibility also allows manufacturers more creativity to think up highly unusual bottle or container shapes – and it can make small batches profitable again.

The CareSelect solution is no bigger than traditional screw-based solutions and is likely to have a smaller footprint than a multi-robot collating system. "Our CareSelect system offers maximum compatibility with sequential or continuous case packing systems, including both poly-articulated tracking robots and numerical axis gantry packers," comments Benoit Poutot, Innovation Manager for the Packing Business Unit at Gebo Cermex.

Gebo Cermex selected Rockwell Automation's iTRAK® as the foundation of its innovative CareSelect solution. This is a modular, scalable and linear motor system that gives CareSelect independent control of multiple movers on straight or curvilinear paths. The solution, which works in conjunction with Allen-Bradley® Kinetix® 5500 servo drives, uses both curved and linear iTRAK motor modules as well as iTRAK mover carriages and position magnets. Gebo Cermex uses Allen-Bradley® CompactLogix™ 5380 controllers (the 5069 series) to deliver high-performance communications and intelligent motion control on its CareSelect solution.

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Solutions in Action

GOGLIO

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The machine is ergonomic, noiseless, safe and modular: the user can select the group to be installed on the machine and easily update it; furthermore, the groups assembled on tracks allow the total extraction to ease regulation, maintenance and cleaning

Allen-Bradley ControlLogix programmable automation controller

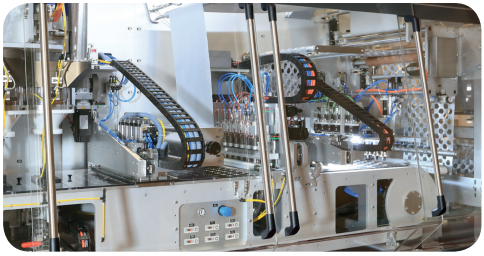
Allen-Bradley Kinetix 5700 servo drives

Goglio is synonymous with quality, competence and commitment in packaging. The Italian company has gone through the entire history of packaging: in 1850 the first company of the Group, specialized in paper bags, was founded in Rho (Milan); in 1909 the first mechanized factory was born; in the Sixties, the Fres-Co System® was designed to integrate flexible packages with packaging machines and technical service; in the Seventies, new facilities were built in Daverio (flexible packaging material), Milan (plastic division for valves) and Zeccone (machine division) and Goglio Group invented the revolutionary one-way degassing valve, still an important component in coffee applications as well as in other packaging processes.

After a period of expansion in the Eighties – Fres-Co System International in the Netherlands, Fres-Co System Espana and Fres-Co System USA were opened – in the Nineties the Group consolidated its presence in Europe with Goglio North Europe (The Netherlands). New branches in USA, Poland, Italy, Japan, France, China and Brazil were opened at the beginning of the 21st century and in 2016 the company entered the capsules market.

Goglio delivers complete solutions for the coffee industry: packaging film material, degassing valves, packaging machines, capsules and capsule-filling machines, as well as 24/7 technical assistance and service.

A good example of its deep knowledge in coffee is the **GCap6**, a filling machine for aluminium capsules, which includes several modules: a loading system for



The machine is remotely accessible via Ethernet and can communicate bi-directionally both with the MES of the customer and/or with the 'Goglio cloud platform', a system implemented by Goglio. Production data – recipes, batch number and quantity to be produced – can be remotely sent to the machine; the customer can potentially collect an infinite number of analogic/digital data too and use them to implement a predictive maintenance

stacked capsules; a twin-auger filling system; a checkweigher; a tamping and cleaning device; a top lid cut and seal group; an optical camera control; and an exit pick and place. The capsules are fed to the conveyor through an unstucker device and a carousel. A pick-and-place system takes six capsules at a time from the carousel and releases them on the indexing conveyor that leads them in the different stations.

The capsules are filled with ground coffee, coming from the grinder and the pan-feeder. The spinning blends above the twin augers keep the density of the coffee constant. The weight of each capsule is then checked and feedback is sent to the augers. The indexing conveyor moves the capsules under the tamping device that presses the coffee with a vertical movement, cleaning the upper flange to remove any coffee that could get stuck between the flange and the top lid. The capsules are then brought to the cut and seal group, where another vertical movement cuts a circle of aluminium and places it on the upper flange of the capsules in the conveyor. A second part of the group then seals them. A 180° rotating pick and place device grabs the capsules that are lifted from the conveyor by a pneumatic cylinder and laid down on a tilt device. The capsules are then released on the exit conveyor with the larger flange facing the belt.

Goglio designed the automation system of the GCap6 selecting several Rockwell Automation solutions. "Rockwell is one of our main suppliers and works with us on a daily basis in the development of new products," Giancarlo Truglio, R&D Manager and Machine Division Technical Department Vice-Director points out. "It is one of the most important brands and provides a wide assistance network worldwide, together with great technical support to the machine builders." The control system on the GCap6 consists of an Allen-Bradley® ControlLogix® controller, an EtherNet/IP™ network, Allen-Bradley POINT I/O™ modules and several Kinetix® 5700 servo drives for the different moving parts: the rotating table for insertion of stacked capsules, the pick-and-place system inserting the capsules in the conveyor and the indexing movement of it, the augers, the checkweigher lifting movement, the tamping device, the cut and seal device, the exit pick and place, the reel unwinding. Other Kinetix AC servo motors are used for the pan feeder blend, the twin auger blend, the cleaning brush, the tamping heads rotation and the exit conveyor.

Thanks to the Rockwell Automation single-cable motion system, Goglio can minimize wiring, while the use of bi-axial drives helps to reduce the space needed in the electrical cabinets. Furthermore, the user-friendly software programming environment made machine development easier. Other advantages reached by Goglio were reduced training times, improved machine flexibility, better troubleshooting of operational problems, easier testing and validation and minimized installation and start-up times.

All the devices are connected through EtherNet/IP while a Stratix 2000™ Unmanaged Switch allows easy connections within the control network. The machine offers very good sealing, cutting and dosing accuracy in addition to precise defecting checks. As Truglio concludes: "The customer who chooses our machine gets a solution that combines good looks with high performance and a 94-95% OEE."

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Publication OEM-AP569A-EN-P – March 2017

Solutions in Action

HERMA

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

Within the pharmaceutical industry the wrap-around labeler 132M HC is an international bestseller.

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley PanelView Plus HMI

Back in the day the company founder Heinrich Hermann sold his first labels to Daimler. This was the cornerstone for a success story, which in the meantime has spanned more than a hundred years. Today the **HERMA GmbH**, founded in 1906, is seen as an "innovation-happy" specialist for self-adhesive technology with a seamless know-how chain in terms of its offerings. They range from the manufacturing of adhesive composites to self-adhesive products and labeling solutions, right up to labeling machines. In the healthcare industry the requirements labeling machines have to meet are especially high. And this is also an area in which HERMA has been scoring for more than 20 years with "the best as a standard", as a company flyer wonderfully proclaims. "Thanks to a sophisticated modular design we are able to solve complex healthcare challenges even with our standard machines. For our customers this means, amongst others, more stable production processes and an improved reproducibility of results at different business locations," explains Ulrich Fischer, Head of Product Management and Project Design at HERMA.

The 132M HC wrap-around labeler is operated by means of a PanelView™ Plus 7 graphics terminal.

The wrap-around labeler **132M HC** is considered to be the international bestseller within the pharmaceutical industry. "It is probably its reliability paired with its compact design and its performance of 330 cycles per minute, which make it so interesting for the wrap-around labeling of vials, glass and plastic bottles of all shapes and sizes," speculates Ulrich Fischer. According to him, comparatively low retooling times are also part of the HERMA 132M HC offering. In general this labeling machine is recommended for utilizations in which top performance is required without compromising safety, precision or speed. "More and more markets are demanding complex provisions in order to ensure the retraceability of pharmaceutical product packages. This is why high-performance printing, camera and control systems in our machines ensure the highest degree of safety when printing, coding and labeling. This reaches right up to a controlled product or label removal," emphasizes Ulrich Fischer, stating that HERMA machines are perfectly fitted for track & trace as well as serialization tasks, such as those resulting from the EU Guideline 2011/62/EU or other regulatory requirements. As a consequence, the 132M HC wrap-around labeler has been fitted with a print image and Pharmacode control as well as with a missing label sensor.

The fact that HERMA machines are increasingly being fitted with Allen-Bradley® components with regard to their control and drive technology, has a lot to do with the current US offensive of the German labeling specialist. "A large portion of our growth should in future come from the American region," confirms the head of product management and project design at HERMA and reveals further details: "The first time we exhibited our machines in America a few years ago, we were asked two things: Where is your nearest service point and do you have Allen-Bradley? The first question has been covered with the formation of our own subsidiary company in Fairfield, New Jersey, and we are tackling the second item together with Rockwell Automation."

The pharmaceutical industry has extremely high demands regarding product quality. As a consequence, a lot has to be inspected in detail during the manufacturing process. This also applies to labeling. Does the bottle have a label? Does the label match the contents of the bottle? Has the correct expiry date been printed, and so forth. A lot has to be cross-checked in the healthcare field and the utilized PLC functions as the highest controlling body. "The Allen-Bradley CompactLogix™ therefore not only takes over machine functions and ensures, for example, that the conveyor belt is running and that the cylinder moves at the correct time, it is also in charge of various processes critical to the pharmaceutical industry such as checking whether a label is present," illustrates Ulrich Fischer. And should a label actually be missing on a product, then it is immediately removed. The same happens to products with wrong labels, they are also discharged. The task of the CompactLogix in this context is to keep an eye on all screening processes with multiple logics and to manage them.

The 132M HC wrap-around labeler is operated by means of a PanelView™ Plus 7 graphics terminal. "We are active in the so-called capital goods market with our products. The requirement here is not limited to good performance, but also includes a maximum of user and installation friendliness; it is about safety of investment, because the customers wish to produce as long as possible with their machines and it is about a compact design, because space in switch cabinets is usually at a premium. And with regard to all these items we feel very much at home with Rockwell Automation," praises the Head of Product Management and Project Design at HERMA, Ulrich Fischer, by way of closing.

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Publication OEM-AP600A-EN-P – APRIL 2017

Solutions in Action

HİPERMAK®
GIDA AMBALAJ MAKİNE SANAYİ VE TİC. LTD. ŞTİ.

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

Allen-Bradley CompactLogix
programmable automation controller

Allen-Bradley Kinetix 5500 servo drives

Allen-Bradley PanelView Plus HMI

This machine is ready for Connected Enterprise. Coordinating with End-User, the ability to connect the HMI and command the machine remotely thanks to ViewPoint Feature.

Hipermak Food Packaging Machinery Industries Ltd. Co. is a global player in full automated packaging machinery manifacturing. Packaging machines manufactured by Hipermak can make filling for powder and granule products in different basis weights.

Operating in İzmir Kemalpaşa Ulucak producion facilities since 2004, the company makes exports to European countries like United Kingdom, Belgium and also to Middle and North Africa, Middle East regions. With its modern machinery, executing all production phases within the scope of company itself, Hipermak serves to customers like Eczacıbaşı, Pastavilla.

With its expert personnel, technical staff and experienced service team, Hipermak continues to grow day by day. Putting customer satisfaction, customer need and demands in the first place, Hipermak also supports R&D projects with participation of all its employees. Providing wordclass goods and services, Hipermak is a main actor in the sector with its fully automated packaging machines.

Hipermak's **SV5000** can be shown as an example to smart machinery not only for increasing its speed performance in terms of PPM but also for monitoring and decreasing commissioning time. It is working remotely. This intermittent VFFS machine uses Cam profiles for softening the jaw for mechanical smoothness. Using Machine Builder Libraries which fasten the commissioning adding options makes the machine more user friendly. PackML inside enables by computing with ISA88 standards gives us a standardization in monitoring of the machine' s states as well as required performance data. Dynamix enables us to use preventive diagnostics as hardware therefore end users can make a downtime planning via using this function. Remote monitoring is active for checking the status of the machine from wireless environment.

Used Rockwell Automation products include; CompactLogix 5380 controller, PF4M, Kinetix 5500 Servo Drives and VPL Servo Motors Dynamix, Energy Monitor, Safety Non-Contact Switch, Safety Relay, ETH. Switch and PanelView Plus 7 Standard. Ethernet IP is used for all communication. Also there is one Stratix switch.

Hipermak R&D Director Sertaç Nantu said "Rockwell Automation having a global structure has been always supportive for us and our customers. It is also an added value that Rockwell Automtion has a wide range of products. Currently Rockwell Automations gives us all support we need to improve SV5000 and helps during the development process. As Hipermak we feel very lucky to have such a solution partner."

Hipermak benefited numerous advantages with Rockwell Automation products used for SV5000. These benefits include; time saving during design process, simplicity in programming, minimising the cabling, convenience in test verification and flexibility for the changes that might come in the future. SV5000 provides advantages to its customers such as energy saving, easy maintenance, fast problem solving, machine safety, less floor covering, minimising installation and commissioning time.

Sertaç Nantu states that they use a compact solution for their customers and says "From the machine's statistics we are able to monitor its performance, its energy consumption, fast product changeover, machine safety enabled approach and access to multiple parameters in simple way which gives us flexibility in the usage. As an example we are using cam profiles for the first time in our intermittent machine with Rockwell Automation. PackML approach supervised by Rockwell engineers gave us program modularity. SV5000, for quick achievements, fast start-up and fast product change will easily reduce the downtime cost of end-users. For bigger end-users who need to analyse OEE, data and alarms will find even more benefits in its usage. We look forward to hearing positive feedbacks from our clients."

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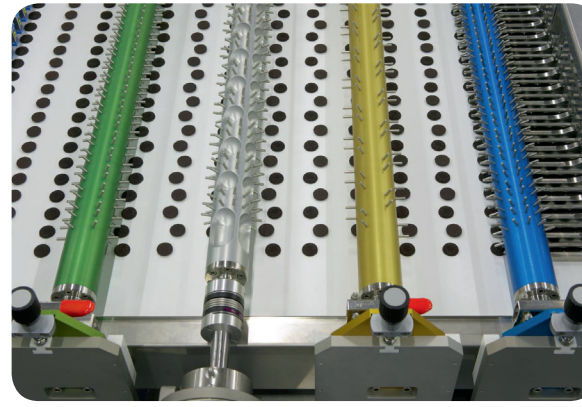
Publication OEM-AP603A-EN-P – APRIL 2017

Solutions in Action

HOUDIJK HOLLAND

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software



The company's Capper has recently undergone a significant redesign and enhancement

Allen-Bradley ControlLogix
programmable automation controller

Allen-Bradley CompactLogix
programmable automation controller

Allen-Bradley PowerFlex 525
variable-speed drives

Houdijk is highly respected in the worldwide biscuit industry for its equipment, handling systems, operating software and components. Coupled with the expertise it has built up over the years, it develops unique systems for diverse applications at large industrial biscuit manufacturers around the world.

Every day millions of products pass through feeding systems designed and built by Houdijk, on their way from ovens to packaging lines. Houdijk develops feeding systems that strive not for complexity, but for the capability to simply do the job: that is to feed product efficiently and effectively to the next link in the operational process. With Houdijk as a partner, its customers can be sure that even the most complex process will lead to streamlined production thanks to its expertise on the feeding of a diverse range of biscuit products.

Houdijk is fully standardised on Rockwell Automation, deploying a wide range of powerful components in fully integrated architectures. Three machines from its range that leverage an Allen-Bradley® automation and motion infrastructures, are its Capper, Gradomatic and Line Master.

The company's **Capper**, which has recently undergone a significant redesign and enhancement, is used for the continuous production of sandwich biscuits, with cream application. In operation, biscuits enter

The Line Master is a tray loading-machine for wire-cut chocolate chip cookies

the machine flat, 50% are turned upside down and a cream deposit is then applied on these upturned biscuits, the other biscuit halves are then placed on top before the completed biscuits are transferred to a cooling conveyor. The machine is capable of handling up to 5,400 sandwich biscuits per minute.

The machine uses a ControlLogix PAC in conjunction with a CompactLogix PAC for controlling and counting respectively, both of which run on an EtherNet/IP network. The flipping and placement of the biscuits is achieved by two 2D Delta robots, both with two drive motors. An additional 10 axis of servo motions is achieved using an Allen-Bradley Kinetix infrastructure and the in-feed and out-feed conveyors are also controlled by servo so position data can be accurately tracked. A PanelView 1000 Plus HMI completes the installation. According to Bart Houdijk, CEO: "The machine offers versatility, easy change-over, a hygienic design and is fully HMI controlled, there are no manual settings."

The **Gradomatic** is the company's versatile product-row-forming system for regular, round- and square-shaped products. It is able to gently handle large quantities of randomly supplied products, blending the production as well as enabling count feeding. Its design is open and easy to access for operation, maintenance and cleaning. The Gradomatic uses an Allen-Bradley CompactLogix Programmable Automation Controller (PAC), coupled to multiple servo axes and PanelView™ and PowerFlex AC Drives.

Finally, the **Line Master** is a tray loading-machine for wire-cut chocolate chip cookies. Capable of processing up to 1,000 cookies per minute it uses an Allen-Bradley servo solution to create feed patterns that match the trays the cookies are packaged into. The machine's control infrastructure is driven by a ControlLogix PAC. The 14-axis servo solution is achieved using Allen-Bradley Kinetix® drives and the conveyors utilise Allen-Bradley PowerFlex® drives. Completing the installation is a PanelView™ 1000 Plus HMI, which gives the operators full visibility of all machine parameters and programmes.

"Where we have the choice we always choose an automation solution from Rockwell Automation," explains Houdijk. "The reasons are many. We have seen streamlined design times, reduced programming efforts and minimized wiring. Troubleshooting is also more straightforward and testing and validation is much easier than other solutions. In addition to lowering our overall costs, we also enjoy increased flexibility for future changes.

"We also like the level of software support that we get from Rockwell Automation," he concludes, "in fact the service level is far better than some of our other suppliers. I always get the feeling that the engineers from Rockwell Automation genuinely want to help us. As far as I am concerned when it comes to technology and service – it is Rockwell Automation all the way."

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Solutions in Action

ILAPAK

The Lux 24 can be configured with filling solutions for liquids, solids, powders or granular products, making it suitable for a wide range of applications

Allen-Bradley ControlLogix programmable automation controller

Allen-Bradley PowerFlex 525 variable-speed drives

Since 1970, **Ilapak** has been playing a key role at the forefront of form-fill-and-seal technology, offering a huge portfolio of horizontal and vertical packaging equipment covering several flexible film applications, from modified atmosphere packaging to sachet production, as well as associated product handling, automation and cartoning solutions.

Headquartered in Lugano, Switzerland, and employing 450 people, Ilapak operates five ISO 9001:2000 and ISO 14001:2004 certified manufacturing plants on three continents and counts 14 subsidiaries worldwide. The company is part of the IMA Group, which plays a key role in the designing and manufacturing of processing and packaging lines for pharmaceuticals, cosmetics, tea, coffee and food.

The company delivers more than 600 machines per year and has several production sites. In Lugano it specializes in HFFS machines; in Arezzo (Italy), it produces VFFS machines, weighers and dosing units; in Bologna (Italy) it produces pouch machines; in Rogers (Arkansas), at Delta Systems, it manufactures HFFS and end-of-line solutions, while in Beijing (China), Ilapak manufactures both VFFS and HFFS entry-level machines.

The **Lux 24 horizontal deluxe pouch maker** is the latest innovation coming out of Ilapak's dedicated food industry R&D program. "The machine is designed to perform continuous motion filling, doubling the speeds that can be achieved by its closest rivals. This allows food manufacturers and packers to form flat film stock into high quality stand-up doy packs at speeds which are normally

achievable for lesser quality, more basic bag styles," explains Francesco Marchioni, Ilapak's Group Business Development Manager. "We achieved this technological breakthrough via the development of a unique dual-motion system, comprising an intermittent station for pouch forming and sealing and a continuous station for product filling. The trail-blazing system incorporates five patent-protected features, including an innovative rotary filling carousel."

The Lux 24 can be configured with filling solutions for liquids, solids, powders or granular products, making it suitable for a wide range of applications. The machine is designed to process sauces, soups, beverages, candies, cereals and grated cheese, as well as non-food products such as detergents. The doy pouches produced by the Lux 24 can be equipped with spouts, straws or zippers or even fitted with a handle.

"The machine's excellent versatility arises from its open, frameless design, which makes the machine accessible from all four sides for cleaning and maintenance operations, too," Marchioni details. "Changeover operations can be completely executed via the touchscreen, while mounting the electrical cabinet on the top of the unit makes for a very compact footprint."

The new Lux 24 features an integrated control and supervision solution from Rockwell Automation, which is based on the Allen-Bradley® ControlLogix® programmable automation controller (PAC) alongside Allen-Bradley PowerFlex® 525 inverters and Allen-Bradley Kinetix® 5500 servo drives, which manage the machine's 21 axes. The ControlLogix controller runs the chief functionalities of the horizontal pouch maker and talks directly to the servo drives and the HMI platform through an EtherNet/IP™ communication network. "Adopting a Rockwell Automation solution based on EtherNet/IP allows us to use just a single cable for power and data transmission, minimising wiring on the machine," Marchioni adds.

Ilapak's engineering team developed and tested the HMI applications for the Lux 24 through the FactoryTalk® View 7.0 HMI solution and the Allen-Bradley PanelView™ 1250 Plus 6 CE extended operator panel from Rockwell Automation. "The RSLogix™ 5000 design and configuration environment, combined with the FactoryTalk HMI solution, which we used to develop both the control and the monitoring application on the Lux 24, supported us to improve the innovation and excellence of our pouch-making technology, increasing the overall flexibility and versatility of the machine," Marchioni explains.

Standardizing on the HMI solution from Rockwell Automation helps Ilapak's engineers to deliver to its customers an extremely advanced and user-friendly approach to visualization: remote control of the I/O signals prevents operators from opening electrical cabinet each time they need to check machine status or diagnostics. Furthermore, operators are able to control – in real-time – the servo drives' working parameters, such as positioning, electrical consumption or potential failures, visualizing them directly from the HMI panel charts.

"Thanks to the direct connectivity between servo drives, controller and HMI offered by the integrated platform, the Lux 24 features an easier solution to detect possible motor over-torques through frequency combined calculation, in order to suggest appropriate predictive maintenance cycles to operators directly from the HMI panel," Marchioni elaborates. "The FactoryTalk View solution includes a multimedia system too. Thus, machine operators receive detailed descriptions and locations, viewing video demos to work on solutions."

Last but not least, due to the tight integration of FactoryTalk View and RSLogix 5000 and through the direct EtherNet/IP connection between the ControlLogix and HMI system, Ilapak's engineers implemented an advanced system to measure machine Overall Equipment Effectiveness (OEE): operators can take advantage of a real-time monitoring of throughput quality, machine operating performances and diagnostics. Parameters, values or downtime reasons visualized through the HMI system can be directly transferred to the chief production control mainframe thanks to the shared EtherNet/IP communication network.

