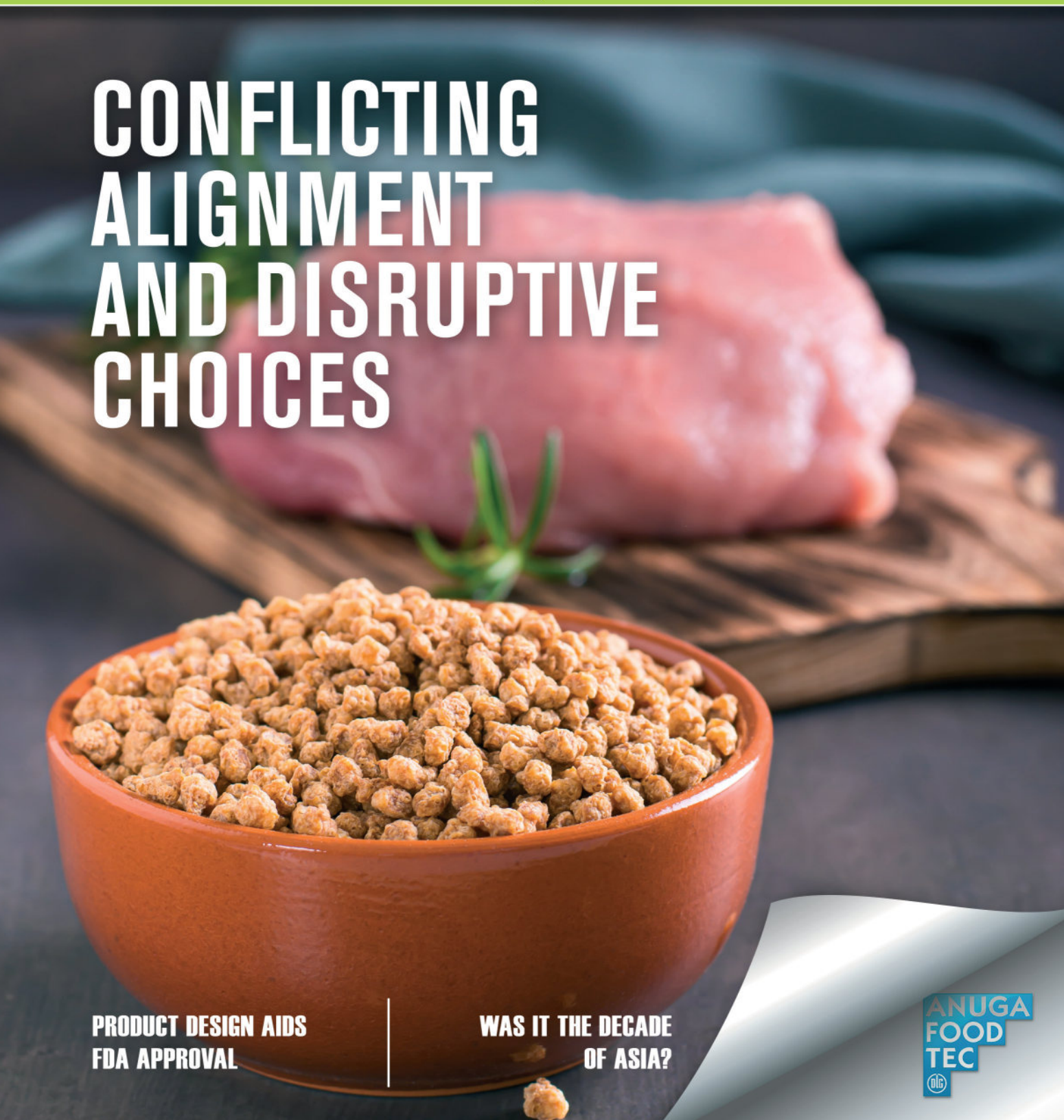
INTERNATIONAL 54/2024

MEATINGPOINT magazine

SUSTAINABLE TECHNOLOGY, PROCESSING & PACKAGING



CONFLICTING ALIGNMENT AND DISRUPTIVE CHOICES

PRODUCT DESIGN AIDS FDA APPROVAL

WAS IT THE DECADE OF ASIA?

NOTHING BEATS A NOTHUM

Less downtime. Less waste. More savings. Faster returns.

PREDUST	BATTER	BREAD	FRY
VersaCoat	BatterPro	SuperFlex	ProTherm

At Nothum, we specialize in equipment that adds value to your products. Each machine is built for optimum flexibility and lowest operational cost.

ANUGA FOOD TEC

DLG

Hall 6.1

Stand E58-F59

Designing food processing systems since 1971.

Nothum.com

+31 85 013 6861

NOTHUM

FOOD PROCESSING SYSTEMS

Dear reader,

Jenny Smart

With spring season fast approaching, it is a perfect time for renewal and growth. Spring is about realigning your personal and professional goals, and has much to offer regarding trade shows and conferences. Some of the most anticipated international trade fairs are coming at the beginning of spring. Trade shows offer a great way to explore the latest goods and services available in the market, offering the ideal setting for face-to-face networking with both new and old contacts, making it possible to create enduring relationships.

Time for offering connections and networking will be generous starting with CFIA (12th - 14th March), Rennes, France; Anuga FoodTec (19th - 22nd March), Cologne, Germany; Alimentaria (18th - 21st March), Barcelona, Spain; Food4Future (16th - 18th April), Bilbao, Spain.

Anuga FoodTec is the most significant informational and commercial platform for fresh ideas and cutting-edge advancements in the global food and beverage sector. It is the only trade fair in the world that expertly addresses every facet of the manufacturing of food and beverages, from digitalisation and intralogistics to process technology, filling and packaging technology, and food safety. In 2024, an exhibition space dedicated to environmental technology and energy will open as a new sector. Anuga FoodTec is held every three years and serves as the gathering place for thought leaders and decision-makers. Organisers anticipate around 40,000 trade visitors from approximately 150 nations, along with over 1,600 exhibitors. More information on the show highlights and some of the innovations to be showcased can be found on pages 12 - 43.

So, don't hesitate – immerse yourself in a trade show experience and reap the benefits of this unique opportunity for personal and professional growth!

As usual, we feature some of the latest industry news and technological innovations, customer stories as well as research papers.

Enjoy the read!

PUBLISHER:

MEATING POINT MAGAZINE Ltd.
41 Sidney Avenue, N13 4XA
London, UK
TEL: +44 (0)20 8581 2341
FAX: +44 (0)20 8581 2341
E-mail: info@meatingpoint-mag.com
www.meatingpoint-mag.com

MEATING POINT MAGAZINE is published six times a year (February, April, June, September, October, December).

The online version of the magazine is available at www.meatingpoint-mag.com.

When you have finished with this magazine please recycle it.

Contents

54 / 2024
Volume 10

IN THE NEXT ISSUE:

- Anuga FoodTec Post - show review
- Mincing, Blending, Mixing, Filling, Forming Technology
- Alternative Meat Formulations, Production of Vegetable Products
- Digitalisation, Automation, Industry 4.0
- Hygiene, Disinfection, Employee Sanitation Practices
- Skin and Whole Muscle Packaging

Ordering Deadline: 15 April, 2024
Publication Date: 22 April, 2024

INDEX OF ADVERTISERS:

KP MAKES WAVES WITH RECYCLED COASTAL PLASTICS® DRIVE

kp (Klöckner Pentaplast), global leader in rigid and flexible packaging and specialty film solutions, is proud of the success of its recycled coastal plastics initiative.

Partnering with the Keep Sea Blue organisation, kp plays its part in closing the loop on plastic waste through the use of Recycled Coastal Plastics®, a certified post-consumer recycled raw material recovered from within 10 km of the coastline in the Mediterranean basin.

In 2023, kp used more than 800 tonnes of recycled PET waste collected through this initiative to create new packaging. It is the equivalent of reusing 14 million PET bottles and underlines kp's aim of promoting environmental stewardship and sustainably designed packaging solutions.

Hendrik Bartels, Marketing Director, Rigids, at kp, remarks on this achievement, saying: "We are delighted to work with Keep Sea Blue in the quest for a more robust circular economy in plastics. Our seas and oceans are extremely vulnerable, and plastic waste should never end up in marine environments. That's why we're so proud of our achievement, putting bottles and trays back into our packaging materials that could have otherwise ended up in the sea or in the coastal environment.

"What Keep Sea Blue does is ingenious, creating a closely monitored network to collect, sort and process plastics across the Greek islands in the Mediterranean Sea. After processing through RecyClass-certified facilities, this raw material is then used to create the quality range of food packaging solutions that kp is known for. What sets this apart is the transparency of the system, which is essential in the food packaging industry."

Keep Sea Blue's Blockchain platform, powered by Oracle technology, enables the team at kp to conduct rigorous quality checks, verifying the origin, date, and location of plastic collection.

The recycling process adheres to BRC, ISO 9001, and RecyClass certifications.

With over two decades of expertise in manufacturing high-quality products from post-consumer recycled PET, kp ensures the highest standards of food safety through the production of quality packaging solutions. Packaging using Recycled Coastal Plastics® material is produced at multiple kp production sites across Europe and supplied to customers in Germany, Italy, Portugal, Turkey, and the UK.

To drive greater consumer awareness, kp has also developed a dedicated logo that customers can use on the packaging to signify the use of recycled coastal plastics.

Hendrik adds: "Taking millions of bottles and trays out of coastline environments and using it in our food packaging is a significant achievement, but as our customers know, we're always pushing for more. We look forward to collaborating further with Keep Sea Blue and our customers, protecting our ocean and marine environments, and helping our customers to access environmentally responsible food packaging solutions."

www.kpfilms.com

ANRITSU LAUNCHES PRESSURE WASHABLE FOOD VISION INSPECTION TECH

Food inspection technology experts at Anritsu Infivis, have launched a vision inspection machine specifically designed with the ability to withstand high-intensity pressure washing.

The IP69K sanitary x-ray, based on the company's ever-popular XR75 platform has been built to meet and exceed high-pressure washing and sanitary requirements for meat or wet products in the Americas and Europe. Ideal for positioning within the processing area of a production line – as opposed to the packaging area - the IP69K combines reliability, ease of use and low cost of ownership in a robust and compact footprint.

The machine's detection of low-density particles such as fish and poultry bones is unmatched, thanks to its DualX+ technology, with direct signal conversion that makes the X-ray image sharper and dramatically reduces the product effect, making it possible to detect the smallest levels of foreign material in products.

Food manufacturers no longer need put up with inspection technology that has to be kept away from water, which can be inconvenient and unhygienic. With its ability to withstand washdown at pressures of 80 to 100 bar (1,160 to 1,450 PSI), with rates of 14 to 16 l/min, and at temperatures up to 80°C/176°F in certain conditions, the IP69K can be fully included in facilities using intensive washdown procedures to meet strict sanitation standards.

With its gasketed joints, robust HMI screen guard and heavy duty stacklight cage, the equipment allows for easy cleaning with high-pressure jets. The machine's robust but open design allows accessible cleaning to a microbiological level, with sloped surfaces and drainage holes to prevent water pooling.

Anritsu has ensured that no stone has been left unturned when it comes to the hygiene standards of the IP69K. All seams on the machine are fully welded, so there is no risk from deteriorating silicone seals and the machine's conveyor belt is sealed with a specialised coating that prevents bacteria or moisture from permeating it.

Michael Stuart, Anritsu's European Sales Director, commented: "Low density particles such as fish and poultry bones can be notoriously difficult to detect, so it's imperative that inspection equipment offers the highest level of sensitivity. But it's no good doing this during the production stage, if the inspection equipment can't be thoroughly cleaned. That's just removing one hazard but adding another. This is why we've introduced the new, washable IP69K, which is really setting the standard for hygienic design within the industry."

www.anritsu.com

FROM FATHER TO SON: THE FUTURE OF INDUSTRIAL AUCTIONS WITH JEROEN VAN KOLLENBURG

Despite the fact that their core business mainly takes place online, a new face is introduced at the helm of online auction company Industrial Auctions. The gradual takeover from father to son has been going on for some time, but at the turn of the year, action was put into words. Ad van Kollenburg handed over his auction gavel to his son Jeroen van Kollenburg with passionate pride. A younger generation often brings a breath of fresh air and we are curious about its corresponding vision for the future. So off for coffee at Jeroens' Industrial Auctions.

Like Father, Like Son

Industrial Auctions is now a well-known player in the food and beverage industry that is still gaining significant ground. "The fact that we offer a service that the market is shy about is evident from our growth," says Jeroen. By this he not only refers to the number of square meters of their industrial halls or growing team of driven colleagues, but rather to the gigantic increase in supply in auctions and thus machines. Although here, too, success has certainly not come by chance. With their now established reputation, they do not take their success for granted. A wise and down-to-earth lesson that Ad has taught Jeroen as well. "Staying down-to-earth and relying on our own strengths. That way of thinking and working has brought us to where we are today," says van Kollenburg.

Never Change a Winning Team

Naturally, Jeroen hopes to be able to give his own twist to the future plans and activities of Industrial Auctions. "While I hope to learn a lot from Ad, fortunately I have plenty to bring to the table myself." Jeroen previously fulfilled the role of project leader within the company for a long time. In this position he has acquired in-depth knowledge and, from his own experience, he knows how to accurately estimate the workload per project. Being familiar with the high workload and fast pace of online auctions gives him an advantage, he says.

His enthusiasm to continue the success of Industrial Auctions is admirable, where his new role within the company is also accompanied by unprecedented responsibility. Something he says he does not underestimate, but he does say that the company is 'rock solid'. "Behind the name Industrial Auctions lies a team of passionate people where each and every one of them is indispensable. I feel strengthened to know that I can continue to work with this loyal team and that gives me a sense of peace. What remains unchanged are the short lines of communication and flat organizational structure that contribute to a motivated effort and a good atmosphere. A new face, of course, does not equal wanting to do everything differently."

Service as an Understatement

Jeroen is optimistic about the future of Industrial Auctions. The food and beverage industry will always exist resulting in a constant demand for machines.

"And it is precisely in this niche market that we excel to such an extent that we have not yet been matched." With nearly 15 years of existence, they bring sellers and buyers together in the food and beverage industry. "Although it doesn't stop there for us. We do not go one step further, but really stand by our customers. We do this by, among other things, clear communication, solution-oriented thinking and acting, but above all by virtually unburdening our customers. Service is our top priority and we are publicly praised for it. Our main focus is therefore inherent to our success." In addition to the passion they have for the business at Industrial Auctions, they also look beyond. Indeed, their core business carries sustainability. A second life for the machines to be auctioned. In today's society where this is an indispensable concept, Industrial Auctions is proud to contribute to this together.

Future Vision

In the coming years, Jeroen looks forward to leading successful projects and expanding activities to new countries within Europe. His primary focus remains on ensuring the good health of Industrial Auctions. Jeroen explains: "We stick to who we are, what we do and what we stand for. A driven company with ditto employees, where we never compromise on quality and service."

Should you want to know more about the company and their online auctions visit the website

www.Industrial-Auctions.com

But you are also welcome at their office in Eindhoven, where the coffee is always ready.

DIGITAL QUALITY MANAGEMENT TOOLS ARE TRANSFORMING THE MEAT PROCESSING INDUSTRY

By Paul Damaren, Chief Revenue Officer at RizePoint

In the bustling world of meat processing, ensuring safety and quality standards is paramount. However, challenges – such as contamination risks, regulatory complexities, and supply chain management hurdles – can often feel insurmountable. The meat processing industry stands at a crossroads, where embracing technology offers a beacon of hope. Digital quality management tools are revolutionizing the landscape, providing a pathway to enhanced safety, compliance, and efficiency.

Meat, poultry, and seafood processors face the following challenges:

- **Ensuring product safety and quality.** Processors must maintain safe, high-quality products, despite a variety of risks, including contamination, spoilage, dirty equipment, human errors, etc. Even one innocent mistake can sicken consumers and cause irreputable damage to food businesses.
- **Maintaining regulatory compliance.** It can feel overwhelming to navigate, manage, and follow complex and ever-evolving food safety regulations, but it's essential to stay informed about – and compliant with – regulatory changes.
- **Managing their supply chain.** Businesses across the supply chain must ensure proper quality control, from sourcing to processing and distribution. It's critical to only work with businesses that prioritize safety and quality.
- **Following sustainable and ethical practices.** Prioritize sustainable practices to meet increased consumer demand (and because it's the right thing to do). Also, increasingly, consumers are demanding organic, free-range, and sustainably sourced products.

Tech Tools Can Dramatically Improve Quality Management Programs

The list of challenges can feel heavy and insurmountable, but today's technologies can help resolve these issues. These innovative solutions offer a multifaceted approach to tackling the industry's biggest challenges, elevating standards across the board.

Meat processing businesses should invest in technology to dramatically improve their food safety efforts and quality management programs. Consider that:

- Comprehensive, fully featured, industry-specific quality management solutions can enhance and streamline essential tasks, including audit management, risk assessment, and supplier quality management.
- Mobile auditing features can improve on-site inspection efficiency, providing value-add benefits to busy processing organizations.
- Quality auditing software with compliance and reporting capabilities help ensure adherence to the latest regulatory requirements.

This year, more meat, poultry, and seafood processors will utilize tech solutions to adhere to new, higher industry standards. The integration

Paul Damaren

of technology in the processing sector has been transformative in many ways, especially around quality management.

Rely on Tech Tools to Improve Safety and Quality

To improve safety and quality protocols and processes:

- **Utilize technology.** Leverage sophisticated technologies, including AI and IoT, for real-time monitoring and control of processing operations. These tools will significantly improve quality, safety, efficiency, accuracy, and transparency. Technology has become more affordable, accessible, and user-friendly, and attainable for organizations of all sizes and budgets.
- **Depend on digital quality management systems.** Ditch the antiquated, error-prone, time-consuming manual systems, which can't provide real-time information

across an enterprise. Instead, rely on comprehensive, industry-specific digital solutions to elevate your quality management program. These systems offer exactly what meat processors need, including audit management, compliance tracking, and risk management functions.

• **Ensure compliance.** Quality management software can help ensure ongoing compliance with food safety regulations, making regulatory updates and compliance management much faster and easier. Digital systems provide real-time information and comprehensive, integrated data, allowing organization leadership to see (and resolve) potential risks, and make more informed decisions.

• **Boost visibility across the supply chain.** It's not enough for your business prioritize safety and quality and follow gold-standard protocols. You must also ensure that businesses across the supply chain are aligned in this effort. One weak link in the supply chain could cause a food safety breach that could put your foods, customers, and business at risk. Tech tools enhance food traceability and transparency across the supply chain, ensuring better quality from source to shelf. If a quality incident occurs, tech tools can accurately pinpoint the contamination source – and the routes the tainted products took – for faster, more accurate recall management.

