



FOOD & DRINK PROCESSING & PACKAGING

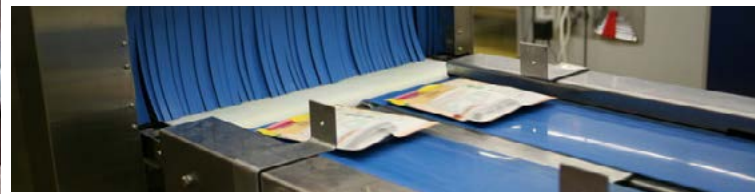


Decentralised drive technology for the digital factory of the future

Prioritising environmental values

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Issue 25 2019

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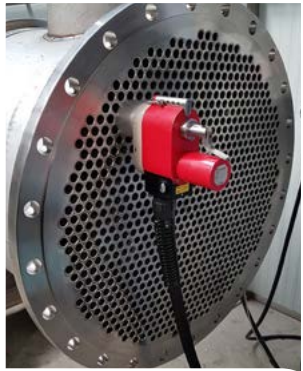
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Stop generating listeria

Contaminated food processing machinery is one of several key factors behind the rising number of product recalls. Although machines may be hygienically designed with smooth and easily cleaned surfaces, the crevices in components such as mounted bearings and their housings can harbour bacteria.

Pressure washing can drive these food particles and bacteria through the bearing shaft gap and into spaces around the bearing's housing which never dry. By the same token, bacteria sheltering and breeding within the unit can be subsequently washed out, together with contaminated lubricating grease, and spread elsewhere.

Relubrication practices often compound the problem. Regular flushing out and replacement of grease to remove its contaminants, and restore its lubricant properties can result in over-greasing, creating another source of contamination. Contaminated grease may be washed onto floors, and then trodden more widely, or into drainage holes, where it makes removal of listeria very difficult.

All cleaning methods tend to extend the distribution of bacteria, particulate matter and grease. Most alarmingly, research shows that a high-pressure, low-volume spray lance can raise them to a height of three-metres in an aerosol of small water droplets. These may remain airborne for several hours before falling onto everything within a seven-metre radius.

Food-safe bearings

The designers at SKF have responded with the SKF Food Line ball bearing unit - Blue Range. The range's superior sealing prevents penetration by microbes and leakage of grease, so it is relubrication-free.

Following the rules of hygienic design, the units feature smoothly shaped surfaces and a self-draining geometry. Polypropylene (PP) has been selected as the material for their moulded housing, because of its highly inert and chemically resistant properties. Components have been coloured blue for easy detection by eye.

Total exclusion of detergents is almost impossible, as their formulations are purpose-designed to pass through barriers.

The new units have another sealing innovation which deals with this: the gutter concept. Its structure blocks most of the detergent, but the small amounts which do enter the seal's top lip are directed around and out the other side.

Cost savings

These premium bearing units come at a slightly higher price, as you would expect, but the investment is quickly repaid through operational savings.

Their service life is longer, and there is less need for cleaning, while the labour, downtime and material costs of re-greasing are eliminated.

Moreover, they could spare you the considerable expense and reputational damage of bearing-related product recalls.

www.acorn-ind.co.uk



Rethinking food safety

SKF Food Line ball bearing units - Blue Range: Proactive food safety

For food producers, hygiene and proactive food safety take top priority in asset design. However, bearings can be a potential source of serious food contamination.

SKF, with microbiology experts from RISE (Research Institutes of Sweden), have discovered that bacterial contamination can build up inside bearing units during operation, and even during hygienic cleaning.

If bacteria can get in, they can also get out! The answer is a hygienically-designed, fully sealed bearing unit.

The new SKF Food Line ball bearing units - Blue Range is a relubrication-free solution that supports your proactive food safety processes. Sealed from both sides and filled with allergen-free grease, they allow you to actively reduce food safety risks by combining hygienic design, relubrication-free technology, corrosion resistance and food grade components. Coming from SKF, they also provide outstanding bearing performance!



SEE THE NEW SKF FOOD LINE BLUE RANGE BEARING UNITS

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www.acorn-ind.co.uk/skf-food-line





Visit the Packaging Drop Zone and get top marks for coding and marking on food packaging

Coding and marking specialists, Rotech Machines Ltd, are inviting visitors to the PPMA show in October to bring their packaging samples to the Packaging Drop Zone on **Stand A37**, where they can be submitted for FREE sample printing and analysis using their latest thermal inkjet technology.

Packaging samples will be taken to Rotech's Hertfordshire test centre and then returned to the customer with a detailed efficiency and cost-saving report.

Having supplied the food and drinks sector with coding and marking technology for 22 years, Rotech understand the constant challenges their customers face with packaging and labelling. Not only do manufacturers need to clearly display a growing variety of mandatory information, they also need to constantly adapt printing layouts for new packaging designs.

Coding and marking made simple

Coding and marking should be the simplest of applications, regardless of packaging type, material, size or shape. Rotech want to demonstrate the flexibility and effectiveness of their thermal inkjet technology.

Customers who submit their packaging samples at the Packaging Drop Zone will receive:

- Their returned samples printed in high quality with the latest thermal inkjet technology
- Detailed trial results highlighting the potential cost-savings when compared to their current methods
- An optional FREE on-site demonstration of the technology used on samples
- A free starter-pack of ink cartridges with any printer purchase made.

Rotech director, Richard Pether, says "this is a great opportunity for customers to see for themselves the quality, efficiency, flexibility and cost-saving potential that our solutions offer. Customers can then put the technology to the test themselves at no charge".

5 of the best coding and marking solutions

Visitors to the **Rotech Stand** can also see and try several of the company's best-selling innovations including:

RF Lite Sleeve Coder – A simple reliable offline coding system. With its low

upfront cost, the RF Lite is an ideal entry-level solution for companies wanting to automate their date coding process.

RF Auto – A heavy duty, high speed, sleeve carton and bag coding solution that automatically adjusts to accommodate varying thicknesses of products, reducing set up time and waste.

Integra One – Thermal Inkjet Printer – Unique "all-in-one" design with data entry via OLED display and iWheel device. Extremely compact and easy to install.

X2Jet – Thermal Inkjet Printer – Touchscreen QWERTY controller for up to 4 heads. PC driven controller for up to 8 heads.

RF Compliance - Generates, prints and verifies serialised 2D codes. Ideal for compliance with the Falsified Medicines Directive (FMD).

For TOP MARKS on your packaging visit: THE PACKAGING DROP ZONE

Rotech Machines Ltd – Stand A37

PPMA 2019 – NEC

1 – 3 October 2019

Alternatively go to

www.rotechmachines.com

for details about how to apply online.

GET **TopMarks**
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Post your packaging samples at our stand
and get a FREE assessment on how
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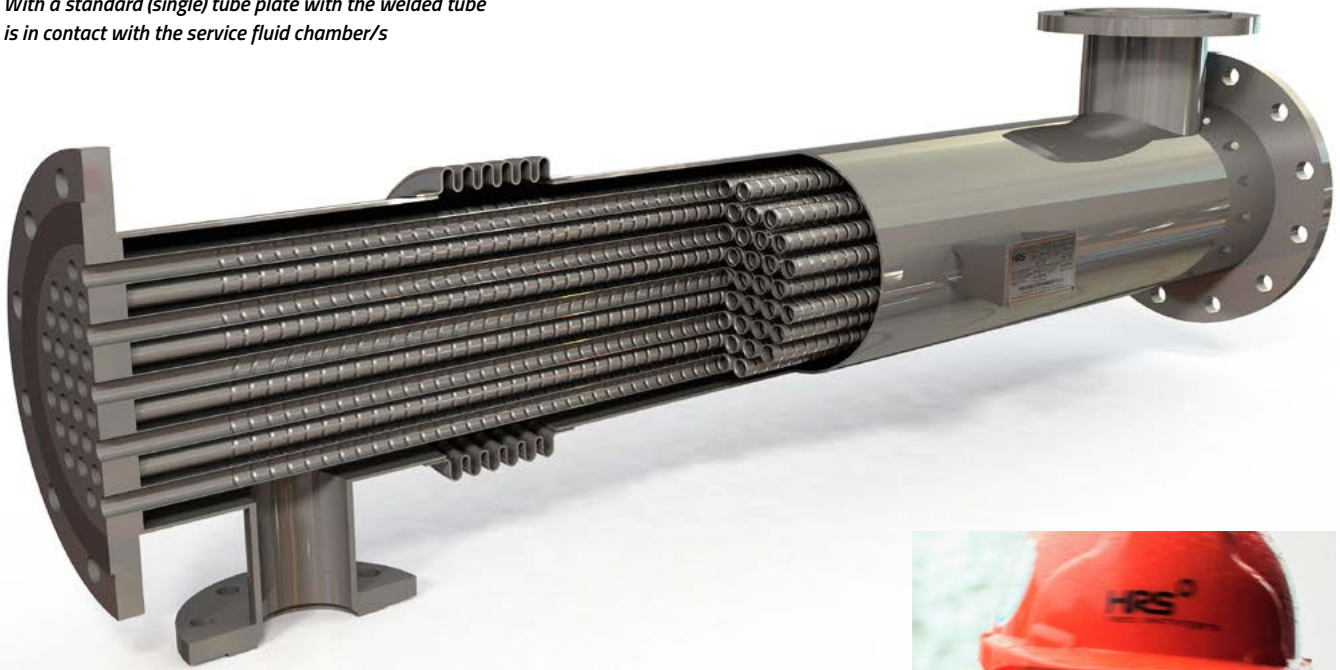


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01707 393 700

email sales@rotechmachines.com or visit the website
www.rotechmachines.com



With a standard (single) tube plate with the welded tube is in contact with the service fluid chamber/s



Preventing product contamination with double tube plate heat exchangers

By Matt Hale, International Sales & Marketing Director, HRS Heat Exchangers

Ensuring product safety is the number one priority for any food or drink producer, and a key aspect of this is avoiding contamination during production. Equipment design and construction plays a key role in achieving this, and the heat exchangers used for processes such as pasteurisation and sterilisation are no exception.

There are three main elements to preventing contamination occurring in tubular heat exchangers: production quality, system design, and system maintenance.

When it comes to quality, you generally get what you pay for. If a quotation for a new heat exchanger seems to be much lower than others, be sure to check the specification, particularly the materials that are being used. Not only is the quality of materials important (such as the use of stainless steel), but so too

is the quality of construction. Welding needs to be precise and joints (whether rolled or welded) need to be smooth to prevent product fouling or lodging of product, while also being strong enough to maintain integrity under pressure. Most manufacturers will be happy to arrange for you to see their production facilities and to provide information on their fabrication processes and standards.

The type of heat exchanger and its design capacity will determine the number of tubes. At some point during the design process, the tubes will need to be supported and attached to the body of the heat exchanger – usually at the ends. The tube plate (sometimes known as the tube sheet) not only supports the tubes, but usually provides a barrier between the product and service fluid.

In terms of design there are two main methods to prevent cross contamination

between the product and the service medium (heating or cooling) due to leakage in tubular heat exchangers. The first is to maintain a positive pressure difference between the product and the service fluid, so that should a leak occur, the product will always flow into the service fluid rather than vice-versa. However, in order to be successful this pressure differential must be maintained at all times, and appropriate sensors and monitoring systems must be included in the heat exchanger. It also adds a further level of complication when designing the operating pressures for the equipment.

The second option is to introduce a physical separation between two different tube plates; one for the product and one for the service fluid. This means that in the event of a leak from either the service fluid or the product, the material flows into a safety container or other vessel and no mixing of the two materials



The tube plate (or tube sheet) is the point at which the tubes in the heat exchanger are welded to the end of the vessel

is possible. Because this option relies on a physical barrier, no additional systems are required, making construction, operation and maintenance of the heat exchanger much simpler. For this reason, HRS Heat Exchangers uses the double tube plate system in food production situations where contamination needs to be prevented, and double tube plates are included as standard with our S and SI Series of multitube heat exchangers, as well as the double tube DTF Series.

The gap between the two tube plates will depend on a number of factors, including the food products being processed and the space available for the installation, but can be effective even when the distance is just 3mm. Depending on the materials being used and the type of situation that the heat exchanger is used in, the gap between the two plates may be shrouded (with appropriate drain or inspection ports) or open.

Finally, it is important to regularly clean, inspect and maintain heat exchanger equipment in line with the manufacturer's recommendations. For example, if handling acidic or abrasive materials (such as fruit juice) more frequent inspection and cleaning may be required. Regular cleaning will ensure that drain holes etc. operate correctly in the event of a leak, while maintenance and cleaning will reduce the risk of leaks occurring and provide an opportunity for any repairs.

www.hrs-heatexchangers.com

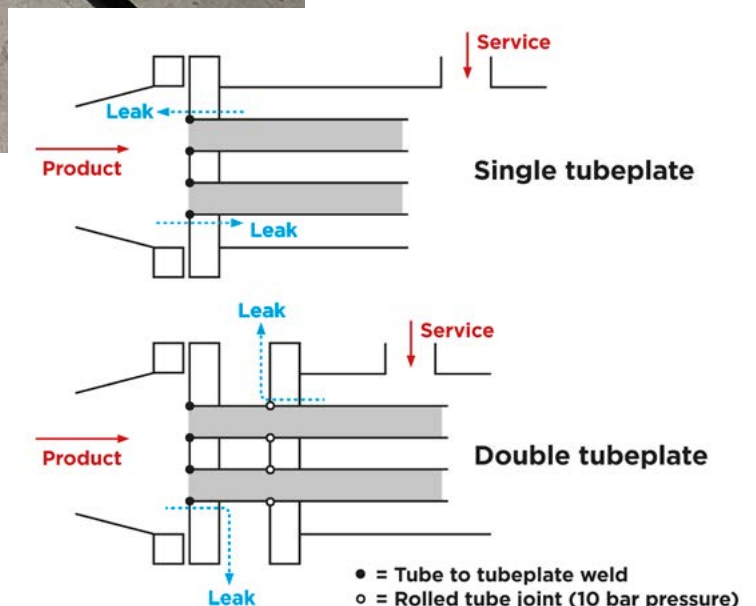


Diagram showing the difference between a single (top) and double (bottom) tube plate



Oil-free compressed air – without oil-free compressors

Project Report

CUSTOMER

Wicklow based packaging manufacturer requiring full turnkey solutions for their compressed air systems, preventative maintenance sales and servicing for its state of the art facility in County Wicklow, Ireland.

PROJECT

Offer consultancy, supply and install an oil- flooded compressor, integrated equipment and oil converter to upgrade the existing air system.

BOGE PRODUCTS IN USE

- BC oil converter
- 90 kW SLF 125 oil-flooded screw compressor ▪ DS180 refrigerant drier
- Duotherm exchanger
- Airstatus external monitoring system

Are oil-free compressors the only way to guarantee oil-free compressed air? With help from BOGE Compressors and their distributor for Ireland, ILS Engineering, one packaging manufacturer has found an alternative requiring substantially less investment – and has made impressive efficiency savings as well.

When planning to upscale the machinery at its plant in Wicklow, Ireland, switching to oil-free compressors seemed the only option that would satisfy ILS Engineering customers' air quality demands. Instead, the existing air system has now been upgraded by adding a new oil-flooded compressor, along with integrated equipment including a BOGE BC oil converter.

Independent testing shows a reduction in airborne oil concentration to 0.0006 mg/ m3. This is much cleaner than the industry-specified limit of 0.009 mg/m3 and is far better than the test results achieved by many systems with oil-free compressors. The new set-up also generates compressed air more efficiently and reduces energy bills further through effective heat recovery.

