

MEATING POINT

magazine

SUSTAINABLE TECHNOLOGY, PROCESSING & PACKAGING

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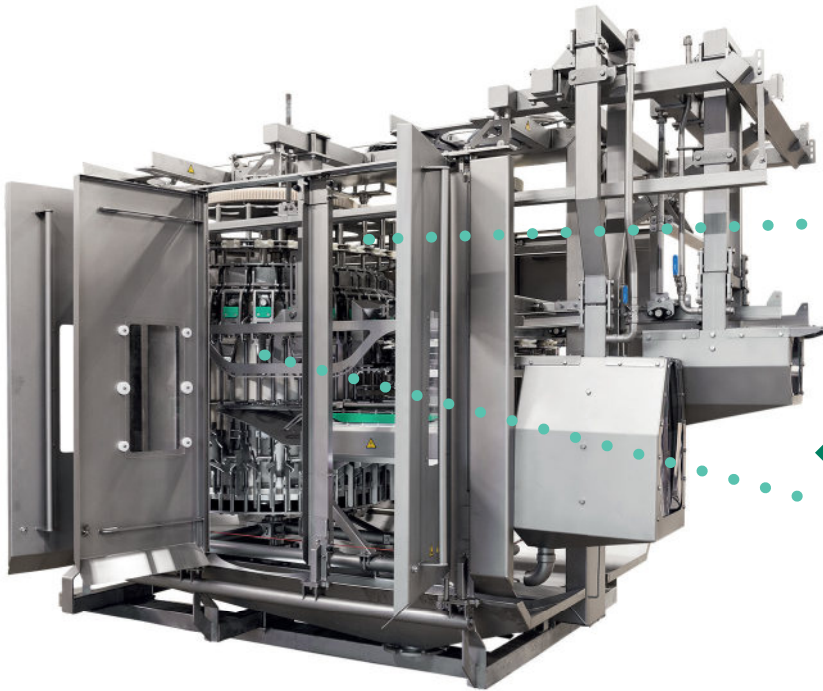


**6 QUESTIONS ABOUT
HIGH-VOLUME CHICKEN
FILLET PORTIONING**

**IMAGINING THE FUTURE:
CELLULAR AGRICULTURE
(PART 2)**

**EARLY WARNING APP
SPOTS DOWNTIME
DANGER**

THE LEGEND CONTINUES



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Dear reader,

The meat industry is more market-driven today than ever before and the requirement for business transformation is rising. Consumer expectations and demand are challenging and reshaping the way the industry operates. Trends driving expansion include population growth, increased demand, foodservice industry growth, health regulations, and increased export opportunities. As challenges continue to present themselves in the meat industry, producers must have the flexibility to adjust business practices and discover the planning capabilities to add value to their products and stay competitive.



Jenny Smart

While complexity and cost pressure is increasing, production should become more flexible and efficient. More modern technologies such as the Industrial Internet of Things (IIoT) and Industry 4.0 bring large benefits for the meat industry. For example, sensors in conjunction with IoT technology enable companies to create a transparent atmosphere where every element interacts, from manufacturing to production to service and management. This way, manufacturers can quickly identify issues at any stage and take necessary measures in real-time.

However, despite the enthusiasm to digitalize and ride on opportunities Industry 4.0 promises, the road to digitalization is not without its challenges. Manufacturers are often overwhelmed by the complexity of the project, uncertain about business outcomes they want to achieve with digitalization or put off by the initial capital outlay. Legacy systems and a mix of old and new machines in the manufacturing plant also further compound the problem of finding the right solutions.

In this issue, you will find insight into how a digital transformation can maximize the value of your meat supply chain by adopting a host of new digital technologies to create ultra-flexible and efficient production systems where all factory elements and utilities can seamlessly share information and respond autonomously.

The key to a successful leap towards the future digital meat factory is an ideal fit of technologies, process innovations, and consumer wishes. Digitalization is rapidly changing the meat industry for the better and has yet to reach its full potential.

As always, we feature the industry's latest news and developments, top-notch technological innovations, company profiles, as well as research papers.

Enjoy your read!

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Contents

39 / 2021
 Volume 7

EDITORIAL	3
INDUSTRY NEWS	6
SPOTLIGHT	14
6 Questions About High-Volume Chicken Fillet Portioning	
AUTOMATION	16
Alarming Labor Shortages - Who is Going to Roll up their Sleeves?	
COVER STORY	18
Increased Output for Deliciously Smoked Products in Less Time with Gea Solution	
DIGITALIZATION	20
Digital Transformation in Pig Slaughterhouses By Holger Dirac	22
CONVEYING	34
Choosing the Right Conveyor Belt for Food Safety	
WASTE MANAGEMENT	36
Hard-to-Handle Fruit, Veg & Poultry Waste Proves Easy Pickings for Seepex Btm Pumps	
PERSPECTIVES	38
Imagining The Future: Cellular Agriculture - Part 2 By Henk Hoogenkamp	
PACKAGING	42
FOOD SAFETY	54
SUPPLIERS GUIDE	56



18



16



30



46



49

IN THE NEXT ISSUE:

- * Hi-Speed Cut-up Lines
- * Inspection Systems
- * Thermal Processing, HPP
- * Chilling & Freezing Equipment, Ice Machines, IQF Products
- * Shelf-Life Extension of Packed Meat, Poultry and Seafood

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INDEX OF ADVERTISERS:

FAM N.V.	33
GEA Food Solutions Bakel BV	27
Global G.A.P	47
Industrial Auctions B.V.	35
Karl Tichy Handelsgesellschaft mbH	29
Krehalon B.V.	25
Marel Further Processing B.V	31
Marel Poultry B.V.	43
Maschinenfabrik Laska Gesellschaft mbH	21
Meyn Foodprocessing Technology	2
Messe Frankfurt (HK) Ltd	24
Nothum Food Processing Systems	37
REX - Technologie GmbH & Co.KG	15
Steen B.V. International	9
VNU Exhibitions	60

BAADER LAUNCHES THE BAADER 608

The New BAADER 608 Takes BAADERING to the Next Level

Amid the world's population expected to reach ten billion by 2050, the need for a more efficient use of our resources is becoming ever more apparent. For more than 50 years, the term BAADERING has been a synonym for gentle product refinement with maximum resource appreciation and value creation. The BAADERING technology paves the way for the food industry into a more sustainable future.

BAADER announces the launch of its latest machine supporting the BAADERING process, the brand-new BAADER 608. The most powerful and largest member of the BAADERING technology machine family takes this technology to the next level. Thanks to its improved design, this machine is the most innovative and hygienic of its kind. It sets new standards for food quality, value creation and process safety, as well as for user-friendliness.

BAADERING is an internationally recognized process of separating soft and solid components, elevating the value of the product at the same time. This technology helps produce the highest quality ground meat-free of bone, cartilage and sinews, ensuring the highest possible yield. Not only is the complex process of BAADERING a significant time-saver, it also provides decisive advantages to the quality of the processed goods.

Thanks to its innovative design, this machine sets new standards for food quality, value creation and process reliability. At the same



time, it raises the benchmark for hygiene and food safety as well as being the most user-friendly machine of its kind.

Drainage slants on and in the housing ensure that water drains away anywhere. The interior of the machine and the control cabinet are easy to access. The front panel is quickly opened and requires no tools so production can be resumed without unnecessary delays.

A discharge belt for by-products maintains process reliability. The BAADER 608 has a new kind of product scraper that conveys the product from the machine with maximum care. This significantly reduces contact between the product and the machine, ensuring it retains its structure.

An entirely new design principle made it possible to dispense

with support rollers, which in turn improves hygiene. There are no duplications and no screw connections. The pressure roller can be lowered even further for better handling, cleaning and adjustment options.

Process safety is further increased by automatic adjustment of the squeezing belt and the support chain tension. Another aspect on the topic of user-friendliness and process safety is the new hydraulic perforated drum tension. The touch display makes operating the BAADER 608 very simple. Various parameters can be set for different products and retrieved at any time, ensuring consistent quality and yield. Changing these settings is also very easy. The machine is ready for the future and comes with an interface for further data processing.

www.baader.com

THE NEW I-CUT 610: THE BEST FOOTPRINT-TO-CAPACITY RATIO PORTION CUTTER ON THE MARKET



Marel announces the release of the new I-Cut 610 PortionCutter, the latest addition to the wide Marel portfolio of portion cutters for fresh and boneless meat cuts.

The I-Cut 610 is designed with space in mind and has the best footprint-to-capacity ratio in portion cutting on the market. For processors, this means double portion-cutting capacity with less than double the footprint of two single lanes.

This dual-lane meat portioning solution offers superior profitability through high yield and low giveaway. Supported by Marel's advanced Innova Food Processing Software, its features include

easy setup of individual product holder pressure per program and optimizing programs.

With its dual-lane setup and dynamic belt speed adjustment, the I-Cut 610 can achieve exceptionally high levels of throughput, with a speed of up to 1,200 cuts per minute per lane. Two individual machines in one, it also offers the ability to run different products on each lane for added flexibility. This setup makes the I-Cut 610 the perfect solution for processors in need of flexible, high-capacity portion cutting.

Each independently controlled infeed conveyor moves the raw

material from the loading area to the cutting area. In between, a laser highlights the surface of the raw material and the vision system scans its contour. This calculates the volume, and by multiplying with the density it provides a full view of the raw material. A computer then calculates where to cut based on the chosen cutting program.

Marel has developed this advanced solution drawing upon more than 25 years of experience, including worldwide sales of close to 3,000 portion cutters for meat, fish, and poultry and countless different applications.

www.marel.com

A SHARED PASSION FOR INNOVATION AND PARTNERSHIP WITH CUSTOMERS

TWISTAS



DIVIDER startUp



It is now almost a year ago that TREIF was acquired by Marel. For more than 70 years Treif was an owner-managed company and during this time the company turned into one of the world's leading developers and manufacturers of professional cutting and processing solutions for meat, sausage, cheese and bread.

Marel is a world-leading company, headquartered in Gardabaer / Iceland, with a mission to change the way food is processed. With a network of over 7,000 employees in more than 30 countries, Marel aims to enable the production of high quality, safe, and affordable food by providing software, services, systems, and solutions to the fish, meat, and poultry industries.

TREIF's product portfolio in the cutting segment, i.e. portioning,

dicing and slicing is highly complementary with Marel's product portfolio. The transaction enhances Marel's full-line offering for the meat industry, as well as its other segments focused on improving automation, food safety and flexibility for consumer-ready product offerings. United, the two companies are in a stronger position to drive further growth, providing better value for both current and future customers.

DIVIDER startUp - Adapts to your Needs

Excellent quality, intelligent operator guidance and a high degree of flexibility are generally basic requirements, not only for industrial machines but also for shop machines. Thus, TREIF presents the new DIVIDER startUp as an entry-level version in the field of

slicing. As a mobile stand-alone solution, it complements the successfully established TREIF slicer machine portfolio, which will continuously be offered as a reliable line component with a high degree of automation.

Quality, Yield, Hygiene - the TWISTAS Meets your Requirements

With the appropriate equipment, the industrial dicer TWISTAS consistently delivers optimum dicing results, for blocks of meat and bulk goods as well as for fresh meat. The open design of the TWISTAS allows a variety of different applications and facilitates product changes. The 7" touch display with intuitive operation and USB port additionally offers optimum ease of operation.

www.treif.com

KERRY GRANTED PATENT BY US PATENT AND TRADE OFFICE FOR NATURAL CURING AGENT FOR PRESERVING MEAT



Kerry, the world’s leading taste and nutrition company, is pleased to announce that it has been granted a US patent protecting its innovative process for curing meat or meat products using a natural, plant-based curing agent. US Patent No. US 11,071,304 for “Method and composition for preparing cured meat products” provides the legal protective foundation for Kerry’s extensive history of original research work

that led to the development of a natural curing process for preserving traditional meats and meat products such as deli meats, bacon, hot dogs, sausage and many others. The patent is an important addition to Kerry’s growing intellectual property portfolio and demonstrates its leadership in innovating for the global food industry.

The patent technology was originally developed from the combination of Kerry’s extensive expertise in live cultures and fermentation with its deep understanding of the meat industry. This natural curing process enabled the company to create patented cultured celery juice product lines such as

Accel™ for use in the protection of many different meats and meat products without the application of conventional curing agents.

Kelly Mullarkey, Commercial VP for Meat in North America at Kerry, commented on the patent grant: “Natural curing agents allow meat producers to deliver much-loved meats and meat products with familiar cure color, texture, flavor and shelf-life characteristics without the use of conventional curing agents. Our original development work years ago and subsequent patent application supported our Accel™ cultured celery juice, and other natural cure-based product lines and preservation technologies.

www.kerry.com

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STRONG ALL-ROUNDER FROM K+G WETTER ENSURES A NEW LEVEL OF HYGIENIC SECURITY

Newly developed VCM 200 vacuum bowl cutter rounds off the “Hygienic Secure” range and is distinguished by the highest levels of hygiene and its compact design.

K+G Wetter consistently focuses on the needs of its customers with its machines and clever solutions for industry and the butcher trade. Most recently, the machine manufacturer from the Hesse region of Germany caused a sensation with its “Hygienic Secure” series of industrial bowl cutters. Now the traditional company is launching another innovation: With the powerful VCM 200, K+G Wetter is rounding off its “Hygienic Secure” range, thereby combining the proven benefits of its machines with clever characteristics.

Thanks to their varied developments, the K+G “Hygienic Secure” industrial bowl cutters deliver a sustainable advantage in terms of efficiency. The latest AC drive system, which is fitted as standard, guarantees a high level of energy efficiency and is practically maintenance-free.



The newly developed VCM 200 vacuum bowl cutter from K+G Wetter offers numerous technical design highlights. These ensure added benefits in terms of hygienic security and efficiency.

Proven Features Meet Innovations

“During development of the new VCM 200 vacuum bowl cutter we were able to draw on experience gained from the new vacuum bowl cutters in the ‘Hygienic Secure’ range. Of course, the practical experience already gained was advantageous here. We were already able to gain such experience with the VCM 120, 360 and 550 litre versions and the VCM 200 vacuum bowl cutter has now been added to the ‘Hygienic Secure’ range as a connecting link, so to speak, between the cutter size for the butcher trade and the large 360 and 550 litre industrial bowl cutters. We are confident that this will once again raise the successful previous generation of the 200 litre version to a new level. For our customers, this now rounds off the latest-generation range of vacuum bowl cutters of all sizes,” comments design manager Andre Weyand.

Patented Knife Cover Strip can be Clipped in and out without Tools

The newly developed vacuum bowl cutter offers numerous technical design highlights that make all the difference in terms of hygienic security and efficiency. A key characteristic is the split vacuum lid. This enables significantly faster loading and unloading of the cutter bowl, because only the front section of the lid needs to be opened for this purpose. The knife cover with removable baffle plate ensures optimum adaptation of the cutting chamber to the respective

product. This is already installed as standard in the knife cover.

The absence of seals is another benefit in terms of hygiene: This is because the area between the cutter bowl and the vacuum vessel in the K+G Wetter solution requires no seal at all. Replacement, wear and contamination risks are relegated to the past. Contamination cannot occur if there are no inaccessible areas. This means that costs are no longer incurred for replacing seals.

The patented, removable knife cover strip is self-adjusting. For cleaning purposes it can be easily clipped in and out without using tools. Cleaning is effortless and there are no concealed corners where deposits could form. Since it is easy to visually check the success of cleaning, contamination caused by product residues is eliminated. With its vertical movement and compensatory capability the knife cover strip is able to reduce the frictional resistance that occurs. This effectively counteracts potential material abrasion and wear. The bowl support pad and bowl scraper can also be removed without using tools and are also self-adjusting. This saves time, facilitates safe and easy cleaning and guarantees the highest standard of hygiene.

The two large cleaning flaps in the vacuum vessel, which can be opened without using tools, also deliver significant added value in terms of hygienic security for the new VCM 200 and the other “Hygienic Secure” industrial bowl cutters. They allow easy access through the generously



"We are confident that we will once again raise the successful previous generation of the 200 litre version to a new level with the VCM 200", emphasises K+G Wetter design manager Andre Weyand.

sized openings into the vacuum vessel area. This can therefore be easily and quickly cleaned in a hygienically secure manner.

A further special feature is the greater ground clearance with the same bowl or working height than the previous generation. This also greatly facilitates the cleaning process. Operation of the machine is simple and self-explanatory via an intuitive touch panel. The panel layout can be customized according to the customer's requirements.