• **Prioritize sustainability.** Sustainability has become an essential part of business operations, offering many significant benefits. Sustainable business models can reduce waste (and associated costs), increase energy efficiency, etc. Also, the latest market trends and consumer preferences include sustainable, ethically sourced meat, poultry, and seafood products.

Revolutionizing Quality Management

Technology is transforming the way organizations manage their safety and quality programs, with exceptionally intuitive quality management solutions:

• Quality management software is comprehensive and user-friendly, making it easier for organizations to manage their quality management processes, aligning with industry-specific requirements.

• Robust compliance management features help meat, poultry, and seafood processing companies adhere to increasingly stringent food safety standards.

• Mobile auditing solutions, which facilitate real-time data collection and reporting, help ensure that quality control processes are efficient, accurate, and compliant with regulatory standards.

• Compliance management features help businesses maintain adherence to regulatory requirements.

• Advanced reporting and analytics capabilities allow business leaders to gain valuable insights for more informed decision-making.

• Supplier quality management ensures that every link in the supply chain upholds the highest quality and compliance standards, which is crucial in an industry where the quality of the end product is directly influenced by the quality of the sourced materials.

• Improved trackability and traceability allows food businesses to trace food back to its source to prevent food fraud and increase food safety.

As the meat processing industry grapples with multiple and simultaneous challenges, digital quality management tools emerge as a beacon of hope. By embracing technology-driven solutions, companies can navigate regulatory complexities, enhance safety protocols, and meet consumer expectations with confidence. Let's embark on this transformative journey together, harnessing the power of innovation to elevate standards and ensure a safer, more sustainable future for the industry. •

THREE BIG TRENDS IN FOCUS AT ANUGA FOODTEC 2024: DIGITALISATION, SUSTAINABILITY AND INDIVIDUALISATION

Anuga FoodTec is the leading international supplier fair for the food and beverage industries. Organised by Koelnmesse, the trade fair takes place from 19 to 22 March 2024 in Cologne and places the emphasis on the key theme of Responsibility. Digitalisation, sustainability and individualisation are among the most important trends at the fair.

The goal of sustainably redesigning the food and beverage industries has never been as urgent as it is today. All the more important is it for producers to efficiently and flexibly use systems that are appropriate for this task. Not least, the consistently high quality of food and food safety is in the focus of developments. "Globally, we are seeing innovations of completely different kinds in process technology. This diversity is also reflected on the Cologne fair grounds at the stands of the exhibitors", says Matthias Schlüter, Director of Anuga FoodTec. More than a third of the around 1,350 exhibitors from Germany and abroad present solutions in the field of process technology. And these already start with mixing – a complex process that often takes place at the start of production.

Efficient in Every Production Step

Mixers are the workhorses of the food industry and are indispensable for the standardisation of product masses. Where a simple batch mixer was sufficient 15 years ago to process standard recipes with few ingredients, the situation has fundamentally transformed. The market is now more dynamic than ever before. Manufacturers change recipes several times per day in order to adapt their production to the changing wishes of consumers. A modern mixer must be able to master this complexity and be capable of mixing varied raw materials equally wet and dry, and that without making the process more difficult.

However, there is more than one process step behind the manufacture of food. The stirrers, kneaders, mixers, extruders, homogenisers and heat exchangers on the Cologne fair grounds are flanked by a large number of digital solutions that are specifically coordinated to the processes and network these to form a complete line. Recipe and batch management software makes it possible to plan and control fully-automated production. Thanks to central terminals, all functions, such as rotational speeds, vacuum values, exposure to gas or the speed of the conveyor systems, can be monitored and operated by one person. User-friendly designs ensure process-safe and intuitive operation and are also a response to the lack of skilled workers in the industry.

Digital and Networked Along the Entire Line

The optimisation of production processes occupies a lot of space at Anuga FoodTec. It is primarily the digital technologies that provide insights into the processes that were not so available in the past. Food manufacturers use this as the foundation for elevating their own production to the latest standard and to optimise the harmonisation of human being, machine and processes. With their portfolio, the exhibitors in Cologne begin at precisely this point – for example, with intelligent sensor and web-based process control systems that can also be retrofitted on existing systems. They enable comprehensive sustainability management at the central point of the plant control system.

This enables cross-process automation from the preparation of raw materials with mixing and reduction through processing with portioning, dispensing, molding or extrusion to options like gripping and insertion of the products into the packaging. Intelligent feeds and precise sorting then subsequently ensure that the products are finally packaged and ready for shipping. With such an integrated complete solution, the individual product components for ready-made meals pass without interruption through the weighing and filling stations and are subsequently filled cleanly into bowls and sealed.

Gentle Processing for Higher Quality

Food manufacturers face not only the challenge of continually improving the efficiency of their processes. They must at the same time ensure the durability and the quality of their products. Against this background, non-thermal preservation processes remain the trend. The solutions to be found in Cologne are bundled under the term "Minimal Processing". These include, for example, high pressure processing (HPP). This enables the gentle preservation of food at 6,000 bar, without heat or additives. The products are treated directly in the final packaging. Because high temperatures are unnecessary, the products remain fresh and of a high quality.

The Future of Food Production

From 19 to 22 March 2024, Anuga FoodTec will show what levers food producers can apply to elevate their production processes to the next level of resource efficiency and product quality. The exhibition programme will be complemented by conferences with prominent guests, interactive forums, panel discussions and lectures, special events, guided tours as well as the presentation of the International FoodTec Award 2024. The Best Practice technologies shown at the trade fair offer trade visitors valuable stimuli in this regard.

www.anugafoodtec.com

FAM STUMABO LAUNCHES YURAN™ HYTEC 300

Yuran Hytec 300 HeroShot Open

FAM STUMABO is about to change the meat and alternative protein processing industry with the launch of their latest innovation, the Yuran Hytec 300. This high-capacity belt-fed dicer will make its debut at Anuga FoodTec.

The Yuran Hytec 300 is a versatile machine designed to dice, strip-cut, and shred a wide variety of meat, poultry, and alternative protein products. This cutting-edge equipment offers enhanced processing capabilities compared to its predecessor, the Yuran Hytec 240.

The key features of the Yuran Hytec 300:

Increased capacity: The 300 mm wide conveyor belt allows a increased feeding capacity, accommodating products with larger dimensions.

Versatile cutting options: Dual independent variable-speed motors enable precise adjustments to cut size and shape without the need for additional cutting tools.

Efficient changeovers: Quick-removable splined shafts of the cutting spindles facilitate fast changeovers from one cut size to another, reducing downtime in the production process.

Hygienic design: The smart hygienic design ensures easy, thorough, and safe cleaning of the machine.

The product is fed via the belt and guided towards the feed roll, ensuring a positive transfer into the circular knives. These circular knives cut the product into strips, which are then diced by the crosscut knife spindle at the desired height or length. The machine also offers the option of a pre-break system for initial reduction in combination with subsequent cutting and shredding spindles.

Successful Applications

The Yuran Hytec 300 finds its use in cutting fresh, crust-frozen, tempered frozen, and (hot) cooked meat-and poultry products. It excels in providing efficient and consistent "pulled look" shredding of cooked beef, poultry, and pork meats, making it ideal for BBQ meats, salad and pizza toppings, sandwiches, and handheld snacks. The specialized cutting tools are designed to handle the unique characteristics of extruded products, creating alternative meat products in familiar cuts and shapes.

www.fam-stumabo.com

ANUGA FOOD TEC

Hall 6.1
Stand: B-071
Cologne: 19.03 - 22.03.24

„JUST CLIP IT“ WITH POLY-CLIP SYSTEM – DELIVERING SUSTAINABLE, EFFICIENT PROCESS SECURITY

Small clip, maximum impact: Poly-clip System will present secure and material-saving packaging solutions for a wide variety of foods. The world leader for clipping machines and provider of complete clipping closure solutions will showcase the company's broad range of products at the trade fair. This will include applications for the skilled trades as well as industrial food processing operations. With machines from the highly energy-efficient FCA product family 'Green Series', which are equipped with an environmentally friendly jumbo spool, and the material-saving clip-pak® clip-closure solution for liquids, paste-like, and highly viscous products, the company is focusing on resource conservation. The new CEO, Dr. Alexander Giehl, aims to further expand this course and is looking to continuously develop a cutting-edge product portfolio that successfully combines innovation and sustainability.

"Just Clip It" is the trade fair slogan of Poly-clip System, a specialist in reliable, versatile clipping machines that enable secure and sustainable packaging solutions. The packaging consists of natural or artificial casings, flow packs, or nets and is sealed with a metal clip. Whether packaging cheese, sausages in stick or ring form, poultry, fruits and vegetables, or even non-food products - these innovative clipping machines enable the production of material-saving packaging solutions. Furthermore, the unique, bacteria-tight R-ID clip-closures developed by

Dr. Alexander Giehl,
Chief Executive Officer, Poly-clip System

Poly-clip System meet the highest food safety requirements. At Anuga FoodTec, the company will showcase a wide range of products for applications of all sizes - from handheld devices enabling manual clipping for skilled trades businesses to fully automatic machines for industrial applications, to the clip-pak® clip-closure solution, a combination of clips and various flow pack alternatives.

With high-quality components, sophisticated technologies, and a hygiene- and maintenance-friendly design, the company, located in Hattersheim, delivers machines that ensure exceptional process reliability and the highest machine availability. In addition to clipping machines of every performance class, labelling and pouch machines complement the range.

clip-pak® Clip-Closure Solutions Provide Optimum Sustainability

Alongside hygiene, efficiency, cost-effectiveness, and appealing aesthetics, sustainability has become a crucial criterion in choosing the right food packaging. clip-pak®-based solutions from Poly-clip System, tailored to liquid, paste-like, and highly viscous products, can fully leverage their strengths here: compared to conventional packaging such as tins or plastic trays, they are just as reliable while being particularly space-saving and leaving very little packaging waste. The 2019 UMSICHT study by the Fraunhofer Institute confirms the positive environmental aspects. According to the study, clip-closure solutions for packaging sausages generate up to 81 percent less greenhouse gas emissions than thermoforming packaging, and 64 percent less than an injection-moulded cup. With the transformation of the FCA product family into the "Green Series," Poly-clip System also supports its customers by delivering clip machines that are particularly energy-efficient and that contribute to greater resource conservation through reduced energy consumption - thus aiding in the effective reduction of their customers' CO2 footprint.

At Anuga FoodTec, Poly-clip System will exhibit a representative cross-section of the company portfolio, including the following products, representing industrial or skilled trades applications:

poly-clip SYSTEM

Poly-clip FCA 80 Green Series – automatic Double-Clipper with sustainable jumbo spool

Poly-clip SCD 700 – half-automatic clipping machine with hygienic design

Automatic Double-Clipper FCA 80 GS: Even Greater Sustainability with Jumbo Spool

Ensuring an easy entry into automatic clipping, the robust, user-friendly double-clipping machine FCA 80 provides reliable closure for collagen casings up to 80 mm, fibre casings up to 100 mm, or plastic casings up to calibre 160 mm, achieving up to 125 cycles/minute. The highly flexible double clipper, offering four different spreads, is easy to operate. The integrated linear displacer ensures visually perfect products, producing symmetrical sausage ends with uniform pleating.

Similarly to various other models from the Poly-clip System portfolio, this fully automatic, energy-saving FCA 80 machine from the new "Green Series" can be equipped with the new jumbo spool for a more sustainable use of consumables. With up to 50 percent more clips on just one spool, fewer changes are required. This ensures more efficient processes, less machine downtime - and ultimately, reduced waste production.

Clip Machine SCD 700: Food Safety Optimised for Semi-Automatic Clipping

The SCD 700 clip machine not only makes the semi-automatic sealing of various types of cut-to-size goods highly efficient but also safer. The easy-to-use single-clip machine seals plastic and natural casings up to calibre 120 mm, as well as bags and nets. With a hygiene design upgrade, Poly-clip System now also ensures an even greater optimisation of food safety. By using laser technology instead of punching during the machine's manufacturing process, completely even, easier-to-clean surfaces are achieved, further enhancing hygiene properties. Following the modular principle, the semi-automatic clip machine can be supplemented with optional features, including, for example, clip coding for batch traceability.

Innovation Meets Sustainability – Ushering In a New Era with CEO Dr. Alexander Giehl

Dr. Alexander Giehl, an experienced business leader, assumed the position of Chief Executive Officer (CEO) at the family-owned company in 2023. He is focusing on the strategic advancement of the clipping machine provider through a combination of innovation, automation, and sustainability. The conditions for this endeavour are excellent, according to Dr. Alexander Giehl: "Poly-clip System boasts a long-standing tradition, a strong market position, highly automated production, and an impressive number of patents. With the award of the PRIMAKLIMA seal (primaklima.org) as a carbon-neutral site, the company has also taken an important step towards internal sustainability. I look forward to driving the continuous development of our product portfolio with the experience and creativity of our employees in order to continue providing our customers with the best solutions."

www.polyclip.com

ANUGA FOOD TEC

Hall 9.1
Stand: A-011
Cologne: 19.03 - 22.03.24

PRESENTING INNOVATIVE HEAT TREATMENT SOLUTIONS TO PRODUCE SAFE, HIGH-QUALITY FOOD

SAIREM, a world-leading specialist in microwave (MW) and radio frequency (RF) industrial solutions, will showcase the company's innovative food industry processes. On display at the SAIREM booth will be one of the company's tempering tunnels as well as samples of treated products.

Energy-Efficient Solutions From the Food-Safety Experts

SAIREM, located in Lyon, France, is an expert in MW and RF solutions for a wide range of industries and applications in the food sector. For over 40 years the company has developed customized and highly specialized equipment and processes and has excelled at ensuring food safety and process efficiency. SAIREM's tailored food solutions lead to products that are healthy, of consistent high quality and have a long shelf life.

Sylvain Tissier, Business Development Manager at SAIREM, adds, "Our solutions are fully electric and highly energy efficient. In addition, they are easy to install and easy to maintain, offering maximum reliability with few moving parts."

Tempering and Defrosting - Safety and Speed Go Hand in Hand

The speed and uniformity of SAIREM MW and RF processes minimizes product drip losses as well as degradation. The entire product is tempered quickly and homogeneously which ensures that bacteria don't have time to grow. These processes are ideal for meat, fish, seafood, fruit and vegetables, and butter. Product color, weight, taste, and vitamins are fully retained. Customers gain flexibility as there is no need to unpack ingredients - they can be processed inside the plastic film, cardboard, or plastic box.

Pasteurization - Enhancing Taste, Quality, and Shelf Life

SAIREM equipment for MW pasteurization includes tunnels for ready meals and in-line heaters for pumpable products such as juices and jams. Thanks to the fast and uniform heating process, a substantial reduction in the microbial load is rapidly achieved both at the core and the surface of the food. Consumers are demanding safer and healthier products that preserve taste and goodness while eliminating the use of preservatives or additives, especially when it comes to ready meals. MW pasteurization delivers all these advantages.

Sylvain Tissier, Business Development Manager at SAIREM

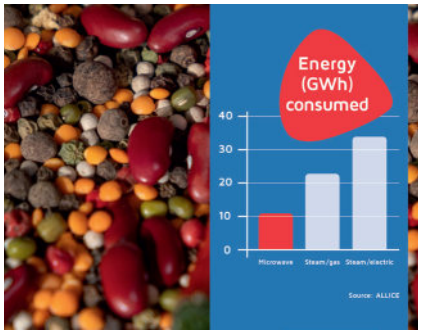
The TMW75 allows deep frozen foods to be tempered or defrosted quickly

Disinfestation and Decontamination - Food Safety at its Most Efficient

SAIREM offers a highly efficient process for the disinfestation and decontamination of low water content products such as flour, cereals, spices, grains, lentils, beans, mushrooms, cocoa beans, nuts, seeds, cannabis, and milk powder. The process destroys mold, bacteria, larvae, and other insect colonies without the use of controversial chemical products. By exposing the product to a MW or RF frequency field within a temperature-controlled processing cavity, the product is quickly and uniformly brought to the required temperature, thus preventing alteration of its physical, chemical, and organoleptic characteristics.

Extraction - Preserving Flavors and Fragrances

When it comes to laboratory-scale compound extraction from plants for the food or fragrance industries, preservation of the organoleptic as well as the physical-chemical properties of an aroma is essential. Using traditional



SAIREM's MW and RF technology is 100% electric and therefore produces no CO2 emissions and consumes 50% less energy compared to traditional heat treatment processes.

technologies, customers face low yields and unwanted components. By using microwaves, SAIREM achieves higher yields, reduces the processing duration dramatically, and reduces or even avoids the use of solvents. Furthermore, SAIREM has developed a continuous microwave-assisted extraction process to serve the needs of industrial production, a breakthrough that opens new avenues in fast and efficient MW-assisted extraction.

Future-Oriented Technology and Comprehensive Solutions

By harnessing the power and strength of MW and RF, SAIREM offers state-of-the-art solutions tailored to the needs of a wide range of food industry sectors. SAIREM solutions cover all angles: proof of operation and extensive testing is performed at the SAIREM lab; development engineers support customers during the design phase; equipment design and assembly is provided, and a factory acceptance test as well as installation and start up at customers' facilities is carried out. To round off its comprehensive customer service, SAIREM trains customer technicians and offers maintenance performed by a multilingual customer service team.

Sylvain Tissier adds: "At SAIREM we develop high-performing machines with advanced technology specially adapted to customer requirements. For companies who are interested in the many possibilities of our innovative systems, we will be available at Anuga FoodTec in Cologne."

www.sairem.com

ANUGA FOOD TEC

Hall 6.1
Stand: B-071
Cologne: 19.03 - 22.03.24

K+G WETTER PRESENTS BOWL CUTTERS AND GRINDERS ON OVER 200 SQUARE METRES

K+G Wetter will be showcasing a large selection from its portfolio of bowl cutters, grinders and mixer grinders on over 200 square metres. The portfolio also includes a new machine, the WW U200 angle grinder. The space-saving powerhouse offers flexible application options for fresh meat and frozen meat blocks.

With the new angle grinder, K+G Wetter offers a machine for food processing that makes nearly anything possible for medium-sized businesses and industry: The WW U200 is a powerful angle grinder with an extremely small footprint. Its special feature: In addition to fresh products, the compact angle grinder also processes frozen meat blocks without pre-chopping. The flexibility of use is unrivalled, making it perfect for businesses that work with a mix of fresh and frozen meat.