Packaging perfection

This manufacturer, has been producing for over 80 years, offering a wide range of standard and bespoke packaging designs. To maintain the quality and safety of the packaged products they must be free from contamination.

Compressed air is essential to powering the company's operation and is fed into almost all equipment used for manufacturing plastics.

This includes everything from the injection moulding machine to raw material transport and feed systems, valves and product assembly lines.

Air challenges

Wicklow-based industrial equipment supplier and maintenance specialist ILS Engineering services this site's compressed air system.

The Maintenance Manager overseeing the operation explains: "Continued expansion of production meant we needed to upscale our compressed air supply for current and future needs. We had one duty and one standby compressor, and found we were having to bring in the standby more and more frequently. The system was struggling and occasionally we had to turn off some of our machines to reduce the air demand."

After analysing air consumption, ILS identified the size and type of compressor – and related components – that would be needed. During this process, it emerged that the demand for oil-free air had become the main consideration. To switch to oil-free compressors would require major investment – and even more so to replace the existing oil-flooded systems across the company's other sites.

The solution

ILS Engineering Service Manager, Paul Kelly, takes up the story. "Rather than specifying an oil-free compressor, which many see as the only way to go, we worked back from the air quality required. We found we could achieve it at a fraction of the price and allow the customer to keep their oil-flooded equipment, by including a BOGE BC oil converter in the set-up. This unit effectively converts oil hydrocarbons from the air into carbon dioxide and water."

The new oil-flooded screw compressor is a BOGE SLF 125 model. Its energy-saving features include direct connection between the air end and motor. It also has variable speed control, which enables optimal adjustment to meet changing needs and avoid working unnecessarily hard. Its free air delivery of 554 CFM is a substantial increase over its predecessor.

A BOGE DS180 refrigerant drier, complete with filtration, extracts water and other contaminants from the air. A BOGE Duotherm recovers heat from oil and transfers it into the building's hot water system. BOGE's Airstatus external visualisation and monitoring system, connected through a portal to the BOGE data centre, provides vital information, analysis and alerts via mobile app or desktop. There is no ongoing subscription cost for this management tool.

Installation took just two days and was completed during the Christmas break with no interruption to production. The old duty compressor has been retained as a standby, while the old standby will also be available for use.

Results in brief

- High-quality air – oil concentration 0.0006 mg/m³ – well within required limit of 0.009 mg/m³
- Improved air efficiency – estimated annual saving of €13,000 to €14,000 on energy input
- Lower heating bills – estimated annual saving of €30,000 on water heating bills thanks to heat recovery



- Lower downtime and higher productivity – with increase in compressor power from 55 to 90 kW
- Lower purchase cost – estimated saving of €500,000 across all sites, compared to switching to oil-free compressors

Customer satisfaction

The ultimate decision to go ahead was made by the Plant Director, who enthused: "We considered the BOGE and ILS solution carefully and it ticked every box. When we saw the independent test results, we were all very surprised and impressed by what it could achieve."

He adds: "They could have simply sold us oil-free compressors, which would have made more money for them, but they chose to find a solution that worked better for us. I think this says a lot about how important long-term customer relationships are to them."

He concludes: "Many companies in this market are being told they need oil-free compressors, but we've shown that this isn't always true. If customers tell us their air requirements, we'll explore the options and give them the best solution at the best price."

www.boge.com

PROJECT INFORMATION

THE CHALLENGE

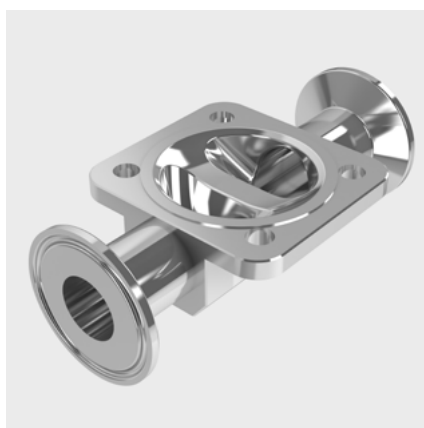
With an expansion in production, the Wicklow based packaging manufacturer needed to upscale its compressed air supply to ensure its plastic packaging wasn't contaminated during the production process. Compressed air is essential in powering the company's operations and the packaging firm was finding it was having to rely more and more on the standby compressor. The system was no longer meeting demand, with downtime a real issue, and switching to oil-free compressors would require major investment.

THE BOGE SOLUTION

Rather than making a snap decision to replace the system with oil-free compressors, ILS Engineering offered consultancy and came up with a better and cheaper option for their customer. An integrated system including a Boge BC oil converter, a new oil-flooded screw compressor and a Duotherm heat recovery system.

THE RESULT

Annual energy savings of €44,000, a saving of €500,000 compared to switching to oil-free compressors, better air quality to well below the industry specified limit, greater productivity from increased power and no downtime during installation.



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Decentralised drive technology for the digital factory of the future



The future of production is modular, flexible and autonomous. This requires new systems with decentralised intelligence, which can cope with the increasing complexity of the processes. NORD DRIVESYSTEMS supplies a wide selection of decentralised drive technology with frequency inverters which can be adapted to any required application and can be flexibly integrated into the plant.

Decentralised frequency inverters offer many advantages: They save space in control cabinets, reduce cable and wiring costs, simplify maintenance and therefore increase the efficiency of the entire drive system. With its extensive range of modular products for decentralised drive electronics NORD DRIVESYSTEMS covers practically all requirements and applications. The drive components have a power range up to 22 kW and an integrated PLC as standard to enable a high level of plug-in capability. They can be freely configured, to adapt them to any application. NORD decentralised

drive technology can be integrated into all automation architectures and significantly reduces plant design costs

NORD has the drive unit of the future

NORD drive units are networked, autonomous and scalable –and therefore meet all of the conditions which are necessary for integration into an Industry 4.0 architecture. The inverters' integrated PLC is able to reduce the load on the higher level control system and take on independent control tasks. This allows a plant design with autonomous production groups and production islands. The freely programmable PLC processes the data from sensors and actuators and can initiate control sequences, as well as communicating drive and application data to a control centre, networked components or to cloud storage. This enables continuous condition monitoring and therefore forms the basis for predictive maintenance concepts as well as optimum plant dimensioning.

NORDAC LINK: The variable solution for all requirements

This drive control for flexible decentralised installation is available as frequency inverter (up to 7.5 kW) or motor starter (up to 3 kW) and provides what it takes to enable fast commissioning, simple operation and maintenance. With NORDAC LINK all connections are made with simple plug connectors. In addition to the high plug-in capability, integrated maintenance switches and switches for manual operation ensure a high level of user-friendliness.



NORDAC FLEX: Ultimate flexibility

Flexible to install, easy to service: With its power range of up to 22kW, its large range of functions and wide range of accessories, the NORDAC FLEX is the most flexible NORD inverter. With simple parameter transfer via EEPROM memory, installation and servicing are quick and reliable.

Thanks to their modular structure, NORD inverters can be easily extended and offer an impressive variety of scenarios for use in Industry 4.0 automation networks. Their fields of use range from conveyor technology and intralogistics, to drive tasks in the packaging and food industries as well as pump applications and general mechanical engineering.

www.nord.com

Automation for the 'food nation'



Picking technology has increased efficiency and accuracy at Riverford Organic Farmers

UK food manufacturers of every shape and size are investing more in automation, according to Robert Wood, business development manager of Daifuku.

Whether it's the impact of Brexit, anticipated skills shortages or a growing appreciation of automation, food manufacturers are increasingly harnessing the benefits of automated warehouse systems such as ASRS (automatic storage and retrieval systems), picking systems, high bay storage and even 'co-bots' working on factory floors. And it's not just the 'big boys' that are investing in scalable automation solutions; we have worked with several fast growing, medium-sized food producers in recent months that demonstrate this trend perfectly.

Helping Riverford to flow

Earlier this year, Riverford Organic Farmers - Britain's largest supplier of organic produce - engaged Daifuku to introduce automated picking, packing and conveyor technology into its headquarters in Buckfastleigh, Devon.

Founded by entrepreneur Guy Singh-Watson, the veg box business has carefully introduced automation to elements of its warehousing function to further improve the efficiency of its nationwide delivery service. Crucially, new technology has helped the £65.9m million* turnover company to offer its customers an even wider selection of ethically-produced,

organic products which include bespoke recipes.

The business serves more than 50,000 customers every week, with around 70 dedicated franchised distributor partners across the UK, each of whom deliver veg boxes as well as the additional items customers order from Riverford's website. When the business offered a few additional products to customers, this was not an issue; but once that number began to escalate, the task of picking on the road became onerous for drivers. It was obvious that the company needed to embrace automation, but they were not sure how to go about it.

That was when Daifuku was invited to help the business to understand what automation technology was out there – and how it could help their business. Having conducted a technology showcase and market overview for Riverford, Daifuku also developed several scenarios to analyse how automation could help their business.

Following extensive research and modelling, the Devon-based businesses opted for a pick-to-light system to handle ambient, chilled and meat products, all of which needed to be handled in separate areas of the warehouse. Daifuku also specified the extensive use of conveyor systems to transport new purpose-made totes to picking staff.

While moving the function of picking ordered items to Riverford's main warehouse has enabled the delivery drivers to focus on customer care on the doorstep, automation technology has been fundamental in enabling Riverford to offer customers a range of recipe boxes. These specially developed meals arrive with cooking instructions, all organic ingredients and even nutritional information for each meal. The careful introduction of automation has enabled the business to embark on an exciting new chapter in Riverford's remarkable history.

Ingredients storage for GA Pet Foods

When GA Pet Food Partners was planning its new Ingredients Kitchen, a state of the art, high grade nutrition production facility in Lancashire, it turned to Daifuku for advice on automation.

As part of the project, Daifuku provided stacker cranes in the 'Larder' and 'Pantry' storage areas of the food preparation plant which covers an area in excess of 20,000m². Raw ingredients are now transported within the facility using Daifuku's renowned STV (sorting transfer vehicles) high speed pallet transport system.

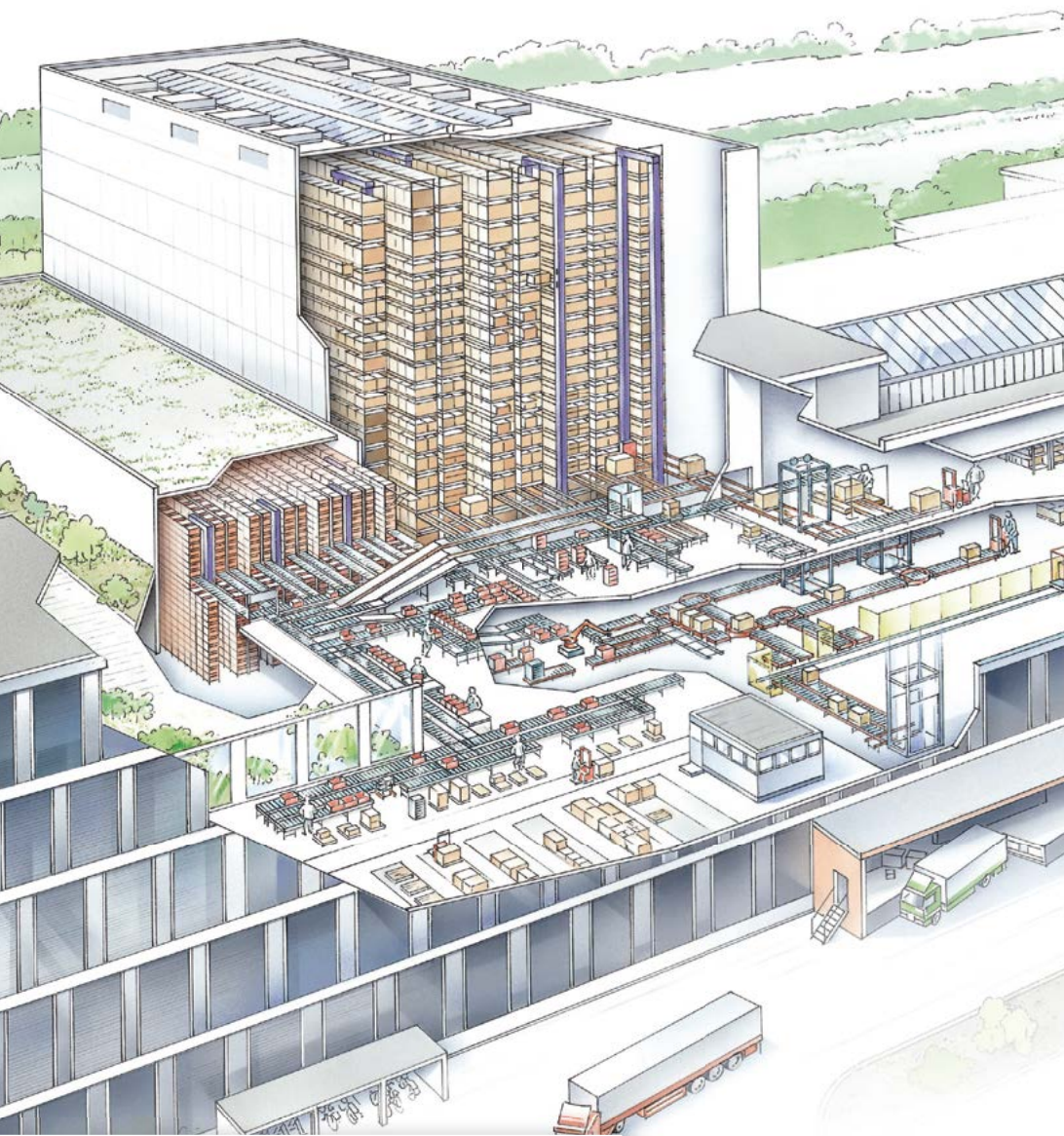
The award of the project was the result of a close collaboration between Daifuku and GA Pet Food Partners during the initial planning of the project. Installation of the warehouse automation system will be complete later in 2018, with 'go-live' and full production at the Ingredients Kitchen commencing in 2019.

Both projects demonstrate the huge contribution that sophisticated automation systems can make to the efficiency, accuracy and reliability of warehousing during periods of transition and growth for food producers. To the uninitiated, planning a new warehouse production system can be daunting. That's why we invest so much in the initial scoping and planning stages of a project. We've even developed a new virtual reality headset that allows us to walk clients through proposed technologies, without the need to put on a hard hat or a high viz jacket!

Daifuku is exhibiting at this year's IMHX event in Birmingham (NEC, 24-27 September, 2019)

* Unaudited figures quoted in the Financial Times, July 2019.

www.daifuku.com



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Customised Weighing and Quality Control for individual Packet Soups

A customised multihead weigher and X-ray inspection system from Ishida are major components of a new packing line for instant dried soups.

The line installed at leading Swiss manufacturer HACO AG includes an Ishida linear multihead weigher and IX-GA X-ray inspection system, supplied by Ishida's Swiss agent Itech AG. The 12-head linear weigher processes the soup ingredients at a speed of up to 170 weighments per minute with a weighing accuracy of 0.1 g. The X-ray system uses Ishida's patented Genetic Algorithm technology to detect foreign bodies with a very low density and a size of as little as 0.5 mm.

The main reason for HACO AG's investment in the new line at its plant in Gümligen was the desire for greater flexibility during end-of-line packing to meet growing retail demand for shelf-ready transportation containers. At the

same time, the manufacturer also wanted to considerably increase output and ensure maximum availability. A major challenge for the installation was the extremely limited floor space and room height.