All of the relevant machine parts are fully monitored and the corresponding parameters can be viewed via the touch panel. For servicing, all data can be retrieved quickly and easily. All of the relevant production parameters can be entered and saved via the panel. These include knife and bowl speeds, shutdown functions, etc. Using the CutControl recipe management

software, the machine operator is guided step-by-step through saved recipes. Errors in production are practically excluded. Consistent and reproducible product quality is ensured. If necessary, all production steps can be traced back - the CutVision quality management software is provided for this purpose.

Compact dimensions have been achieved despite the fully integrated design. The controller is installed within the machine itself. Complex cabling to an external control cabinet is therefore not necessary. This ensures significant benefits in terms of hygiene. Moreover, setting up the machine is simple and fast. The vacuum pump - a maintenance-free water ring pump - is also installed in the machine body.

www.kgwetter.de

REX TECHNOLOGIE - VACUUM FILLER & PORTIONING SYSTEMS

MC 3-3 and RHP 240 - Complete Line Solution

The REX mincer portion line range developed by REX is designed to meet all industrial requirements. The modular system is quickly and easily adapted to a customer's specific requirements. This makes the REX minced meat line a most cost-effective line solution, without



compromising the product quality. The final perforated disc in the MC 3-3 is adapted individually to the end customer's mould size. Product widths range from 60 to 220 mm with a very wide selection of final granulation grades. A special final perforated disc can be used to portion multiple rows of Cevapcici on paper, for example.

A very important aspect of ground meat production is the grinding process. The pregrounded product is exactly portioned by the filling machine and ground in the REX MC 3-3 meat grinder to the final grain and product size. The individual speed regulation of

the grinder drive guarantees a perfect grind.

The independent servo drive of the filling mincer, set and monitored via the touchscreen controls of the filling machine, makes it possible to adjust the cutting speed appropriate to the respective portion size. The minced meat portioner RHP 240 completes the line. It is linked to the filling machine and attached to the minced meat filling mincer MC 3-3. In that way, it conveys the processed product flow and cuts portions exactly to size, resulting in a very high level of product precision.

The Advantages at a Glance

- Equipment simple to operate
- Free-flow technology delivers a

- perfect product image
- Optimum product flow minimizes product warming
- Very exact portioning of +/- 1 %
- Paper dispenser for different

- product sizes
 - Perfect, quickly and simple system synchronization when linked to a line
- www.rex-technologie.com

FRONTMATEC EXPANDS ITS HAND CLEANING BASIN/ TROUGH SERIES 20550 WITH A TOUCHLESS VERSION

Frontmatec Hygiene GmbH, located in Beckum, Germany, emerged from ITEC GmbH, a global market leader in personnel hygiene. For years, Frontmatec Hygiene GmbH has stood for innovative and customized hygiene solutions for the food industry. Product safety and the related consumer protection have always been a priority. During the pandemic, protecting staff, customers and visitors has become more of a priority. Frontmatec meets the constantly changing requirements for infection control with innovative developments.

Hand Hygiene a Speciality

Years of working together with the food industry has given Frontmatec



20550 Touchless hand cleaning basin

considerable expertise in the field of hand hygiene. Especially during the corona pandemic, non-contact hand hygiene has been indispensable in every area of life.

Popular Model Series Modified for Hand Cleaning

Owing to the strong demand for non-contact hygiene equipment because of Corona, Front-matec successful 20550 series hand cleaning basins/ troughs have been modified.

Hand Cleaning Basin 20550 Touchless: Germ-free and Fast

The hygiene experts from Beckum now provide sensor-controlled and non-contact soap and disinfectant dispensers for its popular hand wash basin that previously used the 11000 arm lever dispenser. Users can now wash and disinfect their hands without having any physical contact with the fittings. This efficiently prevents the spread of germs and provides perfect protection against infection.

Technology for Industry Applications

The 20550 Touchless industry-grade hand cleaning basin is sold as a compact, ready-to-use unit.

A major advantage over other conventional systems is its high level of moisture protection. The soap and disinfectant dispenser which includes ITEC's proven dosing pump; a spring-loaded lid hygienically closes the container. The 20550 Touchless series is robust and, with its optically appealing stainless-steel design, can be used in many areas and industries, including those outside the food industry.

Aquaflow / Thermal Disinfection

Hygienic in all respects due to the 20550 Touchless featuring Aquaflow control that flushes the water line every 72 hours after no operation.

The built-in thermostatic mixing valve, including check valve, allows thermal disinfection at water temperatures of 70°C.

Versions and Options

The 20550 Touchless hand wash basins/troughs can be supplied as single or multiple wash stations with up to six wash stations.

Optional pedestals, back panels, flow heaters, connectors, towel dispensers, hot air blowers, etc., are available as an additional option.

www.itec-hygiene.com

A PROMISING CONCEPT: ANIMAL ORIGINAL MEETS PLANT-BASED ALTERNATIVE

Hello Hybrids" was one of the Top Ten Trends identified by Innova Market Insights last year. "Hello Hybrids" is also an apt description of a new retail product segment: Meat and milk products that contain greatly reduced amounts of animal ingredients but still appeal to confirmed carnivores, consumers who want to reduce the amount of animal products they eat for reasons of climate protection, animal welfare, sustainability or health, but who are unwilling to make any compromises on flavour or consistency. This is where combinations of animal and plant proteins come in. For this new category Planteneers has developed stabilising systems that already contain the plant component. They make it easy for meat producers and dairies to cut the animal ingredients in the final products by half. Thus, they can profit from the plant-based hype without completely eliminating meat or milk from their formulations.

Meat and Plants United

With the new blends in the fiildMeat+ range, Planteneers is closing the gap between flexitarians and meat eaters who have heretofore rejected plant-



based alternatives for reasons of flavour. "The meat market is enormous, with a worldwide production of 333 million tonnes per year. Reducing the amount of meat in ready meals and meat preparations by half would have a great influence on the market," says Florian Bark, Product Manager at Planteneers. "Since the potential customers of these half & half products are mostly meat-eaters, this product range has tremendous sales potential."

Whether for ready meals with burger patties and nuggets or fresh products like bratwursts and ground meat, with the plant-based fiildMeat+ compounds producers can make a variety of meat preparations. Depending on the recipe, protein-rich legumes like lentils or chickpeas are used, along with vegetables with the right flavour profiles. "Wherever possible we avoid ingredients with E-numbers in our stabilisers, likewise flavourings and flavour enhancers," says Bark. The components for flavour and colour are kept separate, as usual, to give manufacturers wide scope for adjustment. The stabilising systems consist of proteins and other plant-based components. The final products can be made with normal machines.

Plant-Based Benefits for Dairy Products

Flavour, texture and appearance are advantages for hybrid products in the dairy space as well. With the compounds from the fiildDairy+ range and normal cow's milk, dairies can make blends that



reduce the amount of milk by 50 percent, replacing it with plant components. The final product might be a drink consisting of half milk and half oat drink, for example. "In the development of our fiildDairy+ range we paid special attention to getting the original flavour of the milk products," reports Planteneers Product Manager Katharina Schäfer. The new compounds form the basis for drinks, pudding, fermented milk products like yogurt, and cheese preparations. Katharina Schäfer adds, "the final products can naturally be enriched with proteins, vitamins or minerals. In this way it's possible to appeal to the steadily growing number of consumers who want to eat healthier."

A survey done for an in-house master's thesis shows the potential that the combinations offer. Of 2000 respondents, most of them students, just under half would try a combined milk and plant-base beverage, for example. A third would even buy it. 46% would like to see further hybrid dairy products. Thus, the combinations offer many new possibilities for dairies as well as for the meat industry.

www.planteneers.com/en

6 QUESTIONS ABOUT HIGH-VOLUME CHICKEN FILLET PORTIONING

Modern Technology and Software Bring an Infinite Number of Cutting Options



The huge volumes of chicken fillet needed to satisfy global demand go way beyond doing the job at home by hand. In high volume processing plants, intelligence has now become a truly indispensable aid in the automatic production of breast fillet. Factories need solutions, which, combining hardware and software in imaginative ways, can really think for themselves to make the best of each individual fillet. This means the optimum use of raw material, truly minimal give-away and maximum profit.

Q. How do Consumers Want Their Fillets?

Most people eat their breast meat products either at home or in a restaurant. In both cases, their choice will depend on family size and taste. This could be for

fillets, tenderloins, medallions, strips, nuggets or cubes, each with its own detailed specification. Products should look and weigh the same and it should be possible to produce them in large volumes. Only high-speed intelligent portioning equipment can achieve this. Such systems should preferably have dual lanes and it should be easy to change from one portioning option to another.

Q. How to Cut a Large Chicken Breast?

Broilers are becoming heavier with their large breast fillets increasingly difficult to accommodate on retail tray packs. These packs often have a fixed weight and a fixed price. Heavier fillets, however, make it more difficult to hit the required pack weight, resulting in avoidable and unwanted give-away. Portioning fillets to a uniform size and weight is an excellent solution to this problem. Intelligent equipment, making use of smart software, will calculate how each fillet can be portioned most effectively to give the best possible use of raw material, reducing any give-away to a minimum and maximizing yield.

Q. How to Make More of Offcuts?

Trim is an inevitable by-product of portioning. You will always have offcuts, however small. These are from top quality muscle meat and can be used to maximum effect

in value-added further processed products. To realize their full potential, even the smallest pieces must be managed efficiently. It may sound obvious but the best way to do this is to automatically separate trim from the main product in a controlled way, so that both proceed on separate conveyor systems to their next destination in the process. Valuable off-cuts don't then end up as a bulk low value item; their own dedicated processing line upgrades them to high-quality poultry meat.

Q. How to make portion cuts look natural?

Good presentation is important too. Trimmed breast fillet for sale retail should look natural, as though it has not been trimmed at all. This means cutting with a slanting fillet edge.

When cutting medallions, strips, nuggets or cubes, it is particularly important that all portions look identical and weigh exactly the same.



Modern portion cutters work extremely precisely and produce identical natural looking cuts. It is even possible to adjust the angle of cut. This natural look no longer has to result in costly give-away. Today, portioning is a

supermarket chains or quick service restaurants, demand a large portfolio of different products from poultry processors. It is therefore important that any portioning system not only handles high hourly volumes but can also



fast process, where every gram counts. Cutting precision is now down to 5 grams. 5 grams may seem nothing but it all adds up. Let's take an example. At 14,400 pieces per hour over an 8 hour shift, this comes to 115 kilograms of valuable meat lost per day. When using modern portion cutting equipment, such losses are a thing of the past. No matter how the fillet is cut, it is done precisely, using raw material to maximum effect.

Q. How Can Technology Help Optimize Portioning Fillets?

Using the very latest vision control technology such as laser light together with innovative portioning software, it is possible to determine the exact shape of each fillet and calculate the best possible way of portioning it. A screen shows clearly how fillets are to be cut. Software enables remote programming and the storage of a large number of customer-specific cutting programs in its software menu. Today's customers, whether

handle more than one product specification at the same time. Besides the ability to make different products on different lanes, it must be possible to switch quickly from one product to another. Intelligent software makes such changes a matter of tapping a few keys.

Q. What's the Ultimate in Portioning Fillets?

Intelligent software is also about collecting data. You don't know what you don't know! Having collected data and converted this into useful reports, operators will then have instant access to all key performance indicators presented centrally in a user-friendly format. Only supported by this information can operators keep the equipment performing at maximum efficiency.

Intelligence could then be taken a step further by linking separate intelligent systems. Supposing it were possible to link equipment, a pick and place robot, producing fixed weight tray packs of breast fillet to our intelligent portioning system. The robot would tell the portioner which pieces of meat to trim and by how much; the result would be packs with truly minimal give-away. Dream or very real reality!

www.marel.com

REX VACUUM FILLER & PORTIONING SYSTEMS
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ALARMING LABOR SHORTAGES - WHO IS GOING TO ROLL UP THEIR SLEEVES?

Getting enough working hands in the plants has longtime been a handful. In the past, mostly immigrants worked in processing plants as they had fewer options for better jobs. Nowadays, the employment rate in the USA, U.K., and other areas in the world is breaking records. As a great percentage of immigrants has returned to their home countries due to COVID-related restrictions, a great number of EU-workers left Britain due to BREXIT and plant workers are simply moving on to more convenient workplaces with job openings in abundance.

In the USA alone, job openings rose to an unprecedented 9.3 million by the end of April 2021, according to the Bureau of Labor Statistics. The highest amount of job openings since the report was initiated in 2000. Additionally, the number of people in the U.S.A. voluntarily quitting their jobs reached a new record of 4 million in April this year. Showing that workers are optimistic about finding employment elsewhere.

Meanwhile, food processors around the U.K are ringing the bell. Richard



A Team of Processing Experts Can Help a Processor to Keep the Bigger Picture and See what Opportunities are Still There for Grab

Griffiths, British Poultry Council CE, told poultry processors have cut back production because of lack of staff. Even world-known Fastfood chain McDonald's had been forced to stop selling milkshakes and bottled drinks at nearly 1,300 restaurants in the United Kingdom, due to Brexit-related staff shortages and supply chain delays caused by the pandemic. Also, poultry restaurant chain Nando's closed 45 of its UK restaurants in mid-August due to a shortage of the chain's signature peri peri chicken.

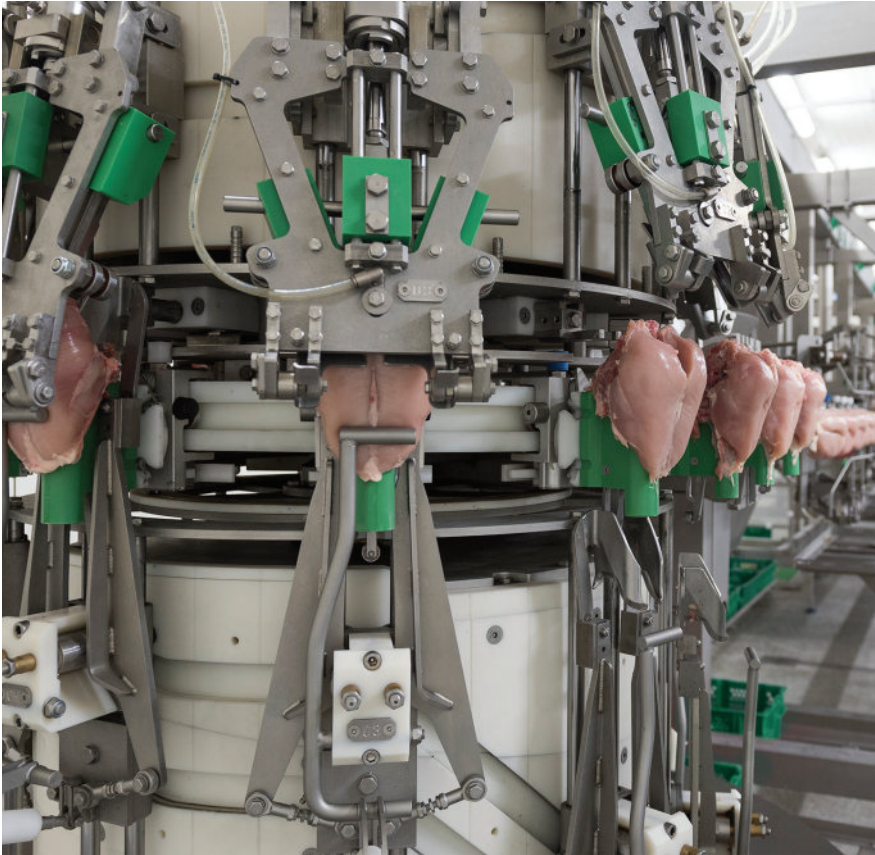
Poultry processors around the world were forced to raise wages and add perks like free health care

insurance, free food and pension benefit programs. Thereby raising the costs of labor substantially. However, raising workers' benefits takes time and do not always provide the right long-term solution. With the demand for poultry meat being on the rise globally, and labor shortage being an ongoing challenge for many years within the poultry processing industry, time is too precious for the processors to wait for external solutions bringing the answer. It is time to find the answer to the challenges from within.

Investing in automation of the processing line might lead to



Knowing the Exact Results of a Processing Line is Key to Achieve Operational Excellence



Rapid PLus 4.1 Wishbone Cutting



Industry 4.0 Requires Solutions to Evolve from Automation to Smart to Help Processors Remain Competitive

a higher ROI compared to the increasing cost of labor.