This is possible thanks to sophisticated technical solutions: The large angle grinder hopper of the WW U200 has a volume of some 500 litres. Meat and other ingredients are fed evenly to the feeder worm after loading thanks to the asymmetrical hopper shape. The customised design of the grinder's hopper prevents even bulky frozen meat blocks from jamming and ensures that they are securely gripped by the feeder worm. The special frozen meat feeder worm with cutting edge cuts up the blocks in the first processing step as they are transported to the feeder worm. The benefit here is that the meat is precisely cut from the block and is not crushed. This ensures a clear cutting pattern for the finished ground product. Any temperature increase is minimised because the product is subjected to only a slight degree of stress.

Thanks to the sophisticated Hygienic-Secure features, the WW U200 is as time-saving and perfectly hygienic to clean as is standard with all K+G Wetter machines. The expertly hand-polished stainless steel surfaces are easy to keep clean.

The feeder and meat worm can be removed and reinserted without tools in just a few simple steps.

WW U200 angle grinder

This also facilitates hygienically safe and impeccable cleaning. The single-stage folding step makes the WW U200 grinder's hopper quickly and safely accessible, requiring just a minimum of space – a perfect solution in terms of handling and hygiene alike.

The cleaning chamber installed in all K+G Wetter grinders eliminates hygiene risks from hidden contamination at the drive shaft seals: The seals in contact with the product are cleaned on both sides giving micro-organisms no chance to colonise.

An additional seal protects the drive elements. Daily cleaning is performed from the outside by directing conventional cleaning lances or spray nozzles through the easily accessible rinsing access points. Maximum cleaning effectiveness is achieved with negligible additional effort.

The WW U200 offers highly flexible loading options. Whether using a hoist loader or loading hydraulically using a meat trolley, the manner and the side from which raw materials are loaded into the WW U200 can be customised according to space availability and the customer's work processes. Such flexibility in terms of fast and reliable loading is a major plus because the machine is optimally customised for the respective production run.

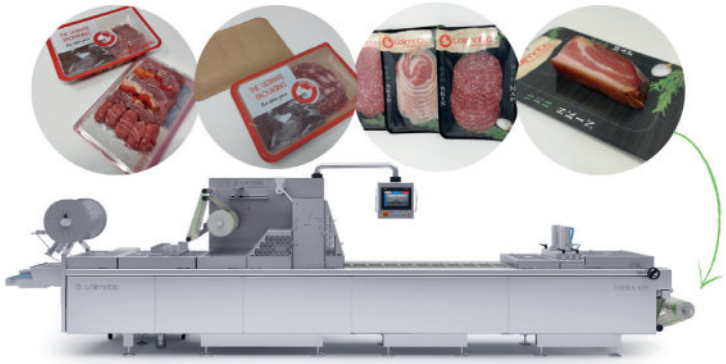
A large touch panel is available as an option. This gives the customer visual cues regarding the possible cutting set configurations for different applications and also informs him of the optimum machine settings for each application. This renders operation simple and safe and ensures the very best product quality.

www.kgwetter.de

ANUGA FOOD TEC

Hall 6.1
Stand: A-010 / B-011
Cologne: 19.03 - 22.03.24

COMMITMENT TO EXCELLENCE AND INNOVATION IN THE PACKAGING INDUSTRY



Colimatic, the leading thermoforming machine manufacturer in Italy, is announcing its participation in the upcoming edition of ANUGAFOODTEC in Cologne, Germany. As the company prepares to showcase its innovative range of products, it is also excited to demonstrate its unwavering commitment to excellence and innovation in the packaging industry.

With nearly half a century of packaging expertise under its belt, Colimatic has emerged as the premier thermoforming machine manufacturer in Italy. From its humble beginnings, the company has grown exponentially, driven by a steadfast commitment to innovation and customer satisfaction. Today, Colimatic stands as the preferred partner for leading companies in the food and medical industries, offering state-of-the-art packaging technologies, printing, and automations.

At the core of Colimatic's philosophy lies the mantra, "Make quality products your mission, protect them is OUR DUTY." This ethos underscores the company's dedication to delivering unmatched packaging solutions, solidifying its position among the top five global producers of thermoforming packaging lines and connected technologies. With a presence spanning over 60 countries and nearly 5000 machines installed worldwide, Colimatic has become a cornerstone of the industry, serving as a trusted partner to leading food and medical enterprises.

Colimatic's comprehensive range of offerings is designed to meet diverse packaging needs with precision and efficiency, including:

Thermoforming Lines: As the cornerstone of Colimatic's business, these lines represent the epitome of expertise and innovation. Continual investment in research and development has propelled Colimatic to the forefront of thermoforming solutions, earning the distinction of being the FIRST NATIONAL PRODUCER in Italy.

In addition to its core products, Colimatic offers a diverse array of advanced solutions tailored to specific industry requirements, including:

Complete Slicing Lines: These comprehensive lines streamline the slicing process, ensuring precision and efficiency while enhancing productivity in food processing operations.

Modified Atmosphere Packaging (MAP) and Marking Systems: Colimatic's systems facilitate controlled atmosphere packaging and efficient marking, maintaining the integrity and traceability of packaged products.

Cook-in Production Lines: Addressing the needs of cooking product manufacturing, Colimatic's lines offer innovative solutions for the production of cook-in products, guaranteeing optimal cooking results and product quality.

Vacuum Packaging with Shrink Technology: By combining vacuum packaging with shrink technology, Colimatic's solutions provide enhanced product protection and presentation, optimizing shelf life and visual appeal.

Automation and Skin Packaging: Leveraging cutting-edge automation technologies, Colimatic's systems enhance operational efficiency and throughput, while skin packaging solutions offer superior product presentation and protection.

Colimatic remains committed to pushing the boundaries of packaging technology, striving to exceed customer expectations and set new industry standards.

www.colimatic.com

ANUGA FOOD TEC

Hall 8.1
Stand: B-010 / C-019
Cologne: 19.03 - 22.03.24

REVEYRON – THE BELTING FORCE FOR FOOD SAFETY

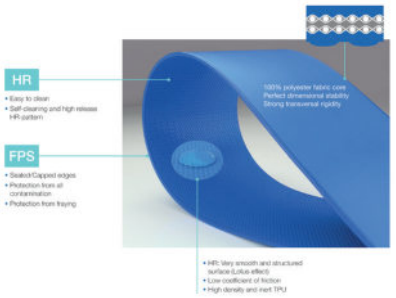
Polyurethane Belt Solutions for Food Processing: Reveyron is a manufacturer of Polyurethane conveyor beltings.

Reveyron offers more than 150 types of light conveyor belts in polyurethane. Building on more than 90 years of shared experience, know-how and close cooperation with its clients, the company is a leading expert in all food industrial sectors needing high-performance and reliable conveying solutions.

The Reveyron Polyurethane (TPU) belts are an essential component to providing absolutely safe food: no migration of toxic substances to the transported product, a reduction of micro-organic development as well as an efficient and quick cleaning of belts.

The Belting Force for Food Safety

The famous Securev™ range with a double TPU cover and sealed edges [FPS] offers a true protection from any contamination and infiltration of liquids or oils. The Securev™ belt surface is perfectly smooth, homogenous and non-porous.



The High Release [HR] positive structure is a self-cleaning surface, easily releasing all type of residues due to its rounded structure.

www.reveyron.com

ANUGA FOOD TEC

Hall 10.1
Stand: C-071
Cologne: 19.03 - 22.03.24

MEET LIMA AT ANUGA FOODTEC 2024 FOR HIGH QUALITY MEAT AT HIGH YIELD!

LIMA are specialists in mechanical separation who have been developing, manufacturing and selling meat-bone separators, deboners and grinders-desinewers worldwide through a network of more than 70 distributors to the full satisfaction of their customers since 1981!

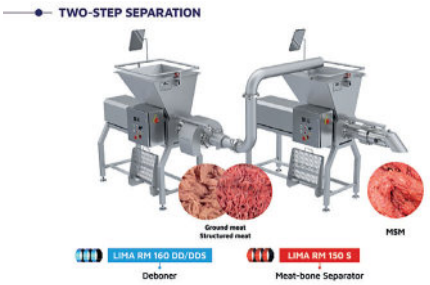
As ANUGA FOODTEC show is about to kick off in Cologne, LIMA company is looking forward to breaking new record numbers in terms of visitors and results, with high-quality contacts from around the globe.

Distributors from all continents will bring to LIMA's booth many interested meat processors from the poultry, pork, beef, lamb and fish industries.

LIMA's only dedication since its very beginning has always been developing and supplying the best solutions to separate the hard from the soft by a mechanical means for the food processing industry. The applications are numerous, such as producing the highest quality of mechanically separated meat (MSM) at very high optimal yield out of poultry, pork, lamb, beef bones, as well as recovering the best fish pulp out of fish central bones.

Also, over the years, LIMA has been at the forefront of the poultry industry, developing and delivering two-step LIMA separation lines.

In the first step, poultry carcasses, necks or other bones are mechanically deboned at low pressure in a LIMA DD/DDS deboner-desinewer enabling to produce very HIGH quality separated meat, in terms



of Structure, Color and a low Calcium content, less than 1 000 ppm. Such mechanically separated meat at low pressure is commonly referred to as "3 mm MSM" or "Structured meat" MSM with a texture closer to a ground meat than conventional MSM. For the second step of this separation line, a transfer pipe conveys the separated mix of bones with residual meat to a LIMA S meat-bone separator which recovers the last possible quantity of meat from the bones, producing

a conventional but high quality mechanically separated meat (MSM) at very high optimal yield.

Moreover, LIMA sees tremendous success with its NEW range of LIMA Grinders - Desinewers GD/GDM specifically developed for poultry bone-out raw materials: trimmings with or without wishbones, deboned thigh and drumstick meat.

This NEW technology enables to produce a very high-quality ground – desinewed poultry meat in terms of texture & color at very high yield. This recovered meat is NOT a mechanically separated meat but a true ground and desinewed meat produced out of bone-out meat cuts or trimmings.

Other main advantages of LIMA Grinders-Desinewers GD/GDM: very high yields from 85 to 99 %, optimized C/P ratios, low temperature increase, very hygienic design and very low maintenance costs.

Beef and pork meat processors can also benefit from LIMA Grinders-Desinewers GD/GDM. LIMA will also exhibit a LIMA Grinder-Desinewer at ANUGA FOODTEC to introduce this novel technology to all customers.

In addition, LIMA will exhibit a LIMA DSP Deboner. The range of LIMA DSP deboners has been specifically developed for harder bones than poultry ones and especially for pork & lamb bones. Specifically, many LIMA's customers in the Pork industry around the world are already taking great benefits of the DSP technology by separating meat from typical pork bones such as backbones, neckbones and ribs at LOW pressure. The objective is clearly to recover the highest quality of meat in texture, as close as possible to ground / minced meat while still ensuring optimal yields and the lowest calcium content in the recovered meat as possible. Such high quality mechanically deboned meat is usually referred to on the market as structured or 3 mm mechanically separated meat.

LIMA offers a full range of LIMA DSP deboners from 300 to 5 000 kg / hr of input capacity.

The range of more than 70 LIMA machine models can process from 100 to 20 000 kg/h of raw product.

www.lima-france.com

ANUGA FOOD TEC

Hall 6.1
Stand:E-050 / F-051
Cologne: 19.03 - 22.03.24

"QUICK THAW UNIT" - THE NEWEST INNOVATION IN MEAT PROCESSING

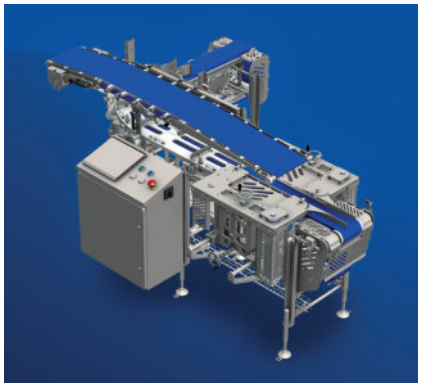
Klinge Corporation, a leading supplier of temperature-controlled solutions is setting the Gold Standard in Frozen Food Storage with the intelligent Klinge Quick Thaw Unit, that can thaw more than 10.000KG/22.000 LBS beef, pork and poultry per day and is easy to install at dock doors and many other locations. Klinge will be exhibiting in Cologne, Germany 19-22 March 2024 at Anuga Food Tec. Come and meet Klinge in Hall 6 Stand E9. Find out more about different solutions for your specific needs at their website.

www.klingecorp.com

ANUGA FOOD TEC

Hall 6.1
Stand: E-009
Cologne: 19.03 - 22.03.24

THE NEW QUPAQ FLEX LOADER MEETS THE NEED FOR HIGHER FLEXIBILITY IN THE MEAT-PACKING INDUSTRY

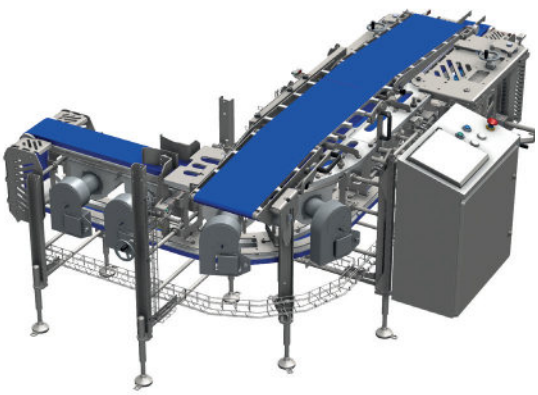


With a newly developed tray-loading solution, Qupaq solves urgent challenges regarding flexibility, speed, and capacity among customers in the meat-packing industry. The new Qupaq Flex Loader loads up to 300 products per minute while also providing seamless transitions regarding tray type, and variety and quantity of products.

Qupaq, the company behind the market-leading tray-denesting brands Intray and Anytray, is now expanding its portfolio of tray loaders with a new, innovative solution, the "Qupaq Flex Loader," which combines all features from the previous models regarding adaptability and speed. The solution will be revealed at Anuga Food Tec 2024 in Cologne, Germany, on the 19th of March.

The Qupaq Flex Loader stands out by enabling a combination of high-speed performance and modular flexibility, which allows for immediate adaptation of different trays and product types on the same product line. Among the most important innovations and capacity maximizers are the elimination of space between trays and the tray loading feature generating a vacuum on a perforated belt. As a result, trays will be processed faster and with greater control.

The innovative technology does more than just improve productivity in the meat-packing industry. Additionally, it aligns with the market's transition to more responsive and flexible production methods. The Qupaq Flex Loader demonstrates its versatility by switching between tray types (different sizes, materials, and shapes) and product type (such as minced and sliced meats) in less than a minute, and with no mechanical alternation. Also, a modular design allows a compact inline fit, which is adaptable to any product line setup.



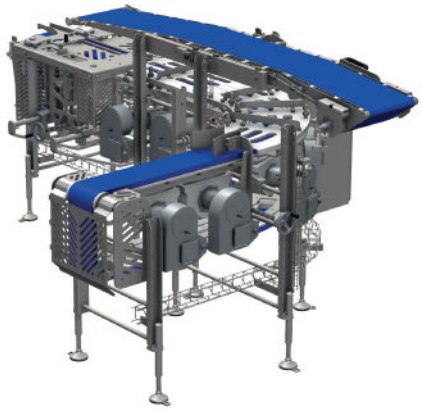
- This is a completely different mechanical concept than we have ever used before. With our Qupaq Flex Loader, you simply adjust the belts in the loading bay rather than changing anything mechanically when you want to switch from one tray type to another, says Carsten Trudslev, Product Manager at Qupaq.

Innovation Builds On Customer Needs and Market Trends

Capacity is crucial in the meat-packing industry where seasonal variations in meat products call for flexibility and high-capacity processing.

Facing the need to load up to 300 portions of sliced meat per minute, a demand unmet by any exiting tray loader solution available, an international food company reached out to Qupaq for help. This approach has led to the development of what Qupaq itself describes as "the most versatile and adaptable tray loader in the meat-packing industry".

- Previously in the meat-packing industry, you would typically have one production line dedicated to minced meat, an adjacent line for steaks, and a third line for stacked meat. This layout, however, often led to inefficient utilization due to varying demands for different products resulting in some lines operating at full capacity while the others remained idle. To meet the increasing market demands for more flexible layouts, we wanted to combine multi-product step-loading capabilities with straightforward single-product loading in one single solution. Our Qupaq Flex Loader accommodates this by allowing quick adjustments and combining functionality of multiple lines into one. Meat companies will find it valuable for packing meat products in different patterns in trays, whether in portions, piles, or layers, says Carsten Trudslev, Product Manager at Qupaq.



The design and technology of the Qupaq Flex Loader allows it to work seamlessly with all types of tray-feeding systems on the market, meaning that customers can add it to existing production lines.

www.qupaq.com

ANUGA FOOD TEC

Hall 6.1
Stand: C-101
Cologne: 19.03 - 22.03.24

PROVISUR® MAKES INDUSTRIAL FOOD PROCESSING EVEN MORE EFFICIENT, PRODUCTIVE AND PROFITABLE

Provisur –"Pushing Boundaries" – leading established brands for industrial food processing

Provisur Technologies, headquartered in Chicago, Illinois, is one of the leading suppliers of equipment for industrial food processing. The company will be presenting innovations from its Further Processing, DMC (Defrosting, Marinating, Cooking), Slicing and Separation business units under the motto "Pushing Boundaries". The machines and systems stand for greater efficiency, first-class product quality and a higher yield. Provisur Technologies will be demonstrating its comprehensive line expertise in Hall 9.1, Stand B-040-C-059: the equipment on show can be easily integrated into complete solutions.

Further Processing: State-of-the-Art Forming Technology, Increased Throughput

Representing the Further Processing business unit, the Formax NovaMax 400 former demonstrates maximum performance. The system on show at the trade fair is used for forming burger meat, but is also ideal for products such as poultry, protein alternatives, animal feed, baked goods and more. The machine, with high-speed mold plate drive, offers increased throughput, precise weight control, simple product changeovers and low operating costs. Overall, the NovaMax series is known for its solid construction and exceptional reliability. The machines are suitable for processors of all sizes. They help to increase profits and productivity by guaranteeing accurate fills with consistent weights. The Formax VerTex 600 former with rotary drum for high capacity processing lines presented at Anuga FoodTec also impresses with its high throughput and consistent portioning. The machine has a servo driven dual lobe pump which can be used in a variety of applications and is characterized by its low-maintenance and easy to clean design.

DMC: Fast, Even Defrosting, Higher Yields

The Lutetia brand from the DMC (Defrosting, Marinating, Cooking) business unit is one of the world's leading names in defrosting, marinating, and cooking technologies. The innovative systems work with a patented process and impress with unrivalled precision and maximum flexibility. Trade visitors will experience the Lutetia Tumbler T40 with a capacity of up to 1,200 kg for defrosting fresh meat products, e.g. chicken breast, beef or any pork pieces. The patented Lutetia steam-vacuum process saves time and improves yield. The gradual low-pressure injection of steam under vacuum, speeds up the thawing process without the risk of cooking the product surface. Frozen blocks are gradually separated and reach uniform temperatures through tumbler rotation.