HACO AG packs the dry soups in bags. During filling, pasta or vegetable ingredients are mixed with a soup powder, with the fill weight of the ingredients between 10 g and 80 g. The linear multihead weigher was specially developed for the high-performance handling of free-flowing products with small target weights. Even the top-of-the-range CCW-R-112P, which features 12 weighing heads, has extremely compact dimensions, which allowed it to be seamlessly integrated into the new line.

Soup ingredients such as pasta, croutons or peas are fed into the multihead weigher via two vibrating channels.

The feeder system then distributes the product evenly onto twelve vibratory feeder troughs, which transport it to the hoppers. Loadcells and sensors are used to ensure that the product is fed consistently. The 12 pool hoppers (used for weight stabilisation) are followed by 24 weigh hoppers, which provide tens of thousands of weight combinations to get as close as possible to the target weight.

Accurately weighed product is then released in a double dose via two discharge chutes into two sachets at a time, which are taken to a carousel. The tilt angle of the chutes was specifically designed so that the ingredients drop into the sachets at maximum efficiency. Due to a lack of space, the chutes on the filling system had to be staggered. The asymmetric layout of the interface with the polybag machine also required special software adaptations carried out by Itech AG.

As well as its speed and accuracy, the linear design of the CCW-R-112 ensures gentle product handling, with the low drop heights particularly beneficial for fragile ingredients like alphabet pasta shapes. Employees at HACO also appreciate the machine's fully enclosed hygienic design, which curbs the amount of dust that is generated and protects the lightweight product from air turbulence.

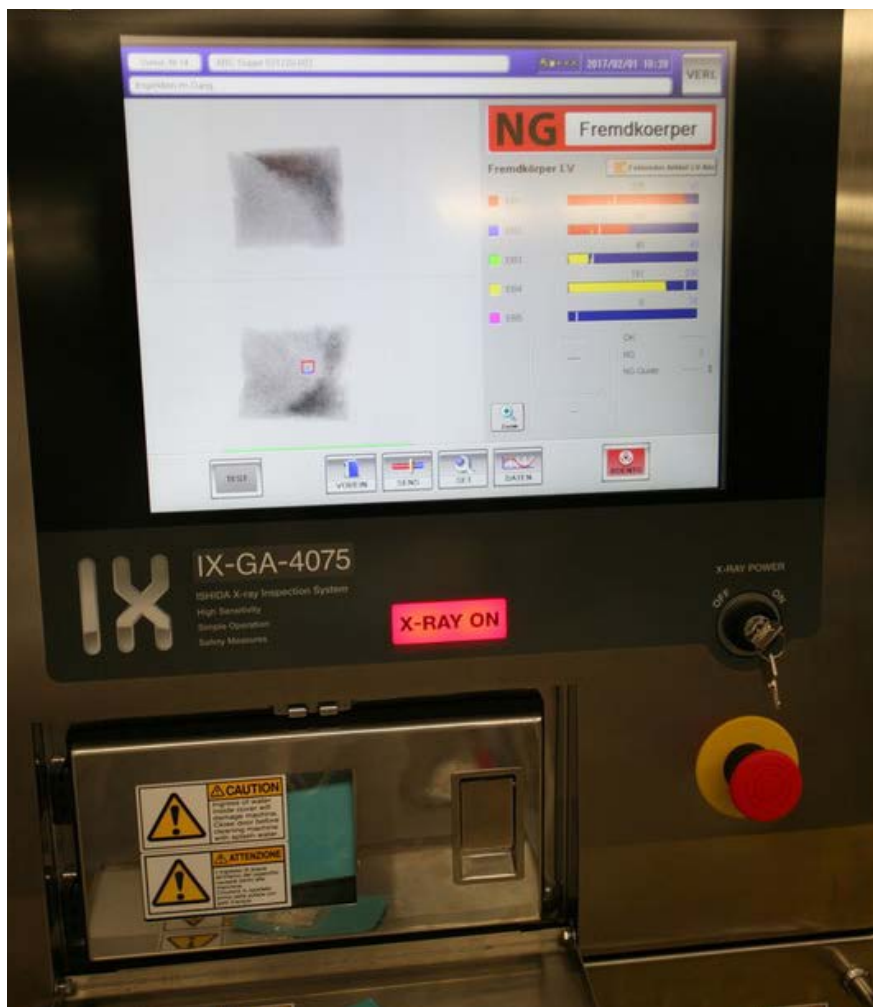
Product changes are carried out speedily by selecting from up to 200 pre-sets. All feeder troughs and hoppers have quick-release mechanisms for tool-free removal and replacement.

Once the ingredients are in the bag, soup powder is added using auger fillers. The sealed pre-printed bags are then conveyed for quality control in the Ishida X-ray, which is able to handle the commonly-used aluminium-coated bags.

HACO AG places great importance on foreign body detection, less on account of the company's in-house processes and more to monitor the raw products. The Ishida IX-GA's Genetic Algorithm technology, which uses image data analysis over a number of generations, was adapted specifically to match the requirements of HACO AG in order to carefully check the product against the entire spectrum of potential foreign bodies including glass, metal, stone or plastic.

The sachets pass through the X-ray inspection system in two lanes at a belt speed of up to 60 metres a minute. In this particular application, faulty packs are not rejected using the standard methods of a swivel arm or a compressed air nozzle, because the flat bags are transported horizontally on the conveyor belt. Itech AG therefore designed a special retractable belt rejection mechanism. If a contaminated sachet needs to be removed from the process, the conveyor belt quickly retracts at the outlet and the bag falls through a slit at the transfer point to the downstream conveyor belt.

The easy-to-use IX-GA features an automatic set-up function and is ready to



operate within 90 seconds. Adjustments can be made on the machine without interrupting production. A data log collects valuable visual and numerical information to demonstrate that production and packing processes are properly and correctly performed.

HACO AG's new packing line is working in a two-shift mode and is living up to the customer's high expectations. Output has been increased considerably, while simultaneously reducing product giveaway. Product safety has also been further optimised.

www.ishidaeurope.com



Are your products at risk of chemical contamination through compressed air and gas?

Compressed air and gases are widely used in food contact for conveyance of dusts and powders, cleaning, drying and filling of moulds or containers and inert gas preservation of finished products. Your site may also test the compressed air for viable microbiologicals but have you ever considered the possibility of chemical contamination in the air/gas stream?

EC Directive 1935/2004 or MOCA was developed to protect the general public by defining safe materials for contact with food during production processes. The directive was developed to increase food production standards by eliminating potentially harmful contamination caused by chemical migration or leaching from materials into the product.

Analysis has proved that the incidence of health warnings originating from contamination through chemical migration of food contact materials, has increased from 18% to 25% in the 2 years from 2015 to 2017, leading many manufacturers to actively pursue MOCA compliance for their processes.

MOCA product testing concentrates on the practical determination of chemical migration from materials and is similar in principle to WRAS testing which is to avoid materials tainting the taste of potable water.

This is very different to EHEDG testing which is to ensure items can be reliably cleaned in place through SIP processes. Not all food related processes require EHEDG or 3A testing but when considering the supporting processes in a food plant, many more do actually have direct or indirect contact with food components and would benefit from the security of MOCA certified valves and



knowing that they are tested to prevent harmful contamination.

Any valves that carry foodstuffs or convey air or gas into foodstuffs, should carry the MOCA logo or state "For Food Contact" to prove that they have been tested and are in accordance with the directive. Your existing valves may have suitable materials but do you want to risk it when you could use valves that have been tested and are in compliance with this standard?

Recently a new decree, 29/2017 was introduced that sanctioned penalties up to €80,000 for violation of the European legislation relating to Materials in Contact with Food (MOCA), which strengthens the

argument for ensuring that any valves installed in food processes either carry this symbol or are clearly marked For Food Contact.

ID Insert Deal Srl already has a range of 316L stainless steel pressure regulators from ¼" to 2" available with MOCA certification and is working through the 3rd party testing schedule to further increase this range by the end of 2019.

Are you sure your compressed air and gas systems are free from the possibility of chemical contamination and would you risk an €80,000 fine if they're not?

measuremonitorcontrol.com

Shouldn't Your Pressure Regulators Have Certified Food Safe Materials According to EC 1935/2004?



EC 1935/2004 Directive for materials in contact with food (MOCA), certifies materials that will not leach chemicals into the media and approved products are labelled as "For Food Contact", or carry the above logo.

ID Insert Deal Srl offer a range of stainless steel pressure regulators with this certification, available in the UK from Measure Monitor Control.

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Ilapak Keeps Its Cool, Flow Wrapping Ice Lollies In Compostable Film

Young UK ice lolly producer LICKALIX has, with the help and support of flow wrapping machine specialist Ilapak, taken the bold step of moving to a compostable film to package its premium, organic and all-natural ice lollies made with real whole fruit.

The London-based family business set out to produce ice lollies which were much more than the standard “sugary water with colourings and other E-numbers”, explains co-founder Karis Gesua. “We came up with a concept for healthy, good-quality ice lollies, which are organic, use real whole fruit and are free from all the major allergens.”

Producing over a million ice lollies a year, the next stage in its development involves aligning its packaging with the sustainability and quality of its products.

“Currently, we are finishing off our existing supply of polypropylene film, then we’ll become – as far as we know – the first ‘frozen treat’ company to use compostable film to wrap its products,” says Karis.

As a part of this move, LICKALIX will be able to display the ‘Plastic Free’ consumer trust mark on its packaging certified by A Plastic Planet.

The change in packaging started with the search for a new (and better) flow wrapper. “The controls on our previous flow wrapper were not automated or as smooth,” Karis recalls. “We wanted a better-quality, more reliable machine with faster setup and less downtime.”

From the point where the LICKALIX team met Ilapak at the PPMA Show in September 2018, the Ilapak team were not fazed by LICKALIX’ questions about wrapping with alternative materials so the project moved on quickly. “By December, we’d bought the machine, and it was installed in January,” she says. “Within three days, it was commissioned, up and running.”

The Smart flow wrapper is a fully PLC-controlled electronic machine with an easy-to-navigate human-machine interface (HMI), offering fast and clearly-signposted size change.



The rotary-jaw wrapper can be tailored to meet customer requirements.

In the case of LICKALIX, this included a specification for a stainless-steel build with low-friction surfaces at the infeed to suit frozen lollies which, if they are allowed to stick, will leave a residue.

“Changeover on the Ilapak machine is menu-driven, which was not the case on our previous flow wrapper,” says Karis. “What’s more, the compostable film is harder to handle, so we needed a system we could be sure was up to the job. For one thing, the sealing temperature tolerances can be set much tighter than on the old flow wrapper.”

Ilapak account manager Tony Bryant explains: “The Smart flow wrapper has the ability to store temperature, dwell-time and pressure settings to meet the specific needs of any number of films, including in this case a complex compostable structure.”

Problem-free running, with no unpleasant surprises, is especially important where frozen products are being wrapped in ambient temperatures, so that they can be returned quickly and efficiently to a refrigerated environment.

“Pre-installation trials at the Ilapak factory were important, so they were able to run the different films we use, and because ice lollies can, in any case, be hard to pack,” says Karis.

The flow wrapper is capable of speeds up to 100 packs per minute (ppm) handling the lollies, which are made in 75g and 63g variants, says LICKALIX. The company hopes to ramp up output towards the 100ppm level.

According to LICKALIX, its positive impressions of Ilapak were not just to do with the quality and versatility of the machinery it supplied. “One of the reasons we chose Ilapak was the level of support its team offered,” says Karis. It helps that Ilapak is very local to us, but the training they gave us, as well as their response on any other type of follow-up, has been superb.”



As a fully-automatic machine, the Smart flow wrapper is accessibly priced for start-ups and small businesses.

In addition, on this occasion, Ilapak was able to help LICKALIX out with flexible commercial terms.

Improving the efficiency of other parts of the production process is LICKALIX' first priority, but Karis says she can foresee a time when further Ilapak flow wrapping capacity could be required.

The company sells its lollies through Ocado, as well as health food chains Planet Organic, Wholefoods and As Nature Intended.

They are also on the children’s menu at Jamie Oliver’s ‘Jamie’s Italian’ restaurants, and sold through many of their 800+ retailers across the country such as cafés, leisure centres, and independent outlets.

www.ilapak.co.uk



Reaping the benefits of the ‘digital sausage factory’

Investment in cutting edge technology, including industry-specific software from food and drink IT specialist CSB-System, has enabled leading Austrian sausage producer Wiesbauer to be at the forefront of the development of the smart food factory.

When the company’s facility in Vienna was conceived more than 20 years ago, all the major factors for a smart factory were taken into account during the planning stage. They included paperless information processing, automatic production and logistics processes, intelligent material flow control, and networking with other company locations

A strategically important part of this was the integration of all processes into one software system. Enterprise resource planning, labelling, logistics and traceability are all accessed from the same system. “It is a big advantage to have one partner and one system that is so closely interlinked,” explains Wiesbauer’s

Managing Director Thomas Schmiedbauer. “Thanks to CSB, our company is much rationalised in many areas.”

Non-stop cutting, batch processing and production

The design of the factory ensures a highly automated and therefore fast process flow from cutting to production. Movement of hanging meat to the cutting lines is carried out automatically using CSB software. The meat cuts are placed in E3 crates and transported to the high-bay meat warehouse in accordance with information from Recipe Management. On their way, scanners at strategic information points read the crate barcodes including the crate number, weight excluding tare, item number and batch number as well as the destination defined in the CSB-System.

The required quantities of meat and fat are calculated during stock removal, based on the relevant recipe details, and

retrieved from the high-bay storage at a CSB-Rack. Conveyor belts then take the retrieved crates to the mixing unit for chopping. The next stages are grinding and stuffing, followed by the smokehouse and the fryer and cooker units. At another data capture station, the finished products are entered into the warehouse before they are customer labelled and dispatched.

Error-free labels

This optimised production is supported by effective data management that ensures a smooth and flawless flow of information. This is particularly important in weigh price labelling, which has to handle Wiesbauer’s great variety of sausage and ham products with the need for the correct recipe details and food information regulations to be included on each label.

This is achieved by the central storage of all relevant labelling details in the ERP

system. As a result, changes in bills of materials are made available immediately at all locations and result in automatic adaptation of labels. This eliminates the need for time- and cost-intensive double data maintenance, while the risk of incorrect nutrition information or missing allergen information is also reduced.

In addition, central data management facilitates the easy handling of mixed packages where various items with different ingredients are combined in one consumer package.

Well-prepared for meetings and negotiations

The system also delivers a great deal of data transparency that provides accurate information to help in the decision-making process, including key performance indicators from production, sales volumes, terms of payment, order rhythms, conditions, rebates, and discounts. "When I'm talking to my customers and conducting negotiations, I want to be able to decide right away whether it's a deal or no deal," reports Thomas Schmiedbauer. "For this, I can draw on the calculation in the ERP system, its reports and the customer evaluations."

Expanding the "digital sausage factory"

In the future, the current technologies implemented from shop floor to top floor at Wiesbauer will enable further optimisation. Several new digitisation projects will be implemented, the aim of which, according to Schmiedbauer, is a smart sausage factory that is resilient to downtime and can always respond flexibly to the changing requests of customers.

This is what he considers as Wiesbauer's major competitive advantage. "If I cannot rely on my software and technologies, I will not be able to guarantee my services to customers, who I would then lose. This is why continuous digitisation is extremely important nowadays."

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Ergonomics in the Industrial Workplace



Businesses across all sectors are becoming increasingly aware of the importance of employee health and wellbeing. There is little doubt that the workplace of the future will place greater emphasis on solutions designed to promote ergonomics and reduce workplace injuries. AJ Products can help you create well-planned, healthy work environments completely customised to your business.