"With an increasing number of food products switching from cardboard cartons to flexible packs for secondary packaging, Rockwell Automation's integrated solution for control and supervision for the Lux 24 helps us to anticipate massive interest from the food industry and to deliver our customers the highest machine productivity and versatility," Marchioni concludes.

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Solutions in Action

imanpack
PACKAGING & ECO SOLUTIONS

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The Moonlight horizontal wrapping machine covers different primary packaging applications, in particular technical packing, for several industry fields

Founded in 1975 in Santorso, Vicenza, **Imanpack** entered the packaging market with its first, versatile, small flow-wrap machine, the Micropac, which soon proved its potential, becoming a noteworthy model in the flow-pack industry.

Today Imanpack's production range includes the economic Micropac as well as innovative, highly automated, complete packaging lines, which are operated in their working phases by specially designed Imanpack microprocessors. Imanpack designs and builds flow-wrappers, box forming/closing machines, cartoning machines, high-speed piece counting and weighing machines, robots and a variety of feeding and end-of-line systems.

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley Kinetix servo drives

"Our well-known, distinctive trait is our ability to forge long lasting relationships with our customers, providing them consultancy and constant assistance. Indeed, we developed some of our most innovative projects in conjunction with our customers," Giovanni Bisio, Imanpack's CEO, explains. "Counting on more than 60 partners and 58 agents worldwide, we offer a complete range of automatic packaging systems to meet the needs of several industry sectors: food, plastics, house care, hardware/kit, medical/cosmetics, wet wipes, personal care and catering." Imanpack exports about 80 percent of its production, while the other 20 percent serves the Italian market.

Imanpack cooperates with Rockwell Automation® to design the motion control and automation layout of its machines. In particular, the Italian machine builder selected Rockwell Automation motion and logic control solutions in four of its most recent projects. The first one – called **Servoflex Pro** – is an horizontal flow-pack machine with a rotating sealing system, which

is fully servo driven – is designed for primary packaging tasks in food industry applications and could be placed just after a typical food production line. "This machine can be considered a completely re-designed layout of the previous and successful Servoflex series," says Franco Basso, Imanpack's COO.

"The second one, the **Moonlight horizontal wrapping machine** (up to 80 packs/minute), is one of our most appreciated flow-wrappers with box-motion technology. It covers different primary packaging applications, in particular technical packing, for several industry fields (cosmetics, wet wipes, pharmaceutical or medical, automotive, plastics, house & personal care). This flow-wrapper features extended sealing time and four-axis electronic control; it is available in different versions, for polyethylene film or heat sealing materials, with reel-loading from the top or bottom and in stainless steel."

The third, the **Microvert Pro vertical Form-Fill-Seal (VFFS) machine** (40 packs/minute), is designed to pack small hardware kits, while the fourth system controlled by Rockwell Automation components is the **MTRF 2000** automatic box and tray forming machine (35 boxes/minute), which is able to serve different industries, being usually placed after primary packing and before palletizing, and includes a head former, which is driven by servo motor.

Imanpack's engineering team selected a Rockwell Automation control platform for the four machines, including different Allen-Bradley® components. Servoflex Pro, Moonlight and MTRF 2000 systems are managed by an Allen-Bradley CompactLogix™ PAC, while the Microvert Pro includes an Allen-Bradley MicroLogix™ controller. Allen-Bradley PowerFlex® inverters are mostly used in the flow-wrappers, to drive input and out conveyors, while Allen-Bradley Kinetix® servo drives are used in the Servoflex Pro, the Moonlight and the MTRF2000 systems – driving from 2 to 12 axes – to manage the key working steps.

"With Rockwell Automation components, we integrally control the axes' position and electronic cams serving the main machine processes – loading, lifting, forming, filling and sealing. We appreciate the high level of integration of automation and motion in the electronic platform, and the EtherNet/IP™ communication network. We are also able to connect the machines to the wider network, trough In-End network (VPN)," adds Bisio. "We developed our own supervision software, too, called Caesar, to connect our machines with customer's ERP suites, in order to manage production data, statistics and production machine planning: this software is a key tool to upgrade Imanpack's systems for Industry 4.0."

Imanpack machines are flexible and versatile, as they can be used for several applications. "Machine construction is heavy-duty: we are a well-known leader in the market as for technical packing, in particular for hardware products such as bearings, automotive parts, medical devices," Bisio states. "We provide customers with greater reliability, versatility and robustness, together with reduced machine downtimes: we select high-level and high-customized machine components, according to their specific needs. Rockwell Automation supported us to boost these benefits, thanks to its component reliability, easier programming and integration, increased flexibility for future machine layout changes, the highest technological level, and its worldwide proximity".

Imanpack is now better able to meet its customers' needs, as the company supports them to reduce energy consumption, to ease maintenance and troubleshooting, as well as to manage remote maintenance applications. Due to a more integrated logic and motion platform, Imanpack's customers are now able to reduce machine changeover time, too, while improving personnel and machine safety and minimising installation and start-up time.

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Solutions in Action

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The single control platform provided by Rockwell Automation best fits Imball's performance and connectivity needs

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley Kinetix 5500 servo drives

Imball is an Italian company specializing in machines and complete turnkey systems for the packaging industry. Founded in 1975 and based in the Bologna area, the company develops and manufactures its machines implementing the most advanced technological solutions, which respond to the strictest requirements of its customers regarding safety, ergonomics and easier maintenance.

"We act as a partner for secondary and tertiary packaging market segments and among our customers there are big food and non-food corporations," Luca Cesari, South America Area Manager at Imball, says. The biggest part of Imball's customer base includes food producers, another smaller percentage comes from beverage industry, while the rest belongs to other non-food segments.

Imball's **EFFE22 carton erector** is one of the two most compact versions of the high performing and flexible EFFE family of erectors that can come with manual or fully automatic size change over. Depending by your carton/tray dimensions and speeds, the machines can be designed with single, double or triple forming heads in continuous motion.

The EFFE22 is a very flexible machine that can erect different sized boxes starting from flat blanks. "The machine can be placed at the infeed of

a secondary packaging line and can erect up to 60 boxes per minute, using hot melt glue or carton lock form," Cesari explains. "It is a high performing system, as it can be equipped with fully automatic format changeover and is designed to produce up to 150 boxes per minute with multiple heads, depending on carton style & size."

The blank is picked up from the blank magazine and is placed onto a linear plane for hot melt glue application prior to carton forming by a forming-head system. The box forming and the size changeover are electronically managed. In addition to reliability and efficiency, flexibility is another main feature of the machine, since it can produce boxes of different dimensions, with multiple closing options and made from different carton board (virgin or recycled) materials (i.e. solid, micro flute and corrugated). Furthermore, the double forming head is not the only optional feature offered to the customer. A 1,100 mm capacity blank magazine, automatic size changeover with PLC-controlled adjustment, stainless steel construction and carton discharge facility are other options that the end user can eventually choose.

Rockwell Automation has provided all the components Imball needed to build the control core of the EFFE22 erector. "We always look for excellent reliability in automation and we need to equip our machine with best-in-class technology," Cesari says. "As we have done for the other models in the EFFE family, we decided to implement a wide range of solutions by Rockwell Automation on our EFFE22 too."

The Rockwell Automation products used in this case are an Allen-Bradley® CompactLogix™ LR27 controller, Allen-Bradley Kinetix® 5500 servo-drives, an Allen-Bradley PanelView™ Plus 700 PC graphic terminal and several electromechanical safety components.

The single control platform provided by Rockwell Automation best fits Imball's performance and connectivity needs and made the Italian company realise several benefits in designing and manufacturing the machine. These include an easier programming software environment, which allowed the engineers to save time and reduce their efforts for the equipment set up and operation, while the modularity and scalability of the Rockwell Automation platform improves the machine's flexibility. As Cesari adds: "Due to their modularity, the solutions we selected allow us to adapt the machine for future changes in an easier way."

The unparalleled technical support offered by the Rockwell Automation team to the end user has been another important driver in Imball's decision: "As Rockwell Automation is a very well-known and appreciated brand worldwide, equipping our machines with Rockwell Automation solutions gives them a unique added value." Cesari concludes.

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Solutions in Action

BOSCH

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

By successfully deploying solutions from Rockwell Automation, coupled to 70 years of experience, Kliklok has the ability to design and produce high quality, technically advanced packaging machinery

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley PowerFlex 525 variable-speed drives

Allen-Bradley Kinetix 5500 servo drives

For over 70 years **Kliklok**, now part of the Bosch group, has been recognised around the world for manufacturing quality, reliable packaging machinery to industries including bakery, frozen & chilled food, confectionery, contract packing, dairy and non-food.

Kliklok understands that selecting the right packaging machinery is a crucial decision for the success of any product, particularly in the food industry. With this approach, the company is at the forefront of food packaging technology, working alongside its customers to help ensure they choose equipment that suits their individual needs and production requirements.

Kliklok's extensive range of durable and efficient equipment includes top load and end load cartoning, automatic product handling, wraparound sleeving and end-of-line machinery. In addition, it offers the Woodman range of bagmakers, plus trolley-loading equipment and display card loaders.

From its premises in Bristol, UK, Kliklok International designs, manufactures and distributes machinery throughout Europe, the Middle East, South East Asia and Australia. The United States, Canada, South America and parts of Asia are served by Kliklok-Woodman, based in Atlanta, USA.

With expertise and focus on the core industries it has served for so many years – frozen and chilled foods, snack food, dairy and bakery – Kliklok International is able to meet the growing needs of its customers and keep one step ahead in today's changing market. It is continually investing effort and resources to help ensure that its packaging machinery remains the number one choice for food producers world-wide.

The company's **SFR** continuous motion, medium-speed endload cartoner and its TRAC-i, a product-handling unit that collates multiple products and transfers them at a right-angle into the flights of the SFR cartoner, are prime example of Kliklok addressing the needs of the market and incorporating its customers' expectations into high-performance machines.

In operation – when packing a twin-pack of flow wrapped biscuits as an example – a queue of flow wrapped biscuits ('slugs') arrives from the flow wrapper (narrow edge leading) in a single file. A slug then enters the TRAC-i and dwells until a second slug joins it side by side – if you want a three-pack, it would wait for the third slug. Then a series of overhead paddles sweeps the pair together at a right angle (so the slugs are now broad side leading) into the infeed of the SFR cartoner. A carton is plucked from the SFR hopper using a rotary feeder with vacuum cups, and erected ready for slug insertion. The slugs are inserted into the carton via piston/pushers, before the end flaps of the carton are glue closed and finally, the fully cartoned twin-pack of biscuits exits the SFR machine.

Both machines leverage an Allen-Bradley® control solution from Rockwell Automation. At the heart of each control system is an Allen-Bradley CompactLogix™ programmable automation controller (PAC) coupled to Allen-Bradley PowerFlex 525 variable speed drives. The TRAC-i also deploys an Allen-Bradley Kinetix 5550 servo drive. This combined motion solution is used on the TRAC-i to time products into the overhead sweep and then transfer them onto SFR cartoner infeed conveyor. It is also used on the SFR when erecting cartons, inserting products and closing the cartons. Both the SFR and TRAC-i use an EtherNet/IP™ network for communication between machines and to the wider enterprise.

According to Michelle Newman, marketing manager, Kliklok International: "By successfully deploying solutions from Rockwell Automation, coupled to our 70 years of experience, we have the ability to design and produce high quality, technically advanced packaging machinery. As a result, our customers benefit from higher performance and increased output and they will also see higher OEE and lower TCO – including a contribution from reduced energy consumption. Other benefits include reduced training times and minimised installation and start up.

"Through our use of equipment from Rockwell Automation," Newman concludes, "we can streamline our design and programming efforts. These, combined with the minimised wiring and integrated nature of the Rockwell Automation solution, give us additional flexibility for machine enhancements and bespoke customer requests."

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Solutions in Action

Lafer PACKAGING

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The automation core of the Motion-HP, designed by Lafer Packaging, uses Rockwell Automation products

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley PowerFlex 525 variable-speed drives

Lafer Packaging's history is a real success case. Everything began in February 2012, when a team of packaging specialists – each of them coming from different professional experiences – met an entrepreneur with a great vision. Despite the difficult economic scenario of those years, the start-up of the company was amazing. The perfect combination of the technical, commercial and financial know-how within the team was the impetus that helped Lafer Packaging to reach its targets in just a few years.

The Italian company, which is based in Schio (Vicenza), is currently a well-known player in the packaging field and its advanced technology allows it to answer different market needs with customized solutions.

"We design and build packaging machines for flexible film and automatic packaging lines and thanks to the cooperation with first-class players in the market we can offer turnkey solutions in food as well as in non-food industries," Ruggero Marchioretto, CEO and President, Lafer Packaging, explains.

The Italian company is highly appreciated by its customers for its ability to customize its machines and for its high value in terms of price performance. Lafer Packaging is really customer oriented and this attitude is well defined in the company's motto, which is "Pack it your way". As Marchioretto explains: "We are proud of all our customers and we are

committed to supporting all of them, whether they are small businesses or big corporations."

There are several top players in Lafer Packaging's portfolio, including: Nestlè, Unilever, Rewe, Balocco, Dal Colle, Pan Sinai and Molsa in the food industry, while Polar and Hot Pack are two other well-known brands in non-food market. "We've developed a lot of interesting applications with customers that are definitely top players in their market niche," Marchioretto points out.

The Italian company's **Motion-HP** machine, for the packaging of fresh food, can be considered a latest generation automatic flow pack solution. Its cross-sealing head translation is suitable for secondary packing – in multi-pack formats – of food products too, while its so-called "tank frame" structure is particularly heavy and stable. All the strictest sanitary design requirements are fulfilled by this machine, which is characterized by high performance, flexibility and high speed together with a very good motion control. Hermetic sealing and precise packing complete the list of the features that make Motion-HP stand out among other similar solutions on the market.

The automation core of the Motion-HP, designed by Lafer Packaging, uses Rockwell Automation products. "As we deal with international customers we need to turn to automation suppliers who can be reached by them all over the world and Rockwell Automation is one of those brands which is well known and available everywhere," Marchioretto explains. "Furthermore, Rockwell Automation is appreciated worldwide for the high quality of its products and services: for us and for our customers it is synonymous with excellent reliability, integration and flexibility".

An Allen-Bradley® CompactLogix™ 1769-L33 ERM programmable automation controller (PAC), six Allen-Bradley Kinetix® 5700 servo-drives and two Allen-Bradley PowerFlex® 525 inverters are at the core of the automation system built by Lafer Packaging.

The jaws head translation is operated by an Allen-Bradley LDC-Series™ Linear servomotor. The longitudinal seal, the upper and the lower seal jaws, the transfer belt and the feeder are controlled by the servo-drives, while the inverters are used for the film unwinding and the exit belt. Other Kinetix VP low-inertia servomotors complete the machine motion system. Visualization is provided by Rockwell Automation too in the form of an Allen-Bradley PanelView™ 7 Plus Standard 1000 HMI. Connectivity and networks, motion, drives, safety and control are all connected via EtherNet/IP, while the machine itself can also be connected to the wider factory network through EtherNet/IP.

Thanks to the common programming environment provided by Rockwell Automation solutions, Lafer Packaging's engineers could reduce their programming efforts in designing and configuring the machine. Testing and validation were easier, so too troubleshooting. Other benefits include: increased flexibility for future changes, eased maintenance, improved safety and minimised installation time. Finally, the end user also achieves important advantages by using the Motion HP: "Our machine offers the best possible hermetic sealing at high speed and a very high OEE. In other words, our customer is provided with a trustworthy and user-friendly packaging solution." Marchioretto concludes.

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Solutions in Action

autonox24®

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

More than 120 robot mechanics with different degrees of freedom, payloads, areas of operation and options are in the meantime being offered via the autonox24 brand.

Allen-Bradley CompactLogix Steuerung

Allen-Bradley Kinetix 5700 Servoantriebe

MAJAtronic is company which begun specializing in the development of "naked" robot mechanics in the year 2005. The brand autonox24, which is the result of this approach, primarily represents two factors: Parallel kinematics made in Germany and control-independent solutions. "According to our experience, machine engineers and final customers are generally interested in uniform control landscapes – without any kind of interface topics. As a consequence, everybody – if in any way possible – wants to operate the own robots with the same technology as the one found in the basic machine. In order to take this demand into account, we have focused our development activities on pure mechanics without motors, cables and controls," states MAJAtronic President Hartmut Ilch, describing a business model that is becoming increasingly popular. This does not come as a surprise: More than 120 robot mechanics with different degrees of freedom, payloads, areas of operation and options are in the meantime being offered via the autonox24 brand. Every customer can therefore find the solution that optimally fits his application scenario – no matter whether he wishes to assemble, sort, pack, handle or inspect his various parts. "Of course a lot of our models are utilized for a wide range of packaging activities. The nice thing about robotics, however, is that it is entering into different industries and applications," states Hartmut Ilch, visibly happy with the major demand for parallel kinematic robot mechanics on the market.

A bestseller in the autonox24-portfolio: The DELTA robot kinematic RL4, designed for a net payload of 6 kilograms.

The DELTA robot kinematic RL4, designed for a net payload of 6 kilograms, is among the absolute bestsellers from the autonox24 product offering. Featuring three translational axes plus a telescopic tube, this robot is ideal, amongst others, for pick and place tasks where it is important to work "on the flow", i.e. relatively fast in standard operation. "An actual example for such a utilization scenario would be an installation with two conveyor belts running in opposite directions. The robot picks up the product from one of the belts, rotates, and then has to place it on the other belt in a different position," says Hartmut Ilch, describing an application scenario that was solved with Allen-Bradley® components for an American customer: Specifically with a CompactLogix™ control system, with Kinetix® 5700-EtherNet/IP servo drives and with VPL servo motors. In this context, the servo motors are responsible for the pivoting of the three upper arms of the robot. They therefore have to be very dynamic, must be able to accelerate quickly and be able to handle high speeds. "As we receive many customer requests from the USA and because Allen-Bradley is more or less the standard overseas, we have already been working together with Rockwell Automation on a regular basis for many years. A few weeks ago I visited some customers in the USA and all of them said: Excellent, we can now finally realize a seamless solution from the machine right up to the attached robot control system," says Hartmut Ilch, referring to one of his business trips. And although the brand autonox24 offers entirely differing robot mechanics with two to five axes as well as payloads from 0.5 to 350 kilograms, some of them even executed in a "Hygienic Design", perfectly matching controls and motors have so far always been found in the product portfolio of Rockwell Automation. "And the good thing? Everybody knows Rockwell Automation and nobody has doubts as to whether this company – no matter whether in Brazil, Australia or anywhere else in the world – will offer corresponding support as well as prompt delivery. This is also enormously important for our customers," explains Hartmut Ilch.

The increased interest in autonox24 parallel kinematics robots fitted with Allen-Bradley components has resulted in the contact between Rockwell Automation and MAJAtronic significantly increasing over the past weeks and months. In the meantime the partnership extends even into the development departments, reveals Hartmut Ilch. For example, a five-axes autonox24 robot with a payload of one kilogram was recently shipped to the USA in order to test the new transformation software from Rockwell Automation on it. "The Rockwell Automation software packages are truly future-oriented. This is also something our customers have confirmed. The kinematic transformation is integrated into the firmware and can be easily configured. The integrated load observer manages the changing payloads that are typical for a Delta robot in real-time. Complex parameterization or test runs are no longer necessary, as it can be activated per click of the mouse," explains Hartmut Ilch and adds: "Getting a robot to optimally run poses a certain challenge. One the one hand you have extreme accelerations, on the other hand you have targeted delays and every single one of these movements demands absolute precision. This means: The so-called control quality needs to be complied with and this is something Rockwell Automation has fully under control. They know how that works!"

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Solutions in Action

mespack
A DURAVANT COMPANY

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The H-540-FE6 is a rugged and reliable machine that allows the manufacturing of baby food liquid products in stand-up pouch with top-cap format

Allen-Bradley ControlLogix programmable automation controller

Allen-Bradley Kinetix 6500 servo drives

Although **Mespack** is a relatively young company, since its establishment in 1994 in Lliçà de Vall (Barcelona, Spain), with its leading-edge machines, it has already achieved a leading position in the flexible-film packaging global market. In fact, since the start, Mespack has invested heavily in R&D and in the quality components used to manufacture its equipment.

The company manufactures four types of machines, classified into two big groups: intermittent or continuous motion high-volume horizontal form-fill seal (HFFS), and vertical form-fill seal (VFFS) in stick pack and flat sachet. According to Santi Alberich, Marketing Manager: "Mespack is a renowned company thanks to its high-efficiency equipment, both HFFS and VFFS, and the worldwide presence of its technical support."

With more than 1,500 machines operating in five continents, the company has an after-sales department in charge of distributing spare parts anywhere in the world in the shortest time, thanks to its multiple technical assistance centres in Europe, the US, Central and South America, Asia and the Middle East.

Mespack machines serve the food and beverage, home and personal care, and "nutraceutical" industries, including big corporations such as Nestlé, P&G, Unilever, Reckitt Benckiser or L'Oreal, and also small local companies worldwide. Mespack is also committed to innovation in the design of packages that can be implemented in its machines to achieve appealing

formats, like automated systems to place a cap on the top or on the corner, zipper seals, straw application systems for juices and non-carbonated drinks, or dosing of refreshing tissues, among others.

For the most stringent customers, who require high-volume production, Mespack has just introduced the **H-540-FE6** model, a rugged and reliable machine that allows the manufacturing of baby food liquid products in stand-up pouch with top-cap format. "The advantage of this machine," states Alberich, "is that it manufactures 300 sachets of 200 ml per minute, with a special choke proof cap. This machine is undoubtedly the fastest in the market in this segment and for this type of sachet." Alberich remarks that all of this is achieved in compliance with the security, cleanliness and performance required by the food and beverage industry. "Speed does not compromise the advantages in terms of cleanliness, flexibility and precision; in other words, we have reached a perfect trade-off between efficiency and productivity."

In order to operate properly, the machine is divided into several modules. Among them we can highlight the following: the unwinder with automated integrated splicer, the formation area with a capacity for six bags per stroke, the filling area with a six-nozzle flowmeter, the cap-application area, and the pick-and-place system for six bags. However, as Alberich says, "the machine can be adapted to the customer production needs, regarding the type of sachet, cap or substance to fill the bags."

This modularity is provided mostly by the Rockwell Automation components integrated in the equipment. Specifically, it has Allen-Bradley® CompactLogix™ L36ERMS, GuardLogix® L72S, and ControLogix® L83E programmable automation controllers, which provide flexibility, security and complex automation. It also integrates Allen-Bradley PowerFlex® 525 and 527 AC drives, Allen-Bradley Kinetix® 6500 servo drive, Stratix™ 5700 switches, and the Allen-Bradley POINT™ I/O modules. This is complemented by the EtherNet/IP™ machine communications standard.