Collaborating with the Right Processing Solution Supplier Might Help in Terms of:

- Increasing automation, effectiveness, efficiency, and speed
- Decreasing downtime and maintenance time
- Finding the right IT solutions, enabling processors to maximize production value

“Where automation steps in, the urge for labor steps out” says Aize Land, Sales Manager at Meyn Food Processing Technology. The right supplier can help the processor to reduce their required (skilled) workforce through further automation of the live bird handling process, giblet harvesting, rehangng,

cut-up, breast deboning, and overall plant logistics. Migrating towards fully automated 15,000 birds per hour processing is logically the biggest game changer.

Take for example our breast deboning system. In manual process, a worker generally places the front-half on a cone. If the worker is skilled, motivated, and not too tired, the job can be accomplished with high accuracy and yield. If one of these conditions is not met, the quality and quantity of the output will be much lower. It must also be said that working with knives is never completely safe, may lead to RSI and some may find manual deboning boring. When talking numbers, if the deboning/trimming is done by a skilled worker, it generally takes about 21 seconds per breast. A worker can typically finish around

170 breasts per hour. Deboning 15,000 front halves an hour will normally require $15,000 / 170 = 88.2$ workers. With 2 shifts, 2×88.2 ; 176.5 fte are needed.

Deboning with a Meyn® Rapid Plus M4.2 deboning solution running at 7,500 breasts/h requires: 3 workers manually loading the breasts on the product carriers and 7 workers - depending on the product requirements - trimming, so 10 fte at 7,000 breasts/h. For a capacity or 15,000 breasts/h, $15,000 / 7,000 \times 10 = 21.4$ fte are needed.

In this scenario (15,000 bph, 2 shifts) automation by Rapid Plus M 4.2 reduces the amount of required labor from 176.5 to 42.8 fte – a very significant saving of 134 fte!

Meyn understands that investing heavily in automation is not within the reach of every processor. “Of course, automation often requires a great initial investment, but ROI is high.” Also, the right processing equipment supplier will come with the right solutions that are within one’s reach. Even when making great investments is out of the question, it is always good to consult the experts. Start with the quick-wins on the road to operational excellence. Different needs, different speeds!

www.meyn.com

INCREASED OUTPUT FOR DELICIOUSLY SMOKED PRODUCTS IN LESS TIME WITH GEA SOLUTION

The use of wood smoke to preserve meat and fish is an age-old technique which has been enjoyed by mankind for millennia. It imparts mouth-watering flavors and aromas to the product, but takes a long time to complete per batch, and involves high levels of manual labor, so it can be difficult to recreate cost-effectively en masse.

Consumption of meat and meat replacement products is on the rise.* The ability to meet this demand when it comes to smoked products is more challenging given the timescales and physical labor involved in traditional smoking methods. However recent technology innovations are challenging the traditional method and bringing improvements in the production process while preserving the right product characteristics we all know and love.

Innovative Inline Smoking

Leading food processing expert GEA has developed a continuous production method for smoking meat and meat replacement products that results in the same delicious flavors and aromas as those associated with traditional smoke houses and can be tailored

to meet the requirements of a variety of applications. The new inline smoking technology can be based on either smoke condensate or incorporate traditional smoke from wood chips. All working within the bespoke CookStar, GEA's leading spiral oven, creating that authentic taste within a fraction of the time.

cooked products. Integrated into the latest version of its widely used CookStar oven, GEA's smoking solution allows food processors to increase productivity and consistent quality by avoiding the use of rack ovens and lengthy batch smoking processes requiring heavy manual labor.



SuperHeatSmoke

In partnership with smoking specialist Red Arrow, GEA has developed the SuperHeatSmoke, based upon an atomized smoke generator with nozzles integrated into the CookStar. These are

*<https://www.packagedfacts.com/Global-Meat-Poultry-Trends-13012951/>

used to create a smoke cloud and smoking environment using purified smoke condensate. The process takes approximately 25-120 minutes depending on the application, and the quicker process means that less moisture is lost from the product so final yields are higher. The products are smoked as they are being cooked, further saving time along the line.

There are extensive opportunities for innovation, as processors can use condensates with different flavor intensities and colours. Flavor preferences can be saved in the machine's control system as recipe-settings, speeding up production set-up and ensuring consistency, with uniform flavor and color.

Because the CookStar has two cooking chambers, there is great flexibility to create different smoking conditions, independently managed. The two chambers can run on separate temperatures, humidity levels and smoke flavors to influence the characteristics of the final product.



The GEA SuperHeatSmoke provides an exciting step forward for food processors, and operates at temperatures above 100°C. The process is suitable for chicken, beef, pork, seafood and vegetarian components.

HotSmoke

For products traditionally smoked at lower temperatures, GEA has

launched the HotSmoke, ideal for pork bellies and bacon. This comes with the option of using either smoke condensate, or alternatively, smoke generated from wood chips.

Whichever format is required, GEA's new smoking technology allows processors to significantly cut smoking time, reduce manual labor and ensure product consistency. GEA supports processors which are not only looking for clean label solutions, but also those which are currently involved in the smoking industry but wish to move towards more efficient methods. GEA's inline smoking solutions are also ideal for companies already using the CookStar which are looking to expand their portfolio by offering smoked products.

Ben Kop, Food Technologist at GEA commented: "We're excited about the opportunities our new smoking technology is creating. Both options produce foods consumers love, whilst allowing processors to keep their running costs low."

www.gea.com



CSB-SYSTEM SETS ITS COURSE FOR THE FUTURE

Leading food and drink IT specialist CSB-System is planning further growth and expansion to help companies increase their digital capabilities and meet the increasing demands of global markets. The company has launched a new demonstration facility, the CSB Smart Factory, at its headquarters in Geilenkirchen, Germany, together with further enhancements to its market-leading ERP system. At the same time, CSB is changing its legal entity to better reflect and support the increased international nature of its business.

The CSB Smart Factory - Digitisation and Automation First-Hand

The new CSB Smart Factory underlines how the company has evolved from a pure ERP software provider into an innovation partner for the process industry, offering digitisation and automation solutions. The facility provides demonstrations of cutting-edge technologies such as industrial image processing, RFID, and artificial intelligence, all controlled by CSB's ERP system, allowing customers and prospects to experience how the perfect harmonisation of hardware and software systems can bring important benefits.

The company's innovative approach to artificial intelligence was recently confirmed by the winning of a Silver Medal in the prestigious International FoodTec Award 2021 for its new CSB Jamboflash for the grading of hams.

According to Dr. Peter Schimitzek, CSB-System founder and Chairman



of the Board, digitised food production is the key benefit for food companies: "Companies need to further digitise themselves," he explains. "This is the only way for them to meet the increasing demands of consumers, trade, and lawmakers while continuing to be profitable. In the CSB Smart Factory, for example, we can demonstrate how the fat content of pig sides is determined automatically, how the quality of ham is tested, and how reusable packaging is identified, counted and captured automatically."

Horizontal and Vertical Product Development

The new Version 6 of CSB's ERP system reflects the company's commitment to adapt its products to the needs of users by the continuous expansion of its solution portfolio. It incorporates advances to the breadth and depth of many functions such as production planning and business intelligence. As well as improving the user experience, the focus is on promoting the use of the latest web technologies. In addition, the software can be installed remotely.

"The digital transformation trend, propelled forward by the Covid-19 crisis, opens up new opportunities for CSB," comments Vanessa Kröner, member of the CSB-System Board. "Flexibility, automation, transparency - these topics are increasingly relevant for all companies. And this is precisely where the CSB-System as the central nervous system of the company proves its strengths."

CSB-System Will be a European Company

With customers now in over 50 countries, CSB-System has underlined and supported its enhanced internationalisation by changing its legal form from the German Aktiengesellschaft into an SE (Societas Europaea). As before, members of the Board are Dr. Peter Schimitzek and Vanessa Kröner, while the company's Supervisory Board now comprises five members with Karl-Heinz Schimitzek (chairman), Dr. Florian Hotz (deputy chairman) and Dr. Roland Henzler being joined by Pia Schimitzek-Emonts and Prof. Dr. Michael Trautwein.

www.csb.com

LASKA

Production lines. Absolute efficiency.



Increased output

Machine networking and intelligent control system boost output.

Optimise raw material costs

Material is processed efficiently and true to the exact recipe.

Absolute hygiene

Hygienic design reduces cleaning time and lowers the risk of downstream costs due to contaminated goods.

Intuitive control

The entire system can be viewed on a touch display and centrally controlled.

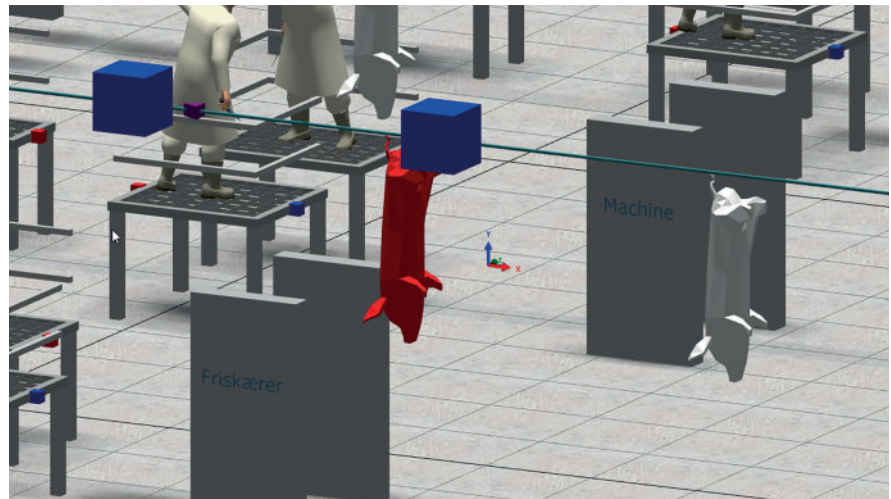
DIGITAL TRANSFORMATION IN PIG SLAUGHTERHOUSES

By Holger Dirac

Industry 4.0 and digital transformation may seem irrelevant concepts for the slaughter industry, but slaughterhouses have been early adopters and new technological developments within AI and data driven approaches are highly relevant for a further significant digital transformation.

Slaughterhouses as Technological Forerunners

Just like the slaughter industry was a pioneer in establishing the modern production line in the mid-19th century (e.g., the Amour plant in Chicago 1867, nearly half a century before Henry Ford’s assembly line), fundamental aspects of Industry 4.0 thinking were already in place in the slaughterhouse industry several decades before the term was even coined! To promote transparency in the market in Europe, back in the 1970’ties, the European Community regulation required that each slaughtered hog should be objectively classified with respect to the percentage of meat content in the carcass. This led to the development of solutions for objective grading and automatic data collection and already in the 1980’ties the first fully automatic grading equipment was deployed in Denmark. Grading has resulted in a payment system, where producers are paid according to the slaughter weight and the meat content of each individual hog carcass. Carcasses with the optimum slaughter weight and lean meat percentage are rewarded with a premium. By the 1980’ties,



slaughterhouse operations were in place with automated carcass sorting where each individual carcass is processed according to its optimum usage based on its grading. This required a carcass traceability solution, a data collection system, databases, yield and optimization models, and a supporting infrastructure, which are elements of what is now being promoted as the “new” Industry 4.0 production paradigm.

New Technological Developments and Drivers for Their Adoption

So, are we so far ahead in the game that there is no need for further digitalization? The answer is of course obviously and emphatically no! The past years we have been experiencing a technological revolution within the field of artificial intelligence (AI) and deep neural networks. The technologies have been developed by the tech industry for other quite different purposes, e.g. for consumer preference

monitoring and marketing, and for autonomous vehicle control. However, these technologies have truly astounding potential for application in the meat industry. They enable the automation of complex labor-intensive work processes and facilitate the monitoring of processes and the assurance of product quality at a level that previously was nowhere near the range of our capabilities. In the meat industry, natural biological variation is the reason why so many processes are still not automated. Thus, managing biological variation is at the heart of slaughterhouse automation, process control, and quality control. With new AI and neural network technologies this has become much, much easier. Essentially, developing new solutions now boils down to the task of feeding the artificial neural network with images containing examples of the features that we want to recognize. This trains the network to perform the recognition automatically when presented with new images with unknown content. At the Danish

Meat Research Institute (DMRI), a division of the Danish Technological Institute, we have developed many solutions based on AI. We have demonstrated solutions for pinpointing anatomical features to control robotic processing of the carcass, e.g. for cutting processes. We have developed solutions for product type recognition by training a classification neural network to recognize different types of main products and biproducts in crates and on the belt to automate the task of product registration. We have demonstrated automated inspection of carcasses for fecal, bile, and other contaminants and for detection of pulmonary scarring to make veterinary inspection more efficient. And we have developed solutions for process surveillance where the carcass is inspected both prior to and after automatic processing to determine both carcass suitability for the coming process and objectively evaluate the process outcome so that the status of the process equipment can be properly ascertained. These new data driven AI approaches are slowly but surely being adopted by the industry, and at a rate that is accelerating. And as more data is acquired and made available for monitoring,

analysis and control more new applications are discerned and their value realized. Apart from the availability of the enabling technology, there are several drivers for this development. First and foremost is the motivation given by attractive automation business cases with short payback times where staffing is reduced, which is especially relevant and prominent in high wage countries. Automating the cutting or handling process itself is frequently not sufficient as slaughterhouse operators also perform important quality control functions. Simply removing operators from the line would make slaughterhouses vulnerable to quality issues. With the new AI technologies - as mentioned above -also automating the control tasks becomes achievable. Another increasingly important driver is the scarcity of slaughterhouse operators combined with a high staff turnover. It is simply becoming increasingly difficult to attract and retain skilled operators. This is doubly costly due to the entailing expenditure on training to achieve operator efficiency and due to the detrimental effect on product yield and quality. Raw material cost dominates in the slaughterhouse business - also in

high wage countries - and poor yield is very bad for business indeed! Finally, there is increasing concern about work-related musculoskeletal disorders associated with heavy and repetitive manual slaughterhouse processes, which in combination with work environment regulation is also driving automation.

Further Digital Transformation

Looking further into the future of slaughterhouse operations it is likely that we will see more fundamental changes in the setup as equipment becomes more intelligent and adaptable and more data is collected and made available. Fundamental changes may well involve sales and production planning in addition to production itself. Intelligent and adaptable automated production solutions will enable the management of smaller and more specialized production series than manual pacelines can accommodate today. This will enable a better utilization of each individual carcass to achieve the production of more and higher value product from the same raw material base. It will, however, also result in a production planning task of daunting magnitude and complicated internal logistics that will require the advent of smart and probably data driven solutions for product pricing and production planning and logistics management. In addition to new planning tools, two key enabling technologies are yet to be developed to achieve a further transformation to a more fully automated digitalized production. Firstly, measurement solutions are needed to supply processing equipment with detailed information regarding the distribution of meat, fat, and bone inside the individual



carcass and cut to achieve fast, flexible, and robust automatic cutting and deboning with the highest possible yield. Secondly, traceability solutions must be developed so that the current



traceability can be extended from the kill line to cutting, deboning, and packaging so that information collected during production on individual carcasses and cuts can be utilized downstream to insure correct process and quality control and optimal usage of the raw material base. With the accelerating pace of technology development and adoption it is likely that these key enabling technologies will soon become widely available. We may then see that more information will also be exploited along the value chain outside the slaughterhouse for improving animal husbandry and the quality of the carcass on one hand, and for more optimal further processing and product differentiation on the consumer market on the other.

About the author:



Holger Dirac, director Sustainability and Digitalization, holds a MSc. In physics from the University of Copenhagen and a Ph.D. in microtechnology from the Technical University of Denmark. For the last ten years he has been a director at the Danish Meat Research Institute (DMRI), a division of the Danish Technological Institute, working on the development of measurement systems and IT solutions for the meat industry.



Sustainability without compromising performance

As a leading global food packaging manufacturer, Krehalon's core purpose is to reduce food waste whilst extending shelf life and product appeal.

Shelf life extension

A 1kg unpacked beef joint, as a butcher sells, has a carbon footprint 24.4 kg CO₂ emissions. This considers the birth of the cow, its life, slaughter, production and distribution to the customer. This joint has a shelf life of 5 days, dependent on storage conditions.

If the same 1kg beef joint is wrapped in Krehalon ML40 I/HB packaging with EVOH-barrier, the shelf life is extended to up to 70 days, dependent on storage conditions, while only contributing 0.06kg* CO₂ emissions with all other conditions being equal to the unpacked beef joint.