Ergonomic design has been one of the cornerstones of AJ Products' product development since the company was established in 1975. Throughout our range we have put a focus on functionality and ergonomics to help make workplaces safer, healthier and more convenient for staff. AJ Products is uniquely situated to be able to help businesses across all sectors prioritise employee wellbeing.

Injuries caused by incorrect manual

handling and lifting activities are one of the leading contributors to work-related musculoskeletal disorders (MSDs), which account for around a third of all workplace injuries [HSE, 2019]. An optimised work environment with access to ergonomic lifting equipment minimises the risks.

Cleverly-designed trolleys and material handling solutions help prevent injuries due to incorrect handling by reducing the frequency of lifting tasks and the strain placed on the body. AJ Products has years of experience providing lifting equipment to processing plants, factories and distribution hubs. We can provide innovative and tailor-made solutions to ensure compliance with HSE regulations.

Moreover, our range of sit-stand workbenches, roller conveyors and anti-fatigue matting provides a more ergonomic working position for employees on processing lines, reducing the need for additional lifting, bending

or twisting: some of the most common causes of MSDs.

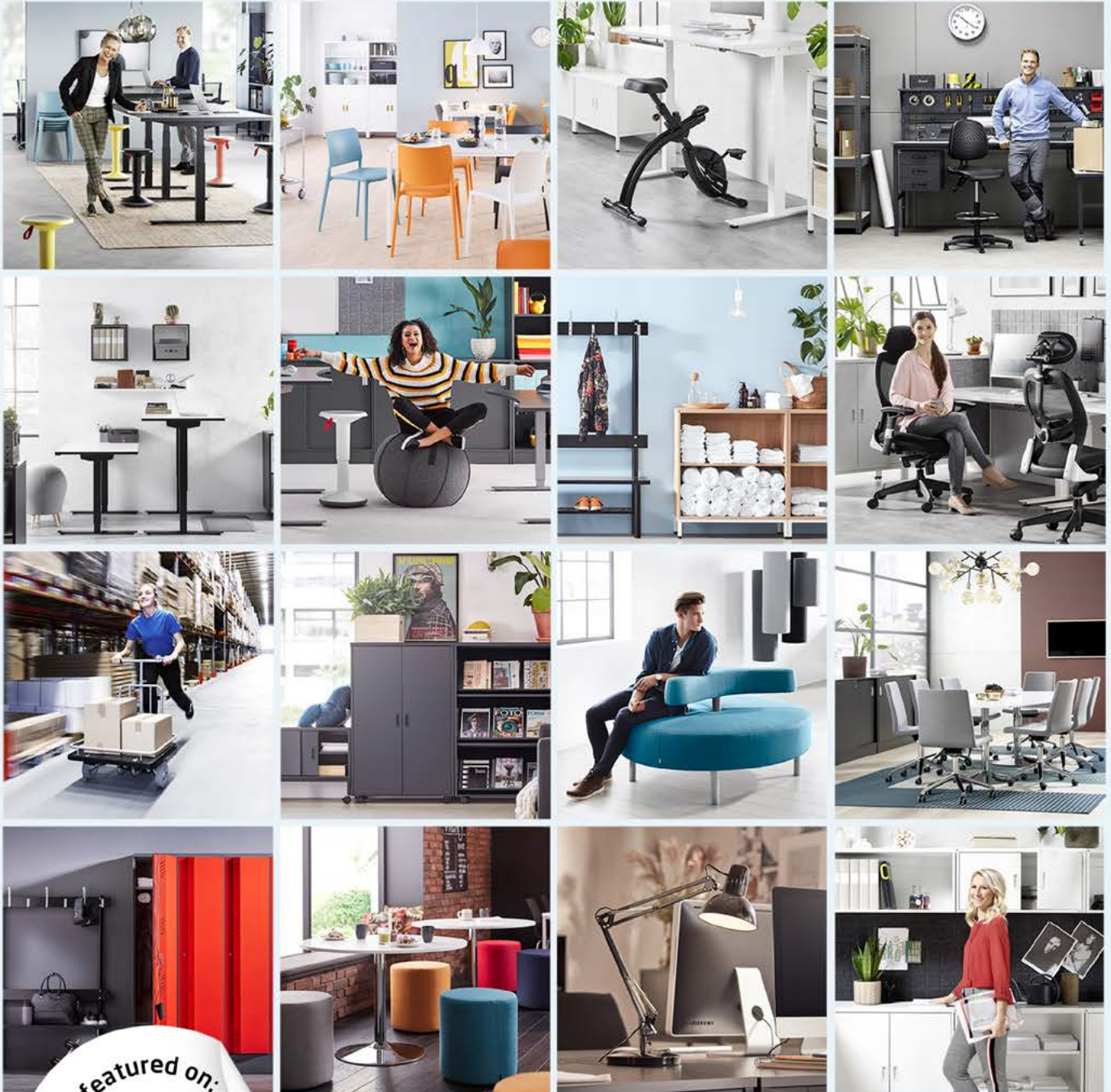
As well as ergonomic solutions, AJ Products is also a manufacturer of industrial storage solutions. Thanks to our range of food-grade shelving and cold store racking, we can provide food handling businesses with practical and hygienic solutions.

Thanks to our 40 plus years of experience, AJ Products can provide a complete solution from free-of-charge project planning and design suggestions to quick delivery and installation. Whether a one-off order or a large refit project, AJ Products is a one-stop shop for all your workplace needs. We are committed to making all workplaces happier and healthier places to be.

For more information on how we can support your business, visit www.ajproducts.co.uk or call us on 0800 634 4369 to speak to our sales team.

LOVE YOUR **WORKPLACE**

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ajproducts.co.uk



Minimise Risk, Maximise Production

Axiomtek, a leading designer and manufacturer of innovative, high performance and reliable PC-based industrial computer products, has launched a new IP66/IP69K stainless steel touch panel computer, a 15-inch GOT815L-511. The latest Intel® Kaby Lake-based stainless steel touch panel PC has been especially designed for use in extreme humidity, moist, dusty, or wet environments.

The highly reliable stainless touch panel computer adopts a high brightness LCD display with 420 nits brightness to ensure visibility in harsh environments with varying light intensity and comes with options for projected capacitive touch or 5-wire flat resistive touchscreen display.

The SUS316 stainless steel case can prevent bacteria growth and rust brought on by prolonged usage in moist and wet environments. Furthermore, the flat panel design prevents accumulation of dust and moisture and also makes cleaning easier.

"The GOT815L-511, powered by the Intel® Core™ i5-7300U processor (codename: Kaby Lake) for greater computing performance and better

efficiency. Designed to meet the challenges in critical environments, it supports a wide operating temperature range from -20°C to 50°C and can withstand vibration up to 1G, 5 to 500 Hz. The rugged stainless touch panel PC also offers flexible power options with wide range 9-36V DC power input," said Virgil Hsu, product manager at Product PM Division. "Combined with a fully IP66/IP69K-rated water/dust-proof enclosure and M12-type connectors, the industrial panel system can resist an ingress of high temperature steam and pressure washing, well suited for use in food and chemical factories, as well as outdoor applications such as a parking management system."

The 15" XGA stainless steel panel computer comes with rich I/O interfaces with M12-type connectors including two RS-232/422/485 ports, four USB 2.0 ports, and one gigabit Ethernet port. It supports one DDR4-2133 SO-DIMM slot with up to 16GB system memory, and one 2.5" SSD or 2.5" SATA HDD for storage. Additionally, two PCI Express Mini Card slots are available for wireless network connections. The NEMA 4X Intel® Core™-based rugged touch panel

computer is compatible with Windows® 10 and Windows® 10 IoT. Mounting ways include suspension and VESA arm.

Advanced Features:

- 15" XGA TFT flat bezel LCD display
- IP66/IP69K-rated (NEMA 4X) water/dust/corrosion-proof design
- Full stainless steel enclosure with type 316
- -20°C to +50°C wide operating temperature range
- Fanless design with 7th generation Intel® Core™ i5 processor (codename: Kaby Lake)
- Wireless network connectivity
- Wide range 9-36V DC power input
- Supports suspension and VESA mount
- M12 type connectors for harsh environments

A GOT800 Demo Kit will be on show at this year's PPMA show at stand H60.



www.axiomtek.co.uk
info@axiomtek.co.uk

Minimise Risk, Maximise Production



GOT815L-511

15" XGA TFT IP66 & IP69K-rated
Stainless Steel Fanless PCT (or
Resistive Touch) Panel Computer
with Intel® Core™ i5-7300U Processor
and Flat Bezel Design (-20°C to +50°C)



Foldia® roll cage – the right choice for QSR and Convenience



Changes in lifestyle, demographics and urbanisation have always affected how and where people shop and eat. The last 20 years have seen the biggest and fastest shifts in eating habits as more consumers eat out and shop more with a wider variety of choice and availability. These trends have seen a rapid growth of fast food quick service restaurants (QSR) and Convenience stores.

QSR today is worth over €100b in Europe. In Western European countries QSR makes up 20-30% of all restaurant sales. In the US the figure is closer to 45%. Big brands like McDonalds, Starbucks and Subway continue to evolve their offering and demand is set to rise.

Likewise the Convenience retail sector is one of the fastest growing areas across Europe. In the UK Convenience represents around 22% of all grocery sales and set to grow a further 15-20% over the next 5 years.

Both QSR and convenience sit at the heart of many cities and towns, dominating our high street, and servicing customers in many instances 24 hours a day with fresh produce.

From a supply chain point of view this can represent some real challenges. Store access is often hampered and rarely consistent between stores. The nature of fresh deliveries means frequent and small delivery sizes. Often nestled in residential areas the impact of delivery and collection noise needs to be considered. And once a delivery is made store space and storage can be very limited.

For the bigger supply chains, an efficient delivery network is essential. Typically today's model is a single vehicle delivering to 4-10 sites multiple times per week. As with most retail, roll cages and dollies offer the best solution for ease of access, vehicle utilisation and speed of replenishment. For QSR and Convenience however the additional delivery challenges mean selecting the most efficient delivery solution require a little more thought than taking the same old solution.

When looking in detail at multi-drop delivery there are a few additional factors that need to be considered

- Manoeuvrability in the back of the delivery vehicle is essential to help the speed of unloading, particularly when taking empty returns. Wasted driver time can add up significantly during the day.
- Looking after empty delivery assets in space limited stores and yards means

assets need to be stored efficiently.

- Size and design of delivery assets need to be able to cope with small stores, uneven surfaces, slopes and steps. Ease of use means quicker deliveries.

Getting the choice of delivery asset right can halve the delivery time.

Traditional solutions have seen a range of demountable type roll cages that fulfil many of the requirements of QSR and Convenience, with one big downfall – the time taken to take apart for returns and time wasted to rebuild for picking.

As an innovative company K Hartwall know that there is always a better way. The Foldia® roll cage was designed to solve this challenge and has seen great success being the most efficient roll cage for multi drop deliveries.

Some features which make this cage such a good fit for these sectors include

- The unique folding design allows for very quick make up and collapse time.
- An impressive 400kg SWL despite its lightweight (27kg) design
- Empty cages sit folded within another empty cage meaning 5 cages stored in the footprint of one, allowing for very easy storage and manoeuvrability
- Its ergonomic design allows for one person handling

When deciding on how best to service your stores, making the right decision in selecting the delivery medium will have significant impact on the future cost to serve. Foldia® is the right choice for QSR and convenience, saving time and money, which is why SPAR Switzerland is our latest customer to make the right choice.

www.k-hartwall.com

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The next generation of
Retail load carriers

Foldia®

Previously an entirely manual operation, one skilled operative now oversees the robotic lines, resulting in a significant reduction in headcount.



Morrisons chooses Brillopak to automate multiple fresh produce packing lines

In the last 18-months, Brillopak has installed a range of fully automated pick and place packing lines at three of Morrisons fresh produce and fruit manufacturing sites.

Aligned to Morrisons' strategy to provide the retailer's 11 million weekly shoppers with the best quality fresh produce, Jason Kelly, Head of Operations for Morrisons Manufacturing has led the automation strategy across their fresh produce business, which includes the recent Brillopak systems installed at Rushden, Thrapston and Gadbrook.

All three sites are delivering improved in-store presentation for apples, potatoes and other root vegetables. What's more, the turnkey systems can be easily adapted to handle reusable and renewable packaging formats reports Rushden's site manager Andy Day.

Commenting on how automating fresh produce lines can lead to a higher quality

product and efficiency improvements, Jason says: "The characteristics fresh produce means that gentle handling is essential to prevent damage and costly waste. Equally important is the need to retain product freshness."

Jason continues: "Rushden was the third multi-line implementation where Morrisons worked with Brillopak. Rather than creating individual autonomous operating units, we sought an integrated, comprehensive, more labour efficient system that covered everything from packing produce to palletising. Brillopak's modular automated concepts have proven to be extremely flexible and reliable, accommodating variations in speeds and packaging formats. The true measure though has been the almost immediate improvements to operational efficiency effectiveness (OEE).

Historically, the Rushden packhouse, which cleans, stores, packs and distributes thousands of tonnes of

potatoes every year, loaded bags of flow wrapped potatoes manually into crates. Now, thanks to two fully-automated and two semi-automated pick, pack and palletising lines, the Northamptonshire site has enhanced its potato packing precision and transformed its operation from an unergonomic roundtable manual crate separation and case loading method, to a safer, high speed, optimised potato packing process. Similar turnkey lines were installed at Gadbrook.

Forming part of a company-wide investment in front and back end manufacturing improvements, Rushden has significantly boosted its OEE within 12 months, reports Andy. Yet, most importantly for the site manager, the way potatoes are presented in crates has dramatically improved. Additionally, waste is down, bottlenecks have been virtually eliminated, reliance on agency staff has reduced and workforce wellbeing and satisfaction is the best it has ever been.

A fitting partnership

Because of the efficiency of the already automated back end section of the warehouse, the Brillopak packing systems needed to boost the pick and place line speed. Rather than commission a ready-made robotic system, the Rushden team worked collaboratively with Brillopak to engineer a new pick and pack concept.

Unlike other depots that wash, grade, pack, palletise and send out in the same day, Rushden has a separate wash, store, pack and case loading area. Because there's more fresh produce being processed and stored, space at Rushden is at a premium.

Andy explains: "Designing a system that would accommodate our facilities tight footprint was the biggest challenge. Yet, having worked with Brillopak on Thrapston's apple packing line, I felt confident that they could prove their concept and invent a modular automated system that we could introduce in phases causing minimal disruption to our seven-day-a-week processing and warehouse operation."

Comprising two long stretches of conveyor feeding bagged potatoes from the manufacturing and bagging operations, each automated line features eight Brillopak elements.

At the start of the line a crate destacker unit lifts and feeds Morrisons' retail trays at a consistent speed and continuous stream on conveyors to the dexterous P180 spider arm robotic cell. Snaking alongside are the product conveyors. Rumble technology is fitted to a small section on each conveyor to help settle the packs as the feed single file into each P180 Spider Arm Unipick Dual Robot Cell.

Rather than using gripper end effectors that would pierce the potato bags, Brillopak designed a glove-like end effector that wraps around each potato pack robot arm lowering rapidly yet gently into trays at very high speeds.

Filled trays then pass over a vibration panel to settle the potato packs in the crates. This ensures packs don't get caught when the bale arms close. If the bale arm is damaged, the crate is rejected and the potatoes are returned to the start of the packing process for reprocessing.

The filled crates of potatoes then pass to a double crate stacker, which places one loaded crate on top of the other. From here the double stack is presented to the integrated yet compact palletiser.