These components were not chosen at random. According to Alberich: "Rockwell Automation is a highly regarded brand usually demanded by customers in some markets, for example in the US." In addition to this, he follows, "from Mespack we maintain excellent communication with Rockwell Automation, so it's easy to work with its products; it offers an international service, as our customer require."

This has been reflected in the benefits provided by the Mespack H-540-FE6 to industrial companies, including savings in design time and programming efforts, simple maintenance of the machine and improved security for the staff and the equipment itself. And certainly, concludes Alberich, "for our customers, this provides a higher integration and flexibility when they implement this machine in their facilities."

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Solutions in Action

mespack
A DURAVANT COMPANY

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The MS1000-14 is a machine that produces single-use stick pack sachets up to 12 ml for viscous liquid products

Allen-Bradley ControlLogix programmable automation controller

Allen-Bradley Kinetix 6500 servo drives

With more than 1,500 machines operating in five continents, **Mespack** is one of the leading manufacturers of flexible packaging equipment worldwide. Located in Santa Perpetua de Mogoda (Barcelona, Spain) and established in 1994, the company offers high-quality machines, and for that purpose it has a strong engineering team and an advanced R&D department.

This commitment allows the company to manufacture four types of machines, classified into two big groups: intermittent or continuous motion high-volume horizontal form-fill seal (HFFS), and vertical form-fill seal (VFFS) in stick pack and flat sachet. "Mespack is a renowned company thanks to its high-efficiency equipment, both HFFS and VFFS, and the worldwide presence of its technical support," explains Santi Alberich, Marketing Manager. The company has multiple technical assistance centres in Europe, the US, Central and South America, Asia and the Middle East, which enable it to supply spare parts anywhere in the world in the shortest time.

In addition to this, as the company strives to offer the best service for its customers, Mespack is committed to innovation in the design of packages that can be implemented in its machines to achieve appealing formats. These include automated systems to place a cap on the top or on the corner, zipper seals, straw application systems for juices and non-carbonated drinks, or dosing of refreshing tissues.

To illustrate its focus on R&D, Mespack has improved the technology to manufacture stick pack sachets. "Our goal is an ongoing leadership in the stick pack machines market, offering solutions which include the latest technology advances, reliable, rugged and able to offer a high-speed packaging," states Alberich. This range includes machines from four to 22 lanes for forming, filling and sealing several products, including liquids, powders and granules. To do this, Mespack takes advantage of its horizontal machines technology and applies it to this new vertical filling concept, with a compact design, monobloc tubular steel structure, integrated electrical cabinet, and easy access to all parts for maintenance purposes.

Within this range, the model **MS1000-14** stands out as "a machine that produces single-use stick pack sachets up to 12 ml for viscous liquid products, such as mayonnaise, ketchup or condensed milk," states Alberich. An added advantage is that it achieves a throughput of up to 75 cycles per minute, which, multiplied by 14 lanes, enables it to manufacture 1,050 sachets per minute. As Alberich assures, "it's one of the highest throughputs available in the market."

Much of this is due to the integration of Rockwell Automation components, including Allen-Bradley® CompactLogix™ L36ERMS, GuardLogix® L72S, and ControLogix® L83E programmable automation controllers (PAC) that provide flexibility, security and a complex automation. It also includes Allen-Bradley PowerFlex® 525 and 527 AC drives, Allen-Bradley Kinetix® 6500 servo drives, Stratix™ 5700 switches, and Allen-Bradley POINT™ I/O modules. This is complemented by the EtherNet/IP™ machine communications standard to simplify the remote management of the machine.

"We use these components because, since the machine is full servo, we need PACs able to manage all these signals, and Rockwell Automation is one of the few available companies able to do it," says the Marketing Manager. "This allows us to control all servo motors and axes in order to offer a quick setup and to reduce maintenance times due to format changeovers." The international service supplied by Rockwell Automation and the good communication between both companies are additional factors.

The integration of all these components is reflected in the benefits provided by the machine after being implemented, among them are simple maintenance and improved security for the staff. "For our customers, this provides a higher integration and flexibility when they implement this machine in their facilities," concludes Alberich.

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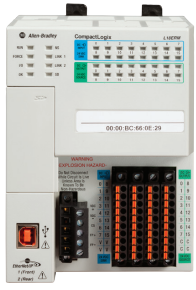
Solutions in Action

MG2 ®
Keeping ahead for you

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The ACE CT/400 has the ability to print a unique identifying 2D-Data Matrix code onto cartons and simultaneously to read, verify and constantly monitor the code-print quality



Allen-Bradley CompactLogix L18ERM programmable automation controller

Allen-Bradley Kinetix 350 servo drives

Led by Chairman Ernesto Gamberini, one of the founding shareholders of the company, the **MG2 Group** is based in Pianoro, near Bologna, in the heart of the Italian Packaging Valley. About 180 employees work at the company's 15,000 m2 plant.

"MG2 Group is a market leader in the manufacture of automatic machines for dosing pharmaceuticals into hard-shell capsules, ranging from 000 to 5 sizes, including tamper-proof capsules," Manuela Gamberini, MG2's Marketing & Sales Manager, says. As well as machines used to dose products into hard shell capsules and other small containers, MG2's Process Division also manufactures weight-control systems, sorting and cleaning machines for capsules, dosing heads for the direct dosing of pharmaceutical products into blister packs.

Since 1997, MG2's Packaging Division has also been offering automatic packaging machines for pharmaceuticals, cosmetics and foodstuff, including horizontal and vertical case-packers, plunger rod inserting machines, palletizers and forming and filling machines for boxes and trays.

MG2 supplies its machines to small- and medium-sized companies as well as multinational groups in the pharmaceutical, cosmetic and food industries. Approximately 90 percent of MG2's machines are exported

abroad. Its overseas presence is well established thanks to an established branch in the United States and an extended network of agents.

The innovative **ACE CT/400 Track & Trace system** for pharmaceutical cartons application has been designed by MG2's engineering team as an end-of-line packaging solution and features an integrated automation platform supplied by Rockwell Automation.

The ACE CT/400 is a marking and verification system, which has the ability to print a unique identifying 2D-Data Matrix code onto cartons and simultaneously to read, verify and constantly monitor the code-print quality of each carton. After each print job is inspected, the carton is either fed toward the conveyor or, in the case of faulty printing, discharged from the packaging line.

Using the least possible amount of installation space, the ACE CT/400 prints and verifies up to 400 cartons per minute and can be integrated into any existing or new packaging line. It features a positive carton controlling system offering easier and safer carton handling management. The ACE CT/400 system has the ability to process cartons measuring from 20 x 20 x 80 mm up to 120 x 80 x 200 mm.

The Track & Trace system features an Allen-Bradley® PanelView Plus™ 600 HMI, running FactoryTalk® software. The key functionalities of the ACE System are managed by an Allen-Bradley CompactLogix™ L18ERM programmable automation controller (PAC), which is directly connected to two Allen-Bradley Kinetix® 350 servo drives. The PAC drives the entire two-axis brushless system, managing the conveyor belt movement and the carton advancing steps. The HMI gives operators the ability to coordinate the printing and verification equipment and to centrally manage and configure production, printing and layout data.

"Rockwell Automation supports us with a fully integrated motion and logic control platform for the ACE system, which helps to synchronize the motion devices driving the process, in order to realize a more flexible and easier-to-access machine," explains Alessandro Nanni, Electronic Department Manager at MG2's Packaging Division. "The ability to directly connect PAC to the Kinetix servo drives allows us to perfectly combine advanced logic control with servo motion technology on the machine."

The automation platform of the ACE system is entirely developed using Studio 5000™ software. "Programming the control, visualisation and motion tasks using a single software environment helps our engineering team to reduce the time spent integrating software code for different devices and to minimise the task of individually configuring the required devices parameters and tags," Nanni adds. "The Logix controllers can automatically detect inverters, servo drives or servo motors and download their configuration parameters. Thus, we save a lot of time in machine programming, testing and set up."

Nanni adds: "Standardising on a Rockwell Automation platform lets us provide our customers with improved tracking, tracing and positioning accuracy coupled to a shorter motion cycle time and easier changeover operations." Sharing the same electronic automation platform and the same EtherNet/IP™ communication network gives the ACE system the ability to feature maximum overall process integration in line with other upstream machines. "Integration was a key challenge in developing our machines. The Rockwell Automation team supported us really effectively. Here in Bologna there is a skilled Rockwell Automation team ready to support us in our programming and software design operation," Nanni concludes.

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Solutions in Action

MOLINS LANGEN

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

Allen-Bradley CompactLogix programmable automation controller

The MAESTRO™ is designed for 24/7 operations. The customer benefits from a high-performance and durable machine, which is also very easy to operate and features a very low total cost of ownership.

Allen-Bradley PowerFlex 525 variable-speed drives

Molins Langen can look back on 60 years of producing packaging machines for various industries. Originally founded by the Langen family, it has operated, amongst others, under the names Langenpack or most recently as the Langen Group. In 1996 it became a part of Molins, which subsequently brought all its companies together under one umbrella. As a consequence, it can now leverage its engineering skills across its various production sites to deliver innovative packaging solutions to the market even faster. Molins Langen is renowned for its customer-focused packaging and automation solutions, which are very much in demand in the food & beverage and healthcare industries. The company manufactures cartoners, case packers and palletizers with a variety of infeed systems. As a global player Molins Langen operates a number of manufacturing sites around the world – amongst others in Wijchen (Holland), Mississauga (Canada), Plzen (Czech Republic) as well as in Coventry and Milton Keynes (UK). Sales and service offices around the world ensure that Molins Langen is always just a phone call or a visit away from its customers.

Allen-Bradley Kinetix 5500 servo drives

The **MAESTRO™** is the latest packing machine developed by Molins Langen. It blends innovation with ease of use to meet the ever-changing demands of the packaging marketplace. The MAESTRO™ is a high-performance machine capable of delivering an output of more than 500 cartons per minute. Size changeovers and kickers are fully servo-controlled. Standard 3D-changeovers can be realized within minutes. "With this machine we are able to deliver a wide range of advanced packaging solutions for different applications," confirms Ingrid van der Vegt, marketing assistant at Molins Langen. The fact that no two industries or even two operators are alike is also a factor that has been considered in the design philosophy of the MAESTRO™. Ingrid van der Vegt: "The MAESTRO™ is available in several basic configurations: They include, amongst others, bag-in-box, flow wrapping, stick packs, pouches and frozen food designs. Furthermore, we also offer a wide range of optional features such as the FLEXCOUNT™ system, a linear servo pack infeed collator or a bomb bay infeed with 3 or 4 levels and an integrated bag rejection system."

The MAESTRO™ is designed for 24/7 operations. The customer benefits from a high-performance and durable machine, which is also very easy to operate and features a very low total cost of ownership. "This is one of the reasons why we rely on Allen-Bradley® components in the MAESTRO™: Based on our own experience we can confirm that they are very reliable. On the other hand, Rockwell Automation offers a wide range of drive and control systems that perfectly match the specifications both Molins Langen and our customers are looking for," reveals Frank Jeurissen, Global Strategic Accounts Manager. Depending on the actual requirements, Molins Langen utilizes either a CompactLogix™ or a ControlLogix® control system. With regard to drives, the preference is on Kinetix® 5500-EtherNet/IP servo drives, because they allow for the operation of servo motors and asynchronous motors on one drive platform. Furthermore, they support Integrated Motion functionality on the basis of EtherNet/IP™ and only require a single cable for feedback, motor braking and power. This extremely simplifies wiring. Last but not least, the MAESTRO™ also features PowerFlex® 525 frequency drives, which can be very easily integrated into Logix environments and EtherNet/IP networks.

At the Heart of MAESTRO™ is the LANGEN rotary feeder, which comes equipped with the proven 2-head (standard) or 5-head (optional) carton rotary feeder. Amongst others, it features a carton pre-break system for reliable and accurate erection of cartons of various carton qualities. The ergonomic low-level carton-magazine allows for easy strain-free loading even at the highest product speeds. Furthermore, the carton magazine can be equipped with special carton releasing features to handle even the most challenging cartons at high speeds. Last but not least, the LANGEN carton carrying system within the machine ensures that all products are safely packaged and remain scratch-free.

All in all, the MAESTRO™ is designed for single as well as multiple infeed solutions, providing flexibility and readiness for future production expansions. They include: A bomb bay infeed for stick packs, bags and pouches, a Starwheel infeed for bags and pouches and Delta robots in combination with linear servo pack infeeds for flow-wrapped products. Furthermore, overhead infeed systems and inline smart belt conveyors round off the product offering. "Providing future-proof machines is a must in our business. This is guaranteed, amongst others, by the fact that Allen-Bradley components are characterized by a long service life and very high reliability. And since Rockwell Automation is also a global player, we can guarantee the highest degree of service and support," emphasizes Frank Jeurissen, underlining that customer proximity is important for Molins Langen.

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Publication OEM-AP596A-EN-P – APRIL 2017

Solutions in Action

NEWSMITH

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The company's Silver Series S4 deploys a control solution from Rockwell Automation

Allen-Bradley CompactLogix
programmable automation controller

Allen-Bradley PowerFlex 525
variable-speed drives

Newsmith Stainless Limited is one of the world's leading manufacturers of automated washing, drying and handling equipment for a wide range of industries. Alongside a range of standard solutions, Newsmith focuses its resources on the manufacture of machines designed to meet a client's particular and specific needs. It is this individual characteristic and attitude that has allowed the company to develop its unique competitive edge. Its primary capabilities comprise washing machines, automated handling, mould washing, basket stacking, conveying systems, denesters, bin washing, crate washing and tray washing.

Formed in 1969, the family-owned company's success has been built on a commitment to quality, competitive pricing and versatility in meeting its customers' needs. Its main production facility is in Liversedge in the UK. With sales and service provision Germany, the U.S.A. and New Zealand, it has also been moving into markets throughout Asia, the Middle East and Eastern Europe.

The company aims to build a relationship with its customers and provides a complete package from design through manufacture to installation and after-sales support.

Over the last three decades, 3,500 Newsmith machines have been installed throughout the world, with over 500 of those operating within the United States. The main sectors of industry Newsmith supplies on a worldwide basis are: bakery and food manufacture; confectionery and chocolate; meat and fish processing; beverages and dairy; automotive and engineering components; pharmaceutical manufacture; distribution systems; and waste-handling systems.

Its customers range from large multi-national organisations to smaller enterprises. Its client portfolio includes blue-chip names and major players within national and international industries, such as Nestlé, Mars, United Biscuits, Mondelēz, The Hershey Company and Kraft.

The company's **Silver Series S4** is a chocolate mould and plaque washing machine, which can also be used for boxes and baskets etc. The tunnel-based conveyorised machine offers pre-wash, wash, recirculated rinse, final fresh rinse, air knife drying and drying functions. The high performance, space saving, energy efficient machine is able to consistently wash different sizes and shapes of crates and moulds efficiently and simultaneously, resulting in spot free, clean and dry moulds.

The machine deploys a control solution from Rockwell Automation, including an Allen-Bradley® CompactLogix™ programmable automation controller, Allen-Bradley PowerFlex® 525 inverters, an Allen-Bradley PanelView™ HMI and Allen-Bradley Kinetix® servo drives all communicating over and EtherNet/IP network.

According to Rachel Woffindin, Marketing Manager: "We chose Rockwell Automation for the product availability, the company's responsiveness and its global reach, all backed up by great service from our local account manager. We have benefited from a more streamlined design process, reduced programming efforts and easier troubleshooting as a result of deploying Allen-Bradley products. Our customers benefit from easier maintenance, reduced training, minimised start up times and improved personnel/machine safety – as well as seeing high output rates coupled to consistent, high quality performance."

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Publication OEM-AP553A-EN-P – February 2017

Solutions in Action

OPEM
solutions to package your quality

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

Opem's engineering team selected an automation system that is as modular and flexible as its machines are

Allen-Bradley ControlLogix programmable automation controller

Allen-Bradley Kinetix 5700 servo drives

Opem S.P.A is a family-operated company founded by Fabio Binacchi in 1974, in the Parma area in Northern Italy; beginning its activity in the pasta sector. Over the years the company has engineered innovative lines and several exclusive patents for major food processing industries, responding to a continuous demand for new weighing and packaging solutions, and exploring innovative packaging systems not only for pasta, but also for cookies and, afterwards, coffee applications.

Opem is committed to ongoing research into innovative solutions for improving the performance and quality throughput of its packaging systems. Thanks to its entrepreneurial philosophy, Opem reaches excellent levels of technological sophistication, while still maintaining the traditional fine craftsmanship of its products at the highest level. After over three years of construction, in 2014 Opem also opened a new 40,000 square meters factory.

In the coffee market, Opem has seen many successful results and the introduction of pods and capsules is a strongly developing industry, which has allowed the company to grow and expand, with the production of highly flexible machines that are designed to adapt and meet the needs of the company's customers.

The Italian machine builder designs and manufactures machines for filter paper pods, capsule machines, vacuum packaging machines, vertical packaging machines and filling machines for tins and cans. The range of food items processed by Opem machines is extremely wide and includes ground coffee, coffee beans, instant coffee, tea, herbal teas, barley, dry yeast, rice, dry ice cream mixes, powdered milk, biscuits, spices, candies and lecithin.

"Part of our capsule machines range, the **Pegaso** and **CR linear** multi lane models have been designed to fill and seal coffee capsules," explains Alessandro Belicchi, Head of Opem Electric-Electronic Department. "The linear, multi-lane system features a powerful motor and camshaft, which are located in the bottom part of the machine. The empty-capsule feeding process is performed by a sorter for capsules in bulk or a denester for capsules in stacks. The solution is completed by auger fillers, which are driven by brushless servo motors and by an unstretchable chain exclusively designed by Opem." The Opem system is designed to fill capsules with a filling accuracy of ±0.2 g; it includes in-line check weighers with feedback control system and automatic rejection of incorrectly filled capsules.

"Our line differentiates itself from others due to its innovative multi-lane movement system and the unstretchable chain, which allows customers to simultaneously process several capsules for each lane," adds Belicchi. Empty capsules in the line are filled, afterwards the lid is formed, cut, placed and sealed directly onto the capsule. Capsules are then ready to be transferred to other secondary packaging systems.

"Sturdy construction and reliability in the long term are just some of the key features which make our machines to be appreciated by the customers," states Belicchi. "The key innovation lies in the complete servo-control technology we have adopted: the main operations for capsule transferring and handling are managed by brushless motors, which are integrated to deliver maximum synchronization, together with excellent flexibility and modularity in the line. This valuable innovation means also an easier control design layout approach. When selecting an Opem line, customers are able to process a huge number of different capsule types, with immediate, quicker changeovers. Starting from a standard machine structure, it's possible to add or remove working-station modules in order to engineer and design customized machine versions. For example, in case of capsules presenting a double film application closure, both external and internal."

Opem's engineering team selected an automation system that is as modular and flexible as its machines are: in order to manage the capsule machine's motion and control functionalities, the Italian company found in Rockwell Automation® products the most valuable scalability combined with excellent control and motion performance.

"The Rockwell Automation® integrated architecture™ is the best answer to our most recent requirements. It helps our Technical and Electronic Department's team to satisfy our customers' more challenging demands, yet allowing us to introduce continuous innovation".

Opem lines use Allen-Bradley® Kinetix® 5700 servo drives, which are seamlessly integrated with Allen-Bradley ControlLogix® PAC, while visualization tasks are performed through Allen-Bradley PanelView™ Plus operator panels.

"Rockwell Automation also provides a unique software environment for our Software Engineering team: Rockwell Software® Studio 5000™ supports the direct integration between logic and motion software programming, which is important to us. This software environment also helped us to move from mechanical cams to electronic ones via servo motion technology," says Belicchi.

"Our end-customers, too, gain value from the excellent performance of the Rockwell Automation solutions and praise the better overall machine productivity. Furthermore, we're receiving favorable feedback concerning line working cycles, ease of use and final quality of products".

Belicchi also underlines the excellent service support from Rockwell Automation and its skilled technical team. "We have established a profitable worldwide cooperation with Rockwell Automation. Its technicians are also available to visit our customer's plants, if requested, in order to check and solve any kind of mechanical or electronic machine issues."

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Publication OEM-AP598A-EN-P – APRIL 2017

Solutions in Action

OPTIMA

EXCELLENCE IN PACKAGING

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

High Performance Packaging System for sanitary napkins and panty shields

Allen-Bradley ControlLogix
programmable automation controller

Allen-Bradley Kinetix 6000 servo drives

The name says it all – at least this is the case when the subject at hand is the **Optima** packaging group. The clear statement formulated by the company formed in 1922, in the meantime in its third generation of family ownership, is: "We want to be the very best in every single one of our target industries." And in certain fields, such as for example the filling and packaging of coffee capsules or when talking about sterile pharmaceutical Liquida and their freeze-drying as well as when the topic is packaging sanitary paper products, the group of companies with its headquarters in Schwäbisch Hall is definitively among the best. The Optima packaging group realizes individual machines as well as entire turnkey full systems for pharmaceutical, consumer, nonwoven and life science products. The company from Baden-Württemberg is active at three German and thirteen international business locations with its in total 2,150 employees. An export share of more than 80 % underlines this global orientation.

Optima Nonwovens is the business field of the Optima Packaging Group that focuses on the packaging of various sanitary products such as diapers, sanitary napkins, toilet paper rolls or wet wipes. In this context, the entire scope of automated packaging processes is covered – from the in-feed of the products and right up to palletization for shipping. "Our customers require different kinds of packaging and stacking, meaning we have to utilize production solutions which allow for quick retooling," reveals Optima executive manager Oliver Rebstock. And this is why the intelligent linear drive system iTRAK® from Rockwell Automation was brought into play for a new packaging / stacking machine for diapers. Thanks to this technology, the flexibility in format changes as well as the

With future-oriented technology Optima Nonwovens will ring in a new era in production flexibility.

overall equipment efficiency (OEE) has been increased. "Up until now numerous mechanical adaptations were necessary whenever the product size or the packaging format had to be changed. With iTRAK, and in terms of control technology, this can all be executed via the entries on the user interface," says a visibly satisfied Oliver Rebstock. Next to the iTRAK servo solution the new machine also uses a few classic servo motors as well as Allen-Bradley® multi-axis servo drives from the Kinetix® 6000 series. "The servo solutions are utilized for numerous work steps and functions. This includes feeding the diapers into the packages, product transport between the stations, the rotary table drives, the two compression steps, product positioning, sealing of the packages, picking of the packages and the final transport to the removal belt," illustrates Oliver Rebstock.

In this packaging / stacking machine for diapers the iTRAK system represents part of an integrated architecture solution from Rockwell Automation, which is used to control and regulate most of the primary functions of the machine. A ControlLogix® forms the core of the automation infrastructure, operating the system is carried out via a PanelView™ Plus 7 graphics terminal. Communication is achieved by means of an EtherNet/IP™ network. On the one hand, this reduces the overall wiring effort for the machine, on the other hand it allows for a simpler integration into the communication systems at the plant and administration level. Furthermore, it also enables the setting up of a connected enterprise.