*On average 6.7g of ML40-G material would be needed to wrap 1kg beef cut.

Our patented ML40 technology is non-PVDC and completely chlorine-free.



24.4kg
CO₂ emissions

5 Days
Shelf Life

Beef joint

0.06kg
CO₂ emissions

65 Days
Additional Shelf Life

Packaging

Sources: Society of Chemical Industry (SCI) article "Carbon footprint of organic beef meat from farm to fork" and Krehalon calculation of the CO₂ footprint of its ML40 I/HB packaging taking into consideration packaging production, distribution and disposal.



Interested to learn more?
Contact us - email sales@krehalonuk.co.uk
or visit our website at www.krehalon.com

WE ARE PART OF



LEYBOLD OFFERS ONLINE SOUND CHECKS FOR VACUUM PUMPS SOUND

Leybold is taking a big step toward the digitalization of its product line and has an innovative online sound check for vacuum pumps on its website. With this free tool, users receive immediate feedback regarding the condition of their vacuum pumps.

Available Initially for VARODRY and NOVADRY

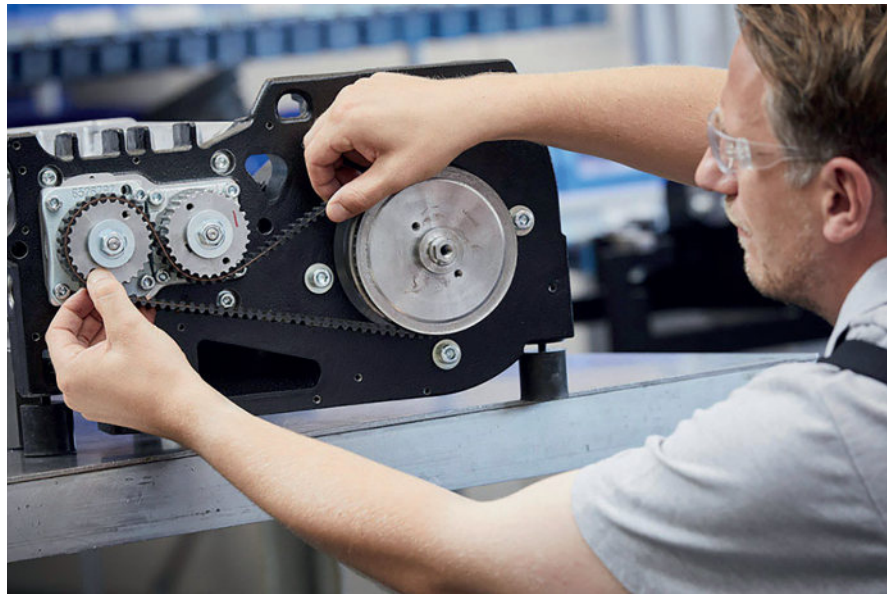
Simply record a sequence of your pump's sound with your smartphone or tablet directly at sound.leybold.com or upload the sound file. The sound analysis is then used to determine whether the pump is running properly or if service is due. This feature initially applies to the Leybold VARODRY and NOVADRY oil-free screw vacuum pumps but will be extended to other pumps in the future.

The Operating Noise Reflects the Pump's Condition

Using an intelligent test algorithm, Leybold draws upon its extensive

extent a pump's operating noise indicates its condition," explains Dr. Sina Forster, the project

test algorithm, and the probability of an error is then displayed. "From an acoustic analysis of the



manager heading up this project for Leybold.

Concrete Service Recommendations

While the human ear can't perceive various pump noises above a certain frequency, the app can quickly and objectively detect

vacuum pump, we can come up with specific recommendations and schedules for service and maintenance work, such as belt changes," explains Dr. Forster.

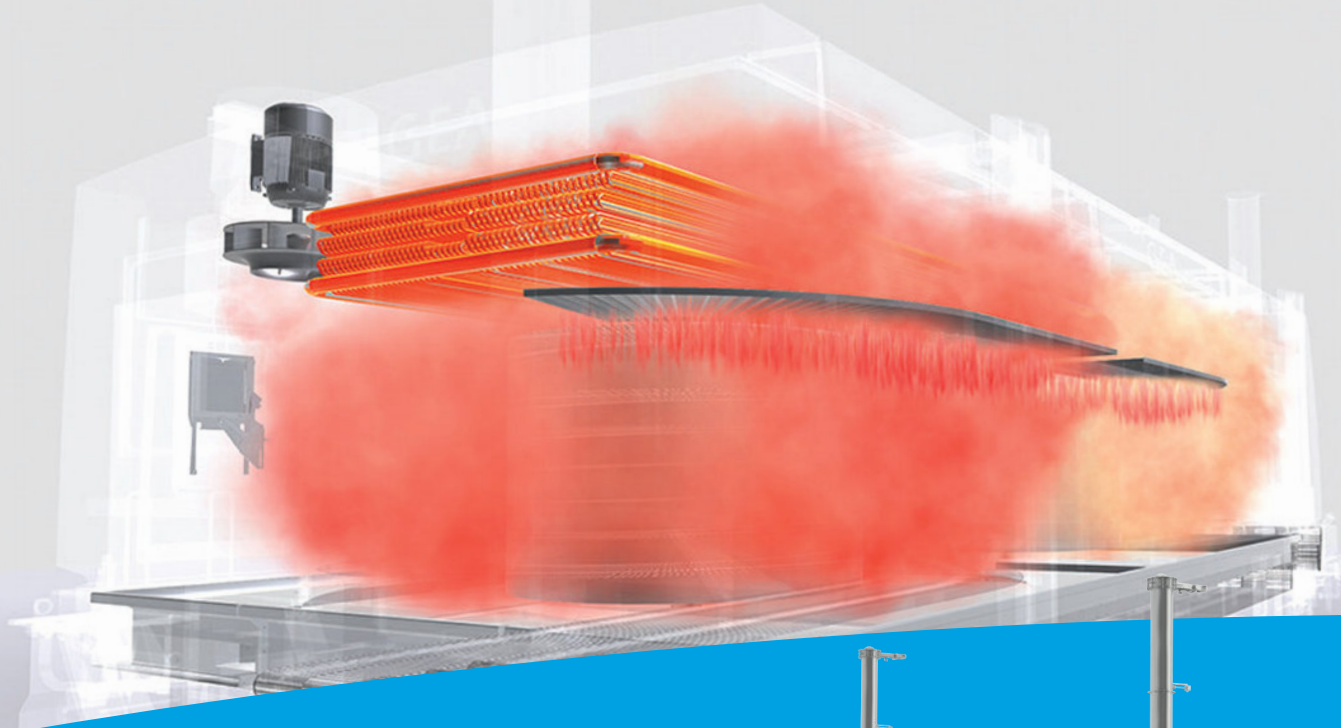
Business Management Advantage

This sound analysis represents a major economic advantage and encourages compliance with suggested service intervals. Based on the test results, customers can contact Leybold Service directly and transmit the sound data for a more detailed analysis. Depending on the condition of the vacuum pump, it can be determined if service is due without the need for a service call. As such, repair and maintenance work, in addition to downtimes for the entire system, can be anticipated and planned.

www.leybold.com/en

vacuum expertise. "Through our many years of experience, we now know exactly to what

the condition of the gears and/or bearings. If deviations occur, they're detected immediately by the



Precise performance cooking for outstanding results

Industrial cooking technology has come a long way since GEA introduced the world's first two-zone spiral oven in 1992. The latest model, the CookStar 1000 Gen 3, provides powerful new technology for the mass production of roasted, breaded and smoked products.

The CookStar cooks powerfully yet accurately, maximizing yields using smart technology that continuously adapts, maintaining the optimum oven conditions for each product. Its three-zone cooking method controls the flow of air through the oven for consistent browning, and an enhanced impingement zone allows a higher air volume for greater efficiency.

The CookStar's ability to accurately control the cooking parameters is making this latest model the increasingly popular choice for industrial cooking. The CookStar 1000 Gen 3 is the only spiral cooker on the market which can dry, steam, cook, roast and smoke products in a single machine.

Capturing the authentic flavors of the perfect joint or roast chicken requires the right timing, airflow, dewpoint and temperature. In most commercial ovens, the optimum setting for any individual product is a compromise: a high dewpoint improves yield but prevents browning; while a lower dewpoint browns the meat but dries it out. However the CookStar 1000 comes with built in smart climate and exhaust systems allowing increased flexibility and sustainability.

Intelligent exhaust systems monitor the environment within the oven, adjusting the volume of air as needed to maintain the precise conditions required for optimum cooking. Using energy exactly as and when it is needed, this technology reduces heat and steam losses, reducing power consumption.

Operating at a high dew point, the first phase uses steam to cook quickly and gently, keeping the meat succulent. Then the impingement zone blasts the product with hot, dry air, preparing the surface for roasting without drying out the core. The final phase, with a much lower dew point, completes the process, cooking products to perfection.

The dewpoint within the CookStar's two cooking towers can be managed precisely by injecting steam or opening fresh air gates, and each cooking tower can operate independently, so different products can be cooked simultaneously using the same equipment.

For smoked products, freshly generated smoke from condensate can be included in the airflow of the CookStar, combining the smoking and cooking processes, reducing process time and the need for manual intervention associated with traditional smoking methods.

GEA's CookStar 1000 Gen 3 offers food processors even more flexibility. Its intelligent systems allow greater control, high productivity, sustainability, reliability and consistency of outcome.



[Learn more](#)

EARLY WARNING APP SPOTS DOWNTIME DANGER



What if you could know before a crucial pumping system is about to fail? JS Maintenance Mate® is a new, intelligent pump feature that monitors wear - and alerts operators in plenty of time.

Danish pump manufacturer JS Proputec, best known for its lamella meat processing pumps, has long been a first mover in its field. In 1982, the company was first to introduce a lamella pump that could capably handle the heavy demands of fish and meat



The JS Maintenance Mate box enables LIVE pump data.

processing industries. Today, with the latest in a long line of such innovations, JS Proputec is once again lifting industry pumping capabilities with an IoT (“internet of things”) solution called JS Maintenance Mate®.

Soon to be standard on all JS Proputec pumps, and available as an easily retrofitted add-on to existing units, JS Maintenance Mate® is a small, electronic device that gives processing pump operators direct access to wear and tear data on individual pumps - or their entire fleet of pumps.

If a problem is identified, an alert is generated, and steps can be taken to avert a breakdown in good time. But that, according to the pump maker, is just scratching the surface.

Invisible Downtime Danger

The handling of meat processing by-products causes heavy wear and tear on pumping equipment. But until now, such wear and tear has been quite literally invisible until it causes a mechanical failure, forcing meat processing lines to a

screaming halt and starting the cost clock ticking until spare parts arrive and repairs can be made.

The more advanced of today’s pumps try to assist operators by sending an alarm signal if the unit stops working. In the absence of more timely information, that is good to know, of course, but JS Maintenance Mate® goes far beyond this simple level.

Predicting Breakdowns

“The real magic of JS Maintenance Mate® is that it enables pump operators to ‘see inside’ each pump,” says Rene Jensen, JS Proputec’s Head of Sales. “Now, we’re able to predict potential breakdowns with a high level of accuracy, enabling our customers to plan their preventative maintenance to coincide with other downtime operations.”

With the popular pump manufacturer’s usual attention to customer ease-of-use, JS Proputec has designed JS Maintenance Mate® to be a simple, straightforward addition to its pumps. And, with the device standard



Rene Jensen, Head of Sales JS Proputec A/S

on all the company's lamella pumps from May 2021, there is no additional cost for the new capability. The device can also be retrofitted to existing pumps via a handy connector kit that is swift to install.

That's Smart!

JS Maintenance Mate® is a front-runner in a new wave of IoT

(Internet of Things) devices that digitally report data to the users of products ranging from fridges to industrial machinery, and which may, for example, also feed data to the manufacturer to support continuous product improvement. Such devices are designed from the outset to operate smoothly without requiring much attention - and JS Maintenance Mate® lives up to this requirement, too.

A QR code on the side of the device prompts the operator to download the free app. He or she then sets up a profile with pump number, email address and password, activating a SIM card within the device. If desired, the operator can then select the media type being pumped and adjust alarm thresholds. Encrypted data is then reported from device to app, enabling the customer to act swiftly to avert unnecessary downtime, and supplying useful inputs that can help JS Proputec's R&D team to further improve the company's products.

"Ease of use has been one of the most important design parameters for us for this new capability," Rene Jensen explains. "Anyone handy with a screwdriver and a wrench, and who knows how to install a smartphone, tablet or computer app can do the job! Then it can be as simple as checking the app every now and then and responding to any notifications."

Good Vibrations

The bearing in such pumps is protected by a mechanical seal. If wear and tear cause the seal to leak, then media begins to enter the bearing, thus wearing the bearing down. JS Maintenance Mate® assesses such wear and tear by monitoring the RPMs, vibrations, and pressure in the bearing housing. A full overview of the pump's status is generated based on measurements of these vibrations, and the pump's temperature can also be determined. While these capabilities may, at first glance, seem relatively simple, an enormous

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The JS Maintenance Mate box mounted on a JS Lamella pump.

amount of work was required to assess patterns of wear and failure across a variety of pump models pumping different types of by-products - then algorithms had to be developed and refined to reflect these patterns.

“We’ve spent thousands of hours in our pilot setup and out at customers in Poland, Germany, Sweden, and Denmark pumping media such as meat, fish, cutoffs of chicken, pig and cow to note the effect on pump vibrations as the lamellas begin to wear down,” says Rene Jensen. “After doing so, we arrived at four distinct scenarios that enable us to predict the timing of breakdowns with considerable accuracy. Over time, as the device gathers more and more data across many customer installations, we will become even more accurate.”

Once installed, each JS Maintenance Mate® device requires no further attention - there isn’t even a battery to replace, as power for the circuitry is provided by a small generator connected to the pump’s shaft, much like a small generator.

Agile App

The JS Maintenance Mate® app displays live data on a color-coded ‘dashboard’. Individual pumps are shown as green if all is well, yellow

where service and/or spare parts will soon be needed, and red if the pump is currently out of action. In fact, the device is even smart enough to indicate which spare parts may be advisable to have on hand - and information on these can be sent directly to JS Proputec or its authorized distributors to obtain a quote or place an order.

Data can also be extracted from the app in more detailed form, enabling sophisticated operators to obtain deeper insights using, for example, an Excel spreadsheet. How-to videos and other useful materials will be increasingly added to the app.

And, for the color-blind among us, the app’s interface integrates a system of smiley faces - all just part of the ease-of-use design specification.

A Step Forward for Sustainability

With the food processing industry increasingly under scrutiny surrounding its consumption of energy and water, companies are eager to strike a blow for sustainability - and JS Maintenance Mate® has a contribution to make here, too.



The JS Maintenance Mate app enables 24/7 access to LIVE pump data. And you can download the app for FREE!

“As the lamellas wear down, the operator tends to increase the RPMs beyond the initial, most efficient pump setting for a particular residual type,” says Rene Jensen. “Naturally, this requires more energy, and the pump or pumps are then running inefficiently, which is a burden not just on the planet, but on the customer’s electricity budget, too. And the data provided by JS Maintenance Mate® may show, in fact, that it is possible to swap out smaller components rather than larger ones to return the pump to more efficient operation. That, in turn, also represents new savings for both the customer and the environment.”

Knowledge is Power

It’s often said that knowledge is power, and for both large and smaller meat processors, there’s a lot to be gained from the data flowing from JS Maintenance Mate®.

As Rene Jensen explains, JS Proputec sees a great future for the new capability: “We like to compare JS Maintenance Mate® to the computer-based analysis a mechanic might run on a luxury car in the workshop, obtaining data that takes into account not just the model and age of the vehicle, but also how far, fast or hard you drive it - parameters that affect, for example, how often oil changes are required.”

“Eventually, JS Maintenance Mate® IoT devices will be able to provide even higher levels of context-sensitive, tailored intelligence that ensure razor-sharp accuracy both in terms of what might be about to go wrong, exactly when and exactly what to do about it,” he concludes.

www.jsproputec.com

The perfect homestyle coating

Why choose a Marel RevoBreeder?