For maximum efficiency, Brillopak's compact palletiser accommodates two pallet stacks side-by-side. When one stack is full the cell door slides open and the full pallet is removed. To protect workforce Health & Safety, only when the cell door closes, does palletising on the remaining empty pallet resume.

Overcoming orientation

The difference having an automated packing line has made to the presentation of fresh produce packs cannot be underplayed reports Andy. "Product accumulations and the speed in which potato packs were delivered onto the rotary turntable previously resulted in irregular orientations," he recalls. The consequence was frequent production stops and starts, and messy trays with packs being placed into trays in different angles and patterns. "Regaining control over the orientation without stopping the line was near impossible once the packing pattern was lost," adds Andy.



The robot arm doesn't miss a beat, packing at high speeds, seven days a week

To resolve this, the company installed two four-axis Delta type robots side-by-side within the two P180 Unipick pick and place systems. Capable of orientating packs quicker than any human being, the robot arms don't miss a beat exclaims Andy. "They just keep going, loading with dexterity, tilting and placing potato packs individually at speeds that even a layer packing robot couldn't contend with. It's an extremely clever piece of kit," he says.

On the manual packing stations, Andy had an equally clear objective - to get rid of the un-ergonomic turntable packing system. Citing that it wasn't the right solution for the potato packs or people, Rushden implemented an inline system. Andy describes as a hybrid design as it borrows elements from the five Brillopak Packstations installed at Thrapston's apple packing depot.

Andy explains: "Physically fitting more people around the turntable to pack

faster was unfeasible. Space just wouldn't allow it. When creating our two Brillopak C130 Semi-Automated Packstations we combined the best of Thrapston's design and integrated several bespoke specifications. Our site's modified design guarantees pack orientation to our colleagues on the manual line. Rather than clusters, packs come through in single file. This helps to guarantee consistent presentation of packs within the trays."

In addition, the design of the C130 lines helps to mitigate repetitive strain injuries and makes the whole manual packing process seamless. "Our colleagues find it much more ergonomic," states Andy. "They're not bending over or moving around the turntable or lifting trays for lengthy durations. This rotation around different tasks, combined with less reliance on agency staff, has created a much stronger team ethic," he highlights.

Optimising OEE

With one multi-skilled person managing both automated P180 lines, as well as pulling away the pallets, Rushden has reduced its packing headcount. An increased packing speed, fewer rejections and less front to back end bottlenecks means that OEE is constantly improving.

"All lines are now running consistently at high speed, which means we don't have a product build up or backlog. We are pushing our vertical form fill and seal limits," comments Andy.

Brillopak's modular design also means that Morrisons has a future proof investment. "Rushden currently has four packing lines handling between 13 and 14 SKUs. If volume of products or capacity demands it, we can converge all four lines and run through the robotic cells. The ability to swap, chop and change or drop in new kit knowing that with one supplier it will work seamlessly alleviates a lot of pressure," adds Andy. This benefit also extends to sourcing critical spares, which in turn reduces stock holding.

"It becomes much easier to manage an automation project when you know exactly who to go to when a problem needs to be fixed," says Andy. Currently, Brillopak is assisting Rushden with a rumble conveyor to stress test the pack seals before they enter the packing warehouse. The end goal is to keep as much rework as possible in the room where it can be repacked, rather than downstream.

To minimise production disruption, Brillopak built, tested and installed Rushden's machines in phases. Most of the really disruptive work was done at night, out-of-hours. "The teams' responsiveness was a real value-add," says Andy.

"Brillopak clearly understands the manufacturing environment and how critical production schedules are to getting fresh produce packed and looking good on the retail shelves," ends Jason

www.brillopak.co.uk

Robot palletisers handle the heavy lifting and stacking of crates



Industrial Washing Machines (IWM) - exhibiting at the PPMA show

Industrial Washing Machines (IWM) will be exhibiting at the PPMA show, a brand new T400 tray washer, the CW13 EX BT general-purpose cabinet utensil washer and the new range of boot washers which are ideal for food and pharmaceutical manufacturing environments. Visitors to the event, which is being held at the National Exhibition Centre in Birmingham from the 1st to the 3rd of October, will be able to view IWM's products and discuss their applications and benefits on stand B104.

The T400 single-lane continuous-wash tray washer which will be taking centre stage at the event, is ideally suited for smaller to medium throughputs, or where operational space is at a premium. The T400 can accommodate up to 400 trays, crates or boxes per hour. It is typically supplied in a continuous straight-through tunnel configuration but overhead feed for one-person operation is optionally available, as are twin-tank versions for high care applications.

IWM will also be showcasing its highly regarded CW13 EX BT cabinet washer which boasts solid construction and user-friendly operation. The new CW13 EX BT general-purpose cabinet washer provides efficient batch washing for a wide range of items, including trays, machine components/ change parts, weigh pans, buckets and utensils. This cabinet washer has been designed with hygiene in mind, with an internal self-cleaning function and the interior of the machine being completely rounded with no right angles.

The machine is supplied with standard reinforced pull-out washing trays measuring 1320 mm x 700 mm, and can accommodate items up to 820 mm high. For convenient handling of heavier items, such as machine parts, smaller trays are optionally available.

Another important hygiene solution exhibited by IWM is represented by the new boot and shoe washing stations range



that are ideal for food manufacturing plants and designed specifically for areas where the production and clean zones of a food manufacturing facility meet. The machines come in many varieties, from simple manual versions to sophisticated walk-through models with multiple brushes, automatic chemical dispensing and access control options.

If you would like to see any of the above machines in action, simply arrange a meeting with one of the IWM specialists or drop by for an informal chat on the day.

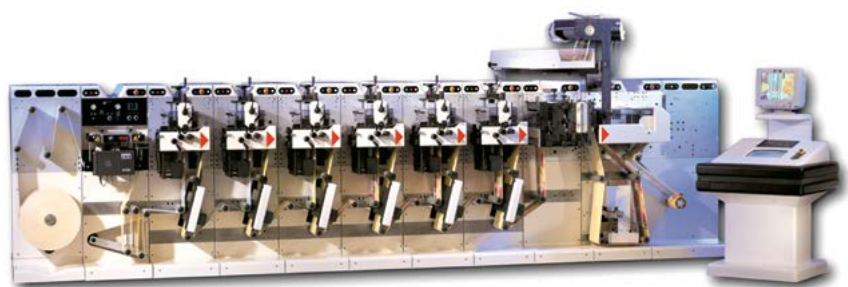
Plan A: put the Customers first, no Plan B. New Label Press at Goldcrest does exactly that.

Goldcrest add to print capability to meet the next generation of creative label design.

Ever since arriving as a prestige, customer-orientated label printer in 1971, Goldcrest Labels have been known for their ability to meet the most complex of print specifications.

With nearly 50 years experience in innovation and solution labelling, Goldcrest have built a reputation as a problem solving supplier, who will work closely with their customers to create cost effective, on time label products.

"It was time to invest to take the company forward. But instead of configuring a press based on what we considered important, we talked to the people who would be filling it with their orders and where they were going," said Stephen Simmons, the second generation of the Simmons family to head Goldcrest.



Now Goldcrest have combined with Nilpeter, one of the leading Print machine manufacturers in the world and installed a fully loaded, state of the art 8 colour Flexographic press, in order to take label design to take another level.

"In configuring the press we were able to take advantage of some of the latest innovative bolt on features that we knew specifically were in demand. This means we are ready to take label design and construction to another level. It is exactly

what we were looking for so we are to offer customers exciting opportunities to make their labels work harder when marketing their products.

In other words, if you have a label wish list, contact Goldcrest Labels.

For more information about Goldcrest, you can visit www.goldcrest-products.uk e-mail np@goldcrest-products.uk or telephone 01869 243 201

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Environmental impact study confirms cartons compare favourably with reusable glass bottles



A state-of-the-art environmental lifecycle assessment (LCA) has confirmed that single-use beverage cartons compare favourably with reusable glass bottles – and outperform single-use PET bottles – across the fresh milk, juice and UHT milk market segments.

A state-of-the-art environmental lifecycle assessment (LCA) has confirmed that single-use beverage cartons compare favourably with reusable glass bottles – and outperform single-use PET bottles – across the fresh milk, juice and UHT milk market segments.

The results of the critically reviewed LCA study are based on an in-depth analysis of the German beverage packaging market, with expert review and oversight by the German Federal Environment Agency (UBA).

The conclusions are globally relevant and support the findings of previous critically reviewed LCAs that beverage cartons offer environmental advantages to alternative forms of packaging for liquid dairy and juices.

SIG Chief Executive Officer Rolf Stangl commented: “The latest LCA confirms once again that beverage cartons are the preferred environmental choice for milk and juice packaging. The high proportion of renewable content in single-use beverage cartons puts them on a par even with glass bottles that can be reused multiple times. These results are based on standard beverage cartons that are around 75% renewable and SIG

already offers customers innovative products that are linked to up to 100% renewable content.”

Rigorous assessments for informed decision-making

SIG is a member of the German Beverage Carton Association FKN, which commissioned the LCA study to support informed decisions on packaging by food producers, consumers and policymakers based on a robust scientific comparison of environmental impact.

The LCA was conducted by the Institute for Energy and Environmental Research (IFEU) in accordance with the recognised ISO 14040/44 international standards. It is the first study to meet the new requirements stipulated by the German Federal Environment Agency (UBA) for beverage packaging life cycle assessments in Germany.

Benedikt Kauertz, Scientific Director at IFEU said: “IFEU supported the UBA in developing its minimum requirements for LCAs for beverage packaging. The study commissioned by FKN is the first to implement these requirements and adopt such a robust approach. The results show that beverage cartons for milk and juice are advantageous compared with single use PET bottles. For milk, beverage cartons are even better than the reference system, reusable glass bottles, and for juices beverage cartons perform on a par with the reference system. For UHT milk, where no reusable packaging option is available, beverage cartons perform better than the single-use PET bottle alternative.”

Environmental advantages of cartons confirmed

Reusable packaging options, such as glass bottles that are returned to food or beverage producers to be used again, are often assumed to be the best option for the environment. That is why reusable

options, where available for a particular market, are used as the reference system for comparison.

Based on an in-depth analysis of all three market segments – fresh milk, juices and UHT milk – the beverage carton performs at least as well, or in the case of fresh milk, even better than reusable glass bottles. The latest study also confirms that both beverage cartons and reusable glass bottles outperform PET bottles for fresh milk, juice and UHT milk. Where no re-usable system is installed, beverage cartons are clearly advantageous.

Cartons perform significantly better than the alternatives on climate change – the category given highest ecological priority by the UBA. The climate impact results for cartons are 78% lower than reusable glass bottles for fresh milk, 37% lower than reusable glass bottles for fruit juices and 71% lower than PET bottles for UHT milk (for which no reusable options are available).

The high proportion of renewable material used to make beverage cartons – 75% on average – contributes to their strong environmental performance, together with their highly efficient design which reduces impacts from transport and distribution. The favourable results are underpinned by the industry’s commitment to sourcing from responsibly-managed forests.

LCAs support responsible product innovation

LCA is fundamental to SIG’s robust approach to product responsibility and informs the focus of the company’s product innovation. These innovations are part of SIG’s commitment to go Way Beyond Good by putting more into society and the environment than it takes out.

FIND OUT MORE ABOUT SIG’S JOURNEY WAY BEYOND GOOD: <https://www.sig.biz/en/responsibility/way-beyond-good>

New Water Quality Meters

HORIBA launches the LAQUA 200 series of versatile and user-friendly hand-held water quality meters.

HORIBA, the world-renowned manufacturer of high-quality instruments and measurement systems, has launched a series of versatile hand-held water quality meters. Called LAQUA 200, the series was developed with a variety of end-users in mind - including those working in the agricultural, environmental, food and drink, manufacturing, water and wastewater industries – and the demanding conditions under which the meters must frequently operate.

The series comprises 10 meters, all of which are robust, easy to use and represent great value for money. Between them, the models in the series measure water quality parameters including pH, electrical conductivity (EC), dissolved oxygen (DO), oxidation-reduction potential (ORP) and total dissolved solids (TDS). Dedicated meters are available for each parameter plus the LAQUA 200 series includes multiparameter meters too.



Armand Uchtmann, Commercial Business Manager of Water Quality Instruments EMEA of HORIBA, comments: "For any process that requires water quality monitoring, the LAQUA 200 series provides excellent versatility, which is why it will appeal to users in so many industries. Meters in the range are ideal for many water quality monitoring situations, such as determining the acidity of a food or drink or recording dissolved oxygen levels in water for environmental studies. Above all else though, all models in the feature-rich LAQUA 200 series represent unrivalled quality and value-for-money."

At just 216g (excluding weight of batteries), the LAQUA 200 series is highly portable and has many features that are of immense use in the field. For example, all models in the series feature a large, scratch-resistant backlit LCD screen with a white LED for easy viewing in dark locations. All models are ergonomic, lightweight and compact in design (little larger than an average smartphone) thus ensuring comfort for the user when testing for long periods of time. Meters in the series are also rugged, waterproof (rated at IP67) and have a battery capacity that supports more than 500 hours of operation.

These features combine to allow for sustained periods of operation in challenging outdoor conditions.

Data is stored in sets, where a set includes details of the unit, date and time, mode of (i.e. the measurement parameter) and the test results. Depending on the model, up to 1000 data sets can be stored and, for all models, data transfer is possible through USB, and printing through RS-232.

Parameter-specific models in the LAQUA 200 series include the PH210 and PH220 meters which measure pH levels in the range of -2 to 16 and ORP over



the range of $\pm 2000\text{mV}$; the EC210 and EC220, which measure conductivity up to 200mS/cm ($k=1.0$) as well as TDS up to 100ppt (TDS factor=0.5), resistance and salinity; and the DO210 and DO220 which measure DO up to 20.00mg/L .