Slicing: Modular Press-to-Slice - Complete Line for Automated Pressing and Slicing

A complete modular system simplifies the automated

Formax NovaMax 400 with high-speed mold plate drive, offers increased throughput, precise weight control, simple product changeovers and low operating costs

processing of bacon and other natural shaped meat for users. With its small footprint, it ensures even greater efficiency in the press-to-slice process and helps meat-processing companies to increase their yields. The turnkey line presented at Anuga FoodTec consists of various perfectly harmonized high-performance modules: In addition to the Hoegger Xpress form press and the new PTS (Press-to-Slice) module with scan and positioning function for multiple-lane slicing, the central element of the system is the new Formax SX550 slicer. It has an extra wide slicing throat of 550 mm, enabling several products to be sliced simultaneously and achieving a high slicing capacity.

Separation: High Performance and High-Quality Results

The STS belt separator range with a capacity of up to 5000 kg/h works with soft tissue separation, a technology that produces particularly high-quality results and achieves a high yield when separating bone fragments, tendons, cartilage, and other source material. The flexible pressing belt of the STS pulls the product through while pressing against a perforated drum. Adjustable mechanical pressure causes the soft parts to pass through the holes in the drum, while the hard components remain on the outside of the drum. This technology is also ideal for products such as potatoes, fruit, or vegetables, e.g. for ready meals, but it is also for depackaging defective or preempted food.

www.provisur.com

ANUGA FOOD TEC

Hall 9.1
Stand: B-040 / C-059
Cologne: 19.03 - 22.03.24

AWM114-100 AND AWM130-100 COMPACT. FLEXIBLE. RELIABLE.

AWM114-100

AWM130-100

The AWM114-100 and AWM130-100 are our compact all-rounders and are available in two sizes to suit your needs.

GRINDING ONLY: The use without a mixing arm enables the user to process large cuts and carry out a pure grinding process.

MIXING ONLY: With the mixing arm fitted, there is the additional option of adding spices or similar to the product and grinding directly.

As a compact alternative to the larger models of our automatic crossfeed grinders, these models impress with their high conveying capacity, powerful drive and space-saving dimensions.

The perfect interaction between the feeding worm and working worm and the design of the product hopper enable maximum performance in product processing.

For KOLBE, the user always takes centre stage. Both models can be operated from the front and can therefore be easily and ergonomically filled with an E2 box by the operator.

Quality that exceeds the usual industry standards.

www.kolbe-foodtec.com

ANUGA FOOD TEC

Hall 6.1
Stand: A-048, B-049
Cologne: 19.03 - 22.03.24

SMART FLOW BATCH SYSTEM – THE INTELLIGENT PROCESS SOLUTION

Standardizing and simplifying process steps is one of the most important goals for all food producers.

Today, there is more and more overlap between individual product groups and their processing. Just a few years ago, for example, completely different production processes were used for the manufacture of sausages and the production of processed cheese. With the emergence and rapidly increasing importance of vegan foods on the market, new technologies and processes have been devised.

Sustainability by All-in-One Machine Configuration

With its Process Automats, KARL SCHNELL offers an intelligent solution that enables the production of both meat products and meat substitutes in a compact all-in-one machine.

Since all process steps are integrated into one unit and can be implemented flexibly, the user can design his products and formulations in an almost unlimited variety of ways. In the production of meat alternatives, for instance, there are many different parameters have to be set during the mincing and emulsification of the raw materials with regard to the selection and use of the cutting tools

HMMA-based formulations (meat analogs with a high water content) can mostly be treated in a similar way to classic fine meat emulsions. Here, the focus is on a perfect bite and a good mouthfeel.

In TVP-based (Textured Vegetable Protein) formulations, importance is placed on a pleasant structure. Here, both the pre-mincing and the fine mincing process must be handled very sensitively in order to achieve the desired uniform particle structure in the defined degree of fineness of the end product.

As the pioneer in emulsification technology, KARL SCHNELL can draw on a wealth of experience and offer a variety of process-specific cutting systems. In combination with other features such as temperature control, evacuation, etc., a high-quality, precise and reproducible result is achieved.

Intermediate cleaning of the machine, even during ongoing production, is performed by the CIP (cleaning in place) connection. The result of this self-contained system is the highest standard of hygiene without contamination or cross-contamination, while at the same time minimizing the consumption of water and cleaning agents.

Energy Efficiency by Smart Process Technology

In contrast to conventional systems, KS Process Automats require far less motor capacity when manufacturing a comparable product and, system-related, also have shorter process times. In addition, due to KS Smart Control, only the required amount of energy is applied into the process that the product can actually absorb.

www.karlschnell.com

ANUGA FOOD TEC

Hall 9.1
Stand: B-038, C-039
Cologne: 19.03 - 22.03.24

ACHIEVE A UNIFORM HYGIENE RESULT WITH JEROS

JEROS offers a wide range of industrial ware washers for the food industry, adapted to the busy everyday lives of customers, guaranteeing better workflows, consistent washing results and safe hygiene.

JEROS is a strong, globally active company with over 60 years of experience in the development, production and sale of ware washers, crate washers and tray cleaners.

The food industry is one of the core segments with prominent names such as Nestlé, Pepsi-Co, Unilever and Arla in the customer portfolio. In the production facility on Funen, Denmark's third-largest island, both standard solutions and custom-made products are produced, all of which add value to the customer's everyday life.

Kill Bacteria and Increase Productivity

With a certification from Eurofins Steins Labour, JEROS can guarantee a bacteria-free washing result in 3 or 6 minutes, and hygiene is just one of the many advantages that an automatic washing process brings.

An automated process ensures the same effective result every time. One machine never has a bad day while using a minimum of water, which also makes this process more environmentally friendly. Most importantly, because we wash at such high temperatures and rinse with 85 °C, all bacteria are killed and at the same time you save a lot of time in the cleaning process. By investing in an industrial rinsing solution, the food company can significantly increase its output by being able to focus on the things that actually make money.

Unique Handling Equipment for Better Work Processes

One of the areas where JEROS stands out in the market is its focus on more than just the rinsing process. Based on a thorough analysis of customers' needs, the Danish company has developed solutions that help improve the handling of parts to and from the ware washing area.

It often happens that loose parts are either lost or broken because industrial companies do not have the right workflows when the parts need to be dismantled, transported and cleaned.

For this purpose JEROS have developed various racks and trolleys on which the user can easily attach the disassembled parts, roll them to the washing area and slide them into the machine. The parts can also be easily attached so that they can be cleaned in all nooks and crannies.

Replacing components used in the food industry is often very expensive. In addition, a lost or broken part can lead to a production stop of several days until the corresponding replacement part arrives. The handling process is therefore incredibly important in this industry.

A system from JEROS, for example, can reduce the washing time of the complex combination weighers – also known as multihead weighers – used in many food companies, by up to 80 percent

Solutions Developed with Industry – for Industry

Due to the great knowledge and extensive experience acquired over the years, JEROS has in-depth knowledge of the challenges that industrial companies face on a daily basis. A close dialogue with customers combined with a flexible production apparatus means that JEROS develops and produces ware washers that are able to meet very specific customer needs. "We provide our knowledge and take a close look at what kind of parts the machines should be able to clean. Many of our machine models were born as a result of requests - for example, when a customer was looking for a solution to wash 50–100 kegs a day. We have specially developed for him a machine with an insert that makes it possible to wash the barrels inside and out at the same time. The model then became a standard machine because it was shown that others had a similar need", explains Evita Rosdahl, CEO at Jeros A/S.

Another hallmark of JEROS machines is that they are developed with the user at the centre, making them easy to integrate into daily workflows and easy to use. "We have put a lot of focus on how to make work easier and more practical for people who deal with the same process every day. Our machines are therefore designed in such a way that you stand ergonomically correct when you operate them and can reach all angles when you need to clean them", conludes Evita.

www.jeros.com

ANUGA FOOD TEC

Hall 10.1
Stand: B-110
Cologne: 19.03 - 22.03.24

IN-LINE, 100% SEAL INSPECTION OF PACKAGING FOR MEAT PRODUCTS

Seal contamination is a major problem for food producers, as it can lead to leakage and consequently to reduced shelf life and even costly recalls with associated image damage. Therefore, automatic detection of contaminated seals is extremely important for both food safety and production automation. Engilico, specialist in the field of non-destructive in-line seal inspection, provides solutions for flexible packaging as well as for rigid packaging such as trays and thermoforms to achieve better packaging quality, higher packaging productivity and end-of-line automation.

Sensors on the sealing bars detect if there is product, material or folds in the seal of the packages, which are then ejected by the SealScope® system

In-line Seal Inspection of Flexible Packaging

These types of packaging such as flow-packs, pouches and VFFS bags are very common for meat products, which are usually packed under protected atmosphere. More specifically the flow-pack packaging is today favored for packaging sliced meat, but also for minced meat, pâtés or sausages. Due to the speed of the packaging process, it often happens that product or material gets caught in the seal, leading to leaking packages with consequences for shelf life. Or even if the seal is closed, it is aesthetically undesirable to deliver to the (retail) customers, who are very strict on the quality of the packaging delivered.

The SealScope® in-line seal inspection system for flexible packaging uses sensors mounted on the sealing jaws of the packaging machine that measure the behavior during the sealing. The measured signal is compared to a reference measurement signal of a good seal.

Defects like wrinkles or product in the sealing area are ejected from the production line improving overall outgoing product quality

Plies, folds or product in the seal are thus detected during sealing and a signal is sent to a rejector to remove defective packages further down the packaging line. As such in-line seal inspection is complementary to the weighing or metal detector stations.

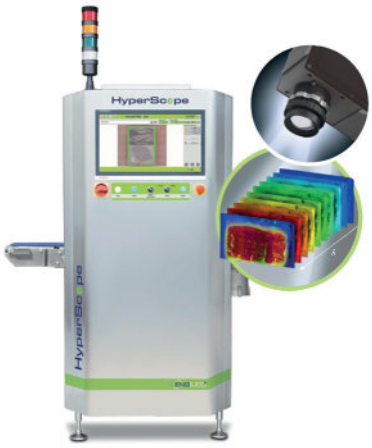
Because the sensors are easily built into the packaging machine, there is no need for additional expensive space on the shop floor and no adjustments must be made to the production line. The integration is also independent of the brand of packaging machine. SealScope® has now been installed on packaging machines such as Omori, Fuji, Ulma, Bosch, GEA, Ilapak, PACRAFT (Toyo Jidoki), Leepack, SN, PFM, etc.. A major benefit of SealScope®, which also fits the philosophy of continuous improvement, is the process control and monitoring function. In case of consecutive errors - e.g. due to plies or folds of the foil - the packaging process is halted, and operators are timely alarmed so they can quickly investigate the cause of the fails and instantly take corrective actions. This is extremely important to avoid issues with rework, sorting bad packages and unnecessary material costs.

Hyperspectral Technology for Trays and Other Rigid Packaging

Products such as sliced charcuterie, bacon, meat (preparations) are often packaged in plastic trays,

in thermoformed packaging or on cardboard trays, which are then sealed with transparent or printed film.

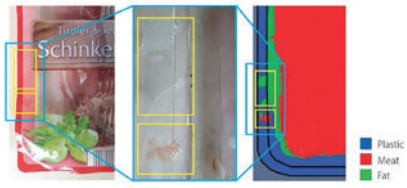
For traditional vision systems, detection of contamination in the seal is often difficult if there is little or no contrast between the plastic film and the contamination, e.g., grease or oil in a white tray with transparent seal. With printed films, often used for more luxurious packaging, it is not even possible to see contaminants at all. An alternative is X-ray inspection, but this technology is only efficient if the material density varies



HyperScope® in-line seal inspection system, optionally with rejector

enough to reveal the distinctive materials, which is not always the case with contamination from organic materials such as meat, fat, oil, spices or e.g. breadcrumbs.

HyperScope® uses hyperspectral imaging to detect seal contamination with high contrast, even on printed films. The inspection system uses artificial intelligence, allowing highly accurate detection of the sealing area in real-time, regardless of the orientation, layout or size of the package. A major advantage of hyperspectral camera technology is the ability to distinguish between materials of the same color when they have different compositions. A traditional vision camera records a single image with information in 3 spectral bands (red, green and blue). Hyperspectral data contains hundreds of images each with information from different wavelength bands. For the detection of seal contamination, the relevant wavelengths are largely in the infrared region. Since materials react differently to (near)-infrared

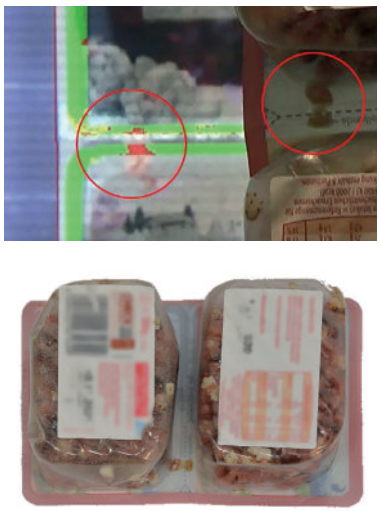


A hyperspectral camera distinguishes materials such as meat, grease and plastic that have different spectral images, allowing it to recognize contaminations in the seal through printed film.

light, their transmission, reflection, and absorption properties allow for the reliable detection of different materials. This capability enables the clear differentiation with high contrast between contaminants like meat, grease, and oil from the plastic film, even when it's printed.

In-line Seal Inspection is a Basis for Sustainable Success

Engilico's in-line seal inspection solutions have an important influence on addressing several pain points in sustainable production. The process monitoring function will allow to pause the production much faster in case of process drift or increased sealing errors, as such minimizing product and plastic film waste. As today packaging needs to become more sustainable (less plastic, mono-materials, use of cardboard), it is a huge advantage that both SealScope® and HyperScope® cope with these challenging materials as they are less dependent on material type or are especially well suited for demanding packaging applications, e.g. when using trays with printed top foils. Another benefit of non-destructive seal inspection is that



HyperScope® uses hyperspectral imaging to detect contamination in the seal with high contrast, even with printed films or in difficult-to-see canyons in e.g. duo packs of bacon

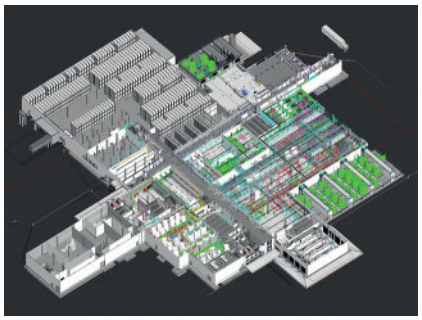
if the product in the rejected package is still intact, it can be repackaged, which overall results in less waste.

www.engilico.com

ANUGA FOOD TEC

Hall 8.1
Stand: B-020
Cologne: 19.03 - 22.03.24

THE INTEGRATED DESIGN OF PRODUCTION PROCESSES AND PRODUCTION BUILDINGS FOR THE FOOD INDUSTRY



The consulting company foodfab is the market leader in Central Europe for process planning consultancy and the Integrated Design of industrial buildings. foodfab supports a global clientele from its offices in Munich and Innsbruck.

The company's core competence is an expert knowledge of production, processing and distribution processes in the food industry acquired over more than 50 years of design work. If a client wishes, foodfab can supplement its own expertise from the very start of the process with the experience of its parent company, ATP architects engineers, and of other duly selected specialists. foodfab's clients include companies from the meat, ready meals, fish, dairy and drinks industries.

BIM: The Revolution in Design for the Food Industry

Since 2008, foodfab and ATP architects engineers have been using BIM (Building Information Modeling). This makes them pioneers in the application of this technology to the Integrated Design of production processes, mechanical, electrical and structural engineering and architecture for the food industry.

BIM is the most modern and efficient working method for the provision and utilization of realtime information within a digital model for and by all professions involved in the design process. Once compiled, this data can provide comprehensive information for all phases of the design, construction, and operation of a building.

For example, physical parameters can be changed, and the effects of these changes analyzed from the earliest stage of the design process. And the data model handed over to the facilities manager can then be very useful during the operational phase.

Innovation and Improved Performance

This Integrated Design approach enables foodfab to make a significant contribution to the improved performance of your food production or processing operation. Our own developments, which include the well-known "SPINE principle", hygienic ceilings, service galleries or special cleanroom applications in the areas of slicing and packaging, make a proven contribution to the optimization of modern operations and help clients to design their own production process.

Sustainability and Value Retention

foodfab's experts align the value retention of production facilities with the client's objectives. In addition to construction costs they address all important economic factors which affect the lifecycle and lifecycle costs. Energy requirements and maintenance and repair costs during the operating period are taken into account just as much as environmental and legal requirements. In addition to this,

foodfab involves experts from ATP's research companies in the design process in order to guarantee optimal results in terms of the sustainability objectives and to achieve the target environmental certification.

Know-how and Creativity

foodfab is an expert partner in the design of state-of-the-art production facilities. The Integrated Design approach optimizes both the core process and the building.

On the basis of plans for the medium and long-term development of the facility, specialists work together to develop the best overall solution for production technology and logistics, the layout and the building envelope as well as building technology which is optimized in terms of both value creation processes and environmental objectives.

- Special technical expertise
- Proper understanding of the production process
- Innovative solutions
- Future-oriented and long-term overall concepts
- Overall optimization of energy plans

www.foodfab.eu

ANUGA FOOD TEC

Hall 6.1
Stand: A-060
Cologne: 19.03 - 22.03.24

HANDTMANN FS 525 FORMING SYSTEM WITH NEW CO-EXTRUSION OPTION FOR FILLED PRODUCTS

The Handtmann FS 525 all-in-one forming system now offers producers of snack and convenience products a new option to further expand the possibilities in the production of formed products: the co-extrusion function. The forming system provides flexibility for both "free forming" and "forming and separating" of products from the food sectors of meat and sausage products, vegetarian and vegan, baked goods, dairy, confectionery, fish, pet food and many more. The added co-extrusion function now allows the production of a wide variety of filled products.

