glassmachinery world plants&accessories

BI-MONTHLY INTERNATIONAL MAGAZINE FOR GLASS MANUFACTURING

YEAR 36 • ISSUE NO. 6/2024

All-electric furnace innovation by FIVES and VERALLIA explained

Emerging market trends advanced by FERMAC decoration systems

MARPOSS VISIQUICK & ATMOS to ensure perfumery packaging quality and sustainability

Trailblazing innovations in OMSO's Servobottle and SB021 machines

Warehouse sensation: VETROPACK's fully-automated Boffalora sopra Ticino site

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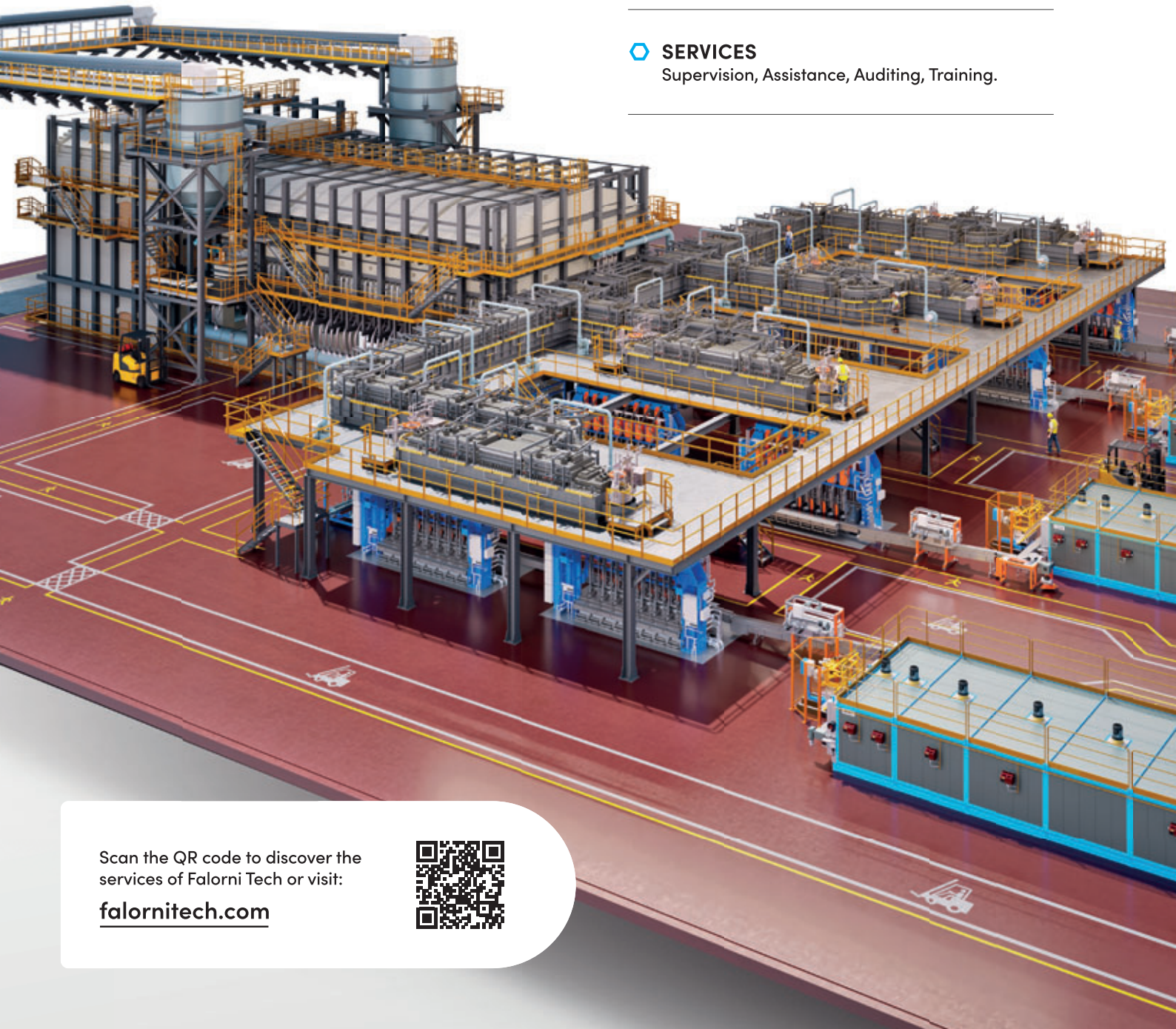

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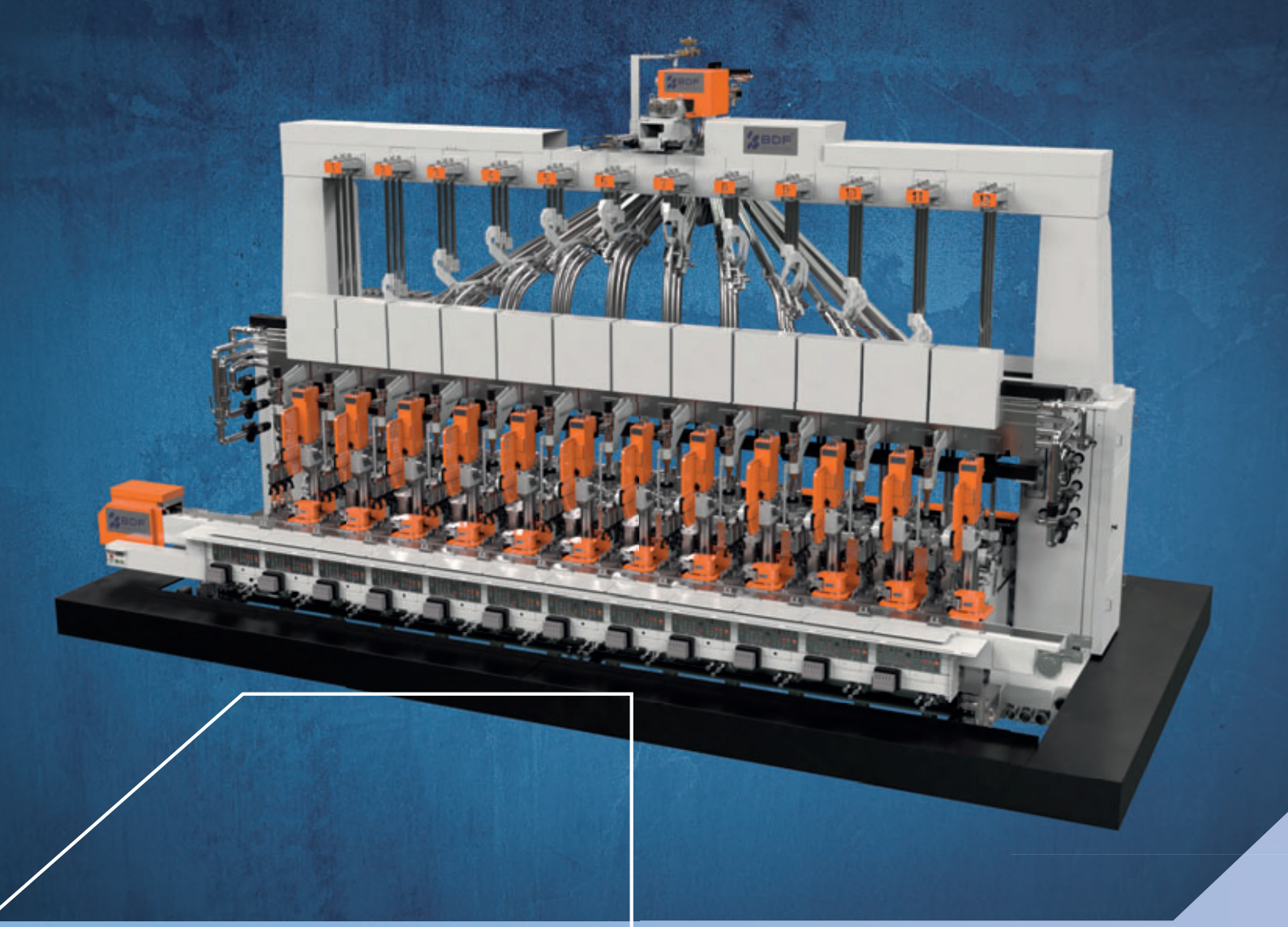