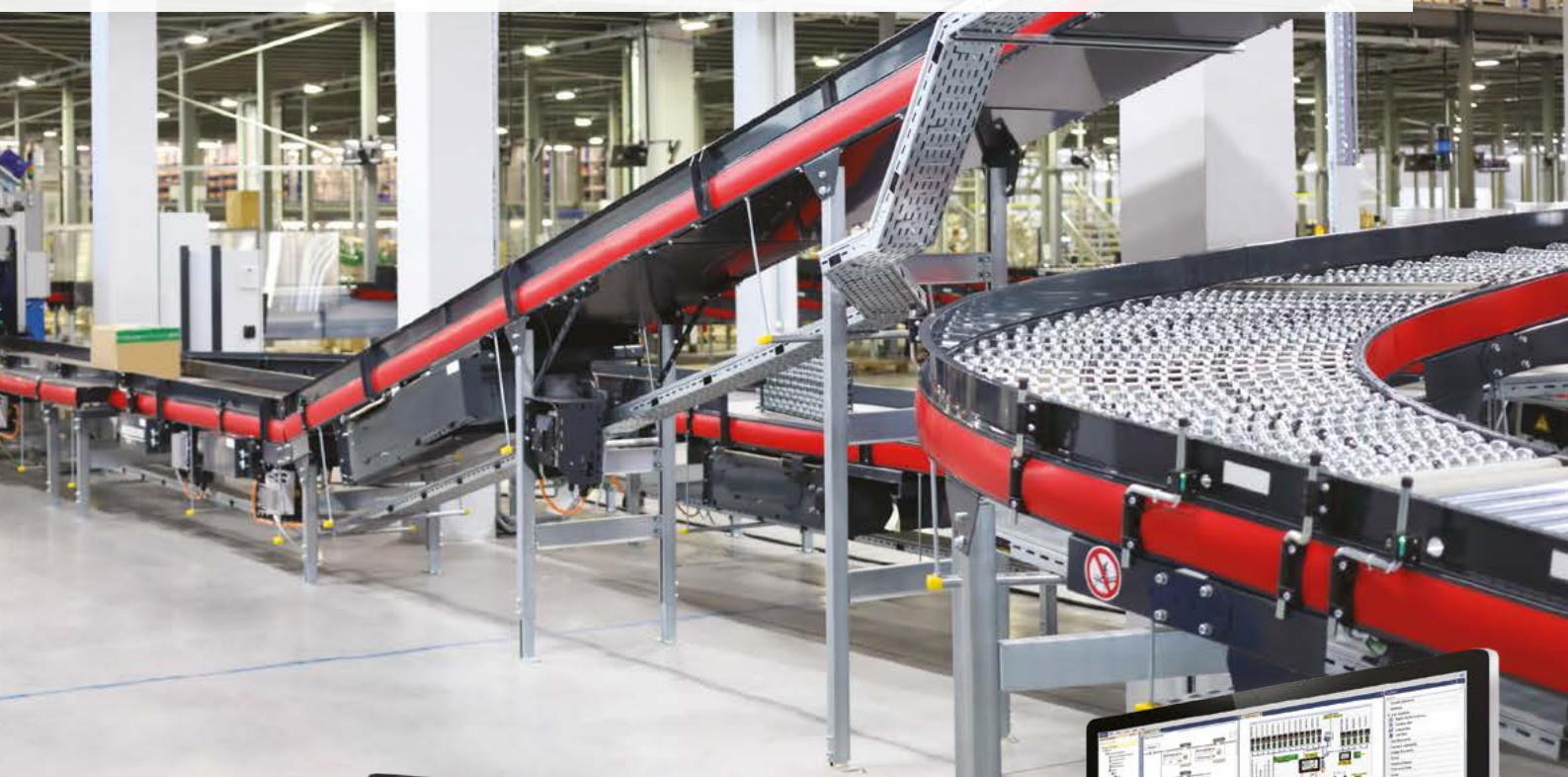
The LAQUA 200 series also includes the PC210, PC220, PD210 and PD220, which are multi-parameter meters and can measure two, more or all the above parameters; i.e. pH, ORP, EC, TDS, DO, resistance and salinity. All meters in the series measure temperature too across the range -30 to 130°C .

Uchtmann concludes: "The 200 series provides the benefits of high accuracy and easy operation, all while being excellent value for money and perfect for a variety of applications."

The LAQUA 200 series is available immediately, with prices starting at just $\text{€}425$, from authorised HORIBA distributors.

For further information about the LAQUA 200, as well as details of other products for use in the agricultural, environmental, food and drink, manufacturing, water and wastewater industries, please visit www.horiba-water.com

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Rotamec rewind service helps a leading brewery to keep its fizz

Ensuring redundancy in large scale manufacturing operations is key to any plant manager's peace of mind. In the beverage industry, where processing speeds are high and profit margins per unit low, securing redundancy is especially important towards promoting

uptime. One world famous brewery has turned to Rotamec, an electro-mechanical service provider to industry, who secured its production line by carrying out a specialist motor rewind and refurbishment within seven weeks.

CO2 is what makes drinks fizzy, and is all important in providing a desirable 'head' on a glass of beer. Compressors are utilised in the production process to carbonate beverages with this gas, performing a vital role in the plant.

Without a running back up compressor to step in seamlessly during issues with the primary compressor, production uptime is at greater risk.

So, when a leading brewery found that the 500kW motor powering its on-site compressor back up had failed, the business required an urgent motor repair and refurbishment to minimise the chances of downtime. With reference to pre-existing maintenance schedules, while balancing adequate time for a quality repair with ensuring manufacturing security, a timeframe of seven weeks was settled on by the brewery.

After contacting several motor specialists that could not fulfil the project requirements, Rotamec was selected. The business was not only able to service the motor within the seven week timeframe, but also provide a cost advantage. Rotamec has been providing high quality motor rewinds and repairs to industry

since 2000, operating state-of-the-art workshop facilities in Cheddar, South Wales and Exeter to ensure a responsive UK service. In fact, the business operates 24/7, 365 days a year to support the needs of its customers. Engineers undertake in-house training provided by leading motor manufacturers, so can quickly familiarise with customers' motors for a speedier repair.

Alan Brooks, Branch Manager for Cheddar at Rotamec, remembers the project well: "In terms of this customer, we were required to rewind the motor and carry out a general overhaul. The challenge was that the motor featured pre-formed coils, which are not the most common type. We therefore had to source these coils quickly before we could begin the rewind. Luckily, we have a wide-ranging capability with regards to specialist motors, which meant we could solve the issue. Ultimately, we were able to return the now refurbished motor within the seven-week deadline,

which was a challenge that our breadth of expertise ensured we could meet."

Once the motor was re-installed, the beverage manufacturer again had access to a compressor redundancy. As a result, production uptime was effectively safeguarded to ensure productivity and profitability. Backed by the highly responsive 24/7 Rotamec service, the manufacturer also has access to the support required for continued high speed, large scale manufacturing in the long term.

Alan concludes: "I am very proud that the team could conduct this specialist motor rewind to schedule, despite the challenging coils. Not every supplier can achieve this, but thanks to our capability with regards to motors of all types, it was a challenge we could meet effectively and efficiently."

www.rotamec.com



When a leading brewery found that the 500kW motor powering its on-site compressor back up had failed, the business required an urgent motor repair and refurbishment to minimise the chances of downtime.

Ensure Compliance, Reduce Costs and Improve Profits



Who is TAAP?

Digital business process specialist
TAAP offers a value proposition that is today helping businesses of all sizes, from Tesco's to lesser-known farm operators, exceed in both health and safety compliance and target optimum productivity levels.

Established in 2003, TAAP has become a market leader in business process automation by enabling clients with bespoke applications (apps) that meet specific operational needs and deploying solutions within weeks (not months or years) on their agile application platform technology.

Working Together

TAAP apps follow a client consulted pre-designed workflow and replace other more costly inefficient methods to manage a process whether that is a legacy line of business system, spreadsheets or the still too common manual paper business forms!

Digital Transformation

Processes today being managed on TAAP apps include; risk and hazard assessments for workplace and equipment, work instruction and safety training, equipment inspections, hygiene checks, picking, packing and batch tracking... the list goes on! Users are assured of near 100% compliance, improved productivity and reduced operational costs.

Operational Visibility

TAAP's digital method of working is an enabler for the real-time visibility of all things related to the operation from employee onboarding and training to production status and output, whilst TAAP's platform capabilities in Business Intelligence (BI), Management Information (MI), and Artificial Intelligence (AI) offer actionable insights to drive change and improvements in a dynamic industry.

Managed Risk

Importantly TAAP's platform enables clients to experience process digitisation as a proof of concept (POC) at a very low cost and with managed risk allowing the business to easily realise a return on investment. POCs then provide the starting point to explore a wider adoption that often includes multiple processes, interfacing with IoT sensors and integration with existing business systems.

Brexit Uncertainty

The TAAP platform allows businesses to adjust their apps with speed and ease providing the perfect tool to deal with the forthcoming uncertainties with Brexit. Therefore users of TAAP apps will be better prepared than most to adapt and adjust to inevitable regulatory changes.



What can **TAAP** do for you?

TAAP is a software licensing business built around digitisation, any and all aspects of the digital transformation journey, processing real-time data, data insights through business intelligence, cross-platform mobility regardless of operating system, system integration, enterprise business process change, smart workflow, internet of things, artificial intelligence, machine learning, collaboration, standardisation, data integrity and business agility.

TAAP is deployed globally across a wide range of industry sectors and verticals. It's a horizontal technology platform with extensive vertical deployment examples within Logistics, Finance, Compliance, Auditing, Inspection, Corrosion, Supply Chain, Oil & Gas, Healthcare and Retail.

The TAAP team has over 300+ man years of IT delivery experience.

If you don't have a digital transformation platform then you don't have a digital transformation strategy. Invest in TAAP to bring to life your next digital transformation project.

If you are keen to learn more about TAAP and how the TAAP platform could benefit your business, please call 0845 230 9787 or contact via email at sales@ontaap.com.





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Modular Double Tube Heat Exchangers

Australian Heat Transfer innovators Teralba Industries, have further developed their range of Dimpleflo Modular Double Tube Heat Exchangers for the food packaging industry.

The Dimpleflo Modular Double Tube Heat Exchanger features double tube modules (sometimes called tube-in-tube modules), which can be 1m through to 12m long and Ø25mm to Ø200mm diameter. Depending on the duty required and heating/cooling media available, the double tube modules can be configured as free-standing units, wall-mounted or even as a jacketed line between the production area and the filling/packaging line.

The modular design allows for maximum versatility as each double pipe heat exchanger module can be disassembled and re-configured to handle new product



lines or varying heat transfer duties. Dimpleflo Heat Exchangers have been proven in hundreds of applications for heating or cooling food products and slurries containing chunks or particulates – efficiently and without blocking. This includes products containing fruit pieces, pasta or vegetable dices.

With a highly qualified and experienced design and installation team, Teralba can supply double tube heat exchangers with a positive displacement piston pump, specifically designed for products containing large pieces. Temperature control systems of varying automation

can be incorporated to meet most budgets.

The attached photo shows a Dimpleflo Modular Heat Exchanger with the optional mobile kit, for the ultimate in versatility.

For further information email Greg Haak: greg.haak@teralba.com

www.teralba.com



The Accelerator Zone at Packaging Innovations and Luxury Packaging London 2019

For the first time ever, the Accelerator Zone will be at Packaging Innovations and Luxury Packaging London on 11 & 12 September 2019. Companies with an innovative new product or solution are encouraged to apply and showcase their development. It could be a new material, new pack format or technological application, such as augmented reality.

"Our event is committed to showcasing the most innovative packaging solutions on the market" said Paul MacDonald, Easyfairs Global Brand Director for packaging. "Whilst there is much innovation going on within the larger companies in this space, there are some really exciting start-ups who are unable to participate in the show but have genuinely ground-breaking solutions.

We want to support those companies and give them a chance to meet with potential customers who will help them grow their business."

On the 6th of August judges will be selecting six companies with a truly innovative product, service or solution for the packaging industry. The selected winners will be offered space at the 10th edition of Packaging Innovations and Luxury Packaging London this September,

promoted to the industry as the 'ones to watch' throughout extensive media and partner coverage.

Companies wishing to be considered will need to fill out the application form by Monday 6th August with the lucky companies being announced at the end of the following week.

www.easyfairs.com/packaging-innovations-london-2019



PACKAGING INNOVATIONS 2019

11 & 12 September 2019 | Olympia London



Kenburn: Managing business waste more effectively

The importance of keeping on top of your business's waste is becoming ever more vital. Improving your waste management has a range of business benefits; from cutting disposal costs to enhancing green credentials.

A waste audit reviews and analyses the waste your business creates. It helps you understand the main sources of waste, the diversion rate (how much of your total waste is diverted from landfill) and makes it easier to develop improvements.

What is a business waste audit?

In an audit, you can gauge how much of your waste is reducible, reusable and recyclable; allowing you to create goals and cut your costs. An audit is a vital first step in ensuring your business manages its waste effectively. It will give you a clearer understanding of the types of waste your business produces. Are you producing recyclables such as cardboard, paper, plastic or fibrous materials? What about non-recyclables such as light waste, static waste, food waste or liquid?

An audit will enable you to calculate a waste diversion rate and get a better idea of where contaminants are being produced.

Materials cannot be recycled if they are contaminated with non-recyclable waste.

Different kinds of waste should be approached in different ways to maximise efficiency.

Organic rubbish needs to be treated particularly carefully— it can attract vermin if improperly stored and can spill liquid if not processed with a wet waste compactor. Plastics can take up large amounts of space if not compacted which wastes money on multiple unnecessary rubbish collections and unused working space.

Investing in the correct waste management machinery is an important next step in optimising any waste management system.

Wet Waste Compactors for food and other wet waste

If you produce large quantities wet and smelly waste, wet waste compactors are ideal as they are fully sealed to ensure no odours or liquid emerge from the compactor. This allows all the benefits of minimising the volumes of waste you produce, without risking any contamination of the working environment.

Balers for recyclable solid waste

The fact that many types of paper, cardboard and plastic can be recycled means they need to be sorted with care. Balers are ideal for any sort of recyclable business waste, including Cardboard, Paper, Plastic, Metal and Fibrous materials (cotton, minerals, wood and wool).

By minimising the amount of space waste takes up, waste collection costs go down as less trips to waste processing facilities required and much less space is taken up in workplaces by waste.

Conducting a business waste audit will give you a better idea of just how much you can save by reducing the size of your landfill waste and properly baling your recyclables.

For more information or to arrange a free of charge waste audit, visit www.kenburn.co.uk, email sales@kenburn.co.uk or call 01727 844988





Waste Minimisation Initiatives for the Food & Drink Processing and Packaging Industry

Established in 1987, Kenburn Waste Management has over thirty years' experience within the waste management industry, providing cost effective and environmentally friendly waste minimisation solutions for the food, drink and packaging industry.

During this time, we've built up an impressive portfolio of clients, from world famous department stores to some of the largest food processing plants in the country. This has enabled us to become one of the UK's market leaders for waste management advice within the food and food packaging industry.

With a wealth of experience within this sector, a member of our sales team can visit your site to assess your current waste handling operations and audit the waste you're generating. We can then provide suggestions and solutions to help

you reduce your ever increasing waste management costs.

By not providing a waste collections service, we are free to offer you completely impartial advice on the most efficient methods of waste management and you are free to negotiate the best price with your recycler for your waste materials.

We supply a range of quality equipment that will suit most needs and because we've been in the industry for so many years we are able to offer both new and refurbished equipment. All machines we supply come with at least a 12 month warranty, whether new or refurbished.

We help our customers save money on their waste management costs. We would like to help you too.



To arrange a no obligation, free of charge waste audit, please contact us on 01272 844988.

**www.kenburn.co.uk
sales@kenburn.co.uk**





Sustainable wastewater treatment with proven results from Biowater Technology

After three years of operation, the wastewater treatment plant at the Smaken av Grimstad, has solved challenges and opened new opportunities. The treatment process is sustainable; it produces renewable energy in the form of methane, minimal sludge and a treated wastewater with great potential for reuse.

The Smaken av Grimstad processing facility in Southern Norway produces over 40 varieties of fruit and vegetable products. In 2016, the facility increased production and by consequence wastewater volumes, which come from the washing of the natural ingredients.

Even with a significant reduction in water consumption achieved over the previous 5 years, wastewater from the facility had long been to the point of bursting for the local municipal wastewater treatment plant. It was for this reason Smaken av Grimstad decided to build its own treatment plant, which solved the problem.

The solution is sustainable and environmentally friendly, and at the same time as providing great savings to Smaken av Grimstad, has softened the municipality's challenges.

"The results are beyond expectations. The plant works well and gives us an energy surplus in the form of heat, which we will eventually utilize to our advantage. The process is so efficient that it also allows for reuse of water" says quality manager Sigmund Leiros of Smaken av Grimstad.

Processes that utilise organic waste to make biogas are not new, but doing so with industrial wastewater is more complicated. Food and beverage production in close proximity to residential surroundings demands clean and odourless treatment which is offered through the process. The quality of wastewater varies significantly, so often technology becomes more complex to meet the discharge requirements. The solution for Smaken of Grimstad has therefore been followed with great interest in the Norwegian food industry and is ready for deployment globally by Biowater Technology and their network of international partners.