Handtmann FS 525 forming system

The FS 525 forming and cutting system combines two different forming principles for maximum flexibility in industrial applications (hole plate forming technology for free-formed 3D products and rotary cutter for different cross-sections with a straight cut) and now also offers the option of co-extrusion. This option further extends the range of applications for the production of filled formed products with closed or open ends of calibres 20 to 50 mm. The servo-controlled valve for the inner product with valve sleeves in diameter 22/8 mm with 8 mm valve tip/8 mm valve opening, diameter 22/10 mm with 10 mm valve tip/10 mm valve opening, diameter 30/12 mm with 16 mm valve tip/12 mm valve opening, diameter 30/15 mm with 16 mm valve tip/15 mm valve opening provides a wide range of applications. Mould component sizes are available in calibre 25, 30, 35, 40, 50, 55, 60 and 70 mm. Thanks to servo technology, the positioning of the filling, be it pasty,

Handtmann FS 525 products

chunky or soft, is always accurate and precise in terms of weight.

Simple operation, fast set-up, assembly and disassembly allow a wide variety of products with fast product changes. A production output of up to 150 portions per minute is thus possible in a single lane. The FS 525 forming and cutting system can be perfectly incorporated into integrated processes, such as the Handtmann transfer system, or be synchronised with automation options such as a weighing system, tray feeding or depositing into thermo-forming machines.

www.handtmann.com

ANUGA FOOD TEC

Hall 5.1 Stand: D-031
Hall 6.1 Stand: B-010 / D-029
Boulevard A069, Boulevard A050

INTRODUCING THE DSI™ 812 WATERJET COMPACT PORTIONER

Looking for a waterjet portioner for your poultry processing business, but not yet really to invest in large-scale industrial machinery? The new DSI 812 from JBT is an economically-priced version of the innovative DSI waterjet portioning range developed for smaller processors, which takes up 70% less floorspace than the existing DSI 822.

Ideal for poultry portioning or fat trimming, the DSI 812 incorporates the best features of DSI waterjet portioners in a more compact version. Developed in response to customer requests, the 812 is perfectly suited for poultry processors who don't have the floorspace for a 12 meter-long machine or the budget for a much larger piece of equipment.

"We've taken a look at what's worked on our flagship line and incorporated as many aspects of that as we could in this compact portioner," explains JBT DSI Product Manager, Alec Hewitt. "It's a XY waterjet cutter, very similar to our 800 series, we've just used a different gantry design, upgraded electronics, and enclosure to make it as small a footprint as we possibly can."

Built-in Benefits

The 812 will also enable smaller processors to benefit from the Quantum Electric Servo Pump, which is marketed exclusively by JBT and forms part of the new portioner. Mounted on-board the portioner, the Electric Servo Pump requires up to 40% less energy than a hydraulic system, enabling customers to benefit from what Hewitt calls, "a significant leap-forward when it comes to technology for high-pressure intensifier pumps".

In addition to the low operating costs, DSI's optional Jet Blocker technology can deliver as much as a 30% increase in throughput.

How it Works

Detailing the workings of the system, Hewitt explains that poultry going into the system passes through a DSI J-Scan, which creates a precise height map. This data is fed into JBT DSI's proprietary Q-Link portioning software, which analyses the height map and generates a cut strategy depending on whatever the customer wants. The resulting XY and timing information is then sent to the cutters. "We have sub-milimeter accuracy down to a few grams, so we not only have high capacity, reliable equipment, but also equipment that is extremely precise," adds Hewitt.

Talk to almost any poultry and meat processor today about challenges they face cutting products and common themes show up time and again: exacting customer requirements, maximizing high-value product output by making full use of incoming product, pressure to reduce food waste, and a lack of skilled personnel. Not to mention, high staff turnovers and a lack of space in processing facilities.

For customers across a wide range of product categories, JBT's new DSI 812 Waterjet Portioner could well provide a workable solution. The latest iteration of the best-selling system can deliver benefits on everything from space-saving and automation to improving sustainability and standardizing product shapes and sizing.

Automating Protein Processing

Capable of improving product yield, decreasing labor and increasing productivity, DSI Waterjet Portioning Systems have been at the forefront of automating meat and poultry cutting and portioning processes for over 30 years.

The system works by scanning products to locate fat and determine shape, thickness, weight, and other attributes, before DSI Q-LINK™ Software optimizes a cut strategy for each individual piece of raw product. Computer-positioned, high-pressure waterjets then generate complex cut shapes that make each piece as valuable as possible to maximize profits.

www.jbtc.com

ANUGA FOOD TEC

Hall 6.1
Stand: D-090 F-119
Cologne: 19.03 - 22.03.24

REX-TECHNOLOGIE SHOWCASES VACUUM FILLER & PORTIONING SYSTEMS

At the Anuga FoodTec, REX-Technologie will be presenting solutions for flexible meat and food processing in the trade, medium-sized businesses and industry. We will be presenting 2 new machines - the AKS 65 and AKS 65M.

AKS 65M - INDUSTRIAL SAUSAGE PRODUCTION

Fully Automatic Casing Change for all Artificial and Collagen Casings

The linking and hanging technology from REX-Technologie stands for maximum flexibility. Regardless of whether you are processing natural, synthetic or collagen casings, the hanging systems fill with exact portions at maximum speed.

The filling process is carried out via the REX vacuum filler. The casing caterpillars are automatically loaded onto the linking tube via the casing magazine. The turret technology equipped with 3 linking tubes guarantees a casing change in less than 2 seconds.

Displacement System Defines the Portion Length

The continuously running vacuum filler fills the product into the casing. The displacement system defines the exact calibration point and, in conjunction with the highly dynamic REX servo drive, ensures an equal length and maximum production output. Piece counts of over 2,500 pieces/minute are possible with artificial and collagen casings and up to 1,000 portions/minute with natural casings - always depending on the respective sausage length and diameter.

Calibration Belts Ensure Exact Lengths

The two calibration bands complete the concept and ensure accurate lengths. Flexible use for all types of casings with different diameters is always guaranteed. The AKS 65M combined with the RHS 330 hanging system is the perfect solution for fully automated sausage production.

www.rex-technologie.com

ANUGA FOOD TEC

Hall 6.1
Stand: D-050, E-069
Cologne: 19.03 - 22.03.24

SAFE PACKAGING WITH VACUUM PACKAGING MACHINES

SUPERVAC GmbH - the market and technology leader in the field of automatic belt machines, shrink and drying equipment - offers its customers in the meat and sausage industry an extensive range of vacuum packaging machines, shrink and drying equipment. This means that there is the right machine or system solution for every application or company size, consisting of an automatic belt machine and - if desired - a shrink tank and dryer.

All machines from SUPERVAC guarantee maximum output with minimum personnel and operating costs at the same time – Supervac systems also meet the latest hygiene and quality standards and are characterized above all by reliability, packaging and process assurance, flexibility as well as ease of cleaning and maintenance.

www.supervac.at

ANUGA FOOD TEC

Hall 8.1
Stand: C-081
Cologne: 19.03 - 22.03.24

PORTIONING & PACKAGING - ONE PARTNER!

At Anuga FoodTec 2024, GPS Reisacher will be presenting its solution expertise for the packaging area of the food industry.

reisacher - Thermoforming Packaging Machine VSE 30

The proven VSE 30 thermoforming packaging machine is characterized by a consistent hygienic design as well as operator and service friendliness. Thanks to its modular machine design, the VSE 30 is available for flexible, rigid and skin film up to a maximum film width of 620 mm and a draw-off length of up to 600 mm. A VSE 30 thermoforming packaging machine will be presented at the trade fair, which produces flexible film packs made of polypropylene (PP). The perfect recyclable single-material solution from our system partner ETIMEX makes it possible to package your products sustainably without compromising on quality and cost-effectiveness.

reisacher - Product control and end-of-line equipment

Thanks to our cooperation with the companies PULSOTONIC and AICON X-Ray, we can support our customers with advanced, integrated line solutions. At Anuga Foodtec, GPS Reisacher will be presenting a belt strip singulator and an X-ray inspection system.

reisacher - Service& Retrofits

Under the motto "Best in Service!", the specialist from the Allgäu region has been offering its customers a wide range of solutions for service, repair, spare parts and retrofitting for over 25 years. Several employees in design and development as well as in-house mechanical production

enable high-quality solutions in mold and tool making, combined with short delivery times.

reisacher - Packaging Innovation & Sustainability

Sustainable and innovative packaging solutions are a focal point at the reisacher stand. Our packaging specialists will advise on recyclable packaging materials and resource-saving packaging design.

www.gps-reisacher.com

ANUGA FOOD TEC

Hall 6.1
Stand: B-021
Cologne: 19.03 - 22.03.24

HRS TO SHOWCASE TURNKEY PROCESSING SOLUTIONS AT ANUGA FOODTEC

Over the course of its 40-year history, HRS Heat Exchangers has become a global leader in heat exchange technology for the food and drink industry, with processes such as pasteurisation, cooling and evaporation being particular specialities.

In response to demand from customers across a wide range of sectors, from fruit juice makers to meat processors and dairies, HRS has now developed a wide range of turnkey line solutions, which are successfully being used by food processors worldwide. At Anuga FoodTec 2024, the company will showcase its range of complete all-in-one solutions, including pasteurising, sterilising, aseptic filling and

HRS Asepticblock pasteurisers and sterilisers which combine heat treatment, aseptic filling and clean-in-place capabilities in a single system

clean-in-place capabilities in a single system, as well as options which can be skid-mounted for easy installation.

HRS produces a number of systems for the food and drink sector, such as the DSI Series of direct steam injection sterilisers

Other HRS systems for the food and drink sector include deaeration systems, the I Series of ice crushers and melters, direct steam injection sterilisers (DSI Series) and dedicated CIP

Other HRS products include the BP Series of hydraulic piston pumps, which are ideal for challenging food applications

and SIP systems. The company also provides systems for customers to conduct product and processing trials before committing to a final production solution.

Unlike some providers that only sell standard options, each HRS product is designed to the client's individual needs, meaning customers can be sure of getting the right system first time around. And although clients are increasingly looking for all-in-one solutions, HRS continues to supply individual heat exchangers and other products (such as its BP series of hydraulic piston pumps and AF series of aseptic fillers) across the food sector.

www.hrs-heatexchangers.com

ANUGA FOOD TEC

Hall 4.1
Stand: A-080
Cologne: 19.03 - 22.03.24

SEYDELMANN OFFERS NUMEROUS SOLUTIONS

Maschinenfabrik Seydelmann will once again be represented with a large stand, an almost complete machine portfolio - including two complete production lines - and numerous innovations.

Vakuum-Konti-Kutter KK 144 c / Vacuum-Konti-Kutter KK 114 c

Joining the party will be the new compact KK 144 c Vacuum-Konti-Kutter - the little brother of the KK 254 c, which is also new. Both machines enable ultra-fine emulsifying under vacuum in a very compact design.

Seydelmann has always been a driving force in the development of the industry and consistently transfers innovations from industry to the trade and vice versa. This principle is also the basis for the completely newly developed Automatic Mixing Grinder AE 130 M.

The Automatic Mixing Grinder AE 130 M combines four functions with a low overall height and small footprint, thus increasing flexibility in production. It enables mixing and homogenizing and subsequent grinding via the grinding outlet or grinding with subsequent mixing and discharge via the discharge flap. Thanks to the removable mixing unit and large feed screw, it can also be used purely as an Automatic

Automatenmischwolf AE 130 M / Automatic Mixing Grinder

Grinder and can also reliably feed whole muscle pieces to the cutting set without any problems. Use as a pure mixer with discharge via the separate discharge flap rounds off the possible applications.

As an option, the AE 130 M can be equipped and operated with a manual or pneumatic cutting set, the new Seydelmann Cutting Drum and a lifting device for E2 crates.

Automatenwolf AE 130 mit Schneidtrommel / Automatic Grinder AE 130 with Cutting Drum

Another new feature is that the Automatic Grinder AE 130 is equipped with the Seydelmann cutting drum, which has been used successfully for years in industrial grinders with outlet sizes of up to 200 mm. It ensures the efficient separation of hard parts such as pieces of bone, cartilage or tendons. A unique feature is that foreign bodies such as plastic particles or film residues are also reliably separated out without further shredding. Compared to conventional cutting sets, the system consisting of a perforated drum and extended working screw enables a significantly higher throughput and therefore hourly output with a lower temperature input. The system works contact-free and therefore without metal abrasion. At the trade fair too - the Universal Grinder AU 200 U with Cutting Drum.

The Auto-Command 500 is another new feature, which is now standard equipment on all artisanal cutters. In addition to manual operation, it also enables automatic program control of different recipes. The user-friendly design and logic of the display ensures reliable and intuitive operation and is also a response to the shortage of skilled workers in the industry. All relevant data can be clearly read even from a distance and the robust design in protection class IP 69K allows easy and thorough cleaning. Recipes are created via the control unit's touchscreen, while program selection and program start are still carried out using the cross-switches on the machine.

This is just a small foretaste of what awaits visitors to the Maschinenfabrik Seydelmann stand at Anuga FoodTec - be curious!

www.seydelmann.com

ANUGA FOOD TEC

Hall 10.1 Stand: A-085
Hall 9.1 Stand: A-010, C-019
Cologne: 19.03 - 22.03.24

LISSNER ENGINEERS + ARCHITECTS MAXIMIZES THE POTENTIAL OF FOOD PRODUCTION PLANTS

For over 30 years, Lissner engineers + architects has been designing new buildings, conversions and extensions of production facilities according to the latest standards in the food industry. At Anuga FoodTec from 19 to 22 March 2024 in Cologne, in line with their slogan #Planning the next level, the North German company will showcase how, with professional support, efficiency can be increased and energy consumption reduced both with new buildings and through the conversion of existing facilities.

Flow of Material and Personnel - Optimized Paths and Processes

The specialists from Appen have extensive know-how in all aspects of food production and are familiar with the industry's processes down to the last detail. Lissner engineers + architects plans production facilities from the inside out based on their extensive experience in developing operational processes. This means that Lissner planning professionals first determine the expected demand, required capacities, and optimal production flow using data from production processes and volumes. Furthermore, parameters such as machine sizes and storage capacities tailored to defined quantities are incorporated into the planning to optimize room layout, machine placement and production steps, and to integrate process optimizations. An important feature is smoothly designed personnel flows and intersection-free product paths, ensuring effective processes with maximum efficiency. Taking all these aspects into account, the optimal building design is then determined.

Energy-Efficient Technology - Significant Savings

Due to rising energy costs, the optimization of technical systems is one of the essential goals for new buildings, plant expansions and existing businesses. In the planning of technical building equipment (TBE), Lissner engineers + architects demonstrates how energy efficiency can be increased and considerable cost savings achieved with state-of-the-art solutions. Food production facilities are generally very energy intensive. Refrigeration technology alone can account for up to 50 percent of total electricity consumption. Here, as in many other areas, considerable energy savings can be achieved with the right solution.

Forward-Looking Operational Planning - Room for Future Challenges

The planning of food production facilities by the professionals from Appen includes consideration of a company's future needs. A characteristic of projects by Lissner engineers + architects is the ability to expand when customer requirements regarding quantity, products, and formats change rapidly. During implementation, clients benefit from a complete

Dennis und Tobias Lissner, Managing Directors of Lissner engineers + architects

range of services from a single source - from production planning to technical building equipment, required construction work, approval procedures, execution steps, tendering, and awarding of construction contracts. During the execution phase, Lissner engineers + architects oversees on-site construction management and ensures detailed cost tracking and invoice verification. A particular strength of the planning professionals from Appen is the implementation of construction measures during ongoing operations. State-of-the-art planning tools facilitate many decision-making processes, says Dennis Lissner, managing director at Lissner engineers + architects: "We work with a digital overall model of the project, which maps machines three-dimensionally and true to scale as well as their placement on the premises. With the help of VR technology, our clients can inspect their production facility virtually before construction begins."

www.lissner.eu

ANUGA FOOD TEC

Hall 6.1
Stand: B-030
Cologne: 19.03 - 22.03.24

MEET THE PACKAGING EXPERTS AT ANUGA FOODTEC

SEALPAC Presents its Full Range of Highly Efficient Traysealers and Thermoformers, from Semi-Automatic Solutions with Smallest Footprint to High-Output Lines

GO sustainable!, the motto of SEALPAC's trade show appearance at Anuga FoodTec 2024, is more relevant than ever, as resource-saving packaging systems are in great demand within the food industry. At the event In Cologne, Germany, the packaging expert, and leading manufacturer of high-tech traysealers and thermoformers, will be presenting contemporary solutions. Whether it concerns high-performance lines or entry-level concepts, at stand C40/D41 in hall 9 the trade visitors will find innovative packaging machines that set the tone with their particularly economical use of materials and energy.

SEALPAC's All-Round, Semi-Automatic M-Flex Traysealer

Aluminium and stainless-steel containers in GastroNorm (GN) format, which are used by artisan butcher shops, suppliers of out-of-home meals, and community caterers, can now be sealed under modified atmosphere in a highly efficient manner. With its new, semi-automatic M-Flex traysealer, SEALPAC enables these companies with smaller production volumes and frequent product changes to enter the professional world of tray-sealing.

The M-Flex traysealer takes up little space and can be used for various applications, formats, and materials. At the SEALPAC stand in Cologne, visitors will experience semi-automatic packaging at the example of the innovative FlatSkin® application, which uses a high proportion of fibre and as little plastic as possible, as well as modified atmosphere packaging of standard plastic trays. They can convince themselves of the user-friendly operation and flexibility of the SEALPAC M-Flex. Its tooling quick exchange system enables product changeovers with minimum downtime.

Packaging of salmon in FlatSkin® on an M-Flex traysealer.

A6max Traysealer: Resource-Saving Packaging with Optimal Appearance

SEALPAC will prove at the trade fair that food products, such as minced meat, can be packaged safely and in a resource-saving way, yet still be presented appetizingly, on any Amax-series traysealer. Based on a SEALPAC A6max, you will see that the trays are reliably sealed under MAP at highest speeds. This is done using ultra-light trays in an optimized format of 190 x 144 mm. The weight of these trays has been reduced by up to 20% compared to conventional plastic trays. The solution not only saves materials, but it also offers logistical advantages thanks to the standardized format. The ultra-light trays can be easily stacked and will present any product in an appetizing and attractive way on the retail shelves, whilst keeping those shelves neat and tidy.

The Amax-series traysealers are characterized by their particularly low-wear and low-maintenance design. They are driven by high-quality servomotors that allow for extremely smooth production runs, unrivalled in the market

Packaging of cheese on a SEALPAC RE thermoformer.

until today. As a standard, any Amax traysealer is equipped with the so-called EnergyManager module, which minimizes energy consumption. Naturally, these innovative machines are also suitable for producing hybrid packaging concepts with a reduced plastic and high cardboard content, such as eTray®, FlatMap® or FlatSkin®.