"The same technologies are used in new projects. We are ushering in a new era of production flexibility with an optimized format change cycle. The operator provides the data, the rest is done by the machine," states Oliver Rebstock, revealing some of the details concerning another innovation from Optima Nonwovens. And why the Optima packaging group always likes to rely on Allen-Bradley components and Rockwell Automation know-how in all their packaging, filling and production machines is also quickly explained by Oliver Rebstock: "We are members of the Rockwell Automation PartnerNetwork. Allen-Bradley products play the control, drive and communication technology starring roles in 95 percent of our machines and facilities." Switching to an iTRAK solution was a logical consequence for Optima. This is due to the fact that it comprises multiple movers, which can be controlled independent of each other on straight and curved lines. "The machine of the predecessor generation utilized a long belt with fixed buckets for the transport and bundling of the products to be packaged. This configuration required encompassing alteration work whenever a product switch occurred – especially in combination with the product dimensions – specifically the belt had to be adapted to the new product size. Each switch in itself did not require all too much time. But when four or five switches had to be executed within a single shift, downtime periods quickly accumulated," says Oliver Rebstock, explaining why switching to the iTRAK system has paid off within the shortest period of time. And not only for Optima as the manufacturer of the machine, but also for its operators: The flexible, fully integrated solution, which combines both linear and rotational movement in one system, increase the product throughput, lowers maintenance requirements, reduces the overall size of the machine and, as stated, decreases the time spent on retooling. A leading provider of sanitary products profited from the iTRAK technology because it specifically saved him 15 minutes of time per format switch. In the past the company had required double the time whenever the transport cassettes had to be switched for thicker or thinner diapers.

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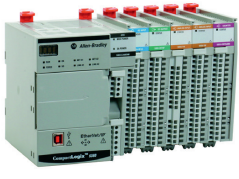
Solutions in Action

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

PACK LINE Ltd
Packaging Machines Industries

The NBM Cup Filling and Sealing Machine is the technologically advanced line of Pack Line's Fully Automatic Rotary Filling and Sealing machine



Allen-Bradley CompactLogix 5380 programmable automation controller

Allen-Bradley Kinetix 5500 servo drives

Pack Line Ltd., established in 1994 by Victor Katseli, began with a strong experienced engineering background and has since developed into a world leading manufacturer of packaging machines, supplying some of the biggest names in the food packaging, dairy and cosmetics industries.

From single machines to complex end-to-end packaging lines, Pack Line's innovative linear and rotary filling and sealing machines, piston fillers and MAP Systems can help to increase productivity, improve operating efficiency and lower operating costs.

The company prides itself on setting the standard in technology, efficiency and reliability in the engineering of its products can develop bespoke solutions to suit specific products and brands With representatives on six continents it is also ideally positioned to provide rapid and reliable service, coupled to 24/7 technical support, problem-free installation, supervised start-up and on-going training assistance for as long as users own its machines.

Its machine range comprises multiple variants, including fully- and semi-automatic, manual, rotary and inline machines, for the packaging of powder, granules, pieces, paste and liquid into containers and cups, jars and bottles, pouches and trays.

The company's **NBM Cup Filling and Sealing Machine** is the technologically advanced line of Pack Line's Fully Automatic Rotary Filling and Sealing machine. With smooth index or driven movement of a 12-position rotary platform, the NBM machines offer a superior solution for liquids, pastes, granulated and powdered products, with outputs of between 30 and 120 cups per minute.

According to Moriel Band: "The main advantage of the NBM cup filling and sealing machine line is its extreme flexibility. Each cup filling and sealing machine is designed in full compliance with the product, its container and sealing style, up to a diameter of 140 mm and depending on the output required, the machine can deliver up to four lanes, and has a capacity of up to four filling units. The adjustment of the cup filling and sealing to different container sizes is fast and easy. The cup fillers can also be fitted with a clean in place (CIP) cleaning system and pre-cut lids or membrane cut from a roll can be combined with a plastic cap.

The NBM cup filling and sealing machine is controlled by an Allen-Bradley® CompactLogix™ programmable automation controller from Rockwell Automation. Motion is achieved through the use of Allen-Bradley Kinetix® 5500 servo drives and motors, which are used to provide the chain motion and the movement of the filling system. The machine can be further upgraded, using servos to replace pneumatic operations, to control the magazine, the sealing system and the exit system. Operator interactions and parameter adjustments are achieved using an Allen-Bradley PanelView™ Plus 7 HMI.

According to Band: "There are not many companies that can offer the flexibility we offer in terms of design, engineering, service and price. If our customers want it, we can make it. We always start with our customers from the very beginning of the project and we then we custom design our machines to precisely match the specific application.

"We have a great relationship with Rockwell Automation," he concludes, "and it is my opinion that it really does deliver the best automation solution for our machines. We think its products are good value for money and they are always in stock when we need them, no matter where in the world. We always get very good service and we appreciate the open mindedness of its engineers for the way they approach any issues we may have and any new ideas we put in front of them."

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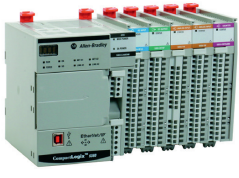
Solutions in Action

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The main advantage of the PXM Filling and Sealing Machine line is its extreme flexibility



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Allen-Bradley Kinetix 5500 servo drives

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Its machine range comprises multiple variants, including fully- and semi-automatic, manual, rotary and inline machines, for the packaging of powder, granules, pieces, paste and liquid into containers and cups, jars and bottles, pouches and trays.

The company's **PXM Filling and Sealing Machine** is Pack Line´s Fully Automatic In-Line Filling and Sealing Machine. Based on digital mechanical motion, combined with pneumatic assemblies, it is a great solution for multi-component products. PXM filling and sealing machines are suitable for packaging a wide range of liquid, paste, granulated and powdered products into pre-formed containers of various size and shapes and can be used for dairy products, salads, dressings, desserts, dry soups, frozen dishes, cosmetics and much more. Output capacity is from 80 to 300 cups per minute.

According to Moriel Band: "The main advantage of the PXM Filling and Sealing Machine line is its extreme flexibility. Each cup filling and sealing machine is designed in full compliance with the product, its container and sealing style and depending on the output required, the machine can deliver up to eight lanes, and has a capacity of up to eight filling units. The adjustment of the cup filling and sealing to different container sizes is fast and easy. The cup fillers can also be fitted with a clean in place (CIP) cleaning system and pre-cut lids or membrane cut from a roll can be combined with a plastic cap.

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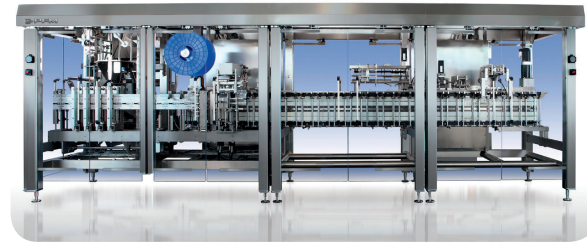
Publication OEM-AP567A-EN-P – March 2017

Solutions in Action

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

pfm packaging machinery



The D-Series HFFS machine has been conceived by PFM to be an easier to use, integrated and highly efficient solution

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley PowerFlex 525 variable speed drives

PFM Group is an international industrial group comprising twelve companies. Since its foundation in 1964, the Group has met all the flexible packaging requirements of the food and non-food industries, as chemical/pharmaceutical and cosmetic ones.

Headquartered in Torrebelvicino, in the province of Vicenza, the Italian Group designs and manufactures different types of packaging solutions: horizontal flow-wrappers, vertical form fill seal machines (VFFS), multi-head weighers, automatic lines for the handling and packaging of bakery and confectionery and horizontal form fill seal packaging machines (HFFS) for the production of stand-up pouches.

"Our machines can be customised accordingly to specific packaging applications needs and produce a wide range of innovative and flexible packaging formats: open/closed, stand up, pocket bags and pouches," Andrea Fioravanti, R&D and Sales Director, PFM Packaging Machinery SpA, says. High flexibility and rapid format change, as well as patented sealing units and unparalleled performances for high productivity, mark PFM machines in the packaging world.

The D-Series HFFS machine has been conceived by PFM to provide an easier to use, integrated and highly efficient solution to form, fill, seal and handle flat and stand-up packages for solid, granular, powder and liquid products. The machine consists of three modules, each of them having a specific function, and it is based on a Full Side Access concept, which allows the operator to enter the machine's perimeter and to reach all the components directly. Its three main functions – forming, filling and sealing – are accomplished by modular mechatronic devices, which can be easily extracted and inspected. The cleaning operations for the hygiene of the machine are simplified too. In addition to modularity, complete access and

compact footprint, the Full Servo Control and the Universal All-in-One Conveyor system are the major elements of the D-Series.

With a 90° layout and reduced longitudinal dimensions, the machine operates through 18/24 brushless axes, aimed to improve productivity, format change speed and precision of the packages control, at any given time through the process. The completely servo-assisted configuration allows a perfect check on the movements of the package and a constant monitoring of the pressure of the sealing units.

Furthermore, thanks to the Universal All-in-One Conveyor system, the package is held firmly at any step of the process: during the filling, the sealing and the inclusion of other accessories, the package is never released and doesn't need to be taken up again. The system automatically adapts to changes in the package widths too. The integration between the Full Servo Control and the Universal All-in-One Conveyor system helps the operator to execute format changes very quickly.

All the devices on the machines communicate through a 10/100MB EtherNet/IP network. An industrial PC with a 12in touch screen panel provides the operator interface, while remote assistance is available via web through Ubiquity software and web-cam monitoring every single device.

Since electronics and automation were key areas in a so precise and technologically advanced solution, PFM made a careful selection when it came to turn to an automation supplier who could meet its needs. As Andrea Fioravanti explains: "Three technical elements made the difference when we decided to equip our machine with a common control, motion and safety system by Rockwell Automation: the programming software, the single cable motors and the integrated safety solution."

The core technology in the 17 axes D-Series machine is based on a Rockwell Automation integrated solution, consisting of control, motion and safety products, which allow the machine to get high levels of precision and performances, leveraging on a simplified and standardised common environment. The programmable automation controller (PAC) manages all the functions of the machine, including the one delegated to the temperature control.

In details, the Rockwell Automation solution selected by PFM includes Allen-Bradley Kinetix® 5500 servo-drives, Allen-Bradley VPL motors, an Allen-Bradley 1769-L36 CompactLogix™ PAC, Allen-Bradley PowerFlex® 525 inverters, Allen-Bradley Point I/O, OB16 and IQ16 modules, an Allen-Bradley Guardmaster® safety system including Guard Locking sensors and safety relays. All the devices are connected via EtherNet/IP, while a Stratix™ 8000 switch manages the communication within the networks.

In PFM they have no doubt in saying that the use of Rockwell Automation components gave them several benefits, starting from savings in design time and programming efforts, due to the common software environment provided by the CompactLogix™ platform and to the single control platform itself, that makes end user's job easier without compromising performances.

The single cable motors and the small size of the components implemented on the machine helped PFM to minimize wiring and to bring down the machine footprint too. Testing and validation also were simplified.

Another relevant advantage results from CompactLogix™ platform scalability and modularity, which increase the machine flexibility for eventual future changes. As Mr Fioravanti concludes: "Given our experience, we can state that Rockwell Automation helps us to be better able to meet our customer's requirements."

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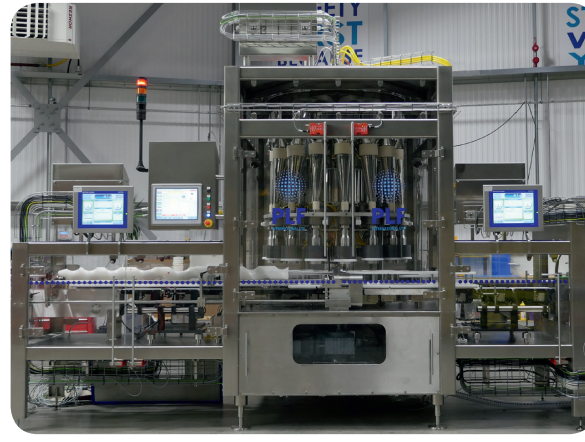
Publication OEM-AP331B-EN-P – September 2016

Solutions in Action

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

PLF INTERNATIONAL LTD



The company's range of powder filling machines are all built to facilitate the stringent demands of the food, beverage, cosmetics and pharmaceutical industries

Since its formation in 1994, **PLF International** has maintained its ethos of absolute dedication to understanding its customers' requirements for their powder filling machines, with the appropriate mix of expertise, reliability, products, service and price for each customer.

Since 1994 it has continued to progress and grow, supplying the most innovative and versatile vacuum and volumetric powder filling machines and packaging machinery in the world. Accommodating all powders and granular products for the food, beverage, cosmetic and pharmaceutical industries, PLF continues to meet the exacting and rigorous demands of the production industry today. PLF's latest design of powder filling machine is considered to be the best available, worldwide.

PLF International has designed and manufactured one of the most flexible, gentle, user-friendly powder filling machines – for rigid and semi-rigid containers – in the world, with the ability to fill by vacuum (for products with poor flowability) and by gravity for products with good flow characteristics. Every machine is designed specifically for each customer's application, providing a flexible and technical solution to their requirements. This has led to many PLF installations in the UK, and worldwide.

Allen-Bradley CompactLogix programmable automation controllers

Allen-Bradley PowerFlex 525 variable-speed drives

LISTEN. THINK. SOLVE.®

Allen-Bradley · Rockwell Software

Rockwell Automation

Its customers include world leaders in the infant formula/ nutritionals and beverage industries and the company is actively moving into the neutraceutical market.

As well as powder filling machines, PLF's extensive knowledge has resulted in the addition of other applications to its portfolio, including in-line nitrogen gas flushing, scoop inserters, high speed rejector, laser coding, container verification.

With PLF's continued investment in research and development, 2017 sees the launch of a vertical form fill and seal application for soft packs/pouches, with PLF's patented application, eradicating augers from the filling process. This negates the risk of any auger-related issues – such as product breakdown or metal contamination – from the filling process.

PLF International often deploys Allen-Bradley® automation products from Rockwell Automation on its filling machines, including Logix programmable automation controllers, Allen-Bradley PanelView™ HMIs, Allen-Bradley PowerFlex® inverters, remote I/O, soft starters, isolators and guard switches.

According to Director Julia Brennan: "Our machines are unique in the fact that there are no moving parts in contact with the product. We also offer years of experience coupled with a consultative approach to each project. This 'can do' approach has resulted in the growth of the turnkey line Project Management arm of the business."

She continues: "We often choose Allen-Bradley products from Rockwell Automation because we get a choice from an excellent line up of products, we also get very good support system with a short response time on enquiries and technical support issues and the components are easily available."

PLF International benefits from reduced programming efforts, enhanced troubleshooting procedures, easier testing and validation and greater flexibility for future upgrades and changes as the market dictates. Its customers see easier maintenance and troubleshooting, reduced changeover times, improved personnel and machine safety and minimised installation and start up times. All of which result in cleaner, more efficient and more accurate powder filling.

Brennan concludes: "Our most recent installation, which involved the replacement of an outdated design of vacuum filling machine from another supplier, saw our customer report that it had paid for itself within just five months!"

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Solutions in Action

POSIMAT Barcelona

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The latest addition to the Posimat range of unscramblers is the Posimat Bot, a model that features huge versatility

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley PowerFlex 525 variable-speed drives

Four decades have passed since Jaime Martí, promoter and current president of **Posimat** (Barcelona, Spain), developed the company's first unscrambler of this company. Since then, Posimat has become a world reference as a manufacturer of empty-plastic-bottle handling systems: unscramblers, orientors, air conveyors, silos, and rinsers, as well as the overall engineering of plastics bottling. In total, explains Nacho Suárez, Plant Manager at Posimat, "We have manufactured more than 4,000 units, which can be found worldwide."

The company has had a global focus since the start. Currently, it exports from its facilities in Spain to many countries in Europe, Asia, Oceania and Africa, with a presence in Kuala Lumpur, Moscow and India. "Furthermore," adds Suárez, "since 1991 we have a facility in the US, located in Miami (Florida), from which we deliver all orders in the Americas." For that purpose, the company has 2,750 sqm for sales services, after-sales and a showroom, and for the manufacturing of air conveyors. From all these locations, the company provides not only the necessary equipment for

plastic bottle handling, but also the overall engineering, from the blower to the filler.

For this, Posimat has a wide range of models covering all the needs from small bottling companies to big corporations, with machines capable of reaching speeds of up to 80,000 bottles per hour. It also provides equipment to supply and orientate the bottles in "pucks", and special models for particular specifications, like automated cleaning through CIP system or EX flameproof runs, among others. These machines are available with different format changeovers: manual for selectors and funnels, automated POSIFLEX-A system, and POSIFLEX-M changeover by setting of selectors and funnels.

The latest addition to the Posimat range of unscramblers is the **Posimat Bot**, a model that features huge versatility. "In fact," says Suárez, "this machine has a sucking system that turns bottles or other objects of any range, shape and size, up to 360 degrees in order to place them – automatically and without any pressure at all – on the output conveyor." Furthermore, it has an automated rejection system for defective objects that minimizes line downtimes and allows constant process monitoring.

In order to perform these functions as quickly and accurately as possible, this Posimat machine includes many Rockwell Automation components. Firstly, it integrates Allen-Bradley® CompactLogix™ L33ER programmable automation controllers (PACs), which offer integrated EtherNet/IP™ or ControlNet™ series channels and modular DeviceNet™ communications; Allen-Bradley PowerFlex® 525 AC drives, with built-in standard security features; Allen-Bradley PanelView™ Plus 7 700 graphics terminals, which simplify the machine monitoring and management; and a PowerMonitor™ 500 Ethernet 1420-V2-ENT AC power monitor, which provides an immediate visibility of power usage.

These devices are complemented by other Rockwell Automation low-voltage components, including 440R safety relays, 440G-LZ guard locking switches, 800FP push buttons, 42GRC photoswitches, 1606-XL power supplies, 1489-M and 140M circuits breakers, IEC 100-C contactors, and Control Tower™ 855 stack lights.

The integration of this automation technology helps the company to reduce its programming efforts, to use less cabling and to provide a higher flexibility from the machine. Furthermore, according to Suárez: "all these components provide a high versatility in terms of communications by means of the EtherNet/IP standard."

These technologies are also beneficial for the customers who deploy the machines in their production plants, since they will find, as the Posimat manager states, "easy maintenance and an overall improvement in security coupled to increased productivity." All of this is complemented by the fact that these materials, as Suárez says, "are the most used in the American market, so their compatibility is already in place."

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Solutions in Action

PRODEC
FLEX · TECH

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The D-300 is a top-loading pick & place case packer, comprising multiple case-filling stations

Allen-Bradley CompactLogix
programmable automation controller

Allen-Bradley Kinetix 6500 servo drives

For the last 40 years, **Prodec** has been supplying packaging machinery from Castellar del Vallès (Barcelona, Spain) to the global market. "Our product range includes a wide selection of secondary packaging machines, such as top, side and bottom loading casepackers, robotic RSC and wraparound machines, robotic and gantry palletisers, top and side loading cartoners, and complete end-of-line solutions and turnkey projects," explains Núria Plans, General Manager at Prodec.

Along this time, the company has stood out for the quality of its machines, designed in accordance with stringent criteria regarding efficiency, robustness, accessibility and quick changeover. In fact, according to Núria Plans, "have been developed to operate 24x7 all the throughout the year, anywhere in the world, in industries like food, home care, and personal care, among others."

One of the product families with a higher demand from customers all over the world is **Delta 300** (D-300), a line of top loading casepackers with Pick & Place.

This range includes the D-346, a top casepacker with two product entries that targets mostly – about 70% of the units – the food industry, as well as the personal care. "The filling of packages into the case is made by means of a pick&place with double head and can be set according to speed and product type." In this way, each filling line handles 130 packages per minute, for a total of 260 p.p.m.

Moreover, this model stands out for its flexibility: since it includes two infeed lines, it can be set according to the required production capacity and the size of the packages. An additional mechanism allows the suction head to be rotated in order to place the packages in different positions for each floor or line.

For a seamless implementation of all these features, Prodec chose Rockwell Automation® components because, as Núria Plans states, "this company has become the one with most advanced technology and our standard," she adds.

Specifically, this model includes several types of CompactLogix™ 1769 controllers, which are ideally suited for small and medium size control applications; and POINT I/O™ modules that allow standard I/O and security to be combined in the same system. They feature also Kinetix® 6500 Servo Drives, which combine a high-performance integrated motion and the EtherNet/IP™ network. All this is complemented by PowerFlex® 525 AC Drives, which offer EtherNet/IP™ communication, USB programming, and built-in standard security features; and the PanelView™ Plus 6 graphic terminal to monitor, control and show information about the machine status.

The addition of all these Rockwell Automation® components has been very beneficial for Prodec. "The advantages start with the machine design and programming process because Rockwell Automation simplifies this task. Moreover, since their products are an industry standard, with a high demand from customers in several sectors, technical support, compatibility, and replacements are fully guaranteed," comments Núria Plans. The Prodec manager adds: "with Rockwell Automation, the software for the machine is very flexible and easy-to-use, and it provides us a high versatility; we need less cabling, and their technical support is very satisfying."

Thanks to all this, the model D-346 offers quality and a full control of the production line to the customers, as well as higher efficiency in the packaging process of up to a 50%, reduced energy consumption, remote machine maintenance, and higher safety for the operators, with lower labour costs.

In the end, as Núria Plans summarizes, "with this equipment, reliability and stability of the packaging process for our customers can be improved, while providing a higher flexibility for future changes," she concludes.

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Solutions in Action

Radpak

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The Radpak Case Packer deploys a number of Allen-Bradley products from Rockwell Automation

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley Kinetix 6500 servo drives

Radpak's production activities started in 1991 from the initiative of President Tadeusz Radzanowski, who had gained experience in the design of packaging machinery in Canada. Initially the company offered two types of devices of his own design – linear weighers and vertical packaging machines.

In 1997, the purchase of production buildings with a total area of 3,000m^2 allowed Radpak to develop the design, production, marketing and sales departments. The parallel development of administrative structures and technical departments, through a technology-led transformation, grew the company into one employing more than 100 people, including specialists in many fields.

It now manufactures complete turnkey packaging lines and a variety of machines for the packaging industry, including VFFS baggers, volumetric fillers (auger and cup), weighers (linear and multi-head), cartoners (start, stop & continuous motion, horizontal and vertical), end-of-line systems (RRD case packers, RSC case packers, tray former, case erectors, tray & wrap around case packers & case sealers).

Radpak is very well recognised as a manufacturer of vertical packaging machines and complete packaging lines. Many of its customers rely

on it to provide end devices for grouping and packaging products. Applications for its machines vary and include: food (granules, chips, flakes, muesli, candy, bars, frozen products, meat, dairy products, pasta); fresh products (vegetables, fruits and delicacies); forage for animals; pharmaceuticals and cosmetics and for applications in the industrial, chemical and mining sectors. Radpak is seeing its market proportion for export growing every year.