- **The most authentic homestyle coating** – using a unique drum
- **Reduces manual labor, increases production volume** – with innovative distribution function
- **Flexible multi-function machine** – dual flatbed and drum modes in one enclosure

marel.com/RevoBreeder

HANDTMANN DIGITAL SOLUTIONS CREATE ADDED VALUES FOR SMART MEAT PROCESSING



Handtmann Communication Unit HCU

The market environment for modern food processing plants today is characterised by cost pressure, a highly dynamic approach and complexity. Plant and production managers frequently feel forced to pursue competing aims under difficult conditions: stringent quality requirements coupled with ambitious cost targets, quickly fluctuating demands and changing operating staff are typical challenges. Handtmann Maschinenfabrik offers intelligent digital solutions for a wide variety of requirements that provide effective support and create real added values.

The Handtmann Monitoring Function (HMF), for example, independently stops the filling and portioning line if quality-relevant parameters are exceeded or not met. Misproduction can thus be reduced or even altogether avoided. The Handtmann Data Interface (HDI) features a standardised interface for easy communication with data processing system for process optimisation. The Handtmann Line Control (HLC) allows status monitoring of complex automated production lines in real time, as well as automatic programme

change for the entire production line via the Handtmann vacuum filler's control system.

There is, however, also a large number of individual digital solutions that offer added value in daily production for specific applications and systems, for example the MSA Machine Setup Assistant. Based on product information such as weight, length or casing type, it automatically proposes equipment options and parameter setting for the machine. This provides optimum support for new or inexperienced operators and ensures save and reliable production. In the production of formed products, the HPV Handtmann Product Visualization offers easy setting of the desired product shape by graphic representation on the vacuum filler's control system. The IFC Intelligent Filler Clipper Interface ensures performance and process reliability through optimum synchronization of vacuum filler and clipper.

Production Networking and Process Control with HCU Software for Modern Management of Materials, Staff and Machines

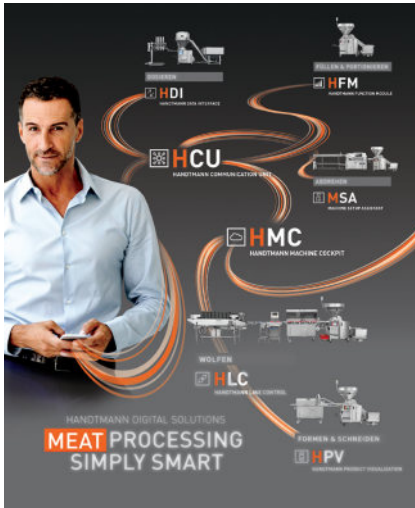
At Handtmann, Industry 4.0 is known as HCU and it stands for the modern management of materials, staff and machines. With the HCU software (Handtmann Communication Unit), Handtmann provides a unique tool for controlling, monitoring and optimising the filling department. HCU MODULES enable simple and effective production optimisation to be

implemented step by step: the BASIC MODULE, WEIGHT CONTROL MODULE and PRODUCTION PLANNING MODULE.

The BASIC MODULE covers the recording and analysis of production data. It links filling lines into a network and, as an intelligent control tool, supports the production managers in documenting, analysing and organising the filling department. The production manager organises the filling lines and scales as well as the programmes on the vacuum fillers directly from his PC workstation.

Batch tracking, accurate documentation of production for each filling line and recording down-times ensure 100% traceability, reveal weak points and thus provide information on the potential for savings. It is possible to improve production capacity utilisation in a targeted way due to the transparency and direct comparability of the filling lines. The integration of a weighing





Handtmann Digital Solutions HDS

system is another tool aimed at production and cost optimisation with the HCU. Check-weighing scales linked to the network are used for an on-going target/actual value comparison of the set values and the measured weights.

A trend calculation tunes the Handtmann filling lines that are also connected to the network. The system then automatically adjusts the portion weight. This automatic weight optimisation, facilitated by the WEIGHT CONTROL MODULE, results in a significant cost reduction.

Another effective HCU software tool is the PRODUCTION PLANNING MODULE. It ensures that production volumes can be easily planned and transferred to the production lines. Production line availability, the number of operators and the product to be filled are automatically taken into consideration. The order list is transferred to the vacuum filler control system easily and centrally using drag & drop. And complete production can start right away.

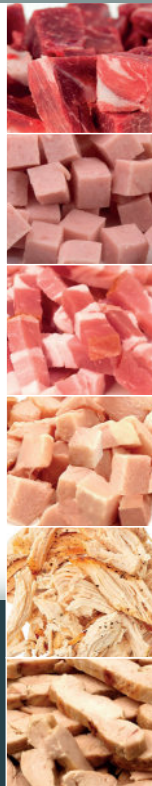
The Handtmann Communication Unit (HCU) has since many years been the leading Industry 4.0 solution for the planning, control and optimisation of the filling department. New functions, such as user login, are the basis for comprehensive documentation. A further step towards paperless production. The HCU software can be used throughout the entire production line where the VF 800 and VF 600 vacuum fillers or the HVF 600 high vacuum fillers are deployed as the basic, central element of the production processes. In particular, it reduces the work of the company management team, quality assurance and the production management in the face of cost pressure, greater dynamics and complexity. It guarantees cost reductions, consistent product quality and production reliability.

www.handtmann.com

Machines with stringent hygiene standards designed for the meat-processing industry



- Very versatile dicer designed to uniformly strip cut and dice a wide variety of cooked & frozen meat and poultry applications.
- Designed for continuous and reliable operation for high production capacities.
- Ability to cut at very low temperatures between -2° and -18° C resulting in a non-sticky, free-rolling product, simplifying the weighing and packaging.



- Two-dimensional heavy-duty cutter designed for dicing, strip cutting, or shredding a variety of products.
- Operates continuously at high production capacities and is designed for easy clean-up and maintenance.
- Ideally suited for cutting frozen-tempered, fresh-chilled, or hot cooked beef, pork, or poultry.



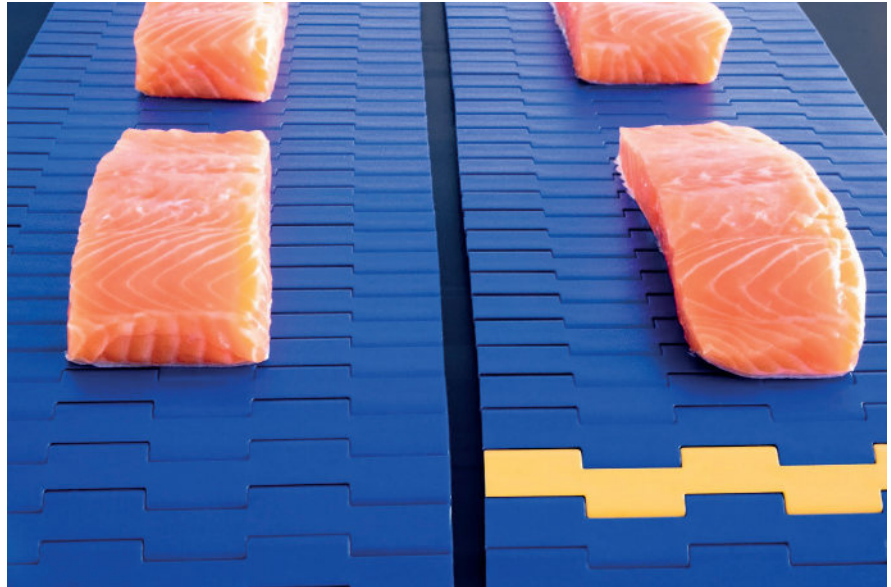
CHOOSING THE RIGHT CONVEYOR BELT FOR FOOD SAFETY

Running a food processing plant is not an easy task, not least because of the complexities of dealing with food safety and hygiene. Here Anna Marcol, marketing communications manager at conveyor and power transmission belt specialist Habasit, shares insights from a recent webinar delivered jointly by experts from Habasit and NGI, who discussed how hygiene-rated equipment and the right choice of belt type and material, are crucial in achieving food safety.

While food plant managers do a good job of keeping their facilities clean, food debris and microbes can still find their way into the smallest of dead spots. Bacteria can harbour on and in conveyor frames, under equipment, under the belt, or even in the small gaps of a plastic modular belt. What's more, they can elude even the most rigorous cleaning cycles, leading to excessive use of detergent, water, time and energy.

So, evidently, food safety goes to the heart of the food process and supply chain. It's also why food hygiene decisions made by food processors should be considered at each of the manufacturing, processing, and packing stages. Likely one of the most important pieces of equipment that runs through all these steps is the conveyor system.

When thinking about food safety and hygiene, food processing professionals should consider two key areas: hygiene-rated



equipment and the right choice of food-contact elements, including belt type and material.

Hygienic Equipment

In open conveyor systems, food debris can contaminate surfaces and get into crevices and internal support structures over time. While an effective cleaning and sanitation plan goes a long way in reducing contamination, equipment and components designed specifically for hygiene can take less time, water and cleaning agents to clean and sanitise.

As such, equipment and components should be appropriately hygiene certified for food. This includes meeting minimum hygiene standards in accordance with the likes of 3-A, NSF or EHEDG guidelines for equipment, as well as being compliant with the food contact regulations by the FDA or EU 1935/2004, and other national regulations.

Hygiene certified components take into consideration among other factors the cleanability of surfaces, preventing ingress and the growth of microbes in dead spaces, self-draining surfaces or on levelling-feet or castors and much more. In any case, plant managers are required to care for equipment that is made from materials that are safe and do not change the composition of food, or its taste or odour.

However, these measures are only a means to an end. We wanted to share our experiences and participate in the dialogue on food safety, and so Habasit's Hygiene Program Manager, Bernd Roser recently delivered a webinar on food safety jointly with Niels Vindsmark, Sales and Brand Owner Program Manager at hygienic component manufacturer NGI.

In the webinar Niels explained, "Applying hygienic certified components will not avoid an

outbreak, but the more problems you can eliminate and the more certified hygienic components you have in your production facility, the less places you have to look at and worry about if you have an outbreak.”

Belting

Bernd Roser pointed out that food plant managers should consider three areas when using open conveyor systems: choosing the right conveyor design, choosing the right food contact material to match the process conditions and selecting belts that support ease of cleaning.

A conveyor design supporting sanitary needs is one that provides easy access to belting from all sides, to allow operators to inspect, clean, sanitise and validate effectively. For example, Habasit’s Saniclip is a rod retention system with toolless belt opening that allows a line operator to remove and assemble a modular belt swiftly for easy cleaning.

When selecting the right food contact material, it’s important food processors choose a belt that doesn’t change its mechanical properties or wear quickly when regularly exposed to harsh, chemical-based cleaning cycles, at elevated temperatures and with extended contact times.

To support engineers in identifying the chemical resistance of various belt types and materials, Habasit has created a free online tool to help users decide the best belt for them. For applications exposed to very demanding hygiene conditions, Habasit has also developed Super HyCLEAN, a plastic modular belt that minimises the use of rods and hinges to aid cleaning, ideal for applications such as fish and poultry.

Whatever the food processing application, choosing the right conveyor belt, and ensuring equipment is designed with hygiene in mind is pivotal. Not only will it help food processors comply with

industry standards, it will ensure the industry can continue to reduce the dangers of contamination - and make it easier for plant managers to run their facility.

www.habasit.com



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HARD-TO-HANDLE FRUIT, VEG & POULTRY WASTE PROVES EASY PICKINGS FOR SEEPEX BTM PUMPS

A sophisticated chopping, pumping and waste removal solution from progressive cavity (PC) pump specialist SEEPEX UK is making light work of previously challenging by-products from whole chickens, potatoes and cabbages to peelings and fruit stones. The BTM range is not only cutting food producers costs, it's also improving their standards of hygiene and health & safety.

Waste is an unavoidable part of the production process at fruit, vegetable and poultry processing facilities. Whether in the form of trimmings, wash residue and by-products, or as a result of off-specification batches, overproduction or expired goods, it must be handled within strict sanitary guidelines and quickly removed from production areas. Not only does this free capacity so that primary processing operations can continue, but waste and by-products can also create an additional revenue stream as animal feed or compost, or to generate renewable energy. This makes their efficient removal and swift onward transfer even more important to manufacturers' bottom lines.

However, some waste products are notoriously difficult to handle. Large, highly viscous or non-flowable foodstuffs can prove particularly challenging: for example, whole

chickens; chicken frames, heads, feet and necks; whole cabbages or potatoes; and fruit stones, seeds and peels from vegetables and fruit. As a result, some operators still rely on traditional methods to remove them from the production area. It is not uncommon to find conveyor belts, compressed air systems, vacuums, water flumes, and manual handling via waste containers such as tote bins being used even at large food production factories. These methods can be inefficient, unsanitary and expensive.

Automated, All-in-One Alternative

Fortunately, there are sophisticated, hygienic and cost-effective alternatives on the market. Seepex BTM pump range is one such option. The patented chopping and pumping solution, featuring an enclosed pipework system, is already being used in waste handling applications at many fruit, vegetable and poultry processing factories throughout the UK and Europe. Thanks to an integrated cutting unit that reduces particle size, the BTM effectively chops and pumps in a single operation, reducing the solids volume by up to 60%. This creates a pumpable consistency, without requiring the addition of water, enabling whole vegetables and even entire birds such as

DOA or off-specification chickens to be hygienically and efficiently removed off-site.



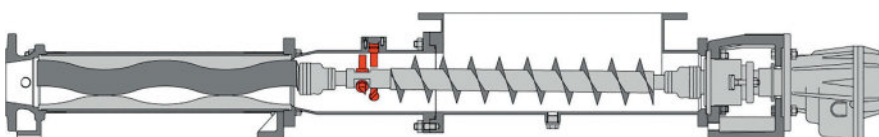
SEEPEX PC pumps are used in poultry processing and for the efficient and cost-effective removal of by-products and waste.

Hygienic Waste Removal

The benefits to food manufacturers of switching from conventional waste removal methods to an enclosed, automated solution like the BTM are three-fold. Firstly, it is more hygienic. Transferring waste products through a closed pipe system eliminates, for example, the need for dedicated cleaning of tote bins prior to re-entering high-care areas which prevents potential cross contamination.

Improved Health & Safety

Secondly, it is safer. Manual handling or conveying systems often result in waste product falling or being dropped onto the floor, presenting an immediate health and safety risk to operatives, who are in danger of slipping on it. Furthermore, this fully automated solution requires only one staff member to load product into the hopper. This leads to improved health and safety on the factory floor due to a reduction in traffic



SEEPEX BTM pumps chop and pump in a single operation

and hazards in high-risk areas - fewer forklift trucks, fewer operatives and fewer tote bins.

Cost-Saving Solution

Finally, the BTM pump range is more efficient, generating significant cost savings. By chopping, pumping and transferring all-in-one as the BTM is able to create a pumpable consistency without requiring any additional water, resulting in savings from water usage. This has the additional benefit of reducing the volume of waste by up to 60%, making it easier to transport and thereby cutting transport costs. The operating and energy costs of the BTM are considerably lower than vacuum or compressed air systems, generating savings there. And by removing a manual

element from the process and automating it, food producers are saving on labour costs, too, freeing employees for more lucrative, primary production roles.

Where high care production areas are chilled, removing waste via a simple pipeline rather than manually through doorways, will also assist in reducing energy costs as well as minimising potential contamination from external sources.

Bespoke Options for Most Challenging Waste Streams

Where more challenging by-products need to be transported, customised solutions are available. 'Bridging' can be an issue with certain wastes, so the BTM pump

range includes augers with a large pitch that enables the product to be conveyed into the cutting elements to ensure continuous pumping.

Horizontal and vertical grinders can also be integrated, as can stone and knife traps to prevent pump damage, while dewatering devices can help to reduce waste volume even further. Finally, all BTM pump systems can be fitted with Smart Conveying Technology (SCT); an innovation from Seepex that enables rapid dismantling and cleaning, increasing pump stator life by up to 200% and reducing maintenance time by up to 85%. Pumps fitted with SCT are also suitable for Clean-Out-of-Place (COP) or CIP.

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IMAGINING THE FUTURE: CELLULAR AGRICULTURE

By Henk Hoogenkamp

Part 2

Agricultural civilization came before the technology-driven era by several millennia, but technology-driven inventions have since overpowered agricultural domination. Cellular agriculture is a true groundbreaking entrepreneurial field that is still in its early conceptual phase and some startups are in need of additional funding.

History has shown that people are skeptical or even hostile when confronted with breakthrough technologies, especially when it comes to food. For example, early in the introduction of genetically modified organisms (GMOs), American companies raised false and misleading expectations, as well as made predictions that were self-beneficial and self-centered. As a result, consumers were confused by the extreme complexity of the issue. Although cellular agriculture is not directly linked to the GMO controversy, its clean and pure technology should be communicated through an open and honest dialogue with all stakeholders.