SEALPAC PRO Thermoformer: Highly Compact, Extremely Flexible

Also within SEALPAC's portfolio of high-quality thermoformers, the focus is on combining flexibility and performance with improved sustainability and less usage of resources. At Anuga FoodTec, SEALPAC is demonstrating the highly efficient packaging of piece goods, such as cheese blocks, under MAP in a bio-compostable, flexible film on an extremely compact PRO-series thermoformer with large loading area. The PRO thermoformers are characterized by their unmatched modular design, making them ideal for small to medium-sized food manufacturers. The basic PRO machine is suitable to run flexible and rigid film, both for vacuum packaging and sealing only applications. Depending on your wishes, various modules can be added to run other packaging solutions, such as skin packaging (ThermoSkin®) or shrink packaging (ShrinkStyle®).

SEALPAC RE Thermoformer: Highest Standards in Hygiene

At Anuga FoodTec 2024, SEALPAC is presenting its proven RE-series thermoformer with a newly developed frame construction and optimized design that meets the highest hygienic standards of the most demanding food segments, such as the dairy sector. The highly flexible RE thermoformer is designed for medium to high-performance applications. It offers maximum versatility, as multiple packaging solutions can be managed on the same base machine. From flexible film vacuum, skin, shrink and MAP applications, up to modern solutions based on recyclable mono-materials or films with a high fibre content. In Cologne, the RE thermoformer will be producing striking packs made from a demanding, mono-PP rigid film. The packs are equipped with SEALPAC's unique EasyPeelPoint opening system, which is less subjective to cold sealing, common in existing thermoformer applications.

Packaging Innovations that Inspire

Our Supermarket of Innovations has become an integral part of the SEALPAC stand at any trade show presence. This time, we will have no less than six refrigerators filled with an abundance of international product samples. Make sure to look at this exciting selection of brand-new, creative packaging concepts from all over the world, which will inspire any expert.

www.sealpacinternational.com

ANUGA FOOD TEC

Hall 9
Stand: C40 / D41
Cologne: 19 to 22 March, 2024

SUSTAINABLE, AUTOMATED AND DIGITAL SOLUTIONS FOR THE FOOD INDUSTRY

Exhibiting at Anuga FoodTec 2024 under the motto "Multiply Your Value", the MULTIVAC Group will be presenting its wide range of innovative processing and packaging solutions for the food sector. The focus will be on its comprehensive slicing range and integrated lines, which contribute significantly to making production processes very efficient and resource-saving thanks to their high level of automation and digitalisation. Visitors will find the MULTIVAC Group in Hall 8.1 (Stand C10), as well as in a marquee on the open-air site, where the processing machines will be shown in live operation.

Wide Slicing Range for all Types of Sliced Products

Showing a fully automated, high performance line for slicing and packaging sausage and cheese slices, MULTIVAC will be presenting itself as a supplier of complete solutions – from processing through to end-of-line. The MULTIVAC Line Control (MLC) throughout the entire line enables all the process stages to be operated very efficiently from one central point – from slicing through to loading into the thermoforming packaging machine and subsequent converging of the packs, and right up to inspection, labelling and container loading. Recipe changes "on the fly" will be demonstrated at the trade fair, which significantly reduce start-up losses during product changes, and this therefore saves resources and production costs.

When it comes to slicing and packaging small to medium-sized batches, a flowpack line will be on show at the trade fair, and this consists of a new entry-level slicer and the universal W 510 flowpacker, which is characterised by its ease of operation and cleaning. The line at the trade fair will feature cheese slices being packed.

Packaging of Fresh Meat and Ready Meals

For those visitors interested in the cost-effective portioning and packaging of fresh meat, a thermoforming packaging line will be shown, which offers a very high level of flexibility, small give-away and low packaging costs. The heart of the line is a new high-output portioning machine from TVI, of which the main features are maximum product yield, the finest cutting quality and weight precision, together with a new type of weight sorting system for equal portions with the smallest give-away. The compact R3 thermoforming packaging machine is used for packing the portions, and this machine can also run recyclable and environmentally-friendly mono materials very efficiently, as well as being capable of being designed to

customers' individual requirements thanks to its modular construction. The line is also equipped with a new cross web labeller for compact thermoforming packaging machines, which offers a high level of efficiency at low investment cost. All the process stages – portioning, infeeding, packing and labelling – can be controlled via the central MLC line control.

When it comes to traysealing, MULTIVAC will be presenting a line for packing ready meals, which offers outstanding performance with exceptionally efficient use of the available production space. A full wrap label, which encloses all four sides of the pack like a sleeve, ensures that the packs are labelled attractively.

Entry-Level Solutions for Small and Medium-Sized Processors

In addition to this, MULTIVAC will also be giving an insight at the trade fair into its wide range of compact solutions for the food industry. A number of different packs, including skin, MAP and stretch, will be demonstrated on a range of compact traysealers. And when it comes to packing fruit and vegetables, an innovative concept called Top Close labelling will be

shown, which enables fresh produce trays to be sealed closed with a label in a very resource-saving way.

Solutions for the bakery industry
Thanks to its more powerful drive system, the ROLLFIX prime dough sheeter from FRITSCH can take portions of dough weighing up to about 20 kilograms. A double spindle on the delivery roller provides even greater power, and with its selectable infeed speed it enables a greater degree of flat rolling to be achieved. The intuitive control concept makes the operation of the machine exceptionally easy. The sheeting programs can be created quickly and easily, and they are saved very transparently with the corresponding product image and name in the machine's memory. The stainless steel construction not only provides a high level of mechanical sturdiness and therefore a longer lifespan, it also contributes to the machine's outstanding hygiene features. Fresh products will be baked daily in an open bakery.

In addition to this, the MULTIVAC Cooling@Packing System, a vacuum application for cooling bakery products, which can be integrated into thermoforming packaging machines, and enables sensitive bakery products to be packed without any loss of quality, will also be shown in Cologne. By packing the product immediately after baking, a higher level of freshness and longer shelf life can be achieved. Energy costs for product cooling can also be saved, and shorter baking time means that production capacity can be increased. And last but not least, one of the many features of this solution is the reduced space requirement in bakeries.

Processing Solutions in Live Operation

Another exhibition area in a marquee on the open-air site (in front of Hall 8.1) is dedicated by the MULTIVAC Group to the portioning of fresh meat and the slicing of processed meats and cheese. There machines will be shown in live operation, including various portioning machines of the GMS series, which produce trim-free portioning thanks to their 3D forming, as well as MULTIVAC slicers in different output categories.

www.multivac.com

ANUGA FOOD TEC

Hall 8.1
Stand: C-010
Cologne: 19.03 - 22.03.24

CONFLICTING ALIGNMENT & DISRUPTIVE CHOICES

By Henk Hoogenkamp, Protein Applications Expert

Health and environmental agendas are not always aligned with the current dietary recommendations. For example, in affluent countries, the recommended amount of meat consumption is significantly less than current consumption levels. People are encouraged to eat more vegetables, fruits, wholegrain, low-fat dairy products, and omega-rich seafood. However, they instead consume more hyper-processed foods containing hidden levels of sugar, sodium, transfat, and highly refined grains. The price differences between healthy and unhealthy foods are widening, which may contribute to food insecurity in certain economically depressed regions and increase health inequalities. The latter could further exacerbate social inequalities in health.

Never has food been such a global issue. Overweight and obese people sharing the planet with chronically malnourished and hungry populations represent both sides of the spectrum. All things considered, the bottom line is how to produce more food with less land, as well as reduce waste and improve equal access to wholesome food at less price volatility.

Agriculture, including livestock production, accounts for about 25 percent of all emissions. Food waste alone accounts for about 8 percent global Greenhouse Gas (GHG) emissions. Excessive crop harvest waste, food portion sizes in meals, including take-out meals, fuel consumer concerns about excessive food waste. Reducing food waste is therefore important and, if only partially avoided, it can feed millions of people.

Carbon dioxide is emitted throughout the food supply chain from energy use by farming equipment and product transportation. Particularly meat and dairy have a significant impact on the environment and are considered high-methane foods.

Global climate change is influenced by foods such as meat, dairy, and rice that are high sources of methane. Special interest groups often ignore the relationship between rice and methane because it doesn't fit their agenda. Yet, significant amounts of methane are emitted from rice agriculture through enteric fermentation and rice paddy methanogenesis.

Complicated Global Issues

Worldwide socioeconomic changes such as population growth, increased income in developing countries, and rapidly increasing urbanization have significantly changed dietary patterns, particularly in animal protein consumption.

The production of livestock to generate valuable animal protein represents a major environmental challenge. The consumers' love for meat might well be on a collision course with the health of the planet, which needs rebalancing in terms of the consumption of more resource-efficient plant proteins. In other words, it is time to move actively toward a more environmentally balanced diet to reduce the consumption of energy and protein-dense less sustainable

foods like slaughtered meat and conventional dairy.

Global population growth will not be uniform and strong growth will be visible especially in sub-Sahara Africa and Asia. For these reasons, it is projected that developing countries will be responsible for more than 80 percent of the estimated increase in meat and dairy consumption, as compared to the 2024 numbers. In developing countries, the risk is real that demand will outstrip supply, not to mention inflationary price pressure.

In the coming years, urban growth will be heavily influenced by migration in countries with low and middle incomes. In addition, population in developing countries will become younger which will speed up urbanization. Hence, these factors will impact food consumption patterns:

- Increased demand for processed food.
- Increased demand for convenience "ready-to-eat" food; and
- Increased demand for "out-of-home" consumption.

The global demand for meat will force the meat industry to grow animals faster than ever before. Demand for meat is a primary growth driver especially in the developing countries. Relatively speaking, in some Southeast Asian countries, the meat consumption will rise faster than population growth.

Meat is a mainstay, as evidenced by global data on its production from 2000 through 2024:

- 78 % increase in chicken
- 35 % increase in pork
- 13 % increase in beef

Projected Average Global Meat Consumption (2024)

- Beef 9.6 kg
- Chicken 15.5 kg
- Pork 16.3 kg

These figures are lower than the consumption in developed and affluent countries. Subsequently, these numbers illustrate that significant growth of animal protein is happening in developing countries. The total world production forecast for meat and poultry shows an increase of about 16 percent from 2018 to 2025, or from 308 million metric tons to 336 million metric tons. As world prosperity increases, so will the demand for slaughtered meat and conventional dairy. Despite the good intentions to aim for protein transitioning to plant-origin protein sources, the opposite will likely happen in developing countries.

Global chicken consumption is predicted to account for 41 percent of all meat-eating by 2030. Aside from developing and emerging markets like Africa, the Philippines and China are leading the explosive growth numbers of chicken consumption. The popularity can be clearly seen at fast food companies increasingly marketing chicken sandwiches and slowly starting

the de-emphasize beef and pork options. Actually, the same trend is happening when looking at the food served by airline companies.

Consumers in developing countries such as China, India, Vietnam, and Indonesia are especially gobbling up more meat and dairy products. It is difficult to predict trends in developing markets, though it is likely that increased disposable family income will further push the consumption of animal protein foods in unchartered territory. Yet, possible geopolitical issues and currency volatility may impact these markets.

Sustainable Livestock Farming

It is generally agreed that a sustainable production and consumption of animal-origin foods is the biggest environmental challenge. The Western world, which has been decades-long spoiled with high levels of meat availability at relatively low prices, cannot point fingers at developing countries for their appetite of premium animal protein-based foods and meat products. After all, many developing countries have always been deprived of eating quality meat and enjoying dairy foods. Even with the temporary set-back of COVID and the improving economic standards in developing countries, it can be assumed that the consumption of animal origin foods will rise exponentially until at least 2050. In fact, it is projected that the world's meat and dairy consumption will increase by at least 50 to 70 percent, as compared to the 2010 numbers.

Nevertheless, the sharp increase in demand for dairy and meat products has raised environmental and ecological concerns. The UN estimates that livestock production is responsible for about 15 percent of global greenhouse emissions. Meat, and especially beef, is a relatively ineffective source of protein because of long animal outgrow cycles. It is argued that it would be smarter to convert agricultural crops directly into food, instead of routing the crops for feeding and raising animals. The controversy about this logic will not die anytime soon, hence, it is safe to assume that animals will remain part of the current agricultural infrastructure knowing that its protein quality contributes to a nutritionally sound and good-tasting healthy diet.

Beef cattle is not very efficient at converting feed to meat muscle protein for human consumption. Only one of every 25 calories cattle ingest becomes edible beef: a very inefficient feed-to-yield ratio. Beef produces five times more heat-trapping gasses per calorie and uses 28 times the land, as compared to other farmed and harvested animals like pigs, poultry, and fish. Also, cattle burp major amounts of methane, a greenhouse gas that is significantly more potent than carbon dioxide. Methane is the greenhouse gas most often associated with the depletion of the ozone layer.

Cutting Back, Yet Growing

The global meat market is somewhat disrupted by animal-free protein. The traditional meat, egg, and dairy industry sees it as consumers living in affluent societies turn towards increased consumption of plant-based alternatives, while cell-cultivated meat also appearing on the horizon as a healthy and tasty option.

Types of conventional meat competition:

- Plant-based: Products that replicate the familiar taste and texture of existing animal foods like meat, milk, and cheese.
- Fermented Proteins: Cultivated or grown from fungi, yeast, or bacteria.
- Cultivated Proteins: Through precision fermentation technologies as well as tissue engineering and cell harvesting cultivating and growing real meat and dairy proteins, equivalent to animal proteins.

In developed countries and affluent societies, there is a subtle trend towards consumers who are cutting back on their meat consumption for health and sustainability reasons. The number of so-called

"flexitarian" affluent consumers is expected to grow, which will further drive the development of formulated plant-based food, including plant milk and plant meat products. Consumers are clearly looking for innovative options to take the inherent benefits of plant nutrition into their daily lives.

China's Protein Transition: Not Happening Yet

Even though international organizations support the reduction of meat intake, the opposite will happen. For example, it is predicted that global meat consumption will rise on an average 2.0 percent a year from 2020 over the next decade.

Collectively, protein deficiency in developing countries and poor societies remains a problem for an estimated one billion people –or some 15 percent of the world population. As income rises, meat and dairy are usually the preferred sources of protein.

Mainland China imported some 60 million tons of meat in 2020, firming up the country's position as a dominant player in the global meat industry. It is also expected that by 2024, imports will make up more than 20 percent of the country's beef supply. All forms of meat are expected to continue rising in China, cementing its position as the most important meat importer in the world, importing a staggering 52 percent of the world's pork supply.

China is the world's largest consumer of meat, with consumption expected to grow 3–4 percent a year due to a rapidly growing middle class. Continued Chinese growth in meat demand and a willingness of consumers to spend more will further drive consumption of meat, including value-added meat products sold via fast food restaurants. As a matter of fact, premium priced beef is the fastest growing meat choice in China, ahead of poultry and pork. The Chinese beef market has grown by almost 6.0 percent from 1995 to 2023, as compared to the growth of pork (3.5 percent) and poultry (3.4 percent) over the same time frame. To be fair and balanced, sales of pork has been negatively affected due to the heavy culling caused by the African Swine Fever. Despite increasing prosperity in China, the leading government health agencies are promoting less meat consumption and boosting the dietary plant protein intake from vegetables, cereals, grains, pulses, and potatoes. To add some color to these issues, the recommended dietary guidelines of the Chinese Nutrition Society suggest limiting annual meat consumption to a maximum of 27.4 kg per capita.

The Chinese consumption of plant foods has risen by approximately 30 percent since 1955, while meat and dairy consumption has increased by about 45 percent over the same period. Chinese food consumption is being transformed rapidly into a typical American or Western-style diet. Subsequently, it is therefore fair to conclude that the Chinese demand for meat and dairy will remain very strong in the years ahead.

Food & Living Inequality

It is estimated that the world's supply of vegetables and fruits

falls 22 percent short when a nutritionally balanced diet is implemented. The shortfall is expected to worsen if more people switch to a higher inclusion level of vegetables and fruits in their daily routine diets.

Another 2 billion+ people will populate Earth by 2050, and 210,000 more mouths need to be fed every single day. The challenges ahead to manage food security are immense and very complex. Unexpected increases of basic food prices can not only stress economies all over the world but may also exacerbate hunger and spark political unrest in poor countries as well as affect affluent societies with growing economic inequality.

How much longer can political inaction continue if even highly affluent countries like the US the EU and the UK, have increasing numbers of people living off with food stamps or food donations received as emergency or regular food supplies from food banks? Furthermore, it is inconceivable to think of hungry children and poor young women living in affluent societies receiving free breakfast meals at school or receiving free menstrual products.

Dumping Food

Food costs must also be taken into perspective: The agricultural cost of growing food accounts for only 15 percent of the final consumer price. The balance goes to processing, packaging, marketing, transportation, and profit.

Food waste is an environmental, economic, and ethical problem of huge proportions. It is difficult to comprehend that a large part of the globe is still suffering from food shortage, while the value of food in the affluent societies is often only considered as an afterthought.

Consumers in the developed countries and affluent societies make up the largest group that dumps food, even if it is still in perfectly good condition to eat. Fruits and vegetables are the most wasted category, particularly within households. It should be said, however, that a considerable amount fruits and vegetables do not even get past the farm gates. Apparently, one can still argue that the world can grow sufficient food for future generations and that inequality is not a matter of sufficient food but rather of shameful waste and equal sharing.

Consumers need to be made aware that reducing food waste will not only benefit the environment, climate, and human health but also reduce municipal waste. However, first and foremost, the mindset of consumers in developed countries should be reprogrammed as to which unsold food products remain available for safe redistribution. Instead of destroying food, both manufacturers and retailers should be encouraged to routinely donate food to local food banks and/or charity through organized programs.

Seen from a different angle, American consumers waste food that equals roughly 30 percent of the average daily calories. This amounts to about 150,000 tons of food or some 430 grams per adult person each day. These staggering food waste numbers correspond with the use of 12 million hectares of total US cropland and 15.9 trillion liters of irrigation water each year.

Simply Wasted

US Government data estimate that nearly a third of food available for consumption in the US goes uneaten. Probably, similar numbers are true for many EU countries. Consumers don't understand the impact of food waste and most of them underestimate how much food is thrown away. Although consumers are now more attuned than ever to the purity of ingredients and prefer natural clean label foods, most of them -unfortunately- do not care about the environmental impacts of food waste.

Feeding valuable plant protein sources to animals with the objective of converting into animal protein - meat, milk, and eggs - can be considered waste to a certain extent. The world can ill-afford to continue business as usual, knowing that about 83 million more people will live on Earth every single year with no decline in sight.