The **Radpak Case Packer** – comprising input conveyor, product placement, wrapper, sealer and output conveyor – automatically counts, groups and packs unit packages in either a wraparound case or a tray and, with its unique phase-shift technology, it can package products with elliptical bases into compact size cases or trays.

For both the home and export market, Radpak has to rely upon an established automation supplier for its machines and its Case Packer is no exception. For its primary control and motion solution it deploys a number of Allen-Bradley® products from Rockwell Automation. Primary control is delivered by an Allen-Bradley CompactLogix™ L36ERM programmable automation controller (PAC) over an EtherNet/IP™ network. The motion and movement is undertaken by Allen-Bradley Kinetix® servo drives and motors, for the servo tracks, product grouping and carton loading, and Allen-Bradley PowerFlex® variable-speed drives for the input and exit conveyors, the gluing and the main cartoner drive. Among other low-voltage components, Allen-Bradley SensaGuard™ non-contact interlock switches are used on the doors.

According to Dariusz Gniadzik, Marketing Specialist at Radpak: "Our machines are designed to work in 24/7 mode, with all components being chosen and assembled to offer longer and more reliable operating times. Our case packer also offers easy, tool-free changeovers between formats and its flexibility means it can pack several types of product. Of particular interest is our phase shift mechanism, which can pack products to smaller cases, saving material.

"We use Rockwell Automation products because of their flexibility, upgradeability, quality and popularity in worldwide markets," he concludes, "And we like the fact that they integrate easily into existing production lines and with other third-party products. We enjoy streamlined design times, reduced programming efforts and simpler troubleshooting, while our customers benefit from reduced training times coupled to quicker installation and start up times. Installing Radpak machines significantly increases the efficiency of the production line at any plant. An additional advantage is that it helps decrease the number of people needed to operate the line. Everything is more automated allowing it to be better managed while reducing labour costs and improving productivity."

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Solutions in Action

rohrer
leading solutions

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The control and automation technology from Rockwell Automation contained in the R760S has been designed to allow for easy integration of the additional modules required for a facility expansion

Allen-Bradley Compact GuardLogix programmable automation/safety controller

Allen-Bradley Kinetix 5700 servo drives

Since its formation in 1962, **Rohrer AG** has continuously transformed itself from a mechanical production company into a technology leader with its own processes and products. Today the Swiss company is globally renowned for its blister packaging innovations and tools and its form-fill-seal (FFS) machines. As a consequence, subsidiary companies have also been formed in France, the USA and in Russia.

Rohrer AG's core competency is the processing of flexible foils and products manufactured thereof. "Our origins lie in the clinical trial field. This means that our machines are not designed for high output, but rather for enormous flexibility with extremely short retooling periods," reveals Albert Birkicht. "Our solutions are typically applied when a new product is being be launched," states the CTO, remembering a customer who simultaneously had six innovations in the development pipeline. They were initially manufactured with low volumes on an R760S, the basic module of the R760 blister machine.

The **R760 blister machine** is predestined for small to medium lot sizes and can be configured in accordance with the requirements of the user. The development of blisters manufactured from flexible foils is just as efficient as it is at a later point in time during serial production. Utilizing

the machine, foils can be drawn deep, sealed, perforated and punched and then discharged. Should the machine need to be integrated in a space-conserving manner, the number of modules can be reduced. This is possible because even the basic module 760S is capable of implementing all the process steps in a semi-automated manner.

"Should the basic module be fully upgraded later on, then revalidation will not be required as the process parameters and tools all remain the same," says Birkicht, illustrating one of the major advantages of a modularly built machine design, in which the intelligence for the entire line is housed in the basic module.

The control and automation technology from Rockwell Automation contained in the R760S has been designed to allow for easy integration of the additional modules required for a facility expansion. The options include, among others, a filling module, a printing module, a sealing/punching module and an active film module. "The control system must be able to flexibly respond to different modes as we can cold form, hot form, punch and seal with it. It identifies which tool has been installed by the machine operator and automatically offers him the corresponding recipes," illustrates Bernd Esch, Controls Manager at Rohrer.

Another feature highly appreciated by the final customers is the fact that readjustment can be carried out at any given time and in a simple manner. "The R760S is primarily utilized during the development of new products and this requires the highest level of flexibility. This is a phase where many different things are tried out and where a wide range of parameters such as temperature, pressure, force or speed are still being tuned. Such corrections can take place during continued operation. Whether the actually desired result has been achieved can be immediately examined with the next produced blister," states Esch, underlining the quick adaptability of the R760S.

Why an Allen-Bradley® Compact GuardLogix™ programmable automation/safety controller has become a part of the basic module of the blister machine R760 is also quickly explained by Esch: "We have been exclusively working with safety control systems for many years. Depending on the requirement we want to create different zones, which can be safeguarded by a logic system. Furthermore, in combination with the Allen-Bradley Kinetix® 5700-EtherNet/IP™ Servo Drives, the Compact GuardLogix also offers Safe Direction and Safe Speed – two safety functions which we like to use in our systems." The Compact GuardLogix 5370 control system generally offers broad support for the implementation of global safety standards. With SIL 3, Performance Level e and Category 4, it achieves the highest classification grades regarding machine safety.

Pneumatics in Rohrer machines is in the meantime only used for very simple feed motions. As soon as more precision or greater forces are required, the Swiss FFS machine manufacturer utilizes servo drives: "We place great value on having absolute encoders mounted on the motors, because we always use the latest technology in our systems. This also includes Integrated Safety or Safety over EtherNet/IP. We want to be able to operate and program all safety functions via the industrial Ethernet. With Rockwell Automation on board, this is in very good hands," states Esch, full of praise. And this is of enormous importance to him. After all, Rohrer AG is at home in the GMP environment, i.e. a field in which numerous legal requirements and regulations regarding a "Good Manufacturing Practice" must be complied with. "Rockwell Automation is a good, reliable partner who can competently offer us support for a wide range of performance classes – around the globe," adds Birkicht, summarizing Rohrer AG's satisfaction with innovative products such as Compact GuardLogix, Kinetix 5700 or the Stratix™ 2000 Unmanaged Ethernet-Switches. The latter are attached to the Logix-based controls via simple wiring connections and require no further configuration.

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Solutions in Action

RYCHIGER
FILLING AND SEALING MACHINES

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The FS 190 filling and sealing machine is based on a rotary table, which can be fitted with suitable modules in accordance with the process requirements

Allen-Bradley ControlLogix programmable automation controller

Allen-Bradley Kinetix 5500 servo drives

Rychiger AG has been repeatedly drawing attention to itself since the 1970s with trend-setting innovations. The Swiss company is among the leading suppliers of customer-specific packaging machine solutions for the food, animal nutrition and the healthcare industry.

As a specialist for the filling and sealing of aluminum or barrier plastic portion packs, Rychiger AG is also a "name" among tea and coffee producers. Thanks to lightproof and airtight barrier materials and gassing the products with nitrogen, capsules produced with a Rychiger machine have a shelf life of up to 18 months without additional packaging. "We were one of the first packaging machine manufacturers to embrace the capsule system trend. Today renowned Blue Chip Companies vouch for the production capacity and the reliability of our machines," explains Product Manager Hanspeter Aeschlimann.

The **FS 190 filling and sealing machine** is based on a rotary table, which can be fitted with suitable modules in accordance with the process requirements. As a consequence, different capsule variants can be processed on this machine. Depending on whether the processed capsules are stackable or not, the FS 190 can be delivered either with manually loadable stack channels or with a fully automated feed system.

"A broad spectrum of technologies available in the sealing modules ensures that optimal sealing quality is always achieved in accordance with the type of packaging at hand. Should a machine actually reach its limit with a certain type of portion pack, then the FS 190 design also allows the connection of two machines with each other to a so-called TWIN solution. Next to filling, weighing and sealing of the capsules this design approach also features the integration of numerous other product-specific processes," states Aeschlimann, underlining the flexibility of this modular machine solution, and adds: "With the FS 190 we offer a filling and sealing machine for smaller outputs of up to 260 capsules per minute. This is due to the fact that we have been able to observe an increasing demand for smaller machines over the past few years." The high-performance machine from Rychiger AG, the FS 960 is, on the other hand, capable of achieving an output per minute that is five times higher.

Punching and sealing the covering films, which serve as a barrier against oxygen especially in synthetic capsules, is a specialty of Rychiger. Four products are simultaneously processed at 60 to 65 cycles per minute. "Quality and flexibility are of enormous importance to us. Our machines exclusively feature servomotors, because the driving characteristics of the transport systems must optimally adapt themselves to the corresponding products and contents respectively.

"With the proven Allen Bradley® Kinetix 5500® Servo Drives, plus VPL servomotors we remain extremely flexible in every single movement. We can adapt the screw conveyors to different capsule sizes and approach every position without hindrance," illustrates Aeschlimann. Furthermore, a closed feedback loop between the servo-driven auger fillers and the downstream weighing system ensures that the weight of every single capsule is absolutely correct. Every deviation from the specified size is immediately discharged and corrected.

The servos also bring their special drive capabilities into play in other parts of the FS 190 – for example when revolving the rotary table, at the finisher, during filling, in the course of pressing and at the sealing hub, both above and below. All in all, there is a lot of movement in such a machine, some of it even overlapping – new movements can be partially initiated even when previously started actions are still running. "The processes in our filling and sealing machines require very special curve charts. Individual software elements have been developed together with Rockwell Automation in order to support them in the best-possible manner. A lot of know-how has gone into this," reveals the product manager.

The FS 190 is controlled by an Allen-Bradley ControlLogix® programmable automation controller. As Rychiger frequently also operates as a provider of entire production lines, into which various third-party systems – such as bulk materials feeders or a cartoning machines – have to be integrated, an open control system architecture with good interfacing options for upstream and downstream production processes is vital. In this context, Aeschlimann feels that he is in good hands with Rockwell Automation.

The Rychiger machines are not only in high demand globally as a result of their flexibility and their easy-to-implement scalability in various directions, but also due to their low material consumption. An optimal utilization of the used materials is ensured in all FS machines of the Swiss filling and sealing specialist, for example when punching the capsule cover. The available space is also optimally used in the FS 190: "The utilized automation and drive technology is housed directly in the machine and not in some external switch cabinet. The compact design of the Kinetix 5500 EtherNet/IP™ enabled Servo Drives proved to be very accommodating in this context," praises Aeschlimann.

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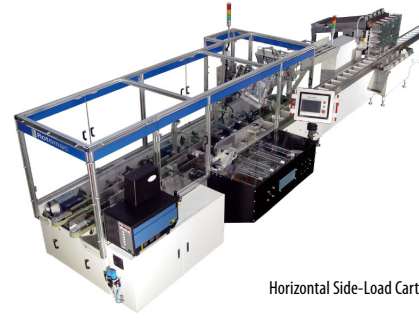
Solutions in Action

samwoo AUTOMATION

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software



Horizontal Side-Load Cartoning Machine

Allen-Bradley® Compact GuardLogix® controller

Allen-Bradley® Kinetix™ 5500 servo drive

Allen-Bradley® PowerFlex™ 525 AC drive

Allen-Bradley® PanelView Plus 6
Graphic terminals

INTERPACK 2017

Hall 6 / B27

Started in 1984, Samwoo Automation has been a leader in the Korean packaging and automation industry. The company specializes in providing a total engineering solution to maximize production efficiency of factory automation lines.

Sanwoo has many renowned customers from various industries such as confectionery, food, dairy and beverage industries. They have developed good relationships and provided services to international customer including Kraft, Kellogg's, Cadbury Adams, Nestle, P&G, Unilever, Dole, URC, Monde Nissin and Dutch Mill.

Samwoo Automation provides the market with new machine including Flow wrapper, Cartoner, Case packer for more performance and flexible operation. All machines are configured and operated by integrated control, motion and safety system of Rockwell Automation. Full packaging line is composed of feeder, cartoner, flow wrapper, case packer and it is capable of fulfilling smart machine capabilities including integrated safety, robust network for faster troubleshooting and real-time diagnostics.

Especially, Samwoo's machine with Integrated safety system not only meets all of global customer's safety requirements and International safety regulations and but also helps better productivity, efficient operation and prevents unexpected downtime of our end-users.

Cartorner is used to pack primary packs into pre-formed cartons and to finish the packaging process. **Case packer** is the machine that dual collator and articulated Robot are working for pick & place loading cell. **Flow Wrapper** is used when products flow in the machine onto Feeding conveyor, Film Puller and Sealer start rotating for film feeding. Then Former films products and Sealer begins sealing the bottom. The process for packaging is finished when cutter cuts between the products with sealing.

LISTEN. THINK. SOLVE.

Allen-Bradley · Rockwell Software

Rockwell Automation

Flow wrapper is configured by Allen-Bradley® Compact GuardLogix™ L36ERMS PAC with integrated safety, Kinetix® 5500 servo drive, PanelView Plus 6.0 HMI graphic terminal is used for smarter machine control and operation. In the system, 8 axes motion is controlled by Kinetix 5500 and EtherNet/IP encoder as well as Kinetix VPL servo drive and PowerFlex 525 AC Drive. Moreover, Electrical CAM functionality for motion control offers smoother movement of the machine when users need to produce a wide variety of products and apply flexible adjustment to the production line. When users need to correct the length of the film for cutting since production item is changed, CAM profile also allows automated change on cutting position of the film.

Regardless of level of skill or experience, machine users can take advantage of Temperature AOI(Add-on Instructions) to simply do temperature tuning while operating machine, instead of using PID controllers which might cause process downtime and slow temperature response. Each component is integrated by unmodified network protocol, DLR based EtherNet/IP which enables seamless and secure network.

Cartoner for 9 axes is designed and developed by integrated control system with advance safety and safety component with CE certified. This cartoning machine capable of running up to 180 packs per minutes for Material 12". This high performance full electrical CAM type Cartoner (9 Axes) offers remarkable competitive advantage as is uses fully servo type. It enables advanced control, more speed to the machine with reasonable price.

Case packer is Allen-Bradley® Compact GuardLogix™ L33ERMS PAC for 7 axes with Kinetix VPL motor and servo drive. It does not need any safety relay separately as PLC can program advanced safety system.
Allen-Bradley PowerFlex® 525 AC Drive which features an innovative, modular design to support fast and easy installation and configuration through EtherNet/IP™ network programming. The operator input is via an Allen-Bradley PanelView™ Plus 6.0 HMI graphic terminal which gives operators full visibility and access to all machine parameters and programs.

"In addition to the quality and reliability of the products, Rockwell Automation provides a complete customer service which has helped us in terms of developing programs and implementing their components into our system. Their technical and service support is great. Since international customers demand global standards, Rockwell Automation provides products and services that meet their demands and expectation. By integrating RA products into our system, we can upgrade and lift our brand value as well as technical capability." said the representative of Samwoo Automation.

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Solutions in Action

Schmucker
since 1977
automatic packaging machines

Automated with
Rockwell
Automation
Allen-Bradley · Rockwell Software

For its machines Schmucker has used Rockwell Automation solutions

Allen-Bradley CompactLogix
programmable automation controller

Allen-Bradley Kinetix 5500 servo drives

With a 40 year history and more than 800 machines put on the market, **Schmucker** is an outstanding player in packaging industry. Headquartered in Romans D'Isonzo (Gorizia), in the far North East of Italy, the company specializes in the manufacture of highly efficient and totally customizable packaging machines for different kinds of products (solid, liquid, powdery, granular, creams, gels and single pieces) in food, pharma, cosmetics and chemical industries.

Among Schmucker's customers are Nestlé, JDE-Mondelēz, Chupa Chups, Unilever, Ricola, Kraft, Pepsi-Co, Heinz, Felix (food); Novartis, Bayer, Fidia Farmaceutici, Abbot, Sanofi, Fareva, Ipsen (pharma); Collistar, L'Oréal, Bionsen, Manetti – H. Roberts (cosmetics).

"We build Italian style machines in a German way," they use to say at Schmucker. "We are artisans manufacturing tailor-made machines, designing them together with our customers," Sebastiano Nastasi, Sales and Technical Director, says. "Customization and flexibility are our points of strength; our solutions are ergonomic, easily accessible and can be quickly upgraded, retrofitted and expanded."

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Rockwell
Automation

Schmucker multi-lane machines consist of independent units – vertical and horizontal sealing bar and pre-cut unit – which are designed and manufactured accordingly to the **"fast release"** concept, that is based on **SMED** (Single Minute Exchange of Die) methodology, which allows the fast dismantling of the various parts of the machine and doesn't need any tools. Furthermore, Schmucker periodically updates the machines design to meet the eight pillars of **TPM** (Total Productive Maintenance), the system conceived to keep integrity and quality of production, processes and personnel at the highest levels, improving the equipment general efficiency.

Among Schmucker's leading solutions for primary packaging of granular, liquid or powder products, is the **Tenax 600**, a multi- lane intermittent motion machine producing four-sides-sealed envelopes (sachets), and **Pharmastick**, a multilane filling machine for sticks (three-sides-sealed sachet). The sachet dosing is highly precise (accuracy to within 2%), in compliance with all the specifications. 95% efficiency, constant production levels and long life are some of the benefits the user can get using these packaging machines, which can run 24/7 for 50 weeks a year.

For secondary packaging applications Schmucker puts on stage three other solutions: the **BFC55** "monoblock complete line", the **FV40** forming machine and the **CV40** closing machine. The **BFC55** is a new prototype of a unique compact and sturdy cartoning machine, included in the "filler frame". It can produce up to 60 boxes per minute. The complete line is only 5 m long (front side). The FV40 is an automatic vertical forming machine producing display boxes (with or without cover) starting from a flat carton picked up from the store.

For its machines Schmucker has used Rockwell Automation solutions. "We appreciate the possibilities offered by the common software environment. Indeed, with a totally integrated standard, safety and motion programming, our software programmers can work faster: thanks to the ready-to-use blocks they don't need to program line by line," Nastasi points out. He and his colleague Massimo Michelutti, Software Architecture Supervisor at Schmucker, decided to turn to Rockwell Automation since for the most relevant corporations, it is a standard in automation.

The control is managed by Allen-Bradley® CompactLogix™, ControlLogix® and GuardLogix® controllers with Allen-Bradley POINT I/O™ modules. Allen-Bradley PowerFlex® 40 and 525/527 inverters are used too, while the motion system is based on Allen-Bradley Kinetix® 5500, 5700 or 6500 servo drives. The different series are selected depending on the number of axis and the requested safety level – Safe Torque Off in easier applications or Safe Limited Speed in complete lines.

Servo drives and servomotors are placed in line in the cabinet and their functions depend on the machine they refer to (i.e. in primary packaging machines the Kinetix are used for the stick or the sachet forming, while in secondary packaging they are connected to the main motor, which starts the product feeding and taking). On the Tenax 600 and Pharmastick, Kinetix servomotors are used to move the single independent dosing units. PowerFlex inverters are used for the devices that serve the sachet forming and for regulation tasks. Finally, Stratix™ switches connect all the devices through EtherNet/IP™. The machines can also be connected to the enterprise network and can be remotely managed.

In addition to time reduction in designing and programming the machine, Rockwell Automation solutions made test and validation easier and increased machine flexibility for future changes. Other benefits can be directly reached by the customers: they will get easier-to-install and easier-to-maintain machines, even remotely. As far as it concerns machine operations, they will also get a faster changeover and higher safety levels for their operators. "Higher speed, better integration and flexibility and a better quality are the peculiarities offered by our Rockwell Automation equipped machines," Nastasi concludes

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Solutions in Action

SENZANI
From innovation to pack

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The WA12 wrap-around monoblock case packer for secondary packaging applications is designed to form, fill and close corrugated flat blanks

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley PowerFlex 525 variable-speed drives

Allen-Bradley Kinetix 5500 servo drives

Since 1953 **Senzani Brevetti** has designed and built lines for primary and secondary packaging, from cartoners to case packers down to end-of-line systems and pallettizers; and from standalone machines to "all-in-one" complete systems.

"Our customers, big multinational companies, prefer us over competitors because of our strong, skilled expertise in the packaging market applications. We support them to achieve their primary goal, which is to improve productivity with maximum safety in their plant. We deliver longer-lasting and flexible lines, which offer the best processing rate, easier changeovers, and contribute to cutting down waste materials and machine downtimes," Adele Rava, Senzani Brevetti's Marketing Manager, explains.

The Italian machine builder, which is headquartered in Faenza, in the northern-Italian Ravenna area, works with top-quality brands and support many different markets, inlcuding food, home-care, agriculture, tobacco and pet food. The company stands out for a high innovation intensity: indeed, in 2016, Senzani presented 10 new patents.

"Innovation and excellent line customization are cornerstones of Senzani's production," Rava adds. For Senzani innovation essentially means considering the most recent packaging marketing trends – in terms of product package quality (value, strong attention to details, perfection) – and combining them with great processing speed (up to 600 cartons per minute).

"In our line, we deploy an accurate combination of working speed and soft handling, to boost product integrity. This combination has always been encouraging us to select the best performing electronic solutions, such as the ones provided by Rockwell Automation, which are a referring standard for automation technology in our machines. Rockwell Automation supports us to be pioneer in innovation, thanks to the excellent cooperation established with its engineering team in developing new projects," Gianluca Taroni, Senzani Brevetti's Technical Manager, adds.

Among these projects, there is the **WA12 wrap-around monoblock case packer** for secondary packaging applications. The machine is designed to form, fill and close corrugated flat blanks. It proves to be a very flexible machine, as it is able to pack a great variety of products through its custom-designed and dedicated

infeed system. In this specific project, the WA12 machine has been engineered to pack cartons, which contain coffee capsules, and to process up to 12 cases per minute. The machine works in a complete, turnkey Senzani system for coffee capsule production, which includes three lines, each comprising a primary cartoner, a wraparound case packer, and an end-of-line centralized pallettizer.

The WA12 case packer features positive case management in each stage, and integrates different machine groups: the infeed system, loading carton flat blanks; the stacking station, where products are placed into rows and layers; the carton flat blank transport and adjustment system; the carton closure station, for glue application and lid sealing process; and the final carton exit elevator.

The key functionalities of these machine groups are managed by an Allen-Bradley® CompactLogix™ 5380 programmable automation controller (PAC), while an Allen-Bradley PowerFlex® 525 AC drive moves the product infeed conveyor, Allen-Bradley Kinetix® VPL servo motors and a Allen-Bradley Kinetix® 5500 servo drives with EtherNet/IP™ connectivity cooperate to drive nine axes. Each axis processes specific machine operations: product stacking, product filling pick and place (horizontal and vertical movement), carton blank extraction and advancement, carton lid glue application gun movement, lid closure and the carton exit elevator.