Protein: Software and Hardware Automation

Recombinant DNA technology used in expressing genes in microorganisms (which are normally not expressed) to produce proteins can augment armamentarium to battle food security issues.

However, the very same technology can also be used to create new industrial materials, most of which are not even on the radar screen today.

With the help of artificial intelligence (AI) and software directed robots, a few scientists can now equal or surpass the output



of numerous traditional scientists and technologists working bench top in a much shorter period of time. Biosynthetic technology is the next wave of manufacturing by using digital genetic coding, giving it the ability to scale like a software company.

Presently, one of the biggest challenges facing the synthetic biotechnology upstarts is the issue of transparency. This has been the center of debate around genetically modified organisms or GMO. It is clear that cellular agriculture is ahead of government food regulatory guidelines with

looming issues that need to be addressed, such as labeling and safety.

Using biotechnology and bioengineering as manufacturing tools is the most sustainable option to move forward, and the possible use of GMOs should not be hidden from the public.

To safeguard the future of the planet, synthetic biotechnology will be essential to sustain life and wellbeing for the human race. "We should not try to run before we can walk" - ergo every measure should be taken to prevent the mixing of GM organisms with the natural world until the impact is fully understood.

Artificial Intelligence (AI)

Nevertheless, we need to pause for a moment and realize that progress seldom follows a linear line. This will certainly cause conflicts with automation, robotics and artificial intelligence predicting to destroy employment in developed countries. Most threatened are the low-skilled workers, many of whom currently serve as the backbone of the economy. It will not stop there. Reports say that artificial intelligence can better diagnose diseases than doctors like radiologists and dermatologists, thus triggering questions about algorithms taking over a great part of the medical industry.

The bottom line is to answer the variables of technological unemployment - the gap between jobs created and the jobs killed after yet another disruptive invention. In a rather unique way, it is becoming evident that disruptive technology may not only kill jobs but also exacerbate inequality as profits go to a far smaller portion of society. These issues need to be discussed because equal representation and sharing remain the backbone of a healthy civilization.

Entrepreneurial Thinking or Staying Put?

Science and technology are the sources of innovation, whereas entrepreneurial thinking with strong leadership, coupled with strong disciplinary and organizational structures, usually create the competitive edge.

For some legacy food companies, experience and expertise often become a barrier to success and therefore, hinder progress. These are typically driven by singular "even-keel" or risk-free thinking and are void of disruptive creativity.

These changes are obviously fueling anxiety among legacy food companies like Nestle, Unilever, General Mills, PepsiCo, CocaCola, KraftHeinz, Kellogg's, and traditional farmers-owned dairy companies such as FrieslandCampina. Many of which wonder how much disruption they can tolerate and how much they should embrace. The answer is often a balancing act: it is

good to look at the future, as long as it does not disrupt the shareholder and still presents stakeholder values. For many legacy food companies, it is clear that change can be painful for the organizational structure, particularly when business is going well. Moreover, legacy food companies tend to have a culture of risk aversion and opt for zero-risk tolerance when thinking outside the box.

It can be expected that legacy food and meat companies eventually gobble up or partner with plant-based meat and beverage companies. Examples are the partnership between PepsiCo and Beyond Meat bringing together Beyond Meat's innovation expertise and PepsiCo marketing, distribution and commercial



capabilities. Another example is Nestle's acquisition of Sweet Earth Inc, manufacturing the flagship Awesome Burger. These collaborations and acquisitions will accelerate bringing plant-based products to global markets at much greater speed, providing nutritional and environmental benefits.

Important Sustainability Targets:

- Waste valorization: transforming waste such as rice bran and beer brewing residues into beneficial ingredients and products such as non-animal egg albumen.
- Supply chain digitalization: blockchain and artificial intelligence to validate food safety and country of origin.
- Regenerative agriculture: cellular biotechnology, molecular farming to secure food supply for future generations.
- Diversification of plant protein sources: avoiding monoculture cropping and biodiversity such as induced by soy's dominance.

Post-Animal Food Going Forward

Biotechnology is presently in the Stone Age, comparatively speaking. Its application to food production has only scratched the surface. Biotechnology, particularly cellular agriculture, will eventually utilize renewable energy sources and address consumer needs with wholesome food and

other daily products, as well as provide the world's rapidly growing population with ecological sustainability. The technology -also termed post-agriculture food production- has the potential to create cleaner, cheaper, and more flexible food production methods, while leaving fewer "fingerprints" in the areas of

waste, animal health support, and supply chain management.

Facilitated Expression

Scientists are only scratching the surface when it comes to unlocking the potential of microbial fermentation to produce food ingredients. The application of biotechnology to food production is only the beginning of a long road to ensure future food security and safety. For an increasing number of food products, microorganisms are the future of nutrition.

A primary advantage of cellular bio-factory manufacturing is the lack of waste streams at the end of the fermentation process. Once the fermentation (using carbohydrates and other low-cost biomass and ingredients) has been completed, the individual components can be mechanically separated, if needed. This technology -also known as "facilitated expression"- can be used with or without genetic engineering.

Throughout history, people have selected animals, plants, and microorganisms to enrich the wholesomeness of the food supply by intentionally crossbreeding to improve hereditary makeup. Seen from this perspective, there is really nothing new about cellular and gene technology. From another perspective, it has become apparent that protecting biodiversity is paramount and we have to accept the reality that man has already made an irreversible impact on the natural world. Until our disruptive technologies are better understood, it is imperative to find a socio-technological equipoise position that allows forward momentum while simultaneously filtering out the poisonous legacy of the global industry lobby.

Interconnectedness

There is a "classic" or agriculture-driven change like cultivating seeds and domesticating animals, as well as technology-driven change like

developing renewable energy and sustainable cellular agricultural food production.

People have always used technology to make life easier and safer, with global change accelerating rapidly in the 21st century. These major changes often upend people and societies. Therefore, it is really no surprise that breakthrough technologies like cellular agriculture are so overwhelming, especially since they will have cataclysmic impact on the world. Many of the new technologies are converging simultaneously, thus, interconnectedness and complexity might strangle corporate marketing communications with the core consumers.

As with all exponential technologies, most people will not see it coming since it will happen at a faster speed than predicted. The creation of artificial intelligence, such as in diagnosing diseases with much higher accuracy compared to human medical diagnosis,



becomes exponentially better in understanding the world. Not only medicine, but also innovative software for the food industry will disrupt most food manufacturers in the next 10 years.

Artificial Intelligence

Technological disruptive food innovation and strategies are needed in order to successfully link existing and emerging know-how such as cellular (synthetic) biotechnology, human health, artificial intelligence (AI), as well as new business models.

Artificial Intelligence (AI) will be shaping the future of the food and beverage industry. AI will not only predict yields and production processes and efficiency, but also enable ground-breaking innovation with unique developments of food ingredients such as superior flavorings and colloid stabilizing systems.

Intelligence Mapping: Digital Genetic Coding

In essence, proteins can be so much more than just food: proteins are highly customizable providing a huge range of functionality for product development. Designing and synthesizing original proteins can create an endless range with unprecedented versatility.

An increasing number of highly educated or professionally trained people worry what happens when artificial intelligence renders their expertise obsolete. Not only the taxi drivers will lose their job to autonomous-driven cars, but also the medical doctors like radiologists and dermatologists may see their jobs conceptually change or even disappear.

What will artificial intelligence (AI) mean for income-generating jobs and its impact to society? Silicon Valley's autonomous cars developed by Tesla, Google, and Apple could turn Detroit's legacy auto manufacturers into low-margin assembly lines making chassis to carry around computer electronics of technology that is not owned. For now, it looks as if the self-driving car technology will be ready before people are ready to give up command of the wheel.

Creative Destruction

In general, the rather traditional food industry is bracing for rapid technological change that can radically alter the landscape. As a matter of fact, the technological changes are happening so rapidly that it almost impossible to make predictions 20 years from now.

Advancements in artificial intelligence (AI) have broad applications in the agricultural and food processing industries and these innovative technologies will improve multi-disciplinary sectors such as bioinformatics, molecular bioscience, crop improvements, animal welfare and robotics, including intuitive human-robot interactions.

The disruptive presence of quickly-advancing cellular biotechnology startups is being felt and is shaking up conventional research structures, which are now in need of recalibrating human talent interactions toward the skills from digital and artificial intelligence.

The Only Constant is Change

In the US, the existing regulatory framework of biotech products

dates back to 1986 and has since remained largely untouched. The huge innovations in biotechnology -like human tissue engineering and many forms of cellular agriculture- urgently need to be updated from a regulatory perspective with joint input from Government authorities, such as the FDA, USDA, EPA, EFSA, and biotech's greatest minds.

The world of food science is quickly marching into new territories using post-animal biotechnology and bio-economy models to provide sustainable, healthy food security and nourishment for a rapidly growing world population.

Newly designed food protein molecules can balance performance and productivity and are a necessary tool to reduce go-to-market costs. This is accomplished through a bioinformatics analysis of amino acid sequences and genetic codes to achieve and master variables like elasticity, tensile strengths, and heat tolerance, subsequently providing a unique revolutionary platform for the creation of innovative and sustainable, as well as high-performance healthy food products.

About the author:



Henk Hoogenkamp, Proteins, Advisory, Boards, Author

WITH COLIMATIC WEBSKIN-WEBMAP, THE FOCUS IS SET ON SUSTAINABILITY



The COLIMATIC brand was born in Italy almost 50 years ago. Established as a small artisan company the business grew exponentially thanks to the intuition of the founders. Their dynamic approach led to the manufacturing of packaging machinery on an industrial scale while still maintaining the customer centric design which sets them apart from competitors. This led a small Italian company focused on domestic markets to export and in turn becoming an international leader and reference in the packaging sector in very few years.

The pillar to COLIMATIC's sustained success is their continuous commitment to research and development. The company primary aim is creating solutions capable of guaranteeing maximum efficiency and reliability. This

dedication to delivering systems that cater to the current and future needs of their clients has ensured COLIMATIC's position as the Italian leader of the thermoforming sector.

COLIMATIC believes that the quest for new environmentally sustainable technologies is one of the first goals that modern companies should have. WEBSKIN/WEBMAP is COLIMATIC's answer to the need of creating a recyclable and ecological package, without compromising the cost of the product to the final consumer. The WEBSKIN/WEBMAP packaging process combines the efficiency and hygiene of the thermoforming process with the packaging design flexibility of tray sealing while optimising the usage of plastic material. Colimatic WEBSKIN/WEBMAP uses a very high-quality cardboard bottom with

a plastic percentage of less than 10% and is therefore totally recyclable as paper; the lid (top) is separable and can be recycled in the plastic circuit, reducing the impact on the environment. The tray is made from a reel, with printed and customizable graphics, thus eliminating the costs of manufacturing, storing and managing pre-cut cardboard blanks.

The complete Colimatic range includes:

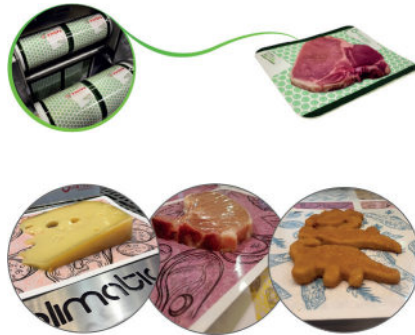
- Thermoforming lines - the core of Coligroup's business
- Tray Sealing solutions
- Combined vacuum and flow pack systems.

In addition to their core products Colimatic offer complete slicing lines, packaging in map and marking, lines for the production of

cooking products commonly called cook-in, vacuum packaging with the support of shrink technology, automation and skin packaging. The company offers a wide range of cutting-edge solutions that are characterized by reliability, high performance and the reduction of waste of precious food products in the process.

Colimatic's corporate mission puts the Customer at the center of all activities. In its role of technology supplier Coligroup, can be defined as bespoke supplier providing solutions according to the individual needs of the customer. They offer professional consultation and carry out packaging and material trials to allow for effective fine-tuning

of the entire production process. Through LISA® (a patented software for the integrated



management of production in the "Industry 4.0" environment) Colimatic can intervene remotely to minimize unexpected machine downtime. This is enabled through real-time control of spare parts, management of maintenance

and continuous monitoring of the machines vital parts. Integration to the customers IT system for work orders acquisition and processing all the data and specifications that contribute to the quality of the final product. Thanks to the LISA® software package all process data can be stored and made available. The retrievable data includes information relating to performance (OEE) but also all the process parameters linked to the production batch for total traceability of the packs produced.

COLIMATIC packaging lines represent today one of the highest expressions of technology, experience and quality made in Italy.

www.colimatic.com

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KRECYCLE™ - RECYCLE-READY HIGH BARRIER PACKAGING FROM KREHALON WITH NO COMPROMISE ON SHELF LIFE AND SEALING PERFORMANCE.

Developed with recyclability in mind, Krehalon's KreCycle™ product range uses Polyolefins, which are suitable for mechanical recycling whilst offering no compromise on shelf life and sealing performance. Solving the end-of-life challenge for multilayer barrier flexibles.

With the packaging industry shifting towards simplification - from multilayer to monolayer structures and toward Polyolefin-only substrates, there have been some promising innovations in recyclability. In many respects, flexible packaging has a smaller environmental footprint compared to alternative packaging formats due to its light weight and resource efficiency. Until recently, these benefits have made post-consumer flexibles less financially compelling to collect and recycle when



compared to heavier packaging alternatives. But the tide is changing, often led by consumers keen to contribute their part to creating a more sustainable

world. Leading mainstream supermarkets are also playing their part by setting up front-of-store collection points for flexible packaging previously considered unrecyclable.

Krehalon - a global manufacturer of flexible barrier packaging for the fresh food industry - has launched its range of readily recyclable high barrier flexible films for fresh food applications to meet the request for more sustainable packaging options.

KreCycle™ does not compromise shelf-life expectations or sealing performance. It is ideally suited for packaging fresh protein - red meat, poultry, processed meat, seafood, and hard cheese. Products include flexible thermoforming films, flowrap films including a high barrier option, lidding films, and vacuum pouches.

The KreCycle™ range includes polyester (PET), polyethylene (PE) and Polypropylene (PP) based products that offer tailored barrier properties to suit specific application needs. There are also lock and peel seal options for consumer convenience. The development of these structures is based on CEFLEX Design for a Circular Economy (D4ACE) Guidelines where it is advised that EVOH barrier in PO-based structures should be no more than 5% of total weight. As such, KreCycle™ can be used as a recyclable replacement to non-recyclable multilayer structures

such as PA/PE, PA/EVOH/PE, PET/EVOH/PE and OPA/PE.

Furthermore, the KreCycle™ PE range has been certified by Cyclos



and is suitable for Front-of-Store collection. This range includes a high-quality paper-feel print option offering a recyclable paper-look alternative to non-recyclable, hard-to-separate-paper/plastic laminates.

Successful trials and commercial orders are already in place for thermoform, flowrap and pouch applications for packing of sausage, cheese, mince and bacon.

The sustainability discussion is multi-faceted and complex. Since 2018, Krehalon is an active member of UK Plastics Pact, RECOUP and CEFLEX. As such, Krehalon is keen to continue contributing to the reduction of both food and plastic waste and to progress in its own sustainability goal to develop products that feature exceptional environmental efficiency with little or no compromise on performance.

www.krehalon.com

KP ZAPORA™ THE REVOLUTIONARY NEW PADLESS PROTEIN TRAY

Klöckner Pentaplast (kp) launches kp Zapora™ the new innovative padless tray technology, uniquely designed and developed to remove the need for absorbent pads in plastic packaging for fresh protein.

It's the next big thing to happen to protein trays, the innovative technology captures liquid and retains it to keep the products fresh and hygienic without having to use an absorbent pad. The integrated design has a high liquid retention level and can be incorporated into trays using 100% recycled content to meet the highest sustainability goals, keeping carbon low by using recycled content and making recycling easy at the end of life. It dramatically improves the consumer experience from its crystal-clear presentation on shelf to its ease of recycling - just rinse, recycle and repeat!

kp Zapora™ was created with a vision to satisfy market demand for more sustainable packaging with a mono PET material for protein packers globally. It is targeted at a wide range of customers - retailers, brand owners and packer processors.