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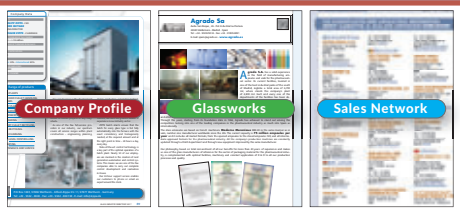
2025 TRADE FAIRS CALENDAR

PROVISIONAL

The magazine will be distributed at the following Events

	issue	exhibition/conference	date	venue	deadlines
2025	1	AMBIENTE	7-11 February	FRANKFURT Germany	Editorial files: 13-01-2025 Deadline Adv files: 17-01-2025
		GLASSMAN ASIA	12-13 February	BANGKOK Thailand	
		COSMOPACK	20-22 March	BOLOGNA Italy	
2025	2	LUXPACK NEW YORK	7-8 May	NEW YORK USA	Editorial files: 7-04-2025 Deadline Adv files: 11-04-2025
		GLASSMAN EUROPE	14-15 May	ISTANBUL Turkey	
2025	3	CHINA GLASS	26-29 May	BEIJING China	Editorial files: 24-04-2025 Deadline Adv files: 30-04-2025
		IPACK-IMA	27-30 May	MILAN Italy	
2025	4	ATIV GLASS CONFERENCE	12-13 June	PARMA Italy	Editorial files: 16-05-2025 Deadline Adv files: 20-05-2025
		17H SEMINAR ON FURNACE DESIGN	18-19 June	VELKE KARLOVICE Czech Republic	
		LUXPACK SPECIAL EDITION	1-2 July	PARIS France	
		FEATURED CONTENT: FURNACES			
2025		Glass Industry Directory 			Editorial files: 09-06-2025 Deadline Adv files: 16-06-2025
2025	5	GLASSPEX INDIA	10-12 September	MUMBAI India	Editorial files: 25-07-2025 Deadline Adv files: 30-07-2025
		VITRUM	16-19 September	MILAN Italy	
		AFGM	date to be announced	SOUTH EAST ASIA	
		FEATURED CONTENT: COLD-END			
2025	6	CONFERENCE ON GLASS PROBLEMS	date to be announced	TOLEDO (OH) USA	Editorial files: 21-10-2025 Deadline Adv files: 28-10-2025
		EURASIA PACKAGING	22-25 October	ISTANBUL Turkey	
		CPHI	28-30 October	FRANKFURT Germany	
		FEATURED CONTENT: ARTIFICIAL VISION / AI			

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SORG

Success at Glasstec 2024

Reflecting strong interest in the Group's innovative technologies, the **SORG** stand was lively and well-attended at Glasstec this year. Whether the focus was on enhancing performance or advancing sustainability, the SORG team engaged in productive discussions on solutions for raw material preparation, melting and conditioning in glass production. Across each of its brands, SORG continues to drive sustainable innovation, helping glass producers improve efficiency while lowering CO2 emissions.

Glasstec 2024 was an inspiring event, with over 1,200 exhibitors from 50 countries and more than 32,000 trade visitors from more than 120 nations.

WWW.SORGGROUP.COM

FAMA

Completed delivery of a new 10-section IS machine

FAMA recently announced the completion and delivery of a new ten-section IS machine to one of its clients in central Mexico. The IS machine will enable the client to increase their glass bottle production, optimizing their processes and improving operational efficiency. Each machine manufactured is a testament to the commitment of FAMA to quality and innovation in the glass industry. Proud of this achievement, the FAMA team is currently motivated to continue developing new technologies that drive the growth and efficiency of clients. Indeed the company now continues to advance and grow, developing new projects with new technologies - committed to excellence and customer satisfaction, as clearly evidenced by this project.

WWW.FAMA.COM.MX

BORMIOLI LUIGI

Installation of a hybrid furnace at Abbiategrasso plant

Bormioli Luigi is to install a new hybrid furnace to reduce its CO2 emissions. This installation is part of The Vitrum project, supported by the European Commission within its Innovation Fund. The furnace will be installed in the Abbiategrasso (near Milan) plant of the company by January 2025. Powered by methane and electricity this new hybrid furnace is designed to be energy efficient and associated with PCR glass and promises a significant improvement in carbon emissions. The hybridization process generates 80 percent of savings. The use of recycled glass, associated with an optimized piping system, contributes the remainder. The new process saves approximately 30 percent in gas consumption and 14 percent in CO2 emissions compared to a traditional gas furnace. Bormioli Luigi anticipates reducing the equivalent of 25,500 tons of CO2 in the furnace's first ten years in service. The new furnace also benefits from the digitalization of its control systems and process optimization assisted by artificial intelligence.