"An article in the magazine *Næringsmiddelindustrien* put us on track with the Norwegian company Biowater Technology, who has delivered the solution, says Smaken av Grimstad CEO Jan Rommetveit.

While traditional treatment plants require a lot of space, consume chemicals and produce a lot of sludge, this process is the opposite. It takes up little space and utilizes the wastewater resources in a direct way. The heart of the plant is a vertical reactor of methane producing microorganisms, which live off the wastewater. The microorganisms consume the organic compounds in the water, which is fed from a buffer tank to allow for flow variations from the factory. The biological process requires no chemicals, but nutrient for organism growth and pH is adjusted slightly prior to treatment.

At the top of the tank, the process ends with an aerated biofilm plant, which removes residues of organic matter and any odours. A smart feature of the solution is that sludge from top part falls back into the first part of the plant for digestion, contributing to stable operation, less sludge in the output and high gas production. It can be run with periodic sludge removal but has rarely been necessary for the Smaken av Grimstad project.

"What makes the method so exciting is that approx. 75% of the organic waste is turned directly into methane gas, which can be directly utilized as an energy source, says Ilya Savva CEO of Biowater Technology in Tønsberg. "The combination of methane production and aerated biofilm in a single reactor is unique to the Biowater Technology process and offers odourless treatment at highest removal efficiency."

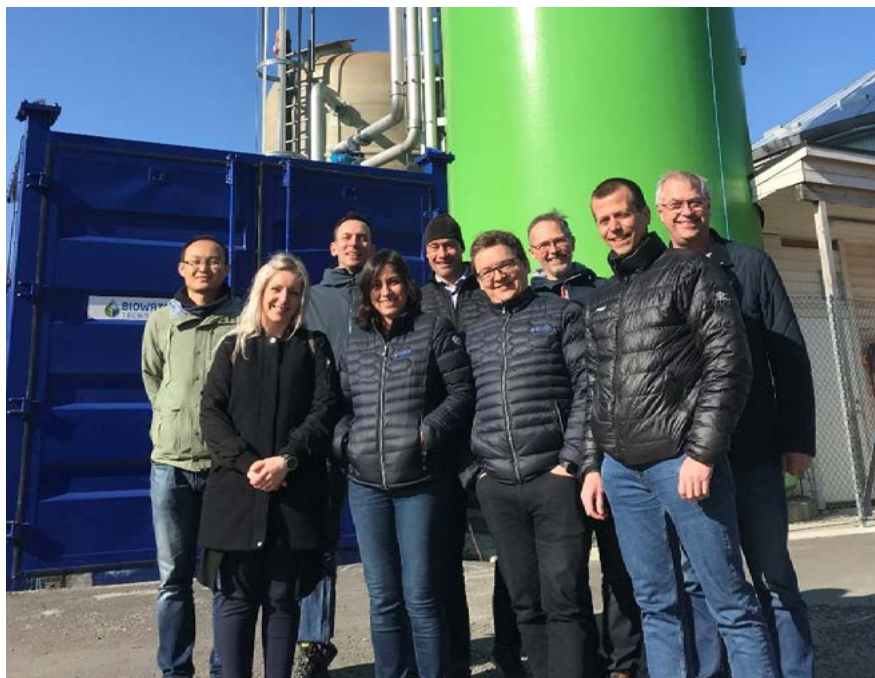
An important feature of the process is that the effluent contains few particles, and therefore the system generates virtually no sludge. A historical issue for factories is the strict requirements for handling sludge, which is often associated with huge costs to get rid of.

"That we have exchanged sludge with gas therefore gives double gains. The plant provides combustible methane and, in total, a positive energy contribution. Using the gas for heating is the next goal for us" Leiros emphasizes.

Processing fruit and vegetables requires a lot of water. The fact that the treated water is of good quality allows now for further gains through water recycling with membrane technology.

During a recent week of sampling, the results showed that the plant gave a reduction of 90.4% of the total chemical oxygen demand (COD) in the wastewater.

At the same time, the reduction of dissolved substances was 91.2%. Wastewater contains, as previous analyzes indicated approx. 250-850 total COD kg / day.



"We had a goal of a reduction of 86% total COD, so it's been a real bonus to have achieved so much better results.

It has also given us more biogas than expected as well cleaner effluent water," points out Savva.

On the energy consumption side the results have also been impressive. Since the plant requires far less supply of air than other treatment systems, and has fewer mechanical components, it consumes less energy, approx.

1 kWh per cubic meter of treated water.

The gas production in the plant is stable and approx. 0.4 cubic meters of methane per kg reduced COD.

In summary, the process contributes to a net positive contribution in the energy accounts.

The project has cost approx. £1.3 million (British pounds) to build and has received support from Enova, a public organisation in Norway which supports projects to develop future energy systems and reduce greenhouse gases.

According to Biowater Technology, the process, which has been named HyVAB*, (Hybrid Vertical Anaerobic Biofilm), is specifically tailored to wastewater from the food industry, pharmaceuticals and municipal plants. HyVAB holds EU patent number is 2254842 and in Great Britain 2456836.

The benefit, including treated water quality and the amount of gas you can count on will depend on the composition of the wastewater, but can be simply assessed by their expert team.

**For Wastewater Treatment enquiries
Biowater Technology AS
post@biowatertechnology.com**



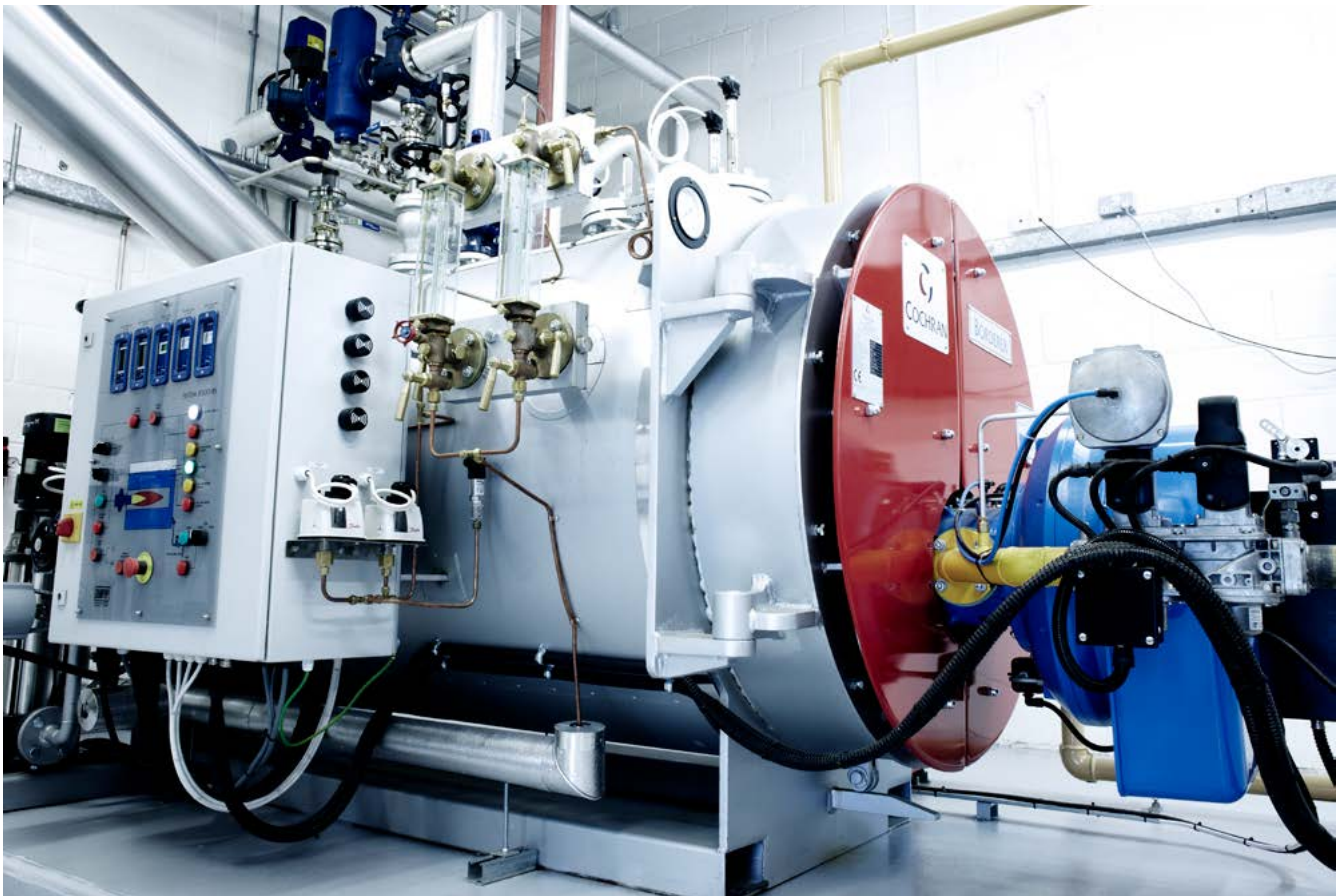
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Prioritising environmental values

Dave Bird, National Sales Manager at Spirax Sarco



From brewing to food processing, steam plays an important role in the food and beverage sector. It is widely used for a variety of production processes, including blanching, bottle washing, and peeling, canning and cooking. Different types of steam, such as filtered and clean steam, can also have a huge impact on the quality of the end product.

The food and drink processing industry is labelled as the fourth highest industrial energy user in the UK by the Carbon Trust. With the 2020 emissions target looming, it has never been a better time for the sector to reduce its carbon footprint. At Spirax Sarco, we are committed to helping our customers gain better control of their energy consumption, which, in turn, will help to significantly reduce energy

consumption and costs. From experience, we have found that one of the best ways to do this is by implementing simple, efficient measures.

A good place to start is using equipment that can optimise the steam system, such as modern heat exchange technology. Systems like these can be implemented easily, helping plant operators to improve overall plant safety, reduce energy costs and usage, increase efficiency, and remain competitive in this demanding market. Crucially, these improvements don't need major overhauls to company structures and processes. Instead, companies can make simple changes to equipment they already have in the plant, which will still achieve significant savings.

Given the current economic climate, operators may be interested to know that optimising the efficiency of their steam system could be easier than expected. Take, for example, steam traps. These are the most important link in the condensate loop, and can help to lower energy consumption, maintain product quality and increase

productivity. Effective steam trapping is, therefore, an essential process that can help users operate sustainably. Needless to say, trap selection must meet the pressure, condensate load and air venting requirements of the process. From trapping stations to specific trap devices, steam traps are considered to be one of the most effective resource-saving measures, so users must take

care of them – ideally through scheduled maintenance.

A reliable and safe supply of hot water is crucial for wash-down and Clean-in-Place (CIP) processes. Traditionally, the food and beverage industry has relied on large shell-and-tube calorifiers that use steam to heat water.

By replacing these storage tanks with instantaneous systems that use compact heat exchangers, like Spirax Sarco's EasiHeat™, plants can achieve energy savings of up to 20 per cent. These systems work by capturing and reusing heat that may otherwise have been wasted, and can deliver a constant supply of instantaneous hot water at a stable temperature. This reduces the amount of steam required, which, in turn, cuts fuel demand and the associated CO2 emissions.

Furthermore, plate heat exchangers are easier to maintain and simpler to control, which helps keep the system running at optimum efficiency.

It's important to remember that the boiler house is the engine room that powers the whole steam system, making it a vital place from which to measure efficiency. The only way to obtain true boiler efficiency is to meter all energy into the boiler (in the gas and feed water) and compare this with the useful energy out of the boiler (in the steam). Energy monitoring systems, such as Spirax Sarco's B850 Boiler House Energy Monitor, manage this process, allowing users to react quickly to any data they receive. If the monitor detects a drop in efficiency levels, for



example, the cause can be identified quickly and remedial action taken in order to prevent unnecessary costs from arising. The monitoring of systems also enables energy and facility managers to benchmark the efficiency of boiler settings and operating procedures, meaning energy and cost savings can be measured and implemented effectively.

All food and beverage companies must comply with certain legislation, and some may also be driven by their impact

on the environment, hence the reason why energy efficiency needs to be high on the agenda. By implementing simple measures to help optimise the efficiency of the steam system, steam users will, not only benefit

from reducing their carbon footprint, but will achieve significant cost savings in the process too.

For more information, please visit:
spiraxsarco.com/global/uk



Installation at the Rugby site, which was completed at the beginning of April, was phased over two months, while the warehouse remained operational. Raw material stored in the warehouse was relocated in batches in order to clear space for the racking solution, which could then be filled before moving onto the next area. Jungheinrich created a programme of build that would work alongside the Britvic warehouse operation and team, completing the installation one week ahead of schedule.

Patrick Parker, Project Manager, Britvic Soft Drinks Ltd: "We have gone through a significant change at our Rugby site, installing new manufacturing lines to increase our production speed, flexibility and volumes. In order for this change, we worked with Jungheinrich to provide the raw materials storage.

It was difficult to go through a complex construction programme whilst keeping the warehouse live, but the collaboration and hard work from the installation and warehouse teams kept everything working smoothly. It has been a very positive experience working with Jungheinrich on this project."

Steve Richmond, Director – Logistics Systems, Jungheinrich UK, adds: "We are delighted to have worked with Britvic to optimise the density of pallet storage into its warehouse operation in Rugby. With a large existing fleet of materials handling equipment, it was important to find the right solution for Britvic to maximise this resource within the existing warehouse environment. Working collaboratively, we're pleased to have provided a solution that surpasses those targets and supports future flexibility for continued growth."

In total, Britvic has invested more than £100m in the Rugby site as part of a broader £240m three-year investment programme in its GB manufacturing capability. The investment is designed to step-change the speed and flexibility of its production lines while delivering environmental benefits through greater efficiencies.

www.jungheinrich.co.uk

Britvic increases warehouse pallet storage density with Jungheinrich racking and shuttle solution

Jungheinrich UK has provided leading soft drinks company Britvic with a multi depth, high density under pallet carrier (UPC) shuttle racking solution to optimise its warehouse space in Rugby. The installation, which includes three areas on site, has significantly increased the number of pallet spaces for the storage of raw material used in the manufacture of soft drinks cans.

Use of the available space has been completely redesigned in the warehouse following in-depth analysis of the site and ongoing consultation with Britvic. Utilising existing resource in all its guises was key and, while increasing capacity, a floor plan was also required that would accommodate Britvic's double pallet handling counterbalance trucks.

For one new area of the warehouse, a multi depth racking system and four shuttle units were deployed, optimising the available storage space. The solution was tailored by Jungheinrich to create more than 300 additional pallet spaces on top of the target Britvic requirement; this project was all about capacity on site.

A second palletised area of the warehouse was designed in place of an existing carousel system, creating an additional 206 pallet spaces with static pallet racking; while a final area was enhanced by unlocking space vertically. Here, block stacked pallets were replaced with conventional racking to deliver an additional 2,186 pallet spaces – resulting in capacity for a total of 3,376 pallets across all three projects.

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Autumn Flavours Unveiled

Award-winning flavours house Unbar Rothern is challenging caterers to spice up their menus with a new and exciting range of flavours for meatballs and stuffings. Top of the taste parade is a fragrant sweet orange and tart cranberry mix.

cinnamon flavoured pork & toffee apple plus a warm and spicy pork and mango chutney. A sweet and spicy pork, apple, leek and chilli mix plus a spicy apple and black pudding (seen as man food) complete range.

Other tempting newcomers are leek and black pepper, red pepper and shallot and a classic sage and onion with a significant hit of black pepper.