The goal was to make the experience of protein packaging a better one for the consumer who finds the pad unattractive and messy. It has also been designed to encourage far greater recycling by making it easier to simply rinse and recycle the tray, without a pad, and to create awareness that the whole tray can in fact be recycled at home and in local

recycling facilities. It also had to be strong and provide first-class food protection.

The new kp Zapora™ technology appeals to the retailer on many levels - it looks great visually on shelf, it has high level performance as protection for protein and it also achieves sustainability goals with regards to manufacture, recycling and reuse by eliminating the secondary absorbent pad.

kp Zapora™ - which is the Polish word for a barrier or dam - outperforms the competition in every respect, combining liquid retention and pack strength. It also offers the ultimate in sustainability as a complete mono material solution and when combined with other kp technologies ensures a closed loop system with a wide range of packs and sizes. Competitive benchmarking shows that the design provides high liquid retention and retains pack strength. Even held upside down the liquid stays put until it's rinsed out.

Unlike absorbent pads, which can draw the natural moisture from the meat affecting its taste and quality, this unique design keeps the meat above the liquid allowing any moisture to naturally drain away. It is made from up to 100% post-consumer recycled PET which can then be recycled again. It is the ultimate sustainable solution - just rinse, recycle and repeat - closing the loop on plastic packaging.

kp Zapora™ can also be combined with other leading market

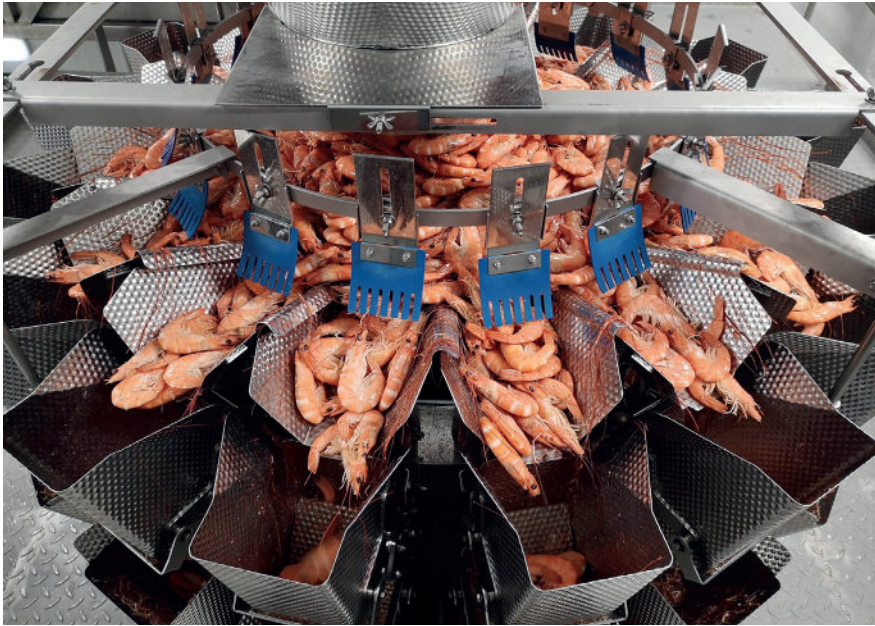


technologies like kp Tray2Tray™, kp's initiative which works with the supply chain to recover, recycle and process used food packaging back into flake and turns it back into more of the same. It is also available in a wide range of kp trays.

kp Zapora™ helps drive at home recycling and contributes to closing the loop on plastic packaging. kp is working with the entire value chain to generate and drive continued demand and ensure a constant supply of post-consumer recycled plastics for trays.

www.kpfilms.com

COMPLETE PACKING LINE SOLUTION FOR LANGOUSTINES



An integrated weighing and tray sealing solution from Ishida Europe has enabled one of Spain's leading fish processors to double throughput on one of its most popular and important product lines.

The recently installed line at Gambastar, based in Burgos, Northern Spain, comprises a 16-head Ishida CCW-RVE waterproof multihead weigher, QX-1100 automatic twin lane tray sealer and DACS-G checkweigher, which is weighing and packing fresh langoustines into a number of different-sized trays.

By replacing its previous linear weigher with the Ishida multihead, Gambastar has been able to increase line speeds from around 35 to 70 packs per minute. Equally important, the Ishida solution is delivering excellent accuracy - to within 2% of target weight on a typical 520g tray.

A particular benefit of the QX-1100 tray sealer is the single tool that is required for the three different tray sizes from 200g to 1kg. This means that changeovers between packs can take place within a matter of minutes with the corresponding settings quickly called up on the intuitive and easy to use remote control unit.

Product is fed to the weigher by a vibratory conveyor. From the dispersion table at the top of the CCW-RVE, the langoustines are transferred to the pool and weigh hoppers. It then takes a fraction of a second for the microprocessor to calculate the best combination of weigh hoppers to reach the target weight.

The selected product is transferred to a specially designed distribution system underneath the weigher. Trays are fed from a tray denester to beneath the weigher where

dipping funnels ensure the complete and accurate placement of the langoustines. The trays are then fed into the QX-1100 tray sealer before receiving a final confirmatory weight check on the DACS-G checkweigher.

The QX-1100's intelligent control system includes auto-set features and servo-drives for accurate and consistent tray handling at high speeds in order to maximise production throughput.

The Ishida DACS-G features an Ishida designed and manufactured, exceptionally fast and accurate, digital loadcell that is able to operate with great reliability in the harshest of environments, and can easily switch between weighing capacities and graduations, giving it the flexibility to handle the different pack sizes in the Gambastar range.

All three machines offer hygienic designs to enable Gambastar to maintain strict hygiene standards. In particular, the IP66 waterproof construction of the Ishida CCW-RVE is designed for a full washdown, while all contact parts can be quickly and easily removed and hung on a special wash wall next to the weigher for an even more in depth clean down.



The Ishida line was supplied by the company's long-term partner in Spain, CIMA. Importantly Ishida was able to meet the strict delivery requirements of Gambastar to ensure the line was in operation by December in order for the company to satisfy its large order commitments during the busy Christmas period.

"What particularly attracted us to Ishida was the company's ability to provide a fully integrated solution for this product," explained

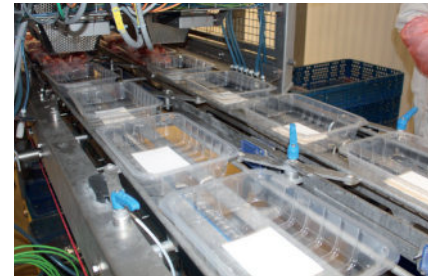


Gambastar's production manager Carlos Pineda. "Ishida was also prepared to guarantee that the line would be ready to meet our deadlines."

The line was fully commissioned at Ishida's headquarters in Woodgate, Birmingham prior to installation and the company provided full training for Gambastar.

"We have been delighted with the performance and reliability of the line since it was installed," confirmed Carlos Pineda. "We also very pleased to have localised support on hand through CIMA."

Established in 2003, Gambastar is one of Spain's fastest-growing seafood companies, currently handling around 9,000 tonnes of fish per year. The company



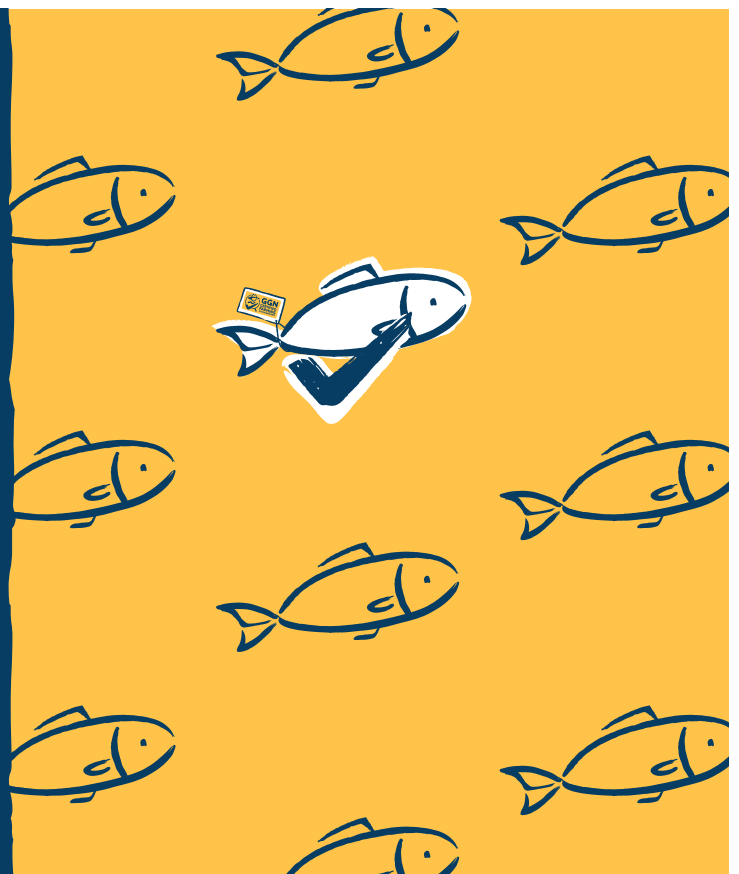
produces a range of frozen, chilled and ready to eat products under its popular Gambafresh brand as well as for private label, primarily for retail customers but also for the HoReCa sector. Around 60% of product is for the Spanish market with the rest exported throughout Europe. Gambastar is committed to ongoing investment to support its continued growth and the recent Ishida line represented one of the company's largest investments in packing equipment.

www.ishidaeurope.com



Distinguish yourself from the competition

Discover how at www.ggn.org



GEA FOODTRAY - GREENER PACKAGING AND LESS PLASTIC FOR MEAT MANUFACTURER

A European manufacturer of high quality meat and sausage products has been helping to boost its sustainability credentials with the use of GEA FoodTray - a combination of cardboard tray and plastic film - for safely packaging marinated meat. Both cardboard tray and plastic film are automatically handled and produced on the GEA PowerPak PLUS thermoformer and can easily be separated after use for disposal.

FZ Neumuenster GmbH & Co KG has relied on GEA packaging machines for many years. Part of the Kiel-based Bartels-Langness Group, Fleischzentrale Neumuenster (FZ) supplies fresh meat and sausage products to department stores, supermarkets and associated retailers.

Production manager Dirk Stemke makes his company's stance clear: "Protecting the environment is a responsibility we take very seriously. For several years now, we have continually been exploring all areas for increasingly green and recyclable packaging materials. We set the bar high in terms of new packaging solutions. Containers or films used to package fresh products must not only be robust and hygienic but also offer good protection. Day in, day out, we work to find the optimum balance between material consumption and material properties in order to ensure long-term sustainability."

Together with its roughly 140 employees, the meat producer employs artisanal skill and a

great deal of expertise to ensure grocery stores are stocked with fresh produce all year round. In single shifts five days a week, the plant produces grill-ready marinated lamb, beef, pork, chicken, and turkey steaks in summer as well as pickled pork neck steaks in winter using the skin version of the FoodTray solution. "In addition to using materials sparingly, we also place a premium in our day-to-day operations on sourcing meat within the region and ensuring the animals are well treated," Stemke explains.

When the meat producer opted to replace an old tray sealer to respond more rapidly to fast-paced consumer market demands, its chief requirements included boosting flexibility in the packaging process while significantly reducing the quantity of plastic used. GEA's FoodTray presented a compelling and environmentally friendly cardboard and film composite solution. This packaging system delivers in terms of product presentation, haptics, safety, and sustainability without compromising on stability and food protection.

The FoodTray combined solution, comprising a cardboard tray lined with film, offers the respective advantages of cardboard and plastic while reducing the quantity of plastic by up to 80 percent. Materials made from fossil resources are replaced by renewable fibres which have the potential to be fully recycled. Consumers

can easily separate the cardboard and film before disposing of them in the appropriate recycling stream.

After deep drawing the film on a GEA PowerPak PLUS thermoformer, it is sealed directly to the inside of the box. This is followed by the customer-specific packaging process. Responsible for overarching developments in process technology at GEA, Hans-Gunter Donges puts the benefits in a nutshell: "Not only are the investment costs low - the upshot is more environmentally sustainable packaging."

MAP packaging heights range from 20 to 60 mm with skin versions reaching between 20 and 42 mm. Since the entire surface can be printed on, the system solution facilitates high-quality product presentation and takes account of growing product labelling requirements.

"The packaging line has operated without a glitch from day one. It has more than exceeded our expectations," enthuses Dirk Stemke. "Despite frequent product changes, production is now twice as fast as before and requires less labour. What's more, the film seals tightly





around the piece of marinated meat like a second skin, not only ensuring its visual appeal but also that no liquid can escape. The packaged meats look appetising

and are shown off to their best advantage when displayed in refrigerated supermarket cabinets.”

To further reduce material waste during the packaging process, GEA made software adjustments up front when designing the machine. That means fewer empty packages are produced as part of the feed-in process during product changeovers and thus less waste is produced.

The company is confident that, with FoodTray, it can win over consumers in the highly competitive food market. “Our decision to go with a greener packaging solution has paid dividends from day one,” says Dirk Stemke. “Our responsibilities today include our impact on the planet tomorrow. That’s why we have reduced the plastic content in our product packaging by almost 80 percent.”

www.gea.com

SWEDEN’S BEST-SELLING SAUSAGES NOW WRAPPED IN RENEWABLE PAPER-BASED PACKAGING BY MONDI



Mondi, a global leader in packaging and paper, has worked with Nordic food manufacturer HKScan to provide renewable paper-based packaging for its best-selling Falukorv sausage.

Sustainable packaging is a high priority for HKScan, who sells over eight million Scan Falukorv sausages every year in Sweden alone. The company has pledged to achieve net-zero carbon dioxide emissions target by 2025 - and aims to achieve a carbon neutral food chain by the end of 2040.

Mondi used its EcoSolutions approach to collaborate with HKScan’s R&D team to provide the right barrier paper without requiring any changes to its existing production lines. The new packaging now comprises of renewable materials and is made with responsibly sourced paper and bio-based plastic. The paper is sourced, coated and printed in Sweden, so transportation is kept to a minimum. Thanks to its majority paper content, the new packaging can be disposed of in Swedish paper recycling streams. Mondi’s solution ensures the Scan Falukorv sausage remains fresh and intact in transportation, and the packaging provides excellent print quality for attractive presentation on the shelves.

Maria Häger, Director Quality & Environment HKScan Sweden, says: “Reducing our environmental footprint is one of our most

important priorities at HKScan. The barrier paper from Mondi is a valuable piece of the jigsaw puzzle, enabling us to proudly announce this new, recyclable packaging for our Falukorv sausage, reducing its CO₂ impact from the previous solution by 70%¹. This represents a vital step in our sustainability journey and is helping us get closer to achieving our climate targets of achieving a carbon neutral food chain by the end of 2040.”

Jonas Fridberg, Business Solutions Manager, Functional Paper and Films, Mondi adds: “Our aim is always to develop fit-for-purpose packaging that is sustainable by design. Our work with HKScan to facilitate their switch to recyclable and renewable paper packaging for Scan Falukorv 800 g is a great example of that. It has led to a significant reduction in carbon impact, with no change in the consumer experience, and that is truly something to be celebrated.”

www.mondigroup.com

¹ Measured by IVL Swedish Environmental Research Institute

NEW GENERATION OF 4500 AUTOMATIC WEIGHING AND LABELLING EQUIPMENT



Faced with an ever more demanding market, Dibal has responded in 2021 with the launch of a new family of automatic weighing, labelling, control and classification equipment. Its development falls under one of DIBAL's current challenges: the manufacture of increasingly sophisticated

equipment with enhanced capacity for the industrial sector. The new line offers greater versatility thanks to its modular design, increased weighing and labelling speed and utmost printing precision.

Some of the Advantages of the 4500 Range Are:

Weighing:

high speed, up to 250 ppm.

Printer and Labeller System:

higher speed (up to 250 mm/s) and increased printing precision with more durable heads, as well as in the positioning of the labels. This equipment also offers the possibility of using a wider range of labels.

Conveyor Belts:

three types to improve the transfer of products (standard, high speed - super adherent - and sliding for ejector areas), with FDA approval for the food industry.

Electric Box:

especially designed to reduce dirt accumulation and facilitate the cleaning, maintenance and repair of the equipment; with IP65 protection against dust and water.