WWW.BORMIOLILUIGI.COM

GLASS SERVICE

New ATEX servo motor now available

Glass Service was recently pleased to announce the availability of its new ATEX servo motor for installation on the company's combustion skids. The servomotor is available in two versions: a 90 degree rotary version and a linear version, both equipped with the same basic mechanics and electronics. The rotary version can be paired with GS model VV valves or other models, offering a torque of 75 Nm. The linear version can be coupled with all commercially available valves using brackets designed by GS, providing a force of 7.5 kN and a configurable stroke of up to 50 mm. Both versions of the servomotor feature multi-turn base mechanics, paired with either a 0-90 degree reducer or a linear movement mechanism. The electronics are shared and can include, upon request, a local display and external AUTO/MAN, FF/RW controls. Programming is done via the local display or a free basic version of the app, which connects to the servo motor via Bluetooth or cable and is compatible with both PCs and smart-phones.

Both versions include an external knob for manual operation.

WWW.GLASSSERVICE.IT

STEVANATO GROUP

New plant in Fishers, Indiana

Stevanato Group's new plant in the USA is strategically located in Indiana, taking advantage of its proximity to key customers, existing and potential.

The city of Fishers also provides solid infrastructures for companies and employees and has the potential for future expansions, aligned with the vision and objective to create a world-class pharma biotech hub.

With the launch of the EZ-fill® syringe production lines, commercial production has finally started. The Fishers hub is making significant strides to better serve Stevanato's pharmaceutical customers across North America, with the first EZ-fill® commercial production to ever take place outside of Italy.

This is another crucial step forward in the Group mission to meet the demand for high-quality drug containment solutions in the region.

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O-I ITALY, SSV & K2-CO2

Partnership for carbon capture project

The GLASS2LIFE project was recently presented to the LIFE programme, the EU's funding instrument for the environment and climate action. **O-I Italy** (coordinator of GLASS2LIFE) partnered with Stazione Sperimentale del Vetro (SSV) and **K2-CO2** for this project that aims to demonstrate in a container glass manufacturing plant an innovative and energy efficient process for CO2 capture, based on the use of hot potassium carbonate (HPC) and replicable to many other hard-to-abate industries. GLASS2LIFE should enable cost-effective sequestration of 80 percent of CO2 from furnace flue gasses, is closer to market than alternatives as fuel switching or full electrification and also addresses process emissions: a strategic solution for quick decarbonisation of the glass industry to achieve EU climate neutrality by 2050.

The system will be designed, built and tested at full industrial scale in a newly built oxy-fuel furnace, where it will be operated for one year by O-I Italy.

Performance will be accurately monitored and assessed by SSV, a renowned Italian research body for the glass sector. This will allow proof of technical and economic feasibility of this first complete CCS solution for the glass industry, and to optimize the value chain of transport and storage, together with stakeholder ENI, which will operate a storage site in Ravenna from 2024.

Technology provider K2-CO2 will use outcomes to bring the system's TRL to 8 and to prepare for a quick market introduction, also assessing opportunities in other hard-to-abate industries and verifying possible integration with future reuse solutions (CCU).

O-I will use the results to assess the potential for replication in its other plants, delivering an LCA on produced bottles and liaisons with its customers to define value propositions on low-carbon bottles from a sustainable value chain perspective. All partners will boost awareness on the new technology in target sectors and society and disseminate results amongst stakeholders to sustain the future industrial uptake.

WWW.O-I.COM - WWW.K2-CO2.COM

RATH

Future-proof refractory solutions presented at glasstec 2024

At glasstec 2024, **RATH** demonstrated once again that the glass industry can count on the company's future-proof refractory solutions and expertise in providing heating and melting solutions from a single source.

Why are innovative, future-proof refractory solutions -such as those produced by RATH- so crucial for the entire glass manufacturing process? What influence do such refractories have when it comes to saving CO2 and energy? And how exactly does RATH support industry in meeting emission requirements in industrial plants? For four days, the RATH experts were on hand at the RATH booth to answer visitors' questions on these and many other topics. As the number of visitors to the RATH booth showed, these are all exciting and highly topical issues.

Visitors to the RATH booth were able to see for themselves -thanks to numerous exhibits- that the international refractories manufacturer offers the global glass industry premium refractories for the entire glass manufacturing process, while always keeping a close eye on CO2 and energy savings.

In addition to solutions for the regenerator and the melting end, the international refractories manufacturer presented the new, innovative FOURATH®4 feeder expendables series, as well as newly developed channel blocks and innovative hot gas filter elements. All RATH products are manufactured worldwide in state-of-the-art production facilities and on the basis of the latest application know-how.

From chrome-alumina overcoating blocks to melter burner blocks

RATH showcased solutions for the regenerator and the melting end, such as pressed 1000x500x200 bottom blocks, chrome-alumina overcoating blocks, melter burner blocks etc.

Smoothest surface for the best material flow: Newly developed channel block qualities

Speaking of forehearths: The newly-developed FOURATH® 420 zircon-mullite and Vibrorath K99 high-alumina channel blocks, which are made of premium materials and manufactured using the most precise technology, were presented at glasstec.

Longer service life with the new, advanced FOURATH®4 feeder expendables series

Also featured at the RATH booth: the new, advanced FOURATH®4 feeder expendables series, which includes spouts, spout covers, tubes, orifice rings and plungers. FOURATH®4 technology, based on an optimized formulation that has been exclusively developed and produced by RATH, enables a longer service life, better glass quality and reduced costs.

WWW.RATH-GROUP.COM

NIPRO

Adoption of chemical-free water treatment by HPNow

Nipro, a global leader in the glass manufacturing industry, has successfully implemented a sustainable and chemical-free cooling tower water treatment solution at its Aumale, France facility. In partnership with BWT France and HPNow, the company has adopted the BWT ECO-UV+ by HPNow system, featuring the innovative GOgen® technology. Nipro's commitment to environmental responsibility and operational excellence drove the search for a cutting-edge water treatment solution that would eliminate the use of chemicals while maintaining optimal cooling tower performance. The BWT ECO-UV+ by HPNow system, with its GOgen® technology, offers a ground-breaking approach by generating green oxidant on-site, effectively replacing traditional chemical treatments.

"BWT ECO-UV+ by HPNow has brought us a step forward in terms of both achieving our sustainability goals and improving our operational efficiency," said Audrey Favre, Sustainability Manager at Nipro. "It has provided us with a cost-effective solution that aligns with our commitment to environmental stewardship and enhances our competitive edge in the industry."

By adopting this innovative technology, Nipro has achieved several key benefits:

- Zero chemical discharge: Significantly reduced environmental impact and supported local biodiversity.