The automation platform is completed by Allen-Bradley POINT™ I/O modules with EtherNet/IP connection and by an Allen-Bradley PanelView™ Plus 7 HMI. Both the automation network and the motion networks share the same EtherNet/IP communication standard.

This integrated solution for motion and logic control tasks contributes to make the WA12 case packer extremely flexible, and the format changeovers (both in product size, final package and product collection) faster and easier. The HMI solution based on PanelView Plus 7 results intuitive and improves operator's overall machine control and accessibility for interventions; at the same time it helps to minimize maintenance and to extend self-test to moving parts. Another outcome is more simplified troubleshooting, thanks to the complete integration of diagnostic tasks on the HMI.

Depending on the user accessing the panel, information provided are sorted in order to show the appropriate and necessary data. The panel contains icons and pop-ups replacing text fields. Senzani's engineering team added a further notification option to help plant operators: a quick and clear-cut visualization of machine parts displaying some kind of problems, by screening relevant warning signal and immediately restart the process.

The complete, integrated electronic technology of Rockwell Automation offers great flexibility and reduces time in the machine control layout development. The unique software architecture brings the possibility to change layout immediately to meet the versatility of the customer's demands. The Kinetix servo technology also provides reduced installation time: it speeds changeover times and lowers maintenance: it is very intuitive system for maintenance engineers, and improves production uptime and increases machinery lifespan.

"We find whatever we need inside a unique automation and engineering environment," Taroni adds. "We are able to write code in just one software development environment, Rockwell Software® Studio 5000™, which highly integrates PAC and motion programming. We can also easily adapt code on different hardware. We gain a valuable controller's scalability without software's core modification. This is a fundamental benefit for a company like Senzani, which deals with demanding customization requests from customers. This highly-integrated software package also features extremely intuitive interfaces: our software engineers can quickly display and manage the entire machine's electronic platform."

Standardizing on a Rockwell Automation's platform helps Senzani to reduce wiring effort and hardware and the one-cable servo solutions work to the end-customers' advantage in terms of wiring and clean-design machine layout, offering the chance to replace old pneumatic parts and thus significantly reduce energy consumption.

Furthermore, a big role has been played in this project by the unbeatable support from Rockwell Automation worldwide during product engineering. "In the Bologna area, in Northern Italy, Rockwell Automation established an excellent OEM Application Center, which has supported us in the design of new machine layouts." Taroni concludes. "Rockwell Automation doesn't just give us a piece of software code, but its technicians support us in learning how to use this code and how to develop it on our own, speeding up time-to-market in the engineering of new applications and in problems solving. Rockwell Automation helps us to be more autonomous and quicker in our new business development!"

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Solutions in Action

Automated with Rockwell Automation
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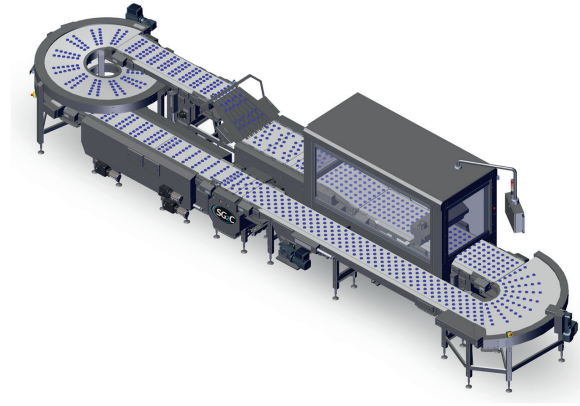

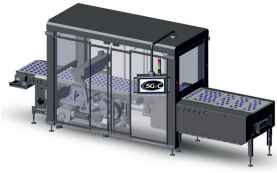

SG2C focuses on several objectives: standardising equipment and the programmes and making its machines modular with an upgradeable design

SG2C (based in Saint Viaud, Loire Atlantique, France) is a designer and manufacturer of automated industrial machinery. SG2C offers a range of standard equipment and customised lines, between the processing (ovens, moulders, fryers) and wrapping machines, with a dual expertise in both dosing and handling.

In the process sector, SG2C offers machines for depositing, injection and "Capper" type sandwiching machines, mainly for biscuits and pastries. The volumetric head associated with independent valves can dose accurately all types of cream, jam, chocolate, caramel, yoghurt or aerated dough, even if they contain pieces.

On the handling side, SG2C offers solutions including cooling conveyors and curves, buffers and FIFO dynamic flow regulation systems, aligning, spreading and indexing systems to prepare the product flow before the distribution to wrappers. The technologies originally developed for the biscuit industry, where the products are fragile and the production rates very high, can be translated to other industries which have similar issues in terms of the need for accurate handling.

For Interpack 2017, SG2C has decided to build a dynamic circuit showing the latest innovations (see main image above). This demo system will be reinstalled in SG2C's Factory Lab after the show to enable customers to perform some tests with their own products. It includes the SG2C patented "Surf Belts", a set of very short servo-driven wide belts allowing the alignment of products in rows without contact and without accumulation. This system solves various

The reason SG2C selected Rockwell Automation was to be able to develop standard intuitive programs no matter which automation engineer is at the controls

issues often encountered within production lines, when rows are mixed up after many transfers. It also includes a spiral belt curve suitable for small products, a double pull-nose phasing system to regulate the pitch between rows, angled conveyors for spreading the flow as well as a new generation of Capper X-Y servo driven robotic moving station used for dosing onto biscuits and making sandwiches or supporting an injection/printing head.

Biscuit production lines have numerous constraints: high flow rates (up to 15,000 pcs/minute), the need to precisely control motion by using up to 25 servo motors, the need to synchronise the axes with cam profiles adjustable from the HMI and the ability to integrate other functions such as vision, individual lane blocking, balancing and/or reject. This increases efficiencies and reduces human intervention in case of non-conforming products coming from the customer's upstream machines.

When designing these applications, SG2C focused on several objectives: "standardising" the equipment and the programmes and making its machines modular (number of axes, multi-formats, and multi-options) with an upgradeable design. This enables the system to meet future marketing innovations and new recipes.

The solution chosen for governing the SG2C equipment includes the latest Allen-Bradley® references: ControlLogix® L8, decentralised Allen-Bradley POINT I/O™ and ArmorBlock®, an Allen-Bradley Kinetix® 5700 CIP motion axis control module, Allen-Bradley VPL-B servo motors and PowerFlex® 525 variable speed drives.

The reason SG2C selected Rockwell Automation was to be able to develop standard intuitive programs no matter which automation engineer is at the controls, thanks to the "SPIN structure" programme architecture and the Pack ML (for managing operating modes) in accordance with international OMAC standards (for uniformity purposes). The main advantage for customers is the ability to replace modules in "plug and play" mode, and the remote automated diagnostics/troubleshooting.

The customer/supplier relationship that initially brought SG2C and Rockwell Automation together has gradually transformed into real teamwork. Whereas SG2C's customers were initially the driving force behind Rockwell Automation's solutions, this choice was soon reinforced by SG2C, as they wanted to generalise Rockwell Automation's solutions.

Rockwell Automation's GOTC technicians and an OEM team supported SG2C throughout these developments. The Company was able to appreciate the responsiveness and availability of Rockwell Automation's technical support in finding solutions tailored to its field, and the SG2C technical team has stated that it is completely satisfied with the win-win cooperation.

Over 70% of SG2C's turnover comes from international groups and medium-sized companies, as well as a growing number of OEM integrators interested in completing their solutions with sanitary design conveyors and smart buffer/aligning solutions. The strong internal organisation of SG2C and its highly committed team enable the company to always deliver machines on time.

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Solutions in Action

SLEEVER MACHINES GROUP

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

Sleever® Combisteam LDPET: the sustainable way to increase productivity

Allen-Bradley CompactLogix
programmable automation controller

Allen-Bradley PowerFlex 525
variable-speed drives

Many of us around the world have had **Sleever®** technology in our hands, even if the French company's name is not familiar. That is because it invented the sleeve concept – which involves thermo-shrinking a sleeve-type label onto bottles and other containers – as long ago as the 1970s. Today, the company is still the world leader in this technique, which has significant ecological benefits as well as marketing and efficiency advantages for manufacturers of beverages, food, home and personal care, cosmetics, pharmaceuticals and industrial products.

The latest version of its flagship machine, the Sleever® Combisteam LDPET, features fast and energy-efficient heat shrinking based on steam. Aside from its speed – wrapping between 600 and 1200 units a minute – one reason this machine stands out from competitors is for its ecological credentials. It features a combination of low-density film for the sleeve – also made by Sleever® – and special inks. PET bottles with ordinary sleeves are rejected by the recycling process because the sorting machines cannot detect that the bottle is made of PET due to the sleeve. The **Sleever® Combisteam LDPET** machine is different because the formulation of the sleeve makes it easier for recycling centres around the world to quickly separate it from the PET bottle, which can then be 100%

recycled. With billions of mineral water, milk and other PET bottles polluting the environment, Sleever's approach is firmly anchored in sustainable development. The process has been recognised by the Association of Plastics Recyclers (APR) in the US as well as the European PET Bottle Platform (EPBP), its European equivalent.

In addition, Sleever® has designed the machine to be compact and energy-efficient, saving 40% in floor space and 50-60% in energy consumption compared to traditional sleeving machines. The Sleever® Combisteam LDPET has adjustable steam jets that can be raised and lowered automatically, adapting to the height of the product moving through the tunnel – whether it is a tall bottle or a small container. This helps the machine use only the amount of steam – and therefore heat – that the relevant product actually needs to be shrink-wrapped.

An innovative new feature of the Sleever® Combisteam LDPET is its flexibility in handling multiple different package formats. Customers can feed bottles and other packages into the machine containing anything from 20cl to 1.5 litres. The bottles can have a simple or complex shape. With the help of clear, 3D graphics on a control panel, the operator can change formats easily in just 10 minutes, helping customers increase throughput and get their products to market faster. The roll of film can even be changed without stopping the machine.

Sleever® selected Rockwell Automation components for its new machine due to the company's worldwide presence and service responsiveness. Sleever® exports over 80% of its machine production to other European countries, north and South America, and Asia, making it essential to have a reliable partner at hand for component supplies.

The control system for the Sleever® Combisteam is based on Rockwell Automation motion and automation solutions that deploy Allen-Bradley® CompactLogix™ programmable automation controllers (PAC). It also uses an Allen-Bradley PowerFlex® 525 variable-speed drive, Allen-Bradley Kinetix® 5500 and 350 servo drives, an Allen-Bradley PanelView™ 6 Plus display terminal, and Allen-Bradley TLY-A and VPL series servo motors. To save even more space, the electronic cabinet is completely integrated inside the Sleever® Combisteam LDPET machine.

"The Rockwell Automation components we use in our machine enable us to make significant efficiency gains in terms of fast installation, integration and troubleshooting," says Bruno du Plessix, Business Development Manager at Sleever® Machines. "They form a coherent architecture that facilitates future upgrades for our customers, along with all the space and energy savings they achieve with this machine."

The automation platform also scores points by giving customers more flexibility with the sleeve splicing module, which they can manage manually, semi-automatically and fully automatically. The machine detects when a new roll of film has been inserted and the splicing module adjusts as needed. An essential option available with this module, and one that is ideal for pharmaceutical and food products, is the identification marker. This puts a unique identifier on each product in a batch, facilitating traceability and compliance with regulatory requirements.

"Although it's new, the Sleever® Combisteam LDPET machine is rapidly becoming one of our flagship products," concludes Bruno du Plessix. "With its excellent eco-credentials, speed and energy savings, it meets the efficiency and environmental requirements of responsible manufacturers all over the world."

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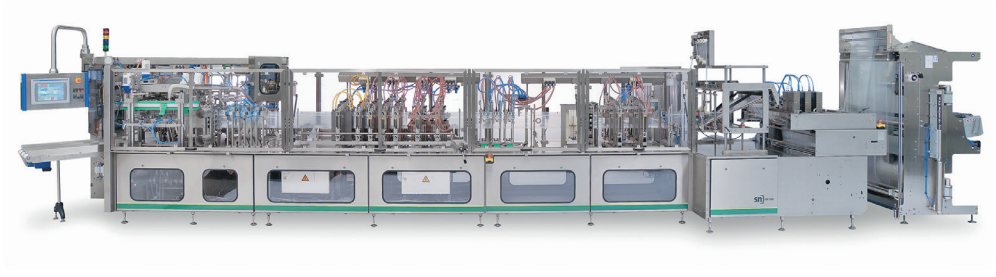
Publication OEM-AP573A-EN-P – March 2017

Solutions in Action

German Pouch-Pack Technology

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software



FM 200 Pouch Packaging Machine from SN Maschinenbau

Allen-Bradley® ControlLogix®
Programmable Automation Controller

Allen-Bradley Kinetix® 6500
servo drive

There has been a global surge in the use of pouch packaging for a number of reasons – they are light, easy and inexpensive to transport, recyclable and with an excellent environmental footprint to name just a few. The German company **SN Maschinenbau** is a leading technology company that makes the machines needed to manufacture this type of packaging.

With its rotary-type horizontal form/fill/seal (FFS) and fill/seal (FS) machines, SN manufactures custom-made pouch pack technology for practically all types of filling, pouch shapes and output quantities. The SN ULTRA-CLEAN machines for Stand-Up pouches meet all FDA regulations and also those of EHEDG. These machines have been certified according to USDA 3A 23-06.

"Our gripper technology, the servo motion control, the sealing stations and multiple other capabilities have set several benchmarks," says Olaf Clemens, CEO of SN Maschinenbau. A recent example is the company's **FM 200 pouch packaging machine**. Its output is about 50 percent higher than other machines, raising the bar again in the industry.

Allen-Bradley® MP-Series™ low-inertia servo motors are integrated into the food-safe series of machines, fulfilling the requirements of high performance axis-control systems. Together with Allen-Bradley Kinetix® 6500 servo drives and Allen-Bradley PowerFlex® 70 AC drives, they

facilitate dynamic processes in the FM 200. "The servo technology ensures that the laminated film used to make the pouch is transported with very little vibration. That's an important factor contributing to high quality and performance when forming the pouch," explains Clemens.

The sealing system that welds together the edges of the pouch close and open with a high level of precision and also use Rockwell Automation servo technology. "Thanks to the servo drives, we can adapt the machine speed to the changing properties of the pouches' filling. This has no impact on the sealing time, unlike a mechanical controller," says Clemens. "The only thing that changes is the packaging film feed.

"The operator of the FM 200 can run the machine at the highest speed without affecting the quality of the seal. In the same way, the operator can increase the filling time on the rotary indexing table without slowing down the machine," says Clemens. "That significantly increases both output performance and efficiency. In addition, the automation technology – together with the mechanical design of the machine – allow for the use of thinner laminate film material. For the customer, this reduces film costs by up to 10 percent."

The entire production line is controlled centrally by an Allen-Bradley ControlLogix® programmable automation controller (PAC) that can store basic parameters, like film feed or sealing times for specific types of product. That allows a quick changeover of pouch formats and fillings. The operator uses a 12 in wide-screen Allen-Bradley PanelView™ Plus 7 human machine interface (HMI) to enter the relevant recipes. The HMI's display has also been optimised to make the operator's life easier, including segregation of operator and maintenance functions.

The machine is now also standardised on PackML, giving operator's a familiar working environment and operating philosophy. Created by leading end users, PackML provides commonality across machines from different suppliers. This PackML capability is complemented by many other performance improvements behind the scenes, including multiple panel upgrades. These improvement include additional networking capabilities, giving end users the ability to not only integrate the machine more easily into their operations, but also interrogate it remotely on tablets via wireless networks. With industry 4.0 playing such an important role in the evolution of manufacturing practices, these additions are vital for the future.

"With the FM 200, the customer can adjust settings for up to 18 servo axes and about 250 different parameters. That makes it essential to have a decent user interface, such as the one available with the PanelView Plus 7 HMI," says Clemens. "The Windows CE platform makes it easier to program the graphics terminal. It's also much simpler to export information from the machine and visualise it on a master computer," he adds.

The automation components are interconnected using an EtherNet/IP™ network. That helps reduce the time and effort involved in constructing and commissioning the machine. It also allows individual modules to be replaced rapidly, so the machine can quickly be adapted to future needs.

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Solutions in Action

Synchro Group

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The latest high-speed wrapping machine developed by SynchroPACK, the Pack 9000 model, is controlled by an Allen-Bradley® CompactLogix programmable automation controller

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley Kinetix 5500 servo drives

SynchroGroup is an international benchmark in the world of packaging, specializing in automatic wrapping solutions, thanks to the integration of **SynchroFEED** automatic feeding systems with **SynchroPACK** horizontal flowpack machines. SynchroPACK will soon be celebrating its 30th anniversary, and SynchroFEED its 10th anniversary.

The know-how integrated and developed by both companies during these years has been translated into innovative technology solutions, adapted to the most stringent needs of the customers, contributing to the optimization of their packaging processing, and achieving the highest quality standards in the industry.

Direct contact with the customer, proactive listening, detailed analysis of the characteristics of the products to be wrapped, and the constant search for new and customized solutions focused on maximizing customer profitability, create the formula for success that SynchroGroup gives to the market. SynchroGroup also looks for new solutions for flowpack/wrapping automation and improvements, in order to achieve competitive benefits to its customers.

A skilled human team, over 200 automatic feeders and 2,000 wrapping machines installed, and a thousand satisfied customers, along with

Rockwell Automation components allow SynchroGroup to obtain a compact design, minimum installation and commissioning times

ongoing teamwork with globally recognized component manufacturers, help guarantee that SynchroGroup meets all new projects with the best chances for success.

All SynchroPACK wrapping machines and SynchroFEED feeders are assembled in their respective factories, and afterwords integrated and tested with the same products and films that will be used by the customer. Only then, once all internal production and quality tests have been overcome, are the machines packed and shipped to their final destination, where the experienced SynchroPACK and SynchroFEED after-sales technical teams perform the installation and commissioning at the customer premises, and take care of the training of their operators and maintenance technicians.

Among SynchroGroup's latest technology developments is a wrapping machine for the US market. This machine has been designed to wrap clusters of stick envelopes, and it is completely automated with Rockwell Automation components. Indeed, SynchroGroup is supported by the experience and wide product range of Rockwell Automation to develop tailor-made machines, thanks to the choice of a high number of quality components, which enables it to use the most suitable component on each occasion.

The latest high-speed wrapping machine developed by SynchroPACK, the **Pack 9000** model, is controlled by an Allen-Bradley® CompactLogix™ programmable automation controller (PAC), which controls and manages the distributed analog and digital I/Os, for temperature control in the welding units and for the synchronization of VPL series servomotors using Allen-Bradley Kinetix® 5500 Servo Drives and Allen-Bradley PowerFlex® AC Drives. The HMI is a nine inch Allen-Bradley PanelView™ graphic terminals, and the connectivity at the factory is established by through an EtherNet/IP™ network. According to current standards, both the touchscreen and its programming interface conform to the OMAC (Open Modular Architecture Controls) PACK ML standard. This configuration has helped the new Pack 9000 wrapping machine to achieve processing speeds of up to 80 meters/minute of film and 600 ppm.

Rockwell Automation components allow SynchroGroup to obtain a compact design, minimum installation and commissioning times, and an easy access for maintenance and cleaning operations.

These are just some examples of the ongoing innovation process featured by SynchroGroup solutions, which have enabled the company to gain the trust and loyalty of leading brands in the food, personal care and pharmaceuticals sectors, and reach its position as a technology benchmark in the industry.

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Solutions in Action

TANIS Confectionery

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The company's T-Gel Moulding solution is a culmination of innovative concepts resulting in increased line productivity and improved dosing accuracy

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley PowerFlex 525 variable-speed drives

From its formation in 1995, **Tanis Confectionery** has grown into a global supplier of total process solutions and high-tech equipment for the confectionery market. Tanis Confectionery plants have been installed all over the world where Tanis has become well-known throughout the industry and is now synonymous with quality and professionalism.

The Tanis Confectionery's team delivers machines and expertise to candy manufacturers who want to produce their products as efficiently and inventively as possible. Tanis supports the design and testing of these products, and is a world leader in terms of expertise and experience in the field of machines for the production of gums and jellies, cereal and candy bars, fondants and chewy candy.

The company can supply all solutions from ingredients to final product – as a one stop shop for untip packaging, kitchen, moulding, conditioning and finishing. Machines include, weighers cookers, blenders, moulding equipment (also known as moguls), starch conditioning, candy cleaners, oiling drums, sugar sanders and condition rooms and even automated track systems for tray logistics.

For a typical project, Tanis Confectionery will develop a machine, custom built to its customer's specific requirements, including the considerations

for existing factory space & layout, existing architecture, compliance, safety and hygiene. It candy innovation centre will even help with the development of recipes. The company will then assemble the full line in its factory where it can be checked and tested. Following delivery to the customer site, assembly connection and commissioning commences and engineers will not leave the customer site until end-product specs are met and the required production capacity has been reached.

The company's **T-Gel Moulding** solution is a culmination of innovative concepts resulting in increased line productivity and improved dosing accuracy. The introduction of proven Robot technology for the feeding and stacking of mould boards is one of the innovations that has reduced mechanical sore spots of traditional Mogul design significantly.

The implementation of paired mould board line feeding and double tipping, starch filling, printing and depositing operations have made it possible to resolve the paradox of reduced line speed and increased line output. Instead of 27 to 30 board movements per minute, T-Gel Moulding simultaneously moves two boards 18 to 20 times per minute, resulting on a line output of 36 to 40 boards per minute. This results in less product waste (product strings) and starch contamination and far more accurate single-piece dosing. Significant attention has also been paid to ergonomic details and energy and utility consumption, and aspects of the design have made T-Gel Moulding an easier to maintain and clean moulding line with a relatively lower Total Costs of Operation (TCO).

Tanis Confectionery has been using Rockwell Automation solutions for a number of years and currently deploys Allen-Bradley® CompactLogix™ programmable automation controllers (PAC) in many of its machines, with Allen-Bradley ControlLogix® PACs being used on larger installations. It also deploys Allen-Bradley PowerFlex® 525 variable-speed drives for stirrers, pumps and conveyors and is looking to standardise on the PowerFlex 527 series in its future machines. Future machines may also see the deployment of Allen-Bradley Kinetix® servo drives.

Tanis Confectionery is also using EtherNet/IP™ as communication platform. It's an open protocol and a lot of end users are using EtherNet/IP, so it's easy to integrate with other devices. To manage the communication over Ethernet Tanis Confectionery is using the Stratix™ Switches. As well as on-site communication the use of EtherNet/IP also delivers remote-support capabilities.

According to Victor Tanis: "As well as delivering slower speeds, but higher throughput, our two-tray system is less prone to wear. Its efficiency levels – 95% with no product change and 88% with one product change – are also significantly higher than the industry norm of 60 to 70%. We are definitely doing something right, because we often see our machine design principals copied by other companies."