"We recognise that it is all too easy for an industry to become attached to the familiar and get stuck in the mud," said Unbarrothon director Richard Rothern. "We have worked very hard to

At the same time the 95 years old Essex flavours house has unveiled six innovative new sausage seasonings – two of which (Smokey Garlic & Thyme plus Parsnip, Honey & Thyme) are vegetarian friendly. Also new are memory-jogging

produce new and interesting ideas which will make a food offer more interesting – and profitable," he added.
www.unbarrothon.co.uk

New Style Uniball Tumbler Mixer From Machines 4 Food

The machines have been sold to client using a range of different products as coating vegetables in oil, mixing medical powders, Bakery recipes, flapjack mix, mixing different nut types, marinating meat with sauces, mixing coffee beans, food ingredients, coating olives in flavours, flavours on nuts.



Machine details
 New Machines 4 Food Tumbler Mixer
 Model Uniball 225 Mixer Tumbler
 All stainless steel construction
 Capacity 225 litres, load capacity 60 kg to 100 Kg
 Drum made in 316 stainless steel
 760 mm inside diameter x 700 mm deep
 With inner blades to assist product roll
 Variable speed from 12 rpm to 24 rpm
 Motor gearbox drive 1.1 Kw
 Electric tipping discharge by motor gearbox
 Motor gearbox drive 0.12 kw
 Electric options 230/380/415 volts 50 Hz
 Electrical controls mounted in IP 65 stainless steel control box
 Mounted on stainless steel wheels, includes lid
 Discharge height to suit a standard 200 litre tote bin
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Cost and time efficient linear motion: Thomson MLA series hybrid stepper motor actuators available from Heason Technology



Thomson MLA series stepper driven actuators – available from Heason Technology

Recently introduced by Thomson Industries and available with full support from its UK distribution partner Heason Technology, the new MLA series stepper motor driven lead screw actuator features integral anti-rotation guidance and has been designed as a compelling solution for shorter stroke linear positioning tasks. The rod-style, fully housed MLA series can save the time and cost of design and build for support bearings, lead screws and coupling mechanics, where the torsional force free actuator fulfils all of the componentry required for precision motion.

Typical stepper motor driven positioning mechanics, including stepper actuators, drive a lead screw that translates the motor's rotary motion into linear motion and force by way of a captive nut. This requires additional support components and an external anti-rotational device for the nut. Whilst some machine designers might choose complete position stages that have these features built-in, or design their own anti-rotational mechanics, space restricted and

especially shorter travel linear axes often require custom made mechanics which add unwanted length through bearing blocks and couplings.

As an all-in-one positioning component, the MLA can be easily integrated into such automation tasks, reducing space and minimising the design and assembly requirements. This way Heason Technology's customers can simply specify load, stroke length and end mounting details for each axis from a comprehensive range of options, then the complete actuator set is delivered and ready for installation.

The MLA design includes an aluminium cover tube with moulded splines in which the nut is locked through integrated low-friction bushings that additionally enable the actuator rod to withstand small radial and moment loads.

The range is available with NEMA type micro-stepping motors, with frame sizes from 8 through 23 in single and double stack power ratings. The range

covers maximum stroke lengths of up to approximately 38 mm for the smaller motors and 63.5 mm for the larger motors. Both precision and standard grade lead screws can be ordered with positioning accuracy of 250 microns/300 mm and 125 microns/300 mm respectively. Through the range, the maximum linear force, which is speed dependant, is around 100 Newtons for the NEMA 8 frame motor and 600 Newtons for the size 23 (at lower speeds). The MLA series is designed for lower-speed positioning in the range of 25 to 250 mm/sec and best suited to space constrained low-force positioning tasks that require high repeatability. Heason Technology can guide customers through the selection process to optimise the choice and size of actuator for the task.

The MLA series complements Thomson's MLS and MLN series stepper motor driven leadscrew assemblies that feature rotating screw and rotating nut designs respectively and are equally aimed at space restricted applications with similar force and positioning accuracy characteristics. The choice of three stepper motor driven actuator styles brings flexibility for small scale machine design.

Heason Technology supplies Thomson's ML series actuators as separate components along with compatible micro-stepping drives and motion controls, or as integrated components as part of the motion specialist's in-house design-and-build systems integration service. The West Sussex based motion specialist offers complete sales, technical support and service across Thomson's linear motion and power transmission component range in addition to working with other leading motion control equipment manufacturers to automation and positioning system solutions for challenging applications in a diversity of industries including aerospace, automotive, defence, research, robotics, process control, packaging, motorsports and many more.

www.heason.com



An Easter weekend for IES to swap out vital obsolete LV switchgear

The challenge

One of world's largest pet care companies manufacturing leading pet food brands 24 hours, 365 days per year needed to update its low voltage switchboards.

Due to the 24/7 production schedule, both switchboards needed to be upgraded with minimal impact for production. IES identified the Easter weekend of 2019, with a 6-day window running day and night shifts to achieve this tight install timeframe.

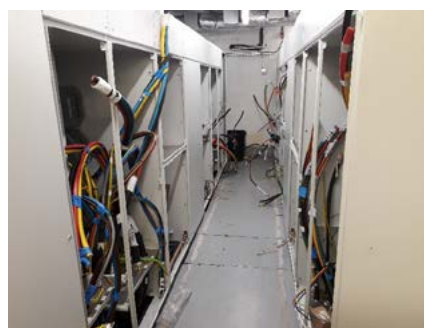
Preparation

IES carried out two surveys of the special requirements (e.g. access routes, ceiling heights, trench locations, room size etc). The existing power cables from the switchboard were to be retained and re-utilised. One of the surveys identified issues with existing installation, e.g. cables not the size documented and fuses above the rating of the cabling. IES

created an Amtech model to verify the installations compliance with BS7671.

What was achieved / results:

A detailed project plan ensured all information and manufacturing proceeded on a scheduled basis and helped identify milestones and key dates within the project's lifecycle. As a result of careful planning, the weekend installation was successful with power being restored to the factory at 10am Tuesday morning, eight hours ahead of schedule.



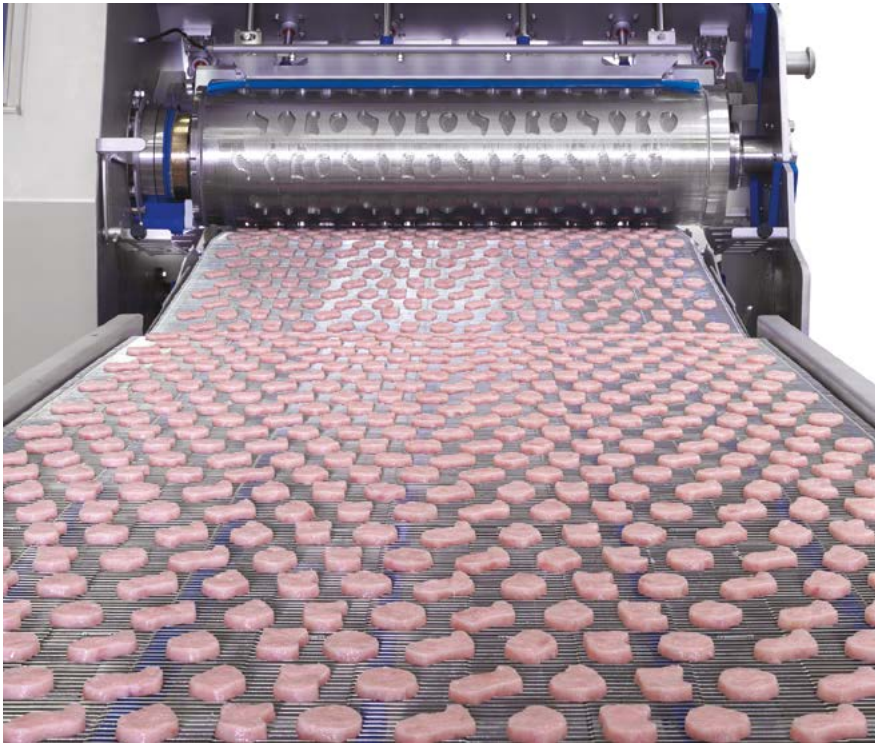
Site Installation of switchboards

- 2000A Switchboard in place and energised with second at the rear
- Full NICIEC Testing & Inspection to BS7671 Wiring regulations.
- New switchboard is form 4 type 6, one of the highest forms of separation, and built to BS-EN61439-2 standards.
- New switchboards are 2000A for additional load for future requirements.
- T.V.S.S type 1/2 protection now provided to the switchboard
- Full metering installed on all outgoing circuits and overall incomer. The new multifunction metering is integration into client SCADA system.
- 2x New 542kVAR Detuned PFC cubicles

This was another great example of IES understanding the needs of the Food and Beverage sector to deliver safely, on-time and in-budget.

www.iesworks.co.uk

Maximizing quality and minimizing costs with fully automated production lines



Under the motto 'Excellence at Every Stage', GEA presented its equipment and solutions for diverse applications at this year's IFFA, key trade fair in the area meat processing (May 2019, Frankfurt/Germany). Key processing and packaging exhibits demonstrated the benefits of automation; optimal process control; as well as the efficient use of resources, energy and labor in meat manufacturing.

The technology company is recognized worldwide as a leading supplier of complete preparation line solutions for processed meat and poultry as well as other products. The production line for chicken nuggets, part of which was displayed during IFFA, integrates several machines responsible for recipe-controlled meat grinding, mixing, forming, coating, cooking, frying and freezing in one seamless, fully automatic process – proving that automation is more than the robotization of single machines. GEA offers a complete data-connected production line that ensures consistent high-quality products while minimizing labor costs and with full traceability.

Connecting modern machines and ensuring effective running

Coupling meat treatment machines with additional processing steps brings many advantages to the overall production process. The chicken nugget line from GEA enables fully automatic production via batch execution based on a process recipe. A major advantage of having a centralized system is that the product recipe must only be read once, sending the parameters to the individual machines which then communicate with each other. This automatically triggers the pre-production phase, with materials provided just-in-time from silos, which means that much less labor is required and human error is kept to a minimum. Likewise, nugget quality is improved since the components are supplied at a constant temperature, mixture and consistency. The extremely fine-tuned system ensures low tolerances, so that the degree of deviation is very low. After production, reports are available to check the process conditions of each batch.

All machines and systems from a single source

By using a single supplier, like GEA, all machines, programs and interface are standardized, so that all process information can be shown inside the entire system for all equipment. The advantage is that data are aligned and comparable, visible in one system and standardized over one level. When a producer uses different systems, they must define all the integration requirements that must take place. This makes coming up with the offer, as well as the installation and commissioning phases much more complex. The reaction time is much longer, given the number of interfaces and various skills required. With GEA, alignment with a third-party interface is unnecessary as the company provides the complete line from offering, installation and commission from a single hand.

High production capacity with low labor costs

The chicken nugget line includes the GEA MaxiFormer at its heart, which provides very high production capacity, better consistency and significantly lower operating costs. The step-filling system minimizes the pressure used to fill each cavity carefully and progressively. This, combined with its rigid drum design, reduces wastage, improves filling accuracy, creates a higher quality formed product with excellent shape retention and minimizes down time for cleaning. Its knock-out system uses dry air at high pressure applied only to the relevant cavities, instead of the entire drum. "This significantly reduces air usage and, therefore, energy costs," says Luuc van Lankveld, GEA Product Expert. "That's an important innovation for achieving economy in production."

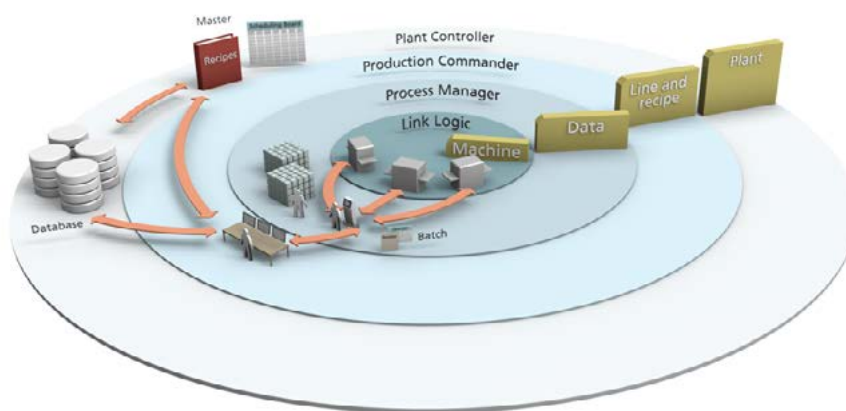
High capacity, with less labor, is the way to develop new products in countries with high labor costs. However, the quest to minimize labor costs and increase production could not be pursued at the expense of product quality. Providing the quality is often achieved by taking practical measures around the plant.

"When designing the line for our customer Danpo we looked for example at different aspects that were important to the customer – not only space and functionality, but also the environmental aspect, food safety, cleanliness, ease of maintaining an overview and working conditions. I must say, we are proud of the result," says Jos van Dommelen, GEA Group Leader Product & Project Sales Support.

Danish customer is convinced of the line's advantages

Danpo, part of Scandi Standard, the largest chicken processing enterprise in Scandinavia, commissioned GEA in 2018 to build a fully automatic line for chicken nuggets. The factory in Farre, Denmark, produces a wide range of fully-cooked chicken products over four production lines. "GEA helped us to develop the line machine by machine. They provided a round-the-clock service with quick, easy solutions to improve the line capacity and performance," explains Per Ulrik Jørgensen, Danpo Product Technical Manager at the Farre factory.

The meat is delivered to the line in 500 kg batches, ground, then mixed with water and a range of ingredients and chilled to -2 degrees Celsius in the GEA ProMix via the use of nitrogen. GEA's patented step-fill system pumps the meat into the GEA MaxiFormer to create the desired shape in a stable filling process. The nuggets are then moved by conveyor through a pre-duster, cooked to a core temperature of 73 C, breaded or battered as required then flash fried at 190 C, and frozen. The entire process takes just six minutes. "With GEA delivering all the equipment on the line we were certain each element would fit together and be compatible," says Per Ulrik Jørgensen. "We run 60-hour production shifts, with



only a quick forming drum replacement and some light rinsing of the conveyors – approximately every 10 hours. For the rest of the time, the operators just watch and maintain an overview. When the operators can put their hands in their pockets, and have nothing to do, I know it's working well," Jørgensen adds.

Individual automation of processes

Each customer has different needs and framework of conditions. Some customers require less, while others are looking for models that offer even more connectivity than required by Danpo.

At the center of each automated process is the ability to start multiple machines at once while ensuring the safety of the production environment – which then increases productivity. Key features are semi-automatic batch control and machine collision interlock. For example, the interconnection of the belt loader, filler and former eliminates the need to use and store trolleys given everything remains in flow. This first level of automation is available from single equipment to full line set up.

When customers must comply with traceability regulations, the system can be used to record all material movements throughout the process while interacting with the customer's systems. Barcode scanners are used to record all manual material additions and label printers are used to identify all materials discharged to bins/containers. The system allows users to find out where materials were used and to trace the process conditions for end products. By using an ERP system on the customer side, this module can also be extended with an ERP interface – preventing the double entry of recipes and material lists. The interface also reports production data back to the customer's ERP system.

With an office client (i.e. computer inside the office environment) the customer has the same view as the employees on the production floor. It is easy to oversee the complete process as well as create recipes. Planning and analyzing the data is easier in this environment.

GEA automated systems can fulfill customer demands with different modules that can be extended in functionality, for both connected machines and client connections.

gea.com





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