- Decreased emissions and waste: Eliminated CO2 emissions associated with chemical production and transportation, as well as plastic waste from chemical containers.
- Enhanced safety: Reduced the risk of chemical spills and exposure, creating a safer workplace for employees.
- Improved operational efficiency: Fully automated system streamlined operations and reduced maintenance requirements.

The BWT ECO-UV+ by HPNow system operates seamlessly, generating Peroxide UltraPure™ on-site and injecting it into the cooling water loop. The solution is safe, effective, and requires minimal maintenance.

WWW.NIPRO-GROUP.COM/EN

EME

Visit to Rubin Glass in Pleven, Bulgaria

The **EME** team recently visited Rubin Glass for a project meeting, kicking off an exciting collaboration which saw the company partnering in several innovative projects, including:

- Sand Delivery System
- Batch Plant Upgrade
- Automatic Premix System
- Batch Transport System to the new furnace
- Cullet Return System for the new furnace

EME has reported great satisfaction at being able to work with Rubin Glass as they upgrade their facilities, supported by technology from SORG and services from SKS.

WWW.EME.DE

SOCABELEC

Revolutionizing glass container manufacturing with RomoSwab

In the competitive world of glass container manufacturing, efficiency, safety and quality are critical to success. **Socabelec**, a leader in robotic automation for the glass container production industry, is proud to introduce the RomoSwab - a cutting-edge robot designed to automate the mould lubrication process on the blow side of IS machines.

This game-changing solution, launched in October 2024, tackles long-standing issues with manual swabbing and delivers unprecedented levels of productivity and safety to glass manufacturing operations.

Furthermore, the RomoSwab supports the industry's drive toward sustainability, reducing waste and optimizing resource use.

Solving the challenges of glass container production

For years, glass container manufacturers have relied on manual lubrication methods that expose workers to safety risks, cause frequent production stoppages and lead to inconsistencies in product quality.

These challenges are particularly prevalent in the high-demand sectors of glass container production for cosmetics, pharmaceuticals, beverages and eco-friendly glass containers.

The RomoSwab completely automates the lubrication process, eliminating the need for manual intervention and enabling manufacturers to increase production efficiency while improving worker safety.

This innovative solution ensures uniform lubricant application to moulds, which reduces product defects, boosts quality and contributes to a more environmentally responsible manufacturing process.

How does RomoSwab work?

The RomoSwab is engineered to fit seamlessly into existing IS machines used in glass container manufacturing.

It leverages the advanced capabilities of the FANUC LR Mate robot, offering precise, repeatable lubrication with a positioning accuracy of ±0.02 mm. This precision ensures that every mould receives the exact amount of lubricant required for optimal performance, leading to a consistent product output and minimizing waste, which aligns with the industry's goals for sustainable production.

Technical specifications

Operating voltage: AC 3*400 V ± 10 percent

Minimum pressure: 6 bar

Tension: 200-240 V AC

Thanks to its plug-and-play design, the RomoSwab integrates effortlessly into current glass container production lines, minimizing downtime during implementation. This compatibility makes it a highly attractive option for glass container manufacturers looking to modernize their operations while also reducing their environmental footprint.

WWW.SOCABELEC.COM

GLASS FUTURES

GBP 6M biofuel project kicks off trials

A major industrial trial was successfully undertaken this month as part of a **Glass Futures** project to identify and demonstrate a variety of economically and technically suitable low-cost, bio-derived fuels for a range of industrial glass and ceramics sites with furnaces of varying designs and scales.

In previous Industrial Fuel Switching (IFS) round 1, phase 3 projects, Glass Futures demonstrated the feasibility of a number of biofuels such as for use in glass furnaces and identified fuels that emit circa 80 percent less Scope 1 CO2 than traditional natural gas. However, these fuels were found to be typically 2-3 times more expensive than natural gas and therefore, economically unattractive.

The first of five trials kicked off with a successful industrial-scale trial at Pilkington UK's (part of NSG Group) Greengate site in St Helens as part of a project funded by the UK government under the Department for Energy Security and Net Zero's (DESNZ) IFS 2, phase 2 programme, funded within its Net Zero Innovation Portfolio.

Not only will the project develop a detailed understanding of these fuels, their availability and potential CO2 savings but will also assess their compatibility with Carbon Capture Utilisation & Storage (CCUS) technologies in a project led by C-Capture, demonstrating the potential to remove CO2 from the flue gas emissions.

Glass furnaces and ceramics kilns are predominantly fired using natural gas due to ease of supply, and while the glass industry is already embarking on a range of new technologies to decarbonise glass melting, it is vital that these essential industries continue to find viable low-carbon alternatives to gas.

In March of this year, trials on Glass Futures combustion test bed facility provided valuable insights into the combustion properties of biofuel oil, alongside other biofuels, and the confidence to progress a selection of these fuels for trials on commercial glass furnaces and ceramics kilns.

The project brings together partners from two essential industries, glass and ceramics. Partners include major glass manufacturers such as Ardagh Glass Packaging, Encirc, NSG Group and O-I, as well as the UK's largest manufacturer of shaped refractories DSF Refractories & Minerals.

WWW.GLASS-FUTURES.ORG

VIDEO SYSTEMS

New partnership with IRIS Inspection machines

Video Systems recently announced their new collaboration with IRIS Inspection machines, a leading designer, developer and manufacturer of intelligent inspection solutions for glass containers, founded in 2002.

This partnership introduces OCULUS NEO, an innovative check inspection solution by camera. This cutting-edge solution has been developed with glassmakers to offer scalability, efficiency and friendly user experience.

Years of expertise and passion for innovation led to this new generation of very compact cameras. In addition, OCULUS NEO is integrable on any carousel machine, and compatible with IRIS AI-based assistant iBot.

WWW.VIDEOSYSTEMS.IT

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CINER GLASS

Machinery contract signed for new Belgian plant

Ciner Glass is currently investing in a new greenfield container glass plant in Lommel, Belgium, with construction work now underway. The project in Lommel involves building a new, state-of-the-art container glass production facility. The site will host two furnaces, with a production capacity 650 tonnes per day. Each furnace will feed four production lines consisting of two 8+8 triple gob tandem machines and two 10+10 triple gob tandem machines.

Ciner Glass Belgium is collaborating closely with its European partners to ensure the successful completion of the project. On October 11, 2024 the company signed the machinery equipment contract for the new container glass plant.

Ciner Glass has selected the following providers to help construct the plant:

- **Bottero** – for the hot-end equipment (acting as the project leader)
- **Lahti Glass Technology** – for the batch plant
- **TecoGlas** – for the furnace
- **E2Pack** – for Cold End Packaging equipment
- **Tiama** – for Inspection machines

By 2027, two furnaces will be in operation at Lommel, with a total of 1,300 tonnes produced daily, and 430,000 tonnes of glass produced annually, developing more than 2 billion glass bottles.