To conclude: plant-based nutrition is more sustainable with less greenhouse gas emissions, less use of clean water, and increased land utilization. Gradually, plant-based foods will achieve a better standing with consumers. When that happens, the protein paradigm will shift to increased plant protein-formulated foods. Do not, however, make the mistake of ruling out meat, eggs, and dairy. These food products are not only a valuable source of high-quality protein but also a great-tasting universal favorite across most societal cultures, and they will continue to dominate preferred dietary choices for many years to come.

www.henkhoogenkamp.com

PRODUCT DESIGN AIDS FDA APPROVAL

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

The Food and Drug Administration (FDA) regulates all foods and food ingredients introduced into or offered for sale in interstate commerce – with some exceptions such as meat and poultry which are regulated by the U.S. Department of Agriculture (USDA).

The Center for Food Safety and Applied Nutrition (CFSAN) works with FDA field offices to ensure that most food production businesses which do not sell direct to the public meet the required standards, and facilities that manufacture, process, pack, or store food intended for human or animal consumption need to be registered with the FDA. Again, there are some exemptions such as farms which are covered by other agencies, while businesses such as shops and restaurants which sell to the public are regulated at the State level.

Ensuring the Highest Standards

FDA registration involves providing detailed information about products, manufacturing facilities and processes, quality control, labeling, recall procedures, etc. Food manufacturers and processors must also keep appropriate records of all products handled, as well as details of suppliers and sub-processing facilities.

Food and beverage products which are sold, or distributed interstate must be produced under current Good Manufacturing Practice (cGMP) regulations, and one of the things that CFSAN and FDA staff check is that the equipment used for food production and preparation is suitable. For example, it must be designed and installed in such a way that it can be cleaned and maintained, and equipment must not contaminate food with materials such as lubricants, rust, water, etc. Food contact surfaces should be corrosion-resistant and non-toxic, and machinery should be designed to avoid seams or areas where particles can become lodged.

HRS food processing systems feature sanitary designs in compliance with ASME standards and are constructed from food-safe materials

3-A Approval

With more than 30 years' experience of supplying equipment and systems for food and beverage production, HRS Heat Exchangers is well placed to ensure that our machinery meets these requirements and will pass FDA inspection. Our heat exchangers and food processing systems feature sanitary designs in compliance with ASME standards (where required) and are constructed from food-safe materials such as stainless steel and polyethylene terephthalate (PET). Furthermore, 3-A approval – the Gold Standard for hygienic food equipment design – has been awarded to our range of hygienic corrugated tube and scraped surface heat exchangers.

HRS also manufactures standalone CIP equipment

Clean-in-Place

Not only do we start with sanitary designs, but we include effective clean-in-place (CIP) systems to provide as thorough cleaning as possible with the minimum amount of cost, downtime, and effort. As well as integrated CIP systems, HRS also manufactures standalone CIP equipment which can be integrated with new and existing processing lines. Cleanliness is ensured through the use of integrated controls and sensors, which are backed by systems providing full traceability for record keeping.

HRS systems – including pasteurizers and sterilizers, as well as our Asepticblock Series (where the AF aseptic filler & pasteurizer/sterilizer are combined in one skid) and stand-alone aseptic fillers – have met all the requirements of FDA inspectors and other agencies at a number of installations across the U.S. in recent years. To understand how our integrated food processing systems and standalone heat exchange components can help boost your business, please contact us.

www.hrs-heatexchangers.com

THE ORGANIC BUTCHER'S SHOP JUFFINGER TRUSTS IN LISSNER ENGINEERS + ARCHITECTS

Organic butcher Juffinger from Thiersee, Austria, relies on the specialists Lissner engineers + architects, who can draw on more than 30 years of experience in planning production facilities in the food industry, for the implementation of construction projects. Both the new plant building of 2010, which reached its capacity faster than expected due to the increasing demand for organic meat, and the plant expansion, were carried out by the professionals from Lissner. Lissner already planned very strategically during the new construction to allow for future expansion, which meant that nothing stood in the way of the later expansion.

The Newly Built Organic Butchery in Thiersee

Originally located in Kuffstein/Zell, Juffinger - the first organic butchery in Western Austria - was gradually running out of space. In cooperation with Lissner engineers + architects, a new building was therefore planned on previously undeveloped land in Thiersee. This comprised a slaughterhouse, butchery, sausage factory, smokehouse, packaging warehouse, and cold store in a 2,000 square meter area.

The Juffinger organic butchery in Thiersee, Western Austria, has successfully extended its new building with the support of a German planning office.

Modern premises, short production paths: thanks to the expansion of the plant with the help of Lissner engineers + architects, the Juffinger organic butchery is well positioned for future tasks.

With the production facility designed and implemented by Lissner, optimal production conditions were achieved.

The Juffinger organic butchery benefits from optimal production conditions: thanks to the expertise of Lissner engineers + architects who have excelled in designing efficient room layouts and machine setups, which also include process optimizations.

These are characterised by efficient planning of the room layout, machine set-up and production steps, including process optimisation. Short product paths and excellent material flow are guaranteed. Areas such as building services and fire protection, among others, have been updated. Lissner also successfully integrated certain components of the old plant, such as the smoke systems, into the new building. This facility produces 100 percent organic meat products while adhering to the strictest hygiene guidelines.

An Architectural Firm with Vision

One of Lissner's strengths lies in planning ahead for future growth. Experience has taught that customer requirements can change quickly in terms of quantity, products and formats. When planning Juffinger's new building, the emphasis was placed on future considerations, including the possibility of expansion. In collaboration with the customer, the design aimed for approximately 25 percent more space than

the current needs, despite not anticipating full capacity utilisation upon completion. In the case of Juffinger, things turned out even

Dennis and Tobias Lissner, Managing Directors of Lissner engineers + architects (f. l. t. r.).

better than expected: Organic meat was increasingly in demand, so that despite generous planning, the limits were quickly reached.

The Plant Expansion

In 2018, Juffinger and Lissner began working together on the plant expansion. The 1,200-square-foot addition included expansions of cutting and smoking areas, new shipping and warehousing facilities, and an advanced inventory management system. Lissner takes a holistic approach to planning production facilities. Beginning with a comprehensive inventory, production processes and volumes are analysed to determine future needs. This data is incorporated into detailed preliminary planning, including 3D visualisation that allows customers to get a spatial idea of production plans. Close customer communication, based on direct cooperation and trust, ensures optimal implementation.

A meaningful cost framework provides the basis for the customer to decide in favour of the construction project. Once the project has been approved, the next steps include design and approval planning, tendering, awarding of contracts and on-site construction management. For the organic butchery, Lissner took over the complete production planning from TBE (technical building equipment) to construction planning.

Capacity to Carry out Renovation Work while Operations are in Progress

Lissner possesses substantial experience in effectively securing production areas from contamination while conducting renovations in proximity to ongoing operations. Throughout the entire construction phase, production was minimally impacted, with only specific areas experiencing temporary closures. The packaging area was even reconstructed independently, remaining operational until access was restored upon completion. Overall, Juffinger Organic Butchery maintained uninterrupted operations, thanks to the expertise of skilled craftsmen who ensured the construction measures were executed reliably.

Dennis and Tobias Lissner, Managing Directors of Lissner engineers + architects (outside), Anton and Helga Juffinger, Managing Director and authorised signatory Juffinger (centre), in the office of the organic butchery.

Conclusion of the Cooperation

The successful expansion of the plant was finalised in 2021, resulting in a substantial increase in the production capacity of Juffinger's organic butchery. This development positions Juffinger well for the future. Concurrently, the industry is currently undergoing significant changes driven by emerging trends like vegetarian and vegan products. However, Juffinger remains steadfast in adhering to its core principles, committed to producing only what aligns with their philosophy—organic, natural, sustainable, and locally sourced products. They firmly reject products loaded with additives intended to replace meat. Juffinger is dedicated to maintaining an ethical business model, as evidenced by their voluntary certification according to Gemeinwohl-Ökonomie (GWÖ).

The collaboration between Lissner and Juffinger has been marked by a foundation of trust and a long-lasting partnership.

www.lissner.eu

WAS IT THE DECADE OF ASIA?

The Dynamics of Global Meat and Egg Production Between 2012 and 2022

By Hans-Wilhelm Windhorst[1]

Although devastating animal diseases severely impaired the development of meat and egg production in numerous countries in the past decade and the Covid-19 pandemic put the global economy into a kind of shock paralysis for almost three years, the production volume of meat and eggs increased. However, the dynamics varied considerably depending on the meat type and continent. With the exception of beef, Asia was able to maintain its dominant position but, as will be shown, suffered losses in pork production. While both the US Department of Agriculture (USDA) and the OECD-FAO assumed in their forecasts towards the end of the first decade that the following decade, i. e. the period from 2011 onwards, would be Asia's decade, the forecasts had to be revised significantly in some cases because outbreaks of African swine fever (ASF), avian influenza and the Covid-19 pandemic not only slowed down the economic development, but in some cases even led to a decrease of the gross national product.

The aim of this article is to document the dynamics of global production of meat and eggs, the most important protein suppliers alongside milk, between 2012 and 2022 at continent level as well as for the leading producing countries and to identify the main steering factors.

Remarkable Differences in Development at Continental Level

There were considerable differences in both the absolute and relative increase in production for the three meat types and eggs analysed here (Table 1).

It is worth noting that the two poultry products showed by far the highest absolute and relative increases. This reflects what I called the red-white shift among consumers from red to white meat (Windhorst 2021) on the one hand and the increased appreciation of eggs as a source of protein on the other, as well as the lack of religious barriers to the consumption of these products. In contrast, pork and beef are banned from consumption in a number of religious communities. Added to this are the higher production costs due to the less favourable feed conversion rate.

Table 1: Source: own calculation based on FAO data

Product	Absolute increase (1,000 t)	Relative increase (%)
Chicken meat	29,320	31.1
Eggs*	19,981	29.8
Pork	10,283	9.2
Beef	7,298	11.9

The absolute and relative increase of global meat and egg production between 2012 and 2022

A closer look at the four products regarding the development of their shares in global production at continental level between 2012 and 2022 provides interesting insights (Figure 1, Table 2).

North America and also Central and South America lost shares in chicken meat, Europe and Oceania were able to maintain their positions, Africa and Asia gained shares. Asia's production volume increased by 12.1 million tonnes or 37.4%, Central and South America followed with 6.2 million tonnes or 27.5%. Africa recorded the highest relative growth rate at 65.2%, however, the low initial value of only 4.7 million tonnes in 2012 must be taken into account.

Asia contributed 41.4% to the global increase in chicken meat production in the decade under review, followed by Central and South America with 21.0% and Europe with 16.0%. It is worth noting that the African countries recorded a higher absolute growth than North America. It has to be considered, however, that the USA has dominated global production for decades, domestic consumption is only increasing slowly and the

[1] *The author is Professor Emeritus at the University of Vechta, Germany*

[2] *Instead of „hen eggs", in this article the short form "eggs" will be used*

international market is highly competitive.

Although Asia remained the undisputed leader in pork production, the continent only ranked third behind Central and South America and Europe regarding the absolute and relative growth of the production volume. The comparatively lower increase is a result of the outbreaks of African swine fever in China and other countries in East and South Asia.

Table 2: Source: own calculation based on FAO data

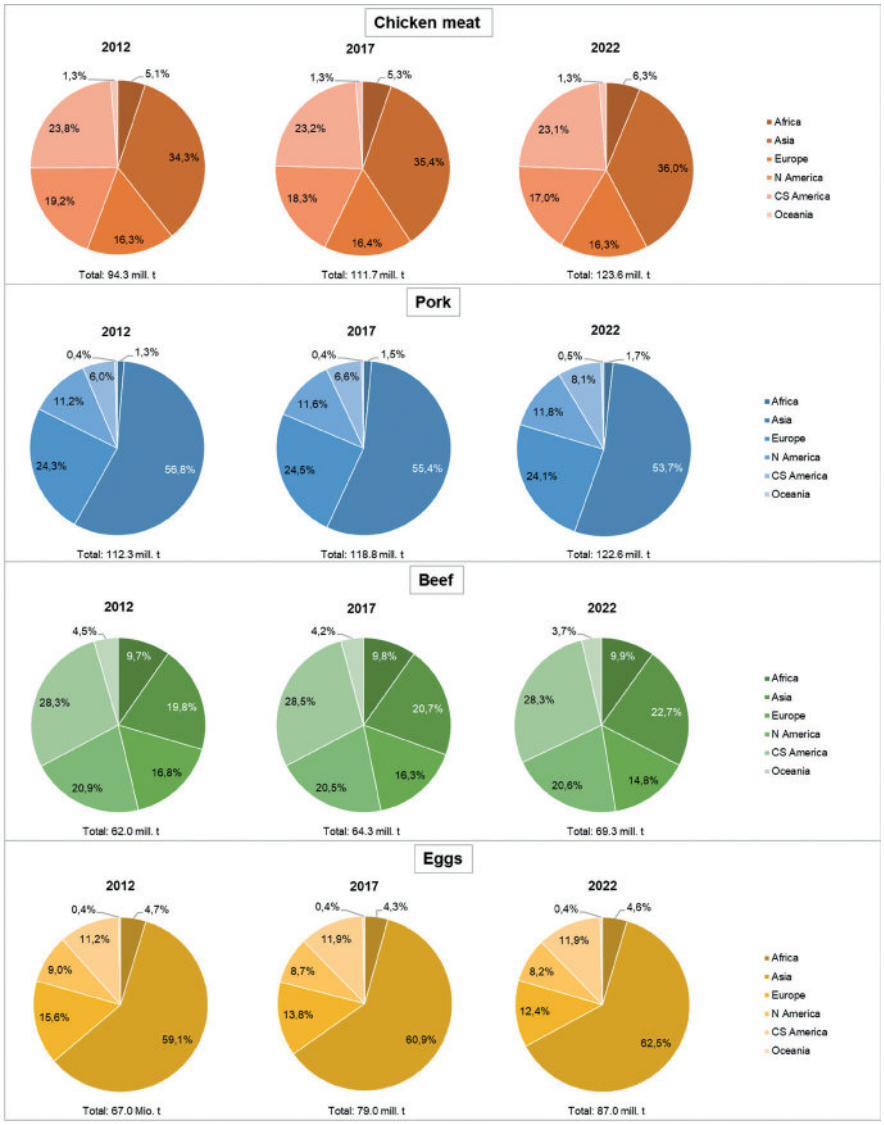
Continent	Chicken meat	Pork	Beef	Eggs
Africa	10.5	6.4	11.2	4.2
Asia	41.4	20.5	46.9	74.1
Europe	16.0	22.6	-	1.6
North America	9.8	19.0	18.2	5.4
Central- and South America	21.0	30.7	28.2	14.5
Oceania	1.3	0.8	-	0.1
World	100.0	100.0	*104.5	100.0

The contribution of the continents to the global increase of chicken meat, pork, beef and egg production between 2012 and 2022; data in %

* higher than 100.0% because of the decrease in Europe and Oceania

At first sight, it is surprising that Asia recorded the highest absolute increase in beef production of all continents at 3.4 million tonnes. Central and South America as well as North America fell far behind. The continent contributed 46.9% to the global increase in production, 29% more than North America and 19% more than the countries of Central and South America. Growth in Europe and Oceania continued to decline. The rapid increase in Asia is primarily due to developments in China, as will be shown later.

Figure 1: Design: A.S. Kauer, based on FAO data



The changing share of the continents in global chicken meat, pork, beef and egg production between 2012 and 2022

The gap between Asia and the other continents was even more pronounced in terms of the increase in egg production. Of the almost 20 million tonnes more produced in 2022 than in 2012, Asia accounted for 14.8 million tonnes or 74.1%. Only Central and South America recorded a notable growth, although it was only around a fifth of the increase in Asia. At just 3 million tonnes, the absolute growth in Europe was even far lower than in Africa. An already high per capita consumption and, in some cases, significant production losses due to outbreaks of avian influenza explain the low momentum; the same applies to North America.

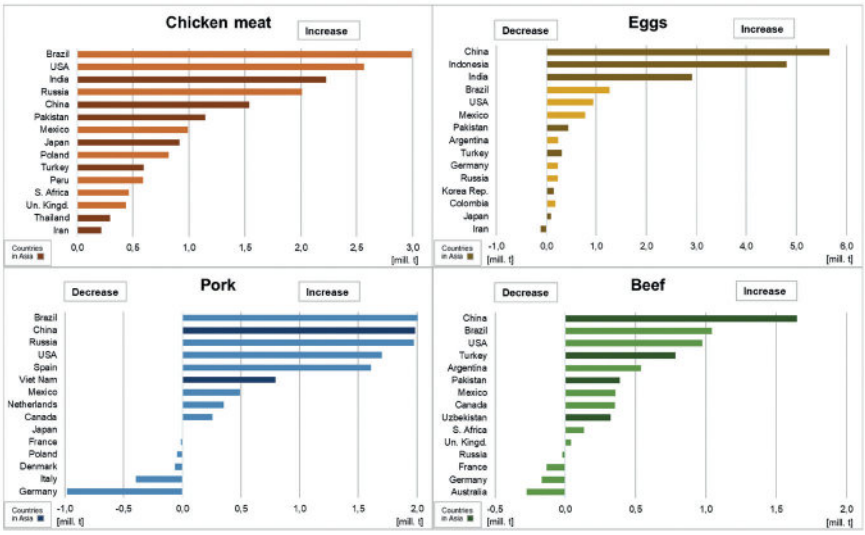
As an interim result, it can be stated that Asia recorded the highest absolute increases in the production volume for chicken

meat, beef and eggs in the period analysed here and consequently also the highest relative shares in the global growth. Only in pork production it ranked third behind Central and South America and Europe. This reflects the massive animal losses caused by the outbreaks of African swine fever.

Large Differences in Dynamics at Country Level

In a second step, the development of meat and egg production for each of the 15 leading countries between 2012 and 2022 will be documented. The four products will be analysed in order of their absolute increase in production volume.

Figure 2: Design: A.S. Kauer based on calculations of the author



Changes in the production volume of chicken meat, eggs, pork and beef since 2012 in the 15 leading countries in 2022

Between 2012 and 2022, the global production of chicken meat increased by 29.3 million tonnes or 31.1%. The top 15 countries accounted for 17.8 million tonnes or 60.7% of this growth. Figure 2 shows that production volumes increased in all 15 countries. Brazil, the USA, India and Russia recorded the largest absolute growth. Together they accounted for 55.0% of the increase in production. The high growth of 1.1 million tonnes in Pakistan is remarkable. At 137.1%, the country had by far the highest relative growth rate, followed by India with 83.0%, Japan with 62.7% and Russia with 60.9%. Although production in China also rose by 1.5 million tonnes, the country recorded the lowest figure in the country group at just 12.1%.

Of the 15 leading countries, seven were in Asia, four in America, three in Europe and one in Africa. The seven Asian countries accounted for 23.6% of the global increase, while the four countries of the American double continent accounted for 24.3%. A comparison of the development in the two continents shows that Asia, with a share of 41.4%, ranked well ahead of America with 30.8% (see Table 2).