"When we use Rockwell Automation products on our machines, we do so for a number of reasons," he concludes. "As well as its market-leading position in the American market, we also exploit its service, support, parts availability, responsiveness and its global reach for additional export potential. From a technical perspective, the integrated automation solution streamlines design times, reduces programming effort, minimises wiring and delivers greater flexibility for future expansion. Our customers enjoy the capabilities of a class-leading machine coupled to a higher OEE and easier maintenance."

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Solutions in Action

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

TFT TANIS FOOD TEC

Described by TFT as a whole plant in one machine, the TFT Rotoplant incorporates all the necessary equipment for tempering, aeration, water and product temperature control and colouring / flavouring for the filling of biscuits

Allen-Bradley ControlLogix programmable automation controller

Allen-Bradley Kinetix 5500 servo drives

Dutch food equipment designer **Tanis Food Tec B.V. (TFT)** supplies high-quality, continuous process lines for bakery and confectionery products. Its expertise is based in the engineering of customised solutions for innovative product ideas.

The fully-automatic plants offers a range of functions, including ingredient weighing and preparation, premixing, tempering (crystallizing), plasticizing, aeration, depositing, coating, finishing and decoration. Sophisticated Cleaning in Place system are also integrated and all equipment is designed according to European EHEDG hygiene criteria.

It product capabilities include: fillings for biscuits & wafers (cream, chocolate, jam, caramel, marshmallow, nougat), gateaux, cake (Swiss rolls, cupcakes, Jaffa cakes, and other cake-like products), marshmallow (extruded & deposited), aerated chocolate, mousse & yoghurt, health bars & candy bars and starch-moulded, soft candy.

One of the company's most best selling machines, which has recently undergone a complete design update, is its **TFT Rotoplant**. Described by TFT as a whole plant in one machine, the TFT Rotoplant incorporates all the necessary equipment for tempering, aeration, water and product temperature control and colouring / flavouring for the filling of biscuits.

In use in multiple worldwide installations at some of the World's leading confectionary brands, the Rototplant combines a heat exchanger, aeration module and water tempering circuits in one machine – with one central control unit – which quickly and easily adjusts the production parameters based on a locally stored recipes. In operation, it takes ingredients, mixes them into a slurry, tempers them and then aerates them prior to deposition in sandwich-type biscuits.

The company deploys a number of automation solutions from Rockwell Automation. Central to the control solution are one of three types of Allen-Bradley® programmable automation controllers (PAC); either an Allen-Bradley CompactLogix 1769 PAC, an Allen-Bradley ControlLogix® 1756 PAC or an Allen-Bradley GuardLogix® safety-capable PAC. Primary machine axes are controlled either by Allen-Bradley Kinetix® 5500 servo drives for positioning and cutting or Allen-Bradley PowerFlex® 525 variable-speed drives for the mixing head and agitators. The entire control solution runs over an EtherNet/IP™ Connected Enterprise communication network, from component level all the way up to interface with an end user's ERP solution.

According to Piet Vader, Regional Sales Manager (USA, Russia & Europe) at TFT: "Our machines are based around a very successful philosophy, centred on how to run a line or process to its absolute optimum capabilities. The Rotoplant is designed to reduce any human impact on the manufacturing process. Operators like to personalise processes, but we build lines that reduce this human impact – thanks to the smart control solution – in order to help maintain repeatable quality. Our process knowledge coupled to intelligent control systems results in outstanding reproducibility.

"We build our machines based on customer specifications," Vader continues, "including the choice of operating system. We have seen the number of requests for Allen-Bradley based architectures increasing significantly over the last few years. One of our largest customer actually standardises on Rockwell Automation equipment, so we are seeing a regular and steady flow of Allen-Bradley equipped machines leaving our factory.

"As well as offering our customers lots of benefits," he concludes, "Allen-Bradley hardware is almost a prerequisite for anything sold in the American market and we are seeing this trend repeated all over the world. Thank to these advanced control solutions, we are able to build machines that offer the right levels of efficiency, coupled to enhanced reproducibility and far less 'giveaway' or waste. Support is especially important, too as we export outside of The Netherlands and we need to know that local technical support is readily available no matter where are machines are being used."

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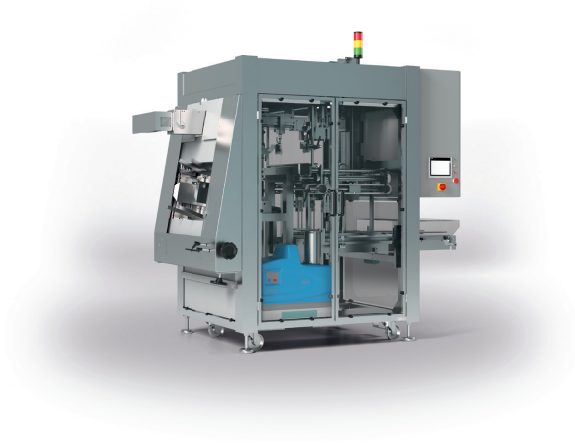
Publication OEM-AP550A-EN-P – FEBRUARY 2017

Solutions in Action

TECMA ARIES

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software



The FM 6000 box forming press rounds off the TECMA ARIES range of box mechanisation machines

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley Kinetix 5500 servo drives

TECMA ARIES is a global expert in ends of packaging line. The Group is the union of two strong brands, Tecma Pack and Aries Packaging, which bring together their know-how to propose a wide offer of com-plete lines including the mechanisation of cardboard, overwrapping and cartooning, packing, palletising, peripherals and integration.

The trust of major international customers since 1990 is explained by the added value created in the pro-posed solutions and by a business philosophy focused entirely on client expectations. TECMA ARIES teams are created and trained to support clients anywhere in the world. TECMA ARIES also relies on a network of local partners, chosen for their ability to provide relevant advice in defining projects and their ability to offer responsive technical support.

From box forming presses to palletisers, also covering connection conveyors, divergers, convergers, case packers, lid fitters, stacker-lifters and more, TECMA ARIES offers flexible, ergonomic and long-lasting so-lutions, combining mechanical reliability and premium-level automation.

Specialising in comprehensive end-of-line systems for thermo-formed & pre-formed jars and bottles, TECMA ARIES develops standard and

tailor-made machines mainly for the dairy industry and, by exten-sion, for all potential applications of thermo-formed & pre-formed jars and bottles.

With more than 2,200 machines to its name, TECMA ARIES has within the space of a few years become an essential player in terms of the design and manufacture of packaging machines and engineering of com-prehensive end-of-line systems. The company operates worldwide, both with SMEs and with big food pro-cessing customers.

The solutions offered by TECMA ARIESare characterised by a balance between efficiency, simplicity and cost optimisation, as well as a completely customer-focused business philosophy.

The **FM 6000 box forming press** rounds off the TECMA ARIES range of box mechanisation machines. This forming press, which combines performance and ergonomics, is capable of achieving a high output of boxes tailored to the requirements of UV reduction. Based on mechanical simplicity and reliability, the FM 6000 is actually capable of producing up to 6,000 trays per hour. It meets the expectations of customers, who have to deal with UVC reductions alongside limitations in terms of investment and physical dimen-sions in existing plant floors. With a production capacity equivalent to that of two current machines, the FM 6000 provides a substantial space saving in line layout: as well as savings in terms of maintenance and servicing which are just as advantageous.

In order to deliver optimum performance, for the on-board equipment in its machine, TECMA ARIES has chosen standards recognised worldwide. The FM 6000 is controlled by a Rockwell Automation system comprising an Allen-Bradley® CompactLogix™ family programmable automation controller, an Allen-Bradley PanelView™ Plus human-machine interface, three Allen-Bradley Kinetix® 5500 servo drives and VPL servomotors, all communicating via EtherNet/IP™.

Thanks to this solution, TECMA ARIES has been able to reduce the wiring required and the costs, achieve the necessary flexibility to adapt to future developments and – most of all – offer its customers a machine with unrivalled performance.

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Publication OEM-AP607A-EN-P – April 2017

Solutions in Action
Thimonnier

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The M1500 PepUp® offers flexible production options with a choice of pouch volumes ranging from 50 to 500 ml and output between 5 and 240 ppm

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley PowerFlex 525 variable-speed drives

Some iconic products in our everyday lives started out with a flash of genius – and so it was with Louis Doyen, who invented the Doypack® flexible stand-up pouch as far back as 1963. He was CEO of the French company **Thimonnier** at that time, and the company has gone on to build on Doyen's great idea ever since. It sells no fewer than 4 billion Doypack® pouches around the world every year, some with a spout for easy pouring and some without. Today, Thimonnier is just as renowned for its packaging machines as for the Doypack®. Headquartered near Lyon in eastern France, it is the world leader in vertical form-fill-seal (VFFS) machines for liquid and viscous products in pillow pouches.

One of Thimonnier's newest innovations in the VFFS range is the **M1500 PepUp®**, a new range of machines for PepUp® pouches. Thimonnier has been awarded a worldwide exclusive licence to produce vertical form, fill and seal packaging machines designed specifically for the PepUp®.

This is a flexible, self-closing pouch that is easy for consumers to use on the go or at home – they simply squeeze to open and release to close it. A patented valve, sealed during the filling process on the machine, enables the pouch to seal itself without additional accessories.

The SF102 VFFS machine fills and caps flexible Doypack® pouches with a screw cap

The M1500 PepUp® offers flexible production options with a choice of pouch volumes ranging from 50 to 500 ml and output between 5 and 240 ppm, depending on the package dimensions and contents. The machine handles the entire process of loading, filling, sealing and ejecting the pouches despite its compact size, which also enables manufacturers to install it faster and save money on energy consumption. The M1500 PepUp® also combines precision dosing and high speed, driven by Allen-Bradley® CompactLogix™ PACs as well as Allen-Bradley® PowerFlex® 525/527 variable speed drives and two Allen-Bradley® Kinetix® 5000 servo drives.

"Using Rockwell Automation components helps us get the M1500 PepUp® to market faster as they reduce design and development time," notes Eric Duhoo, Sales Director at Thimonnier. "Rockwell Automation's global reach also makes it easier for us to meet demand for our products on the export market," he adds.

Another recent innovation from Thimonnier is its **SF102 VFFS machine**, which fills and caps flexible Doypack® pouches with a screw cap. The SF102 fills the finished pouches with liquids or viscous products through the spout. These can be food products – anything from juices and fruit purée to soups and soft cheese – or even household items like soap, detergent and motor oil. Once they are filled, the pouches move on to the capping system, combining pick-and-place motion with a device that screws the caps onto the spout. This device is driven by a Kinetix 5500 servo drive to control the cap tightening torque. The pouches, complete with caps, are then checked automatically by laser or camera to ensure they are properly sealed and any defective pouches are rejected.

The SF102 can fill two pouches at a time, enabling manufacturers to increase throughput and productivity. Designed as a modular system, several SF102 machines can be joined together and operated in parallel. Depending on dimensions and content, one line can fill and seal about 40 pouches per minute, while six lines running simultaneously fill an impressive 240 ppm. The primary axes are controlled by Kinetix 5500 servo drives, which deliver cost-effective production as well as high reliability and precision dosing. The machine uses CompactLogix PACs to record and store up to 100 different filling and capping programs for the SF102. Finally, Allen-Bradley® PanelView™ 5000 HMIs facilitate operator interactions.

"We design our machines with a high level of integration and flexibility to meet market demands," concludes Eric Duhoo. "Rockwell Automation components, along with the company's excellent technical support, help us fulfil these requirements and continue to drive innovation."

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Solutions in Action

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

TMG Automated Packaging

Pack 40 is an automatic carton packer with a parallel kinematic axes system, which has been designed to manage carton goods in high-speed production processes.

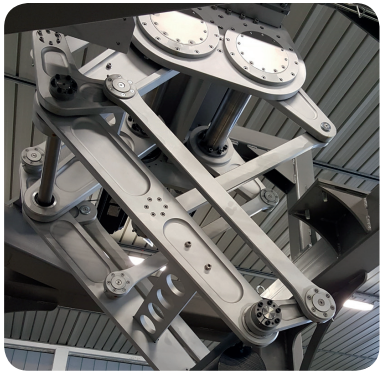
Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley PowerFlex 525 variable-speed drives

Allen-Bradley Kinetix 5700 servo drives

TMG Impianti has just turned 40 years old. The Italian company, which is headquartered at San Martino di Lupari in the province of Padova, was founded in 1976 and has always operated in both domestic and international markets. It supplies its customers with a wide range of automated packaging solutions: De-palletizers and palletizers, carton formers and closers, case packers, shrink wrappers, robots and monoblocks. Thanks to the passion of its team and the innovative technologies implemented in its machines, TMG Impianti has become a well-known player in the packaging field with a clear focus on cartoning, palletizing and goods handling solutions for different sectors, including the segments water and soft drinks, wine and liquors, beer, food, edible oil, lube oil and the chemical industry.

The acronym TMG stands for Tecno Meccanica Galliera, which is a tribute to the very first business location of the company: Galliera Veneta, a small town located about 45 kilometers northwest of Venice. TMG Impianti's company history features several milestones worth mentioning: In 1983 they launched their first complete case packing and palletizing systems; 1992 saw the construction of their first anthropomorphic robot for palletizing applications; in 2004 the first rotary carton filler was developed, and the first high-speed carton former was designed in 2009.



Pack 40 includes an interchangeable single or multiple picking-up head equipment, that is specific for the products concerned

TMG Impianti builds tailor-made end of line automated packaging machines. In this context, customization is indeed the specialty the Italian machine builder is best known for. A good example of the company's ability to develop solutions tailored to the needs of the end user is its **Pack 40**, an automatic carton packer with a parallel kinematic axes system, designed to manage carton goods in high-speed production processes. The machine receives the products from a filling station, picks them up and places them in a carton. It is capable of handling pillow bags, Doypacks and pouches, flowpacks and can fold carton boxes. It is mainly utilized in the Food & Beverage as well as in the Personal & Home Care industries. Pack 40 comes equipped with automatic preforming systems for formats to be picked up and interchangeable, product-specific (i.e. suction, pressure or mechanical pick-up) single or multiple picking-up head equipment. Among its most convincing features are its high speed – up to 40 cycles/min and its fast format change without the need for any auxiliary tools.

TMG Impianti uses Rockwell Automation products for the automation system of its machine. The decisive factors for this decision were Rockwell Automation's service, support and responsiveness. Furthermore, the global availability of Rockwell Automation's products is essential for an export-oriented company such as TMG Impianti, which has more than 7,000 machines installed all over the world. Other technical characteristics in Rockwell Automation's solutions – such as speed, integration, flexibility and upgradeability – are also critical for TMG Impianti, which selected a CompactLogix™ 1769 L33ERM controller as the control core of its machine. The CompactLogix platform best fits case packers and packaging needs in general, allowing machine builders to take advantage of its cost-saving features, including support for integrated motion on Ethernet/IP™. Point I/O™ modules, PowerFlex® 525 inverters, two VPL Motors and two Kinetix® 5700 servo drives, which are used to move the articulated robot on the machine, complete the automation and motion system. A Stratix 2000™ switch is used for communication among the connected devices.

TMG Impianti has benefited in numerous ways by implementing Rockwell Automation's products on its machine; Some of these benefits were already achieved in the design and programming phases, which were quicker due to the modularity and scalability of the Rockwell Automation platform and the common software programming environment. Testing and validation also proved to be easier than expected. The technical support offered by Rockwell Automation ensured uninterrupted progress during all phases. Pack 40 features increased flexibility, a reduced changeover time and improved safety levels. By choosing it for their secondary packaging tasks, customers require shorter training periods, benefit from energy savings and can also implement a remote monitoring system if desired. Last but not least, the system also supports operators and software personnel in the mastery of integration challenges, as the Rockwell Automation equipped machine also offers easy integration with PackML (Packaging Machine Language): A standardized look and feel of the programming and HMI graphic objects simplifies integration of the machine into a larger production line.

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Solutions in Action

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The machines manufactured by TMI can fit the different requirements of each industry, since they are modular

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley PowerFlex 525 variable-speed drives

Técnicas Mecánicas Ilerdenses (TMI), located in Lleida (Spain), designs, manufactures and supplies automated and semi-automated baggers, palletizers and wrappers worldwide since 2000. These machines cover the solid-product packaging needs for any industry. According to David Padullés, Sales Manager of TMI: "Being a manufacturer provides us an extensive product expertise and allows us to provide turnkey projects with the greatest chances for success. For this purpose, we implement leading-edge manufacturing technologies and the latest advances in industrial automation."

TMI has been always committed to R&D, an area that takes 8% of its revenues. This has enabled the company to file a significant number of patents and strengthen its international presence. "70% of our output is exported, and we have the goal of exploring new international markets," adds Padullés. In fact, the sales network embraces 35 countries and has more than 450 customers worldwide. These customers belong to industries such as agriculture and food, construction, mining, chemicals, petrochemicals, and recycling, among others.

The machines manufactured by TMI can fit the different requirements of each industry, since they are modular. One of these machines is the **Ilersac W**, an automated bagger designed to bag raffia bags (Woven Polypropylene or WPP) at high-speed with the maximum reliability, avoiding lineal transitions and vacuum systems. In fact, it has ability to fill 1,200 bags per hour. Therefore, as Padullés states: "It's been conceived for applications like fertilizers, sugar, salt, flour, plastic resin…; and for countries where manual handling still dominates and automation is not widely applied to logistics, in places like Latin America, Africa, Southeast Asia or Australia."

The advantage provided by this model is that it covers the whole filling process. For this purpose, it comprises several modules, like the tray that contains empty raffia bags, the handling system with side blowers, the station that separates and opens the bags, the placing system in the dispenser and the subsequent filing, the transport rollers that vibrate to settle the product, and the bag-closing station, which is also able to prepare it for further conditioning. This procedure is carried out with the help of robot tweezers, which control the bag during handling, thus providing top accuracy and speed.

None of this would be feasible without the Rockwell Automation components included in the machine. Foremost among these is the Allen-Bradley® CompactLogix™ 5370 programmable automation controller (PAC), which belongs to the Rockwell Automation® Integrated Architecture® system and provides security, integrated motion using EtherNet/IP™ and Device-Level Ring (DLR) support for higher network resilience. Also on board are Allen-Bradley PowerFlex® 525 and 755 variable-speed drives, with a variety of options for motor control that, in this case, are used to extract and dose bags, or the bag nozzle opening, respectively. This is complemented by Stratix 2000™ Ethernet unmanaged switches, and Allen-Bradley POINT I/O™ modules.

"We chose Rockwell Automation products for several reasons," explains Padullés: "First of all, it's a globally recognized brand; and for us, including its components is in line with the quality of the machine. Secondly," he adds, "the company has a global presence through its integrators, so we very often find when entering a new country that its products are used and a whole range of services are already established, such as after-sales." Lastly, the machine is conceived to provide a high-speed performance. "This implies high-speed for motion, settings, weighing, accuracies, and automation readings, which are needed to get this performance. That's why we must implement the latest technology in order to provide the highest performance, and this is what Rockwell Automation helps us to achieve," adds Padullés.

The Allen-Bradley architecture allows the machine to be manufactured with a significant decrease in programming efforts, minimum wiring and at reduced costs. For the customer, as the Sales Manager of TMI states: "It provides energy savings, total automation of the bagging process, higher flexibility and quick format changeover, product optimization, high versatility to work with bags with or without side blowers, and a higher reliability to handle raffia bags."

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Publication OEM-AP589A-EN-P – March 2017

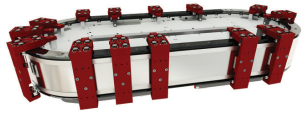
Solutions in Action

tonejet

Rockwell Automation
Machine Builder Partner

The Tonejet Digital 2-Piece Can Decorator,
with integrated Rockwell Automation iTRAK transport system

Allen-Bradley ControlLogix
programmable automation controller



iTRAK intelligent track system

Part of the TTP Group and established in 1994, Tonejet is a powerful digital printing technology that enables high-quality print on virtually any type of substrate at high speed.

Tonejet Ltd.'s strategy is to lead the way in industrial digital printing solutions for the packaging industry, where reliability, performance and quality are paramount. It works in close cooperation with equipment partners and industry leaders, to deliver cost effective digital printing systems.

The company's unique and patented non-contact inkjet print engine can adapt to a range of printing technologies, including cylinders, sheet stock (metal and carton board) and continuous rolls. Customers include those involved in metal packaging converting that require bespoke, flexible printing capabilities, negating the need to bulk purchase pre-printed containers which for beverage cans is often 150,000 units.

Tonejet's initial scope was to develop its print engine for use by other machine builders, but it has since evolved this scope and is now developing its own print machines for use in multiple applications. According to Simon Edwards, VP Sales & Marketing at Tonejet: "Our

primary initial market will be in new production lines where custom printing is required in volumes to match the exact production run, as opposed to matching pre-printed can bulk-purchase quantities. Our machines will actually sit downstream of the filling lines. This machine breaks the mould in terms of the supply chain by enhancing logistics, and it is far more cost effective."

In operation a conveyor brings the 'blank' cans to an auto-load station after which they undergo an inspect/reject process. Cans of the correct quality then pass through four print stations, where each CMYK component colour is printed. Another inspection station follows to assess the quality of the print, before an ambient air device is used to drive off excess print fluid. Finally a clear coat is applied before the finished cans are unloaded.

"The issue we had," Edwards explains, "is that each step has its own different cycle time, so using a fixed-pitch/speed device, such as a rotary system, meant that the overall machine speed was actually determined by the slowest process and its size by the operation that took the most space. In 2014 we created a patent that related to the ability to move cans through the multiple operations on a non-circular system within the printing process. We then looked for a solution that would cater for the demands of the patent and we came across the iTRAK intelligent track system technology from Rockwell Automation. It really was a perfect fit."

Using iTRAK, Tonejet is able to move each can independently and at different speeds through the different steps, effectively removing the delays caused by the longer processes. "All other similar print systems are fixed indexing machines," Edwards explains. "As a result the slowest process dictates the entire throughput speed. iTRAK on the other hand is not restricted. On these other machines the largest operation also defines the overall size of the machine. iTRAK can adjust for the size of the operation meaning we are capable of not only having faster throughput but also smallest machine. Our print technology and iTRAK really is a perfect match."

The iTRAK solution is controlled by an Allen-Bradley ControlLogix® or CompactLogix™ programmable automation controller (PAC), which, as part of an integrated solution has helped Tonejet to reduce its design times, programming efforts and operating costs compared to an approach where it would have had to develop its own solution.

"We are looking to scale the machine up too," Edwards explains. "The current 1.2 m unit can handle 60 cans per minute, but we are already looking to extend this to a 1.6 m unit to include additional operations, and then to a 2 m machine with a capacity of 100 cans per minute. iTRAK's modularity makes this so much easier. Our machine's own modularity, coupled to the significantly reduced wiring of our print engine resulting from Tonejet's passive mandrel technology, also means that we can have our machines commissioned into a factory and up and running with in the space of a couple of days, compared to a week for other technologies. We have seen amazing customer support and servicing from Rockwell Automation. It is one of the most proactive organisations I have ever come across."