Ciner Glass plans to invest over EUR 600M at Lommel, making it one of the biggest foreign investments in Belgium in the last ten years, creating more than 500 direct jobs and helping to serve the European glass market.

This investment will not only support economic growth but also contribute to a cleaner planet. Ciner Glass is committed to reducing its environmental footprint by providing customers with high-quality container glass that is not only lighter but also produced with minimal energy consumption.

WWW.CINERGLASS.COM

FRIGOGLASS

Future mapping of the group's glass division

Frigoglass Group has been systematically driving a bold transformation across all its global business verticals, positioning itself for long-term growth and even greater level of commercial success.

Beta Glass, Frigoglass Group's glass business vertical, currently operates three best-in-class manufacturing plants in Nigeria, boasting a daily capacity of 720 tonnes per day and annual production of more than 650 million bottles and jars.

Amongst other transformational initiatives, like the growth in export and innovative packaging solutions with a focus on sustainability, a key element of the transformation at Beta Glass has been the significant investments in its facilities.

Recently, the company completed a cold repair in the GF1 furnace of the Guinea Plant, its manufacturing facility in Agbara, Ogun State. The investment will increase production by 30 tons per day and extend the life cycle of the furnace by 8-10 years.

Beta Glass also recently completed the relocation of its administration to new, modern and functional offices in Victoria Island, Lagos - allowing for closer engagement with customers and partners, and offering a superior work environment for its Head Office employees.

To ensure the necessary leadership caliber to drive performance and foster growth in the region, the Group implemented a new organizational design within its glass containers business, introducing key governance and management changes. In 2024 Beta Glass enhanced its Board of Directors, with new Chairman Dr Vitus Chidiebere Ezinwa and five new BoD members carrying significant experience in both global and African organizations.

Alexander Gendis, new CEO of Beta Glass

Moreover, the company made changes to its top executive team with the arrival of new CEO, Alex Gendis, new CFO, Hélène Paradisi, and the appointment of Jagdish Agarwal as COO. Mr Gendis is a seasoned executive leader with over 25 years of global experience in the manufacturing and packaging sectors, and extensive expertise in supply chain management, marketing, and team leadership. All three executives have served many years in leadership positions across the wider African market, including Nigeria, which will be invaluable for Beta Glass and its business objectives in the region.

The transformation of Beta Glass includes a fresh brand identity with a new logo; and a new website, available in both English and French.

WWW.FRIGOGLASS.COM

GERRESHEIMER

Solar power for site in Momignies, Belgium

Gerresheimer has successfully installed a photovoltaic roof-top system at its site in Momignies, Belgium, where the company produces glass flacons and jars for the cosmetics industry with its roughly 750 employees.

With an installed capacity of 2.3 MWp, the photovoltaic system will produce around 2,100 MWh of solar power each year and is expected to save roughly 300 tonnes of CO2 compared to sourcing conventional electricity in Belgium. Almost 100 percent of the electricity generated will be used on site.

Installing PV systems on suitable rooftops like at the Momignies site and concluding power purchase agreements with wind and solar park operators are key steps to helping Gerresheimer continually increase the share of green electricity in its energy supply.

Gerresheimer has set ambitious sustainability goals as part of its formula g corporate strategy. By 2030, the company aims to switch its entire electricity supply to renewable sources.

By the end of 2024, the share of electricity from renewable sources at the Momignies site will increase to around 25 percent, including the energy produced by the new PV system.

Due to its energy-intensive glass production, the site in Momignies is one of the Gerresheimer sites with high energy demand. The total share of energy from renewable sources across all 35 production sites around the globe had already reached 45.6 percent by the end of 2023.

High-quality and sustainable glass packaging for the cosmetics industry

The Gerresheimer site in Momignies, Belgium, specializes in the production and decoration of glass flacons and jars as primary packaging for perfume, skin and body care products. Gerresheimer uses up to 40 percent post-consumer recycled glass (PCR) to produce these products. Using PCR conserves resources and reduces energy consumption in the production of high-quality primary packaging solutions.

WWW.GERRESHEIMER.COM

TIAMA & TME ENGINEERING

Strategic partnership announced

Tiama recently announced a partnership with **TME Engineering**, a renowned innovator in solutions dedicated to the Hot End process. Under the terms of the agreement, Tiama will distribute a new product developed by TME Engineering, rebranded as a Tiama product.

The partnership combines Tiama's extensive market reach and customer base with TME Engineering's industry-leading expertise and advanced technological solutions. The re-branded product, the Tiama HOT blank, is designed to measure and automatically regulate the temperature of blank moulds and the plungers. It will offer glassmakers an efficient and reliable solution to blank mould temperature issues.

The Tiama HOT blank is fully part of the Tiama HOT systems range. It is made of one camera per section placed in the centre of the IS machine between the blank side and the blow side. This universal system is compatible with all IS machine brands and generations. This collaboration aligns with Tiama's strategic goal of providing a complete range of Hot End sensors to enable real-time monitoring and control throughout the glass process.

Michel Carpentier, Director of the Hot End Business Line at Tiama, said, "We are thrilled to partner with TME Engineering, a company known for its commitment to innovation and quality. This partnership corresponds perfectly with our mission to provide our customers with the most advanced and effective solutions. We believe that the Tiama HOT blank will be a game-changer in the industry."

Raphaël Malvezin, CEO of TME Engineering, added, "We are excited to collaborate with TIAMA to bring the Tiama HOT blank to market. Tiama's strong brand and distribution network as well as their first-class technical service will help us reach a wider audience and make a significant impact on the industry."

The Tiama HOT blank is a crucial component of the Monitoring range, integrating perfectly with the YOUniverse concept. This innovative approach involves six essential areas of expertise collaborating to build intelligent factories, improve process control leading to a better efficiency and glass quality. Traceability, Inspection, Intelligence, Sampling, and Services are all fundamental aspects of the Tiama strategy, and Monitoring plays a key role in bringing the YOUniverse vision to life.

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FEVE

Report on steps towards decarbonisation in glassmaking by the industry

European container glass industry on path to net zero calls for fast access to low carbon energy infrastructures.

The European container glass industry has published its landmark report, marking the first and most comprehensive industry-wide research detailing the steps being taken to decarbonise glass manufacturing. The report is accompanied by a dedicated section on the **FEVE** website, including an Online Map with over 90 industry case studies showcasing decarbonisation efforts across Europe. While the industry is fully committed to this transformation, it cannot achieve its ambitious goals alone. Collaboration is essential for the container glass industry to deliver a packaging solution that is not only fully circular, but also climate neutral.