Frame:

universal modular design, which enables new modules to be added to operational equipment, offering greater versatility and adaptability at customer premises.

www.dibal.com

NEW SEALED AIR SHRINK PACKAGING IS DESIGNED-FOR-RECYCLING FOR CIRCULAR ECONOMY



Sealed Air has developed a market leading designed for recycling shrink-packaging solution to

support food companies increasingly move to a circular economy.

The new CRYOVAC® brand Designed-for-Recycling Standard Presentation Shrink Bag and Shrinkable Rollstock are the world's first RIC4 coded heat-sealable food packaging materials, meaning

they are 100% recyclable* to help food processors and retailers further improve sustainability.

Enhanced efficiencies and environmental performance can also be realised through the range's thinner, lighter EVOH barrier and excellent mechanical resistance. These features can help to reduce packaging material usage and overall carbon footprint by up to 60%, compared to widely used thermoforming packaging systems.

Ed Roberts, Global Sustainability Leader at Sealed Air, commented:

“The Designed-for-Recycling Standard Presentation Shrink Bag and Shrinkable Rollstock have been designed to offer a total packaging approach to improving sustainability. The recyclability is complemented by high shrink, abuse resistance and barrier properties to reduce food waste, while also lowering sealing temperatures and energy usage during packaging.”

The new Designed-for-Recycling Standard Presentation Shrink Bag and Shrinkable Rollstock have been tested in accordance with protocols set-out by the Association of Plastics Recyclers (APR) and Plastics Recyclers Europe (PRE), with the 100% recyclability certified by Institut Cyclos-HTP.

Ed added: “As well as meeting growing demands for increased sustainability, the Designed-for-Recycling packaging also satisfies other important consumer requirements. The sealed packs are easy opening, glossy with reduced haze and avoid discoloration of meats. Together, these performance properties help drive sales, which is another step towards less food waste and better resourcefulness.”

Operators can run the Standard Presentation Shrink Bags with a wide variety of heat-sealing equipment including CRYOVAC® brand VR and VS vacuum lines, while the Shrinkable Rollstock is compatible with Horizontal Form Fill Seal technology and a range of other loaders.

Ed concluded: “To build a circular economy, we need materials and processes that take a holistic view of sustainability. This approach is at the core of the new Designed-for-Recycling packaging, with advances in recyclability achieved as part of a solution delivering improved efficiencies and lower waste throughout the food supply chain, beyond the end-of-packaging-life stage.”

*The degree of recyclability of the final package depends on the specific product configuration or components intended for recycling and the scope and availability of appropriate local recycling facilities.

www.sealedair.com

NEW CHAMBER BELT MACHINE FOR PACKING HAM, POULTRY, FISH AND CHEESE PRODUCTS



With the addition of the B 425 model, MULTIVAC has completed its range of chamber belt machines. This means that there is exactly the right machine in every output category for the widest range of customer requirements. When it

comes to packing smaller products in particular, such as ham, cheese, poultry and fish, the B 425 offers a very high output thanks to its compact and narrow design. The main features of the machine, which can be ordered with immediate

effect, are durability, easy operation and the highest level of hygiene.

The new model, which is designed in the MULTIVAC Hygienic Design™, is aimed at food processing companies, and it is particularly suitable for the automated packaging of sausage, ham, bacon, fresh meat, fish and cheese in film pouches. The new B 425 will also be appreciated by cost-conscious companies, who are looking for a higher product throughput when packing small products, since the 1,300 mm long sealing bar makes it possible to load many products. In many cases more products per shift can be packed on the B 425 than on the larger and supposedly higher-output chamber belt machines.



The new B 425 therefore offers an outstanding price-to-performance ratio when packaging smaller food products in film pouches. Another benefit of its compact design is the small space requirement of the machine, and this means that it can even be used in small production environments.

As with all chamber belt machines from MULTIVAC, the new model

is also very impressive in its high level of production output and pack quality - even at maximum loading in non-stop mode. The proven design for minimising the volume of air to be evacuated ensures that a higher cycle output is achieved. The optional sealing height adjustment, which can be performed without tools, makes it easy to adjust the sealing height to the particular product.

An additional feature of the B 425 is its high level of machine availability. Intelligent solutions in the detail of the machine also ensure that its reliability is increased. The roller shear

cutting before the chamber ensures that a smooth packaging process is achieved, even with film pouches that are very long. It is also possible as an option to sever the pouch neck by means of an automatic cutting unit. The patented MULTIVAC suction system ensures, that the pouch trim is also removed reliably from the chamber. Reject packs and lengthy production downtime are things of the past with the B 425. If a MULTIVAC SE 335 shrink tank or SE 120 shrink tunnel together with a TE 135 or TE 120 drying tunnel are added, the B 425 can be expanded into a highly efficient shrink packaging line.

www.multivac.com

ULMA PACKAGING DEVELOPS LEAFMAP™: A NEW SUSTAINABLE PACKAGING SOLUTION FOR SLICED PRODUCT



Within its #ULMAweCare project, ULMA Packaging, strives to develop sustainable designs and applications for extensive range of packaging machines.

One of ULMA's latest innovations is the LeafMap™ packaging solution,

designed for any type of sliced product, which replaces the packaging's structural plastic with a paper fibre structure.

This solution was designed to produce modified atmosphere packaging (MAP), guaranteeing hygienic conditions that preserve the product's properties until it is opened and consumed.

The support used in this packaging solution is based on 100%-recyclable flat cardboard trays, which allow the use of plastic to be reduced by up to 80%.

The cardboard trays can be printed on both sides, giving the packaging many options in terms of visual communication.

Other aspects that are worth mentioning in terms of sustainability are the features that have been added to make recycling easier. The packaging is designed for easy opening and separation of the materials it is composed of.

The company also have systems to load products on trays for customers requiring a higher level of automation.

www.ulmapackaging.com

FLATMAP® BY SEALPAC: RESOURCE SAVING, OPTIMAL SHELF LIFE AND ATTRACTIVE APPEARANCE FOR SLICED PRODUCTS

Eye-catching optics with less use of plastic: FlatMap® is SEALPAC's latest sustainable packaging system for sliced products under modified atmosphere. This resource-saving alternative not only relies on a high proportion of renewable raw materials, but also offers plenty of space for communication. Its striking and innovative look guarantees maximum attention of food products at retail.

Securely and Attractively Packaged Under MAP

The new FlatMap® packaging system puts sliced meat, dairy and seafood products in the spotlights. These products are placed on a flat cardboard carrier made from bleached or unbleached fibre. The carrier is coated with a thin protective layer, which provides stability,



*FlatMap® for sliced meat:
Allows for a whole new level of
reclosability.*

as well as a reliable barrier against fat, moisture and oxygen. The products are securely sealed under modified atmosphere by means of a thin lidding film, hence prolonging their shelf life. Both the protective layer and lidding film are polyolefinbased, making them fully recyclable. Consumer-friendly opening of the pack is ensured by an easy-to-grip peel tab. Due to the perfectly flat design of the pack, an entirely new level of reclosability can be achieved. This ensures optimal freshness until the very last slice and enables first-class storage in the consumer's refrigerator without the need for re-packing.

Striking Communication and Branding, Ready-to- Serve Packaging

FlatMap® provides exceptional opportunities with regard to branding and product information. The cardboard carrier can be printed in high quality on both sides, therefore offering plenty of space for product explanations, brand image and consumer communication. Owing to its striking look, the packaging will become a true eye-catcher on the retail shelves, regardless of whether its presentation is vertical (hanging or standing) or horizontal (lying down). In addition, the system offers even more convenience to the consumer: supported by an attractive design, sliced meat, cheese or seafood products are ready to serve from their packaging on the table.



*FlatMap® in action:
Excellent handling on SEALPAC A-series
traysealers with FlatMap® preparation.*

Conservation of Natural Resources Is Included

Another major benefit of the FlatMap® system is the resource-saving use of materials. Compared to common modified atmosphere packaging, up to 75% of plastic can be saved. At the same time, recycling is improved. After finishing the product, the thin layer is easily removed from the cardboard carrier by means of a peel tab, to allow for disposal as plastic waste together with the lidding film.

Innovative Solution, Reliable Processing

The new FlatMap® system was developed by SEALPAC in close cooperation with established partners Van Genechten Packaging (cardboard) and Buergofol (layer and lidding film). As a result, perfect handling on fully automated lines is guaranteed. FlatMap® is available on SEALPAC A-series traysealers with servo drive and FlatMap® preparation, for example by using the SmartCord in-feed system. This ensures a reliable sealing process under modified atmosphere. www.sealpacinternational.com

MEAT HALO - THE FUTURE OF SELF-CHECK DIGITAL QUALITY CONTROL



For an accurate test, metal samples should be inserted into the product to ensure it passes through the centerline of the aperture

Metal detectors are an integral first step in food safety. However, proper management with regular testing of inspection systems is vital to ensure optimum protection is achieved. To provide food manufacturers within the meat sector a reliable, accurate and auditable testing procedure, Fortress Technology has unveiled the latest version of its Halo digital testing. Available on Fortress Technology's range of digital metal detectors, including its pipeline systems for meat and poultry applications, the self-check system is a failsafe and cost-effective hardware and software solution to ensure systems are meeting quality control standards.

To successfully comply with the Global Food Safety Initiative (GFSI) and Hazard Analysis and Critical Control Point (HACCP) production standards, it is important for meat processors and packers to have an appropriate and effective testing system established for the

audit process of industrial metal detectors. Depending on the criteria set out by each retailer Code of Practice (COP), tests are typically scheduled throughout the day at hourly intervals to confirm the inspection system is repeatedly identifying all potential metal contaminants.

However, regular checks that are carried out manually can be a drain on resources. This is particularly true when testing metal detectors is made difficult due to access, machine position, product flow and environmental conditions. This is where Halo digital testing comes in. Guaranteed to save food manufacturers time and money, Halo automatically and independently checks for all metal materials - ferrous, non-ferrous and stainless steel. Systems fitted with feedback sensors will also check the reject operation, including confirmation that the reject system is working, the flow and fullness of the reject bin.

With the value in using Halo quite clear on traditionally harder to test systems, such as throat, pipeline and gravity metal detectors, the latest Halo auto-test system from Fortress is also beneficial when inspecting bulk bags and boxes on



Fortress' digital test technology can be fitted to its pipeline systems for meat and poultry applications

a conveyor style metal detector. In addition to reducing operational costs, digital testing also reduces waste and product rework.

Time is Money

Up until now, metal detectors had to be manually checked every hour for QC compliance. However, the cost of running these tests by hand on such a regular basis can be high. Rather than relying on operatives to schedule, perform, document and submit inspection checks, Halo digital testing automates the timely aspects of the process, allowing food manufacturers to tackle this drain on resources and save thousands of dollars each month.

Additionally, reducing the frequency of manual testing helps to eliminate the risk of human error and workplace injury at critical control points on a meat manufacturing line. Fortress President Steve Gidman explains: "Manual tests on metal detectors handling free-falling products, those fitted above bagging lines or ones processing bulk products are challenging. They can be difficult to reach, in many cases need two people to complete the test and incur production loss while each test is completed."

100% QC Confidence

Additionally, the recommended test point on a detector is the very center of the aperture where the signal is least sensitive. However, it's impossible on a vertical line, for example, to manually drop a test sample into the center of the detector, which can result in data records showing inconsistent signal variations.

When specifying Halo on a Fortress metal detector, the QC test is completed with 100 percent accuracy by generating signals to

the physical inspection of the machinery and a documentation review. Routine testing results are a significant part of this. By



Halo automatically generates a signal calibrated to specified sphere sizes, logging the test results to provide a reliable audit trail

disturb the magnetic field exactly as a metal sphere in the center of the metal detector's aperture would. The check result shows the size to be exact, as if a real piece of metal passed through the detector in the weakest point in the aperture.

With electronics and transmitting coils separate from the metal detector, Halo gives manufacturers a true measure of how each metal detector is performing, removing the risk of human error while providing a reliable and detailed audit trail. This all happens on the fly with minimal impact on production, which means that production will not stop while the test is in progress. The line will only halt if the metal detector or reject checks fail.

Managing and Maintaining Important Data

There are two major components of a metal detector GFSI audit:

utilizing Industry 4.0 principles, Halo digital testing gives meat firms the flexibility they need to manage and maintain important data.

Users determine how often the system completes QC tests and how the validated test data is digitally saved for audit purposes.

By incorporating all of these innovative features, Halo digital testing captures all the data required to meet audit requirements and guarantee QC compliance and control. Steve ends: "Payback for a new Fortress metal detector fitted with Halo digital testing is typically less than 12 months. Utilizing the latest digital software advancements, food manufacturers, including those in the meat sector, can be assured of a failsafe, reliable system that guarantees test data on food processing and packing lines is accurate, consistent and reliable."

www.fortresstechnology.com



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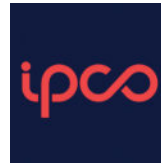
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Henk Hoogenkamp is recognized as an interdisciplinary writer who balances the world between food proteins, social interactions, environment, as well as the disruption of the marketing dynamics. The 602 page book "Sustainable Protein Solutions" provides valuable insights into the complexity of traditional and emerging food protein ingredients to secure food availability while safeguarding nutritional optimization.

In the decades to come, the world will witness an evolution where food production systems that are bio-regenerative will be needed to provide communities with nutritious, tasty, and affordable foods.

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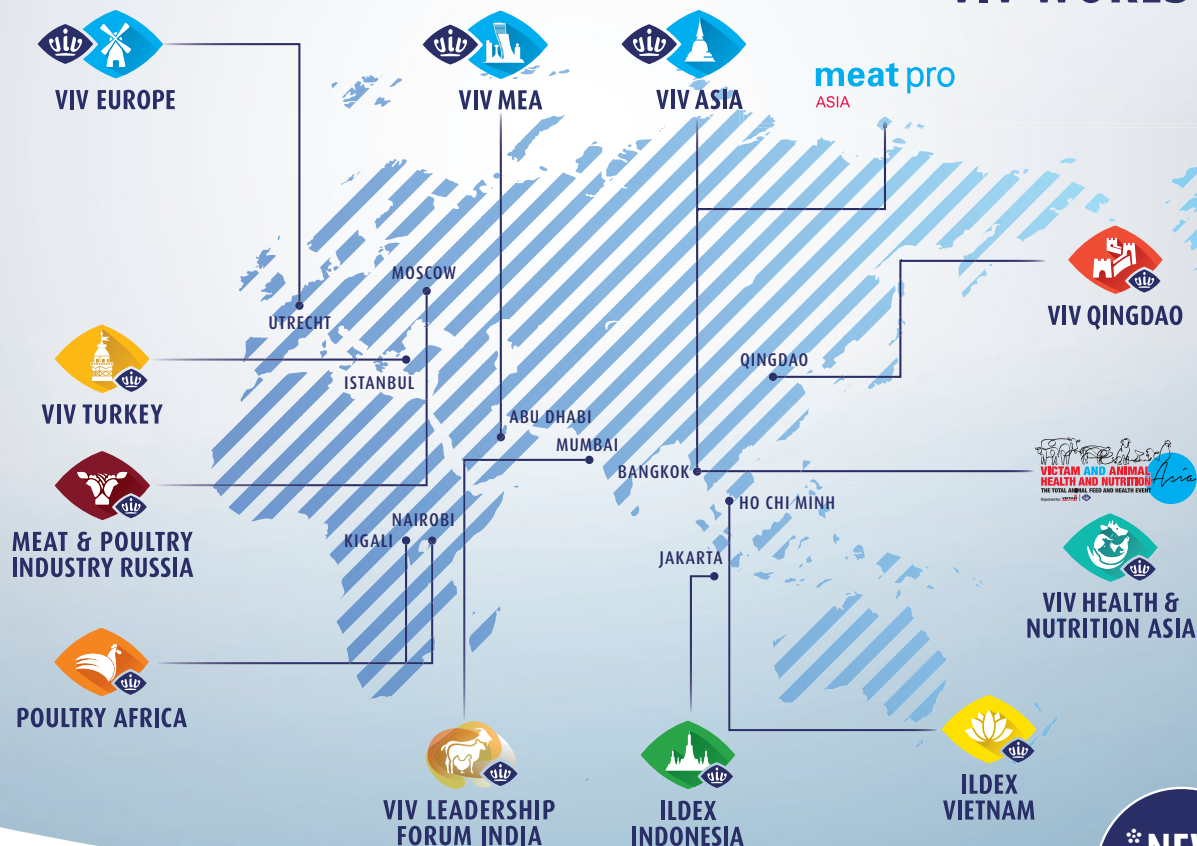


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