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Solutions in Action

Trepko

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

Trepko's 9106 Form, Fill & Sealing Machine is capable of forming and filling 9,000 cups per hour

Allen-Bradley ControlLogix programmable automation controller

Allen-Bradley Kinetix 5500 servo drives

With over 60 years of manufacturing experience and customers in more than 90 countries, the **Trepko Group** is a long-established market leader in the construction of filling and packaging machinery for the dairy, food and pharmaceutical industries.

Formed in 1947, the company has grown from a single production facility in Denmark to now include manufacturing units in Poland, UK and Sweden, with sales offices in Germany, Norway and Egypt (Middle East). It also has partnership arrangements for Russia, Asia, Australia and South Africa.

2012 saw the opening of Trepko Inc. Tampa, Florida, to help ensure that Trepko is in position to not only support its existing North and Latin American customer base, but also to continue its impressive sales growth in the territory. Trepko continues to maintain its position as one of the leading packaging machinery solutions groups worldwide. For this reason, the company has recently standardised on automation solutions from Rockwell Automation.

The company attributes its success to its ability to reflect its customer's individual demands and requirements through the development of

high-tech, reliable and easy-to-maintain machine solutions, which cover all facets of the production line from product supply to palletisations. The company's range includes machines that make pre-formed containers, forming and wrapping machines, secondary packaging for cases and boxes (including palletising), as well as recently developed equipment for form, fill and seal (FFS) machinery for cups and trays.

Examples include the **9106 Form, Fill & Seal Machine**, which is capable of forming and filling 9,000 cups per hour. The 9106 features a compact design, which utilises the very latest forming and cutting technology. Together with a unique hygienic frame design, this machine is the perfect solution for any producer, large or small.

Trepko also continue to push the development boundaries with its brick forming range of equipment, the **800 series**. The latest 822 machine can produce up to 250 bricks per minute and is designed with the most stringent hygienic requirements in mind, which makes it one of the cleanest machines in the market place.

All of the equipment has one thing in common, Allen-Bradley® programmable automation controllers (PACs), Allen-Bradley PanelView™ HMIs and Allen-Bradley Kinetix® servo drives and motors.

According to Jesper Bjorn Hansen, Trepko Group CEO: "We listen to our customer's demands, that is why we have heavily invested in development, both in terms of progressing our mechanical design to improve our machines capabilities, efficiency performance and hygienic standards, and also working with an automation partner that can support us through this process.

"Rockwell Automation worked hard to secure the Trepko account. We understand the importance of working with a component supplier that is well recognised in the market place," said Hansen.

"It is also important on a global stage that the component suppliers included within the Trepko equipment solutions have adequate support structures in place and that this service is available for end users – clearly this is a criteria that Rockwell Automation more than meets," said Hansen.

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Solutions in Action

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

Theta has been conceived and designed responding to the World Class Manufacturing (WCM) principles and the Total Productive Maintenance (TPM) approach

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley PowerFlex 525 variable-speed drives

Universal Pack is based in San Giovanni in Marignano, in the province of Rimini, a well-known Italian holiday destination on the Adriatic Sea that has a long industrial tradition too. Founded in 1965, Universal Pack has more than fifty years of history in the packaging industry, where it manufactures automatic sachet machines and complete lines for primary and secondary packaging.

Its solutions are designed to produce four-side-sealed and shaped sachets, consumer-friendly stick-packs and boxes from flat blank as well as pre-glued cartons, for food, pharmaceutical, nutraceutical, chemical, cosmetics and home care industry.

"Our solutions fit a wide range of applications," Marco Nardini, Sales Director Universal Pack explains. "They can be used for the primary packaging of liquids, viscous, granules, powders and objects and in our long history we have served almost every corporation operating in food and pharma industries." Precision in details and the use of proven quality raw materials make Universal Pack machines unparalleled in the market. They are manufactured accordingly to Good Manufacturing Practice (GMP) regulations and are designed in close cooperation with customers to find the best technical solution which fits the needs of a specific application.

One of the most recent and innovative solutions designed by Universal Pack is **Theta**. It is a high-performance sachet machine for primary packaging applications in pharma and food industries. It stands out for its unique hygienic-design concept and accessibility, carefully studied by Universal Pack engineers. Furthermore, it is a smart solution for all those users who need to combine compact footprint, flexibility and quick format changeover without compromising high speed and productivity.

Theta has been conceived and designed responding to the World Class Manufacturing (WCM) principles and the Total Productive Maintenance (TPM) approach: the result is an operational efficiency-oriented solution. This sachet machine can be connected to a cartoning machine in order to pack the sachets into cartons. The complete solution is made in house by Universal Pack. In its standalone configuration, the machine consists of different parts: the film unwinding system; the coding system, for the printing of all the product data requested; the sachet cutting and sealing unit; the dosing system; and the final station, where the sachets pass to the secondary packaging step. "Theta works at a speed of 140 cycles per minute for each product lane, also in the case of non-flowing powders," Nardini points out, "with the maximum number of lanes on a single machine being 20."

The automation system built by Universal Pack for Theta is based on Rockwell Automation products. Theta has been designed for the international market and Universal Pack is aware that Rockwell Automation has a very good reputation among big companies in pharma and food industries. But this is just one of the many reasons why the Italian company selected Rockwell Automation solutions: technical aspects have been critical in the decision too. Theta needed an automation core that could perfectly fit its main characteristics, i.e. modularity, speed in format changeover, compact footprint and ease of use from the control panel.

For the control of the machine, Universal Pack selected an Allen-Bradley® CompactLogix™ 1769-L3100 programmable automation controller (PAC) with Allen-Bradley POINT™ I/O modules and an Allen-Bradley PowerFlex® 525 inverter; while the integrated motion control system includes 25 Allen-Bradley VPL servo motors and 13 Allen-Bradley Kinetix® 5700 servo drives, that manage all the moving parts on the machine: the film reel alignment, lifting and unwinding unit; the horizontal and vertical cutting unit and the sealing rolls; the product shaker; the screw conveyors; the sachets exit belt. A Stratix 2000™ unmanaged Ethernet switch has been selected for the communications between all the devices. The switch is directly connected to the CompactLogix and no configuration is needed.

Using Rockwell Automation products, Universal Pack engineers can minimize wiring and reduce time for troubleshooting, while the modularity and compactness of the CompactLogix platform allows end users to protect their investments in case of future changes to the machine and to maintain high outputs per square meter. "This is the requirement to which our customers pay more attention," Nardini concludes. "Low energy consumption, high safety standards and remote maintenance options complete the selection of advantages offered by Theta and its automation core based on Rockwell Automation components".

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Publication OEM-AP577A-EN-P – March 2017

Solutions in Action

URLIŃSKI®

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The MZUTL 15CC Homogenizing Mixer is an example of Urliński's impressive capabilities

Allen-Bradley CompactLogix programmable automation controller (PAC)

Allen-Bradley PowerFlex 525 variable-speed drive family

Urliński, located in Warsaw, Poland has been designing and manufacturing equipment for the production of pharmaceutical and cosmetic products for more than twenty five years. The company's knowledge of the industry and the experience acquired, while implementing a multitude of technologies and installations, has resulted in gaining a very good reputation among the leading pharmaceutical and cosmetic companies. Exports currently represent more than half of its product sales, and major customers include: Oriflame, Sanofi Aventis, Cederoth, Beiersdorf, Avon, L'Oréal, Valeant, Polfarma, Sandoz, Adamed, Takeda.

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Allen-Bradley · Rockwell Software

Rockwell Automation

The company specialises in the production of homogenizing mixers and various types of mixers and vessels for wet-form soft curatives such as ointments, creams, suspensions, pastes, syrups, etc. Its machines – designed and built to GMP rules – meet the demanding requirements of the pharmaceutical industry as well as current FDA recommendation and are delivered with IQ/OQ certification.

The company's MZUTL 15CC Homogenizing Mixer is an example of Urliński's impressive capabilities. Designed in accordance with GMP directives and GAMP guidelines, the MZUTL 15 CC is designed for the production of a wide range of pharmaceutical and cosmetic formulations. Thanks to its small work capacity, it can also be used in R&D departments for the creation of new products. It also meets FDA "scale-up" rules for the manufacture of cosmetic and pharmaceutical products, meaning that the processes and procedures developed in the machine can be transferred upwards to an industrial scale.

The machine and its controller give users the ability to adjust the production process to suit a wide range of products. These adjustments include: an infinitely variable adjustment of anchor stirrer rotations; an infinitely variable adjustment of four-row comb-shaped homogenizer rotations; stepless product and jacket temperature adjustment; and vessel pressure control. It also offers login/access for control and administration of system parameter calibration, together with process data recording in accordance with GMP directives GAMP Annex 11. Users can also monitor work parameters and diagnose the system online via Ethernet.

The machine deploys a number of automation products from Rockwell Automation, which integrate together to create a highly effective automation, batch and sequencing solution. Primary products include an Allen-Bradley® CompactLogix™ programmable automation controller (PAC), which acts as the central controller for all primary functions. Using EtherNet/IP™ the PAC is coupled to an Allen-Bradley PanelView™ Plus 6 HMI, running FactoryTalk® View, an Allen-Bradley PowerFlex 525 for motor control and various Allen-Bradley POINT I/O modules for communication with wider peripherals.

As well as controlling the automation functionality and products, the CompactLogix PAC also integrates Logix Batch and Sequence Manager, a controller-based sequence management and procedural control solution designed for smaller systems. It solves a wide range of local, controller-based batch and sequencing needs, using core system functions in Logix controllers and FactoryTalk View HMI independent of application servers and software.

Andrzej Urliński, owner of the comapny, explains: "We like the way that the Rockwell Automation solutions unifies the visualisation and PAC software in accordance with ISA-88. This saves on both operational and maintenance time. We've have also chosen Rockwell Automation products for their good availability and the impressive technical support. We also benefit from the availability of ATEX variants of the PowerFlex 525 and 753 drives and the PanelView Plus 7."

With regard to the operational considerations, Andrzej Urliński elaborates: "The integration of the hardware and software, coupled to its batch and sequencing capabilities cuts our programming efforts and the use of EtherNet/IP as a single control network reduces our overall machine wiring. EtherNet/IP also delivers real-time information and allows us to offer remote access, easing troubleshooting and maintenance, while also reducing installation and start-up times."

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Publication OEM-AP448A-EN-P – MAY 2015

Solutions in Action

UVA PACKAGING

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

The Lima series Continuous Motion Packaging Machine can cater for seven different bag styles in one machine and can handle a wide range of film types

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley ControlLogix programmable automation controller

UVA Packaging, part of the VDL Group, is located in Eindhoven in The Netherlands and has more than 60 years' experience in vertical form, fill and seal (VFFS) machines coupled with a great deal of experience in various market segments.

Known for its customer centric approach, dedicated packaging machines and creative solutions, it aims to give its customers an advantage in the market by designing innovations, efficiency and flexibility into its packaging machines. Indeed, its VFFS machines are based on a modular-platform design with high-quality components, resulting in greater than 98% up-time, making high-quality bags at speeds and efficiency levels that are unmatched in the market.

With customers all over the world, including many multinationals as well as small enterprises, UVA's application specialists bring knowledge and experience to the table, not only covering UVA Packaging's technology, but also third-party equipment that is required in a production line. UVA Packaging machines are delivered turnkey, on-site and installation and service can be done by UVA Packaging service specialists that operate around the globe.

The Newton-TX series Intermittent Motion Packaging Machine offers multiple bag styles per machine and multiple zipper types at up to 75 bags per minute

The company's Dutch headquarters hosts development, assembly, service and sales, while the North American market is served by VDL USA, established in Richmond, Virginia in 1980.

UVA supplies machines worldwide to multinationals and national companies, including those in the snacks, pet food, detergent, dairy and confectionary industries and also in the frozen vegetable sector. UVA offers a wide range of machines for different product applications, bag styles and speeds, with its **Newton-TX** series Intermittent Motion Packaging Machine being one example. Offering multiple bag styles per machine and multiple zipper types at up to 75 bags per minute, the Newton-TX series also takes up 70% less floor space and offers 30 to 50 % lower CAPEX than conventional DOY packing lines.

Another machine it its Lima series. This Continuous Motion Packaging Machine cater for seven different bag styles in one machine and can handle a wide range of film types. Thanks to its all-servo motion architecture, it offers speeds of 200 bags per minute for pillow bags and 140 bags per minute for block-bottom bags.

Both machines are available based on an Allen-Bradley® control architecture from Rockwell Automation, with an Allen-Bradley ControlLogix® programmable automation controller (APC) being used on the Newton and an Allen-Bradley CompactLogix™ PAC on the Lima. Both deploy Allen-Bradley Kinetix® servo drives, for film handling and sealing – with up to 10 axes on the Newton and seven on the Lima. Allen-Bradley PowerFlex® variable-speed drives are also used for pre-feed and sealing movements. The automation solutions are completed on both with an Allen-Bradley PanelView™ Plus HMI, Guardmaster® safety relays and a Stratix™ Ethernet switch.

Toon Sturm, Director of Sales & services, explains: "UVA is the innovation leader of VFFS machines. Compared to competitors, our machines are modular build and we achieve the highest packaging speed in the market on special bag styles and the lowest TCO. We offer this with high reliability and flexibility. Besides we have a customer centric focus. Our focus goes further than only the machine. It is the final product on the shelves that counts.

"More and more of our customers are specifying Rockwell Automation as their automation standard," Sturm elaborates, "so if we are not providing Allen-Bradley components we cannot deliver machines to these customers. This was one of the main reasons for UVA to deploy products from Rockwell Automation.

"Our machines are user friendly and easy to operate and our changeover times are the fastest in the industry because of the modular design and toolless changeovers," Sturm concludes. "Safety is always number one in our design and commissioning and we have official risk analyses for all our machines. Our machines also need less maintenance, due to the machine design and choice of components and we have troubleshooting manuals and faults displayed on our HMIs. We also train operators and service engineers at UVA premises prior to the machines being delivered; this helps to ensure a quicker start-up and shallower learning curve. During the design phase of our machines we will always keep the floor space in mind as real estate is at a premium in many factories and our machines are completely assembled and fully tested prior to installation takes place. We know from customer feedback that, compared to our competitors, our machines have the highest production output, lowest maintenance costs and quickest ROI."

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Solutions in Action

VIKING MASEK
GLOBAL PACKAGING TECHNOLOGIES

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

Viking Masek's machines can be custom adapted to suit a customer's precise requirements

Allen-Bradley ControlLogix
programmable automation controller

Allen-Bradley CompactLogix
programmable automation controller

Allen-Bradley Kinetix 5500 servo drives

Founded in 1964, **Viking Masek Global Packaging Technologies,** based in Vlasim in the Czech Republic and Oostburg, WI, USA, designs, manufactures, sells and services vertical form, fill, and seal (VFFS), stick pack and cartoning machines for the packaging industry across global markets that include food and beverage, pharmaceutical and nutraceutical and hardware, among others.

It offers high-speed, continuous motion vertical baggers, stick pack and sachet packaging machines, and many other vertical baggers that make a variety of bag styles—from pillow bags to tetrahedron and everything in between. It also offers full range of cartoning and case-packing solutions. Indeed, according to the company its Velocity model is the world's fastest VFFS machine.

It has the capability to offer custom packaging technology & engineering, full-line packaging system integration with combinations weighers; in-feed and out-feed conveyors/feeders; auger, volumetric, and liquid fillers; metal detectors and checkweighers; cartoners; and case-packers.

Two of its machines, from its extensive range, that deploy Allen-Bradley control and motion solutions from Rockwell Automation, are

the high-performance **ST 800 Multilane Stick Pack Machine** and the **MS400 VFFS Continuous Bagmaker**. Both machines – which can be custom adapted to suit a customer's precise requirements – are capable of packaging at more than 100 cycles per minute. Other primary customer benefits, alongside their high-speed, high-performance operation include high efficiency and their ability to cater for a wide range of new and unique bag styles.

The ST800 features pharmaceutical construction (with IQ/OQ) and offers multi-lane volumetric, servo auger and servo liquid fillers backed up by easy change-over parts™ and a stainless storage cart. The machine uses a robotic pick-and-place unit and can incorporate easy-open features like tear notch or micro-perforation coupled to various seal patterns and shapes. In operation it provides automatic stick pack length adjustment, individual discharge chutes, empty stick detection and rejection and film edge trimming and suction. For decoration and identification it offers hot stamp, inkjet or thermal transfer printer coupled to embossing along the longitudinal seal.

The MS400 is designed for multiple packaging needs, meeting the most demanding criteria. Exceptional speed and repeatability through a quiet, servo driven jaw, this bagmaker is perfect for packaging snacks, candy, coffee, fresh and frozen fruit, and many more. Capable of processing multiple bag formats, it can handle bag sizes from 100 x 100 mm up to 400 x 600 mm. It features a robust stainless steel construction and sanitary design and its servo-driven jaw and pull belt actuation contribute to its quiet running speed up to speeds of 150 bpm. Offering minimal maintenance, it exhibits a short film path which helps deliver an overall small machine footprint.

Both machines deploy a Rockwell Automation Integrated Architecture solution, which includes the use of Allen-Bradley ControlLogix® or Allen-Bradley CompactLogix™ programmable automation controllers, Allen-Bradley Kinetix® 6000 and 5500 servo controllers, Allen-Bradley PowerFlex® variable-speed drives, Allen-Bradley PanelView™ Plus HMIs and Stratix switches for the EtherNet/ IP network infrastructure. Safety components also form part of the overall solution.

The Rockwell Automation Integrated Architecture helps both Masek and its customers in multiple ways. As well as streamlining the design process, the use of a single programming environment (Logix 5000) means that programming efforts can also be significantly reduced. In addition to minimised installation and start-up times, troubleshooting operational problems is also easier, training is simpler and the customer has significant scope to adapt the machines for future demands thank to the inherent flexibility of the EtherNet/IP-based Allen-Bradley solution.

According to Lukas Masek, Vice-president for sales and operation at VikingMasek: "We always get really good technical support, which makes our lives a lot easier. It also benefits our customers as they can call upon the worldwide support offered by Rockwell Automation. With many of our customers, Allen-Bradley is the natural choice and with the capabilities offered by the range we are able to use the same control solutions across multiple machine variants; simplifying many facets of the design, build and installation process. All of our machines also have virtual manuals, BOMs and operating videos on the HMI. They can also be connected to a local network or the Internet and with their camera connections we can offer virtual service support."

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Solutions in Action

Automated with Rockwell Automation
Allen-Bradley · Rockwell Software

WOLF Verpackungsmaschinen GmbH

The other specialty of the WOLF Verpackungsmaschinen GmbH are vertical machines, with the VPC 250 being among the major bestsellers.

Allen-Bradley CompactLogix programmable automation controller

Allen-Bradley Kinetix 6500 servo drives

Formed in the year 1988 the German packaging machine manufacturer **WOLF** has also been setting the standard internationally for quite some time. Especially in Asia, where the Hessian pillow bag specialist has an especially strong presence with five branch offices. A commitment that has paid off: In the meantime 60 to 65 percent of the company sales are generated in Asia. “Because there is more that has to be packaged there than there is in Europe, especially these smaller-volume single-use portions,” explains Executive Manager Sebastian Wolf. The other specialty of the WOLF Verpackungsmaschinen GmbH are vertical machines, with the VPD 250 and the VPC 250 being among the major bestsellers of the company headquartered in Lich-Birklar. Sweets in China are just as much packaged by WOLF machines as sauerkraut is in Europe, snacks in Africa, detergents in America, fruit in South America, dried fruits in Australia or pasta in Italy. “In most cases we package products originating from the food industry. Furthermore, detergents, toys and small-sized nonfood parts end up in our pillow bags,” reveals Sebastian Wolf. In total more than 2,000 facilities have so far been installed by the pillow bag specialist from Birklar. “Major output on minor space – this design concept allowed us to score highly on the global market right from the start,” states the WOLF packaging machine executive manager, visibly happy with what has been achieved over the years.

Rockwell Automation has been a reliable technology supplier for the German pillow bag manufacturer for more than 20 years. "The packaging lines designed and implemented by us are fitted with Allen-Bradley® controls in 90 percent of the cases. This us due to the fact that our programmers are simply delighted with the ease of handling and the dynamics of the CompactLogix™. This control system features integrated safety functions and utilizes the same programming software, the same network protocol and the same information functions that all Logix controls do. This results in a shared development environment for all control disciplines. Furthermore, this control features numerous functions that simplify system diagnostics and bug fixing," says Sebastian Wolf, full of praise. Operating errors, for example, are virtually impossible in WOLF packaging machines – because all machine functions and production parameters are monitored, managed and optimized by the Allen-Bradley SPC in a fully automated manner. Up to 100 pre-installed programs ensure that all production processes run correctly. "A pre-installed logic control prohibits erroneous entries," underlines the WOLF executive manager, highlighting the user-friendliness of "his" machines.

With regard to medium pillow bags into which liquid, free-flowing or pasty products should be packed as efficiently as possible, vertical pillow bag machines from the **VPD (250/400)** or the **VPC (250/400)** series are deemed to be the ideal choice. Both system types can handle bag widths from 50 to 410 millimeters and a filling volume of up to 20,000 cm^3, and generally achieve an output of around 80 to 100 bags per minute. There are, however, also WOLF machines available which allow for entering into high-speed packaging, i.e. into spheres with an output per minute of 150 to 180 bags. Such achievements are made possible by the perfect interplay between the repeatedly tried and proven success trio, consisting of a CompactLogix control, multiple Kinetix® servo drives and a PanelView™ Plus graphics terminal. "An electronic control is available for the heat sealing instruments and for the bag length. Electronic monitoring is implemented for the sealing temperature and the bag length. The servo motors, on the other hand, must be able to do their job, for example feeding the enveloping material, shaping the bags or when it comes to exact product dosing via synchronously cycled installations such as cup or auger fillers, weighing machines or pumps," points out Sebastian Wolf, naming a few of the tasks a WOLF machine has to be able to handle both reliably and perfectly.

Two EtherNet/IP-capable servo drives from the Kinetix 6500 series, for example, are responsible for the precise adherence to a certain film draw-down length. "These so-called draw-off belts require precise management and controllability on the side of the motors. What we need here is a 100 percent repeatability of the processes – precise to the millimeter," emphasizes Sebastian Wolf. In VPC machines, which run continuously and not intermittently, the topic of synchronicity plays an important role within the overall system. "The upward and downward movement of the sealing instruments, which has to be aligned with the speed of the film drives, is a good example. The same applies to the seal band in the transverse sealing process – it also has to adapt itself to the speed and the management of the film draw-down process," reveals the executive manager of the WOLF Verpackungsmaschinen GmbH, highlighting where Kinetix servo drives are utilized and, by way of closing, summarizes: "In the 'full package' known as the vertical pillow bag machine, everything depends on the perfect teamwork of the individual axes." Communication is achieved by means of Ethernet/IP.

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