Urgent Need for Access to Affordable Low-Carbon Energy

A crucial step in reaching the industry's net zero goal by 2050 is rapid access to affordable, low-carbon energy. Currently, 80 percent of the glass container industry's direct carbon emissions result from the combustion of natural gas. Switching to low-carbon energy sources is therefore a top priority. More than 90 percent of the glass containers produced in the EU are made by companies that have committed to the Science-Based Targets initiative (SBTi).

EU Support with New or Existing Financial Instruments is Critical

The access to new financial instruments or the continuation of existing ones to support the industry efforts in the transition is also essential. As glass furnaces have a lifespan of 10 to 15 years and an estimated annual replacement rate of 7 to 10 percent, it is imperative that old furnaces are gradually replaced with ones that can operate using low-carbon technologies. The window for action is now, to ensure the sector reaches its 2050 net zero target. Currently, the glass container industry invests over EUR 600M annually in innovation and decarbonisation, including efficiency and plant upgrades. To fully achieve net zero, an estimated EUR 20 billion in additional capital expenditure will be required by 2050 to upgrade production technologies and decarbonise operations. This is a conservative estimate that excludes increased operational costs tied to securing and using low-carbon energy sources.

Glass: A Reliable Partner for a Sustainable Future – Continued Trust is Needed

Glass container manufacturers remain resolutely committed to overcoming the decarbonisation challenge, meeting growing customer demand for low-carbon glass, and positioning glass as the sustainable packaging material of the future. As a permanent material that can be recycled infinitely without losing quality, glass boasts an impressive collection rate in Europe -80.2 percent in 2022- with most of the material being recycled in the closed-loop. Additionally, glass is a safe packaging material that does not leach harmful chemicals into products, regardless of how many times it is recycled.

An Essential Material for Essential Services

With 162 glass manufacturing plants spread across Europe, the glass container industry supports 125,000 direct and indirect jobs. Moreover, over EUR 140 billion worth of EU exports are packaged in glass, while an estimated 45,000 manufacturing companies across the EU rely on glass packaging to sell their products - 98 percent of which are SMEs. The role of glass in the pharmaceutical, food and beverage, as well as perfumery and cosmetic sectors is critical, and it remains an indispensable packaging material.

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All-electric furnace innovation by FIVES and VERALLIA explained

Jointly commissioned by FIVES and VERALLIA, the all-electric 180-tonne Prium® E-Melt melting furnace for container glass reduces CO_2 emissions by 60 percent. In this article, Business Development Director - Glass at Fives Andy Reynolds explains how this milestone exemplifies the feasibility of low-carbon glass manufacturing without high emissions.

COMMITMENT TO THE ENVIRONMENT

As a leading industrial engineering group, Fives has been consistently committed to reducing CO2 emissions by 30 percent in all its activities by 2030 as it continues to develop sustainable solutions for industries to improve their environmental performance and focus on markets that contribute to the low-carbon transition. Verallia, the world's third largest glass packaging producer for food and beverage, has likewise embarked on an ambitious policy to enhance sustainability and significantly reduce its operational emissions (scopes 1 and 2) by 46 percent by 2030 compared to 2019. As part of this strategy, Verallia announced in 2021 the construction of its first 100 percent electric glass furnace with an investment of EUR 57M - marking a major milestone towards more sustainable production.

STRATEGIC PARTNERSHIP

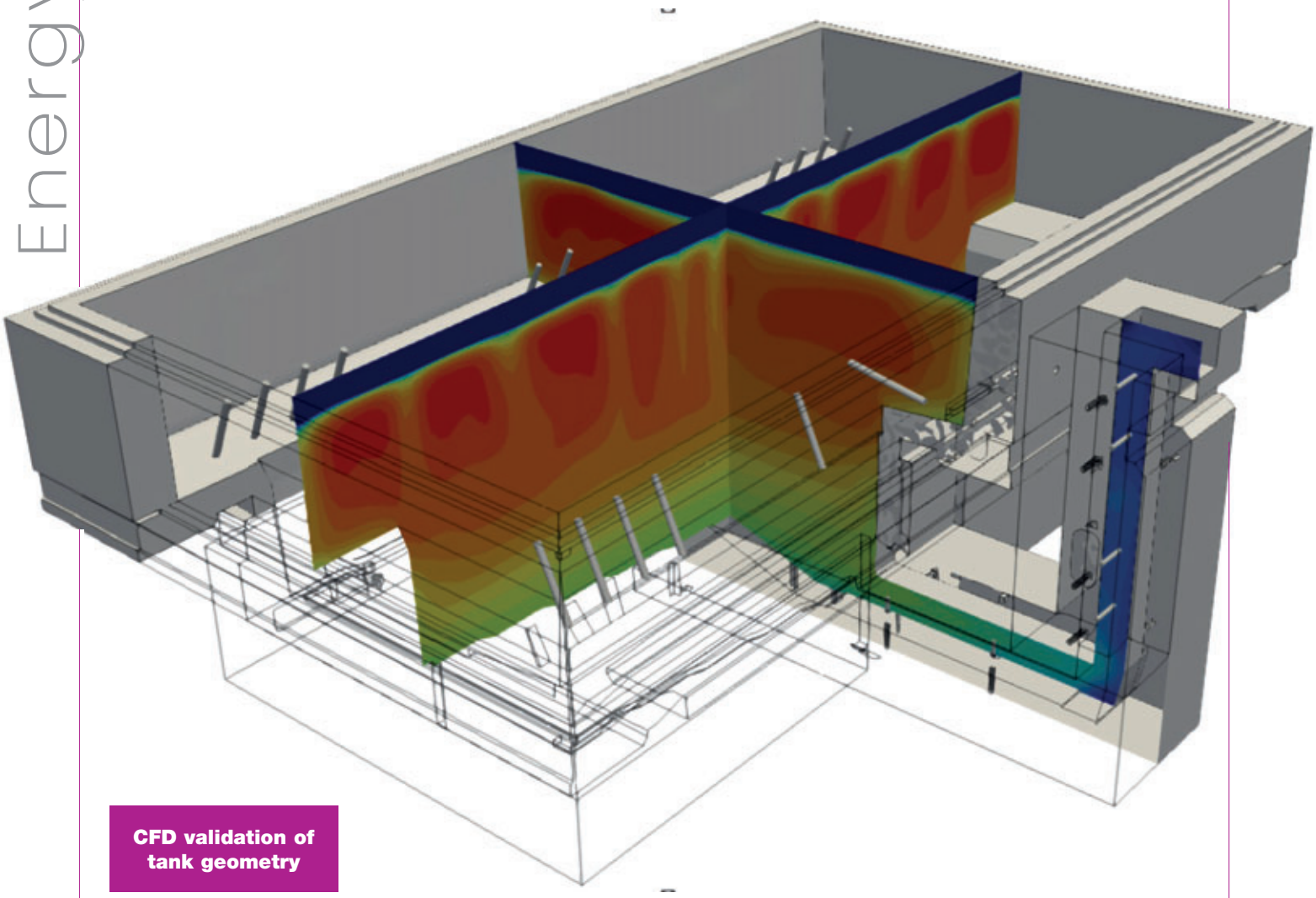
Melting is the most heat intensive stage of the production process and a move to increased electrification is therefore necessary in achieving these objectives. Here Fives and Verallia have jointly formed a strategic partnership to install an all-electric furnace at Verallia's plant in Cognac in France. This furnace represents a breakthrough in the production of flint and extra-flint glass.