Global egg production grew by 20 million tonnes in the analysed decade. Of this, the 15 leading countries accounted for 18.1 million tonnes or 90.6%. Figure 2 shows that production volumes increased in all countries except Iran. Of the leading countries, eight were in Asia, five in America and two in Europe. With China, Indonesia and India, three Asian countries ranked in the top positions. Together they shared 13.4 million tonnes or 74.2% in the increase of the country group and 67.2% in the global increase. China was the undisputed leader with 5.7 million tonnes, followed by Indonesia with 4.8 million tonnes and India with 2.9 million tonnes. The increase in production in Brazil (1.3 million tonnes), the USA (0.9 million tonnes) and Mexico (0.8 million tonnes) was significantly lower. The development in Indonesia is remarkable, with a relative growth rate of 421.2%, more than five times higher than India with 79.8%. A comparison of the shares of the two continents in the increase of global egg production shows that Asia, with 74.1%, ranked far ahead of the American double continent with 19.9%.

Global pork production increased by 10.3 million tonnes or 9.2% in the period under review, and by 9.7 million tonnes or 10.3% in the fifteen leading countries. Figure 2 shows that production volumes decreased in six of the fifteen countries. With the exception of Japan, all countries were in Europe. The decline was particularly sharp in Germany at almost 1 million tonnes and in Italy at 0.4 million tonnes. With total production of 55.4 million tonnes in 2022, China continued to play an undisputed leading role, but it was slightly behind Brazil (+2.04 million tonnes) in terms of the increase in production volume (+1.98 million tonnes). Russia, the

USA and Spain ranked next, as can be seen in Figure 2. Russia achieved the highest relative growth rate with 77.1%, followed by Brazil with 64.6% and Spain with 46.4%. The highest relative decreases were in Italy with 24.0% and Germany with 17.9%.

In contrast to the two poultry products, Asian countries accounted for a much smaller share in the growth of global pork production in the decade under review, at just 20.5%. The American double continent was the undisputed leader with 49.7%, followed by Europe with only 22.6%. The outbreaks of African swine fever in China and other countries in East and Southern Asia explain the low growth rate in production in Asia. Different dynamics were recorded in Europe. While production rose in Russia, Spain and the Netherlands, it fell in Germany and Italy. Changes in per capita consumption and foreign trade were the key drivers.

Of the products analysed here, beef recorded the smallest increase at 13.3 million tonnes. The 15 leading countries contributed 6 million tonnes or 45.0%. Production volumes fell in four of the leading countries between 2012 and 2022, three of which were in Europe. Australia recorded the highest absolute decline at 274,000 tonnes, followed by Germany (-169,000 tonnes) and France (-133,000 tonnes). At first glance, it is surprising that China had the largest absolute increase with 1.6 million tonnes. Brazil, the USA, Turkey and Argentina followed in next places, all countries with extensive natural grasslands. The high growth in China must be seen in the context of the massive decline in pork production. In order to secure the meat supply for the population, domestic production was expanded and, in addition to pork, chicken meat and beef were imported. A further steering factor was the increase in the per capita consumption of beef in affluent consumer groups in urban centres. The consumption of this comparatively expensive meat type is seen as a status symbol.

Four of the 15 leading producing countries in 2022 were in Asia. They contributed 2.1 million tonnes or 52.5% to the increase in beef production of the country group and 23.6% to the global increase since 2012. If one compares Asia and the American double continent in terms of their share in the global production growth, Asia ranked only slightly ahead of America with 46.9% and 46.4% respectively.

The continuing decline in beef production in some European countries reflects the aftermath of the BSE crisis. BSE first appeared in England in the mid-1980s and then in other European countries, leading to a massive slump in beef consumption that was not compensated for in subsequent years. The higher production costs compared to poultry meat also played a role. This was reflected in the retail price and resulted in a reluctance of the consumers to buy.

Summary and Perspectives

The answer to the question posed in the title of this article can be summarised as follows. Asia recorded by far the highest absolute and relative growth rates in the production of chicken meat, eggs and beef. In contrast, only a small increase was achieved in pork because massive animal losses occurred due to outbreaks of African swine fever. However, more recent data from China shows that production rose again quickly and was even higher in 2023 than in 2018. The decade between 2012 and 2022 was largely characterised by Asia in terms of meat and egg production, even if there was a dip in pork production due to the epidemics. In view of the continued rapid population growth and the increasing purchasing power in a number of countries, it can be assumed that Asia will be able to consolidate its leading role. •

Data source an additional literature

FAOSTAT: https://www.fao.org/faostat/en.

Windhorst, H.-W.: The red-white shift in global meat production. In: Zootecnica international 43 (2021), no. 5, p. 32-37.

Windhorst, H.-W.: A glimpse into the future. Projection of global meat production and consumption until 2030. In: Fleischwirtschaft international 2021a, no. 3, p. 28-31.

Windhorst, H.-W.: Slowing growth projections for pork. A projection for the development of global pig meat production until 2031. In: Fleischwirtschaft international 2023, no. 2, p. 48-51.

Windhorst, H.-W.: A projection for the development of global poultry meat production until 2031. In: Zootecnica international 45 (2023), no. 5, p. 22-26.

Windhorst, H.-W.: Remarkable dynamics of the global poultry industry: Egg production. In: Poultry World 39 (2023), no. 3, p. 28-31.

Windhorst, H.-W.: The remarkable dynamics of the global poultry industry: 50 years in retrospective. Part 2 – Global poultry meat production. In: Zootecnica international 45 (2023), no. 7/8, p. 24-33.

Windhorst, H.-W.: The remarkable dynamics of global pork production. 50 years in retrospect (1970-2020). In: Pig Progress 39 (2023), no. 8, p. 6-9.

AMB Spa

Via San Martino 28
33038 San Daniele del Friuli (UD)
Italy
Tel: +39 0432 946111
Fax: + 39 0432 946111
Email: info@ambpackaging.com
Web: www.ambpackaging.com

Albert Handtmann Maschinenfabrik GmbH & Co. KG

Hubertus-Liebrecht-Str. 10-12,
88400 Biberach/Riss, Germany
Tel: +49 7351 45 1432
Fax: +49 7351 45 20 1432
Email: info.machines@handtmann.de
Web: www.handtmann.de

Amcor

Immeuble Les Portes de La Défense,
1 rue de Mantes
92700 Colombes
France
Tel: +33 1 57 00 36 00
Web: www.amcor.com

Cabinplant A/S

Roesbjergvej 9
5683 Haarby,
Denmark
Tel: +45 63 73 20 20
Email: cpi@cabinplant.com
Web: www.cabinplant.com

Coligroup SPA

via del Lavoro A. 9
25032 Chiari (Brescia)
Italy
Tel: +39 030 7000761/2/3
Fax: +39 030 713370
Email: info@colimatic.com
Web: www.colimatic.com

CEMSAN Slaughterhouse Systems

Saray Mah. Keresteciler San.Sit.
4.Cad. No:49 Kahramankazan, Ankara
Turkey
Tel: +90 312 801 02 22
Email: cemsan@cemsanmakina.com
Web: www.cemsanmakina.com

ESPERA-WERKE GMBH

Moltkestraße 17-33
47058 Duisburg
Germany
Tel: +49 203 3054-293
Fax: +49 203 3054-12293
Email: info@espera.com
Web: www.espera.com

foodfab GMBH

Heiliggeiststraße 16
A-6020 Innsbruck
Austria
Tel: +43 512 5370-4100
Email: info@foodfab.eu
Web: www.foodfab.eu

Fabbri Group

Via per Sassuolo 1863
41058 Vignola (Modena)
Italy
Tel: +39 059 768 411
Email: sales@gruppofabbri.com
Web: gruppofabbri.com

GPS Reisacher GmbH & Co. KG

Gewerbegebiet Thal, Hinter den Gärten 8
DE-87730 Bad Grönenbach
Germany
Tel: +49 (0) 8334/9 89 10-0
Fax: +49 (0) 8334/9 89 10-99
Email: info@gps-reisacher.com
Web: www.gps-reisacher.com

GEA Food Solutions Bakel BV

Beekakker 11,
5761 EN Bakel,
The Netherlands
Tel: +31 492 349 349
Fax: +31 492 349 416
Email: info@gea.com
Web: www.gea.com

G. Mondini S.p.A.

Via Brescia 5
25033Cologne (BS)
Italy
Tel: +39 030 705600
Fax: +39 030 7056250
Email: info@gmondini.com
Web: www.gmondini.com

Habasit International AG

Römerstrasse 1,
P.O. Box, CH-4153 Reinach BL,
Switzerland
Tel.: +49 (0) 6071 / 9 69-0
Fax: +49 (0) 6071 / 9 69-52 33
Email: Habasit.Communications@habasit.com
Web: www.habasit.com

HIPERBARIC

Calle del, Calle Condado de Treviño, 6,
09001 Burgos,
Spain
Tel: +34 947 47 38 74
Web: www.hiperbaric.com

Higel Kältetechnik e.K.

Neugasse 19
D-77694 Kehl-Marlen
Germany
Tel: +49 7854 9090
Fax: +49 7854 985615
Email: info@higel-kaeltetechnik.de
Web: www.higel-kaeltetechnik.de

HRS HEAT EXCHANGERS LTD

3 Abloy House, Hatters Lane
Watford, Hertfordshire
WD18 8AJ, UK
Tel: +44 (0) 1923 545 625
Email: info@uk.hrs-he.com
Web: www.hrs-heatexchangers.com

Hifferman nv

Groenenhoek 134
2630 Aartselaar
Belgium
Tel: +32 (0)3 450 92 41
Email: corporate@hiffermangroup.com
Web: www.hifferman.be

Ishida Europe Ltd

11 Kettles Wood Drive,
Woodgate Business park,
Birmingham, B32 3DB, UK
Tel: +44 (0)121 6077700
Fax: +44 (0)121 6077666
Email: info@ishidaeurope.com
Web: www.ishidaeurope.com

KARL SCHNELL GmbH & Co.KG

Muehlstrasse 30
73650 Winterbach
Germany
Tel: +49 7181 962 0
Fax: +49 7181 962 100
Email: info@karlschnell.de
Web: www.karlschnell.com

Industrial Auctions B.V

Looyenbeemd 11,
5652 BH Eindhoven,
Netherlands
Tel: +31 (0)40 240 9208
Fax: +31 (0)40 240 9209
Email: info@industrial-auctions.com
Web: www.industrial-auctions.com

JEROS A/S

Nyborgvej 8,
5750 Ringe,
Denmark
Tel: +45 6362 3913
Email: jeros@jeros.com
Web: www.jeros.com

Krehalon B.V.

P.O. Box 414
7400 AK Deventer
The Netherlands
Tel: +31 (0)570 624 333
Email: sales@krehalon.com
Web: www.krehalon.com

Klöckner Pentaplast Group

4 Kingdom Street
London, W2 6BD
United Kingdom
Tel: +01977 692 111
Email: kpinfo@kpfilms.com
Web: www.kgwetter.de

K+G Wetter GmbH

Goldbergstrasse 21
35216 Biedenkopf - Breidenstein
Germany
Tel: +49 6461 9840-0
Fax: +49 6461 9840-25
Email: info@kgwetter.de
Web: www.kgwetter.de

Kolbe Foodtec GmbH

Gewerbestraße 5,
89275 Elchingen,
Germany
Tel: +49 (0) 7308 96 100
Email: info@kolbe-foodtec.com
Web: www.kolbe-foodtec.com

Lißner Engineers + Architects

Hasenkamp 9
25482 Appen
Germany
Tel: +49 (0) 4101 / 556 81-0
Fax: +49 (0) 4101 / 289 01
Email: info@lissner.eu
Web: www.lissner.eu

Loryma GmbH

Am Falltor 3
64673 Zwingenberg
Deutschland
Tel: +49 6251 1799-0
Fax: +49 6251 73964
Email: loryma@crespeldeitersgroup.com
Web: www.loryma.de

LIMA S.A.S.

456, route de Rosporden
Z.I. Guelen - 29000 Quimper
France
Tel: + 33 (0) 298 948 968
Fax: + 33 (0) 298 948 969
Email: lima@lima-france.com
Web: www.lima-france.com

MiVEG GmbH

Am Sandfeld 17
D - 91341 Röttenbach
Germany
Tel: +49 9195 99 99 216
Fax: +49-177-95 99 915
Email: info@miveg.de
Web: www.miveg.de

Meyn Food Processing Technology B.V.

P.O. Box 16
1510 AA Oostzaan
the Netherlands
Tel: +31 (0)20 2045 000
Fax: +31 (0)20 2045 001
Email: sales@meyn.com
Web: www.meyn.com

MAUTING s.r.o.

Mikulovská 362
691 42 Valtice
Czech Republic
Tel: +420 519 352 761
Fax: +420 519 352 764
Email: info@mauting.com
Web: www.mauting.com

Marel Red Meat B.V.

Albert Schweitzerstraat 33
7130 PG Lichtenvoorde
Netherlands
Tel: +31 (0) 544 390 500
Email: info.meat@marel.com
Web: www.marel.com

Marel Further Processing B.V.

Handelstraat 3
5831 AV, Boxmeer
Netherlands
Tel: +31 (0) 485 586 122
Fax: +31 (0) 485 586 222
Email: info.fp@marel.com
Web: www.marel.com

Marel Poultry B.V.

Handelstraat 3
5831 AV, Boxmeer
Netherlands
Tel: +31 (0) 485 586 111
Fax: +31 (0) 485 586 222
Email: info.poultry@marel.com
Web: www.marel.com

PRODUCTOS SUR, S.A

Saavedra Fajardo, parc. 27/7
San Ginés (Murcia)
30169 Spain
Tel: +34 968 881 991

Email: info@prosur.es
Web: www.prosur.es

Nothum Food Processing Systems

631 South Kansas Avenue
Springfield, Missouri
65802 USA
Tel: +1 417-831-2816
Email: nothum@nothum.com
Web: www.nothum.com

REX-Technologie GmbH & Co. KG

Irlachstraße 31
5303 Thalgau
Austria
Tel: +43(0)6235-6116-29
Fax: +43(0)6235-6529
Email: office@rex-technologie.com
Web: www.rex-technologie.com

Poly-clip Systems GmbH & Co.KG

Niedeckerstraße 1
65795 Hattersheim a. M.
Germany
Tel: +49 6190 8886-0
Email: contact@polyclip.de
Web: www.polyclip.com

Resino Trykfarver A/S

Metalbuen 13
DK-2750 Ballerup,
Denmark
Tel: 45 44 97 34 88
Email: resino@resino.dk
Web: www.resino.dk

Sesotec GmbH

Regener Str. 130
94513 Schönberg,
Germany
Tel: +49 (8554) 308-0
Fax: +49 8554-2606
Email: info@sesotec.com
Web: www.sesotec.com

Maschinenfabrik Seydelmann KG

Hölderlinstraße 9
70174 Stuttgart,
Germany
Tel: +49 (0)711 / 49 00 90-0
Fax: +49 (0)711 / 49 00 90-90
Email: info@seydelmann.com
Web: www.seydelmann.com

Provisur Technologies GmbH

Magdenauerstrasse 34
9230Flawil
Switzerland
Tel: +41 713941560
Fax+41 713941569
Email: info@provisur.com
Web: www.provisur.com

STEEN F.P.M. International

Franse Weg 33
B-2920 Kalmthout
Belgium
Tel: +32-(0)3/665.04.00
Fax: +32-(0)3/665.34.58
Email: info@steen.be
Web: www.steen.be

SAIREM

82 rue Elisée Reclus
69150 Décines-Charpieu
France
Tel: +33 (0)4 72 01 81 60
Email: welcome@sairem.com
Web: www.sairem.com

Supervac Maschinenbau GmbH

Kalterer Gasse 10
2340 Mödling
Austria
Tel: +43 2236 50 25 00
Email: office@supervac.at
Web: www.supervac.at

Sealpac International bv

Langekamp 2
NL-3848 DX Harderwijk
The Netherlands
Tel: +31 (0)341 46 20 30
Fax: +31 (0)341 46 20 33
Email: info@sealpacinternational.com
Web: www.sealpacinternational.com

Karl Tichy Handelsgesellschaft mbH

Salaberg 23,
A-3350 Haag
Austria
Tel: +43 664/4433221
Fax: +43 7434/44459
Email: tichykarl@aon.at
Web: www.tichytrading.at

ULMA Packaging

Garibai, 28
20560 Oñati (Gipuzkoa)
Spain
Tel: +34 943 73 92 00
Email: info@ulmapackaging.com
Web: www.ulmapackaging.com

SUBSCRIBE TO MEATING POINT MAGAZINE TODAY AND RECEIVE YOUR HADR COPY MAILED DIRECTLY TO YOUR OFFICE

Fill in the form below to process your inquiry!

1. Business Classification:

Type	Industry Sector	Position
☐ Manufacturer	☐ Meat	☐ Management
☐ Supplier	☐ Poultry	☐ Product Development
☐ Distributor	☐ Fish	☐ Production
☐ Import/Export	☐ Ingredients	☐ Packaging
☐ Other (please specify)	☐ Other (please specify)	☐ Research& Development

2. I wish to subscribe to Meating Point Magazine for a year.

The subscription shall start ☐ in beginning of .....

☐ UK - GBP 56

☐ EUROPE - EUR 86

☐ USA and the rest of the world - USD 96

☐ Payment:

☐ Check enclosed

☐ Bill me

☐ Paypall

3.Subscriber's contacts:

Company:..... **Country:**.....

Name:..... **Phone:**.....

Position:..... **Fax:**.....

Addres:..... **E-mail:**.....

Date: ..... **Signature:**.....

MAIL US TO: SUBSCRIBE@meatingpoint-mag.com
or
CALL : +44 (0) 7763 751 782

Cfia
CARREFOUR DES FOURNISSEURS
DE L'INDUSTRIE AGROALIMENTAIRE

27th edition

RENNES
MARCH 12-13-14
2024
RENNES PARC EXPO

THE FOOD INNOVATION IS INVENTED HERE!

NEW CHALLENGES, NEW SOLUTIONS

1700 exhibitors

+300 news exhibitors

NEW !
A special CSR prize
awarded during the Innovation Trophies

NEW !
300m² dedicated to start-ups

Water, energy, decarbonization...
the answers to your challenges at the show

DOWNLOAD YOUR FREE BADGE
www.cfiaexpo.com

→ Cfiaexpo.com #CFIARennes24 | @cfiaexpo

INGREDIENTS | EQUIPEMENTS & PROCESSES | PACKING & PACKAGING