Prium® E-Melt, all-electric furnace at Verallia's plant in Cognac

With a daily capacity of 180 tonnes, equivalent to 300,000 bottles, it reduces CO2 emissions by 60 percent compared to a traditional gas furnace. With the contract for the first furnace signed in September 2022, pre-engineering and design work started immediately. Construction occurred throughout 2023, with heat-up in March of 2024. The Prium® E-Melt furnace entered production at nominal design loads in April 2024.

PROJECT CHALLENGES

Historically all-electric cold-top vertical melting (CTVM) technology has been applied to specialist glass types where quality and/or compositional factors have favoured cold-top operation. In such cases, production load requirements are low compared to container furnaces, commonly being in the range of 50 - 80 tonnes/day. Upscaling existing all-electric designs to higher capacities imposes challenges in designing, building and operating the furnace. Furnace geometry, structure, batch charging, power delivery and control are all important elements in achieving the correct furnace performance. In developing the new furnace Fives has taken advantage of its many references in all-electric melting. Maintaining client relationships allows design and operational parameters to be continuously assessed and post campaign inspections made. This approach provides data to develop and validate the advanced CFD modelling that is a key tool in overcoming the numerous design challenges resulting from upscaling the technology. Fives considers that the commissioning of the Prium® E-Melt furnace in



CFD validation of tank geometry

Cognac has fulfilled two strategic objects, namely:

- CTVM technology can be applied to container production at intermediate capacities (100-200 tonnes/day)
- Validate key design features that will facilitate even larger furnaces up to and beyond 300 tonnes/day. Here Fives is actively-engaged in development programmes to design and validate such production units.

CONCLUSIONS

Cold-top, all-electric technology is not a universal panacea; its application today is applicable (practically) only to oxidised glasses. However, where it can be applied it is the best practice and proven technology in reducing CO2 emissions for the melting process. Prium® E-Melt furnace from Fives represents a key milestone in achieving the goals of both companies. Currently the largest all-electric furnace for the glass packaging industry, it produces high-quality container glass with zero combustive emissions which represents a 60 percent reduction in furnace emissions compared to the classic technology that was replaced. Fives technology coupled with Verallia's foresight and commitment has created an installation which can serve as a benchmark for the glass industry, paving the way for further developments into even larger glass furnaces in the future. ■

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Emerging market trends advanced by FERMAC decoration systems

Known for their reliability and user-friendliness, FERMAC's versatile systems continue to shape the future of the glass decoration industry. Just recently at Glasstec the company showcased its Black Widow machine, designed for cosmetic packaging decoration, which integrates UV LED technology for faster, eco-friendly production.

For over three decades, Fermac has consistently delivered stability and trust, both values its global partners have come to rely on. Since its inception as a family-owned business in the heart of Italy, the company's technology has focused upon merg-

ing traditional mechanical systems with modern electronic upgrades - so creating cutting-edge solutions to meet evolving market demands. Its expertise lies in silk-screen printing machines and ink-jet technology for a wide variety of packaging materials - including glass, plastic, ceramic and metal. As CEO Stefano Paini aptly puts it: 'Innovation through tradition.' This year, at Glasstec 2024, the world's most-attended international fair, Fermac was thrilled to launch its next-generation machine - representing true innovation within the company's established know-how.

A LEGACY OF LEADERSHIP

Recent studies indicate that family-owned companies often excel at combining traditional knowledge with innovation. Here Fermac is a prime example, given that skills, expertise and cultural heritage have all been preserved and strengthened over the years through innovation that spans generations. Recently unveiled at Glasstec 2024, its new machine, codenamed 'Black Widow,' is designed to meet specific decoration needs. More than just a machine, it's a veritable ecosystem that opens new possibilities for accessories and future advancements. More specifically, the system is designed to address the growing demands of all segments in decoration with a particular highlight of the cosmetic and perfumery sectors, which are eager for fresh solutions in packaging shapes, 3D effect printing, new-generation UV LED inks and customizable auxiliary devices for surface pretreatment.

UV LED TECHNOLOGY

The F08S is part of a newly-designed family of machines that integrates such contemporary innovative technologies as UV LED technology - thus offering fast, eco-sustainable curing solutions that significantly reduce power consumption while lowering carbon footprints. Its ergonomic design has been widely praised by users in the cosmetics field. The platform-free carousel allows easy access to the printing stations, reducing changeover and maintenance times by half, optimising ink consumption and ensuring precise printing. With a flexible robotic automation system that's developed in-house, the machine efficiently handles the loading and unloading of small items of varying shapes and sizes, delivering a decoration output of over 85 pieces per minute. This decoration system, equipped with embedded servo commands, exceeds quality standards, supporting decoration needs for any budget - whether for large-scale industrial demands or smaller production lots.

AN UNCOMPROMISINGLY VERSATILE ACCESSORY LIST

Achieving high-quality finishes is straightforward - all thanks to

the seamless integration of auxiliary devices. Fermac's FXXS machines, the flagship of the next-generation Fermac Machine & Equipment Ecosystem, are designed to incorporate a full range of dedicated modules and accessories. These include:

- Customised pre-treatment systems with integrated flaming technology or stand-alone systems;
- Antistatic treatment and inflating devices for blow-moulded plastic packaging, particularly suited for cosmetic packaging;
- Lehr stacker systems;
- Registration cameras for the bottom and body of the packaging;
- Inspection cameras for quality control;
- Hot stamping modules - either onboard or inline;
- Fast worldwide assistance.

At Fermac, a consistent belief is that decoration equipment should deliver user-friendly, long-lasting production capabilities. As a pioneer in digital printing technology, the company was the first to introduce a digital printing machine several years ago. Today, its inkjet technology complements its silk-screen printing with impressive results worldwide. Designed with operator convenience in mind, Fermac's decoration systems are built for longevity. From installation to production and maintenance, its systems are as straightforward as possible. Here the company's assistance team is known for its strong commitment to serving customers - both before and after equipment installation, thereby ensuring customer needs are met every step of the way.

MACHINES IN REAL-TIME PRODUCTION

The rationale powering the Fermac forma mentis begins from the logic that nobody would likely purchase a vehicle without test driving it first. Here's why the company offers a real-time experience - allowing customers to see their machines in full production. Whether silk-screen printing with ceramic colours, UV printing machines with integrated pre-treatment or digital printing machines, Fermac provides a live, hands-on experience. This proved especially beneficial for companies that are new to the decoration business - affording them an opportunity to fully understand the technology before making any commitments.

SHAPING THE INDUSTRY'S LANDSCAPE

Over the years, Fermac has cultivated strong relationships with its partners while continuously pushing the boundaries of innovation. Today, the company's R&D managers are working closely with its engineers to deliver the next wave of technological advancements. Moving beyond recently implemented technologies, Fermac is ready to embrace the next phase of applications in the decoration industry. With many companies 'walking on broken glass', 2024 has been a challenging one for the global industry. That said, here the typical provocation of the Fermac team is simply to ask: When something is broken, why not just rebuild it better, stronger and faster than it was before? ■

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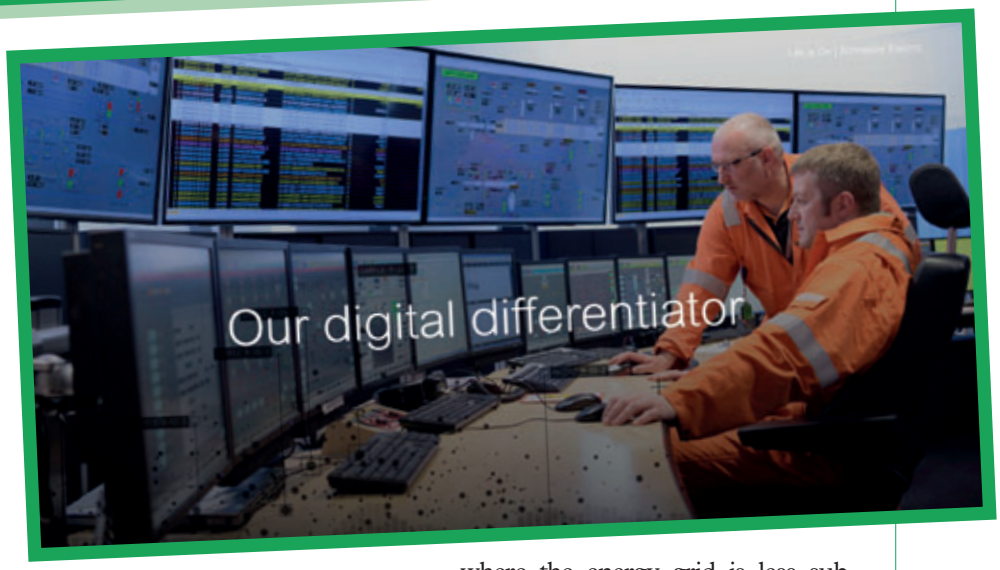
INTERVIEW

Grid-to-glass: SCHNEIDER ELECTRIC's green energy-smart industrial solutions

At Glasstec 2024, GMP&A Senior Editor Nick Fouché interviewed SCHNEIDER ELECTRIC Vice President & EMEA Mining, Minerals and Metals Segment Leader Alex Richards about the software solutions his company is bringing to the glass industry - all to advance electrification as it drives both automation and digital transformation across sectors.



GMP&A: ALEX, LET'S BEGIN BY HEARING FROM YOU ABOUT SCHNEIDER ELECTRIC

AR: Schneider Electric is a global electric technology company that comprises several core elements by which we contribute towards the sustainability of our customers' industries. In fact, sustainability has been a key focus at Schneider for the last fifteen to twenty years. Here I refer in particular to electrification, the automation of industries, their digital transformation and their decarbonisation. We're working across a number of industrial verticals to help meet the challenges companies are experiencing in, say, the mining and minerals segment. That includes steel, cement and, of course, glass. We're at Glasstec to showcase and demonstrate to customers and to the ecosystem what we can do around glass. That's everything from how do you secure your energy. More specifically, if you're going to a major electrification programme, you need to know that there's enough energy available from the grid. You will be asking: Is there enough clean, green, renewable energy available? Can you secure that via power purchase agreements? Can you look at microgrid solutions? How are you solving the actual access to energy for your plant?

GMP&A: So we're talking about mapping of infrastructure

AR: Mapping is an apt expression here because we typically start with a consulting engagement. Whether that's in decarbonisation sustainability roadmapping, digital transformation or process electrification, we start with consulting engagement to understand from each company what the challenge they're facing is as well as their particular objectives and goals. We also look at challenges that are common to everyone's individual circumstance given that certain constraints around, say, power availability, level of automation and digitisation may be the same for a site in the Netherlands as it is in Germany or the UK.

GMP&A: Alex, can you speak to challenges that may arise in countries where the energy grid is less sub-optimal?

AR: Sure. Last week I was in South Africa and one of the big challenges for them has been load-shedding. In the last few months that's improved but, of course, if you're looking for an electrification solution to decarbonise your plant you're going to have a challenge in that situation. One needs security of supply to keep operations running. Indeed you have to consider such constraints before you start planning your next five to ten years of operation. At Schneider we look at all those aspects from A to Z. What we're showcasing here at Glasstec is really the grid-to-glass story - from consulting through to planning the relevant infrastructure upgrades to a story which we call integrated operations for power and process. There we begin by asking: How do

you take the disciplines of power, process control and automation to then connect those two disciplines to ensure customers have operational efficiency, more autonomy, uptime improvement, etc. We're looking at how you can bridge the gap between control systems and automation systems to enable customers to have a more reliable plant and ultimately drive down capex and opex costs.

GMP&A: So you leverage industrial software to drive companies towards industry 5.0.

AR: Precisely. Just in terms of the scale of investments, the fastest moving segment is that of data centres and their associated service providers. That's across the board. Obviously with industry 4.0 we had the AI explosion so that's really driving huge acceleration. If you look at the more industrial segments like automotive, the pressure -particularly on Europe- comes from upstream in the value chain. What it's saying to metals, glass and mining companies is: 'We need you to decarbonise because what we want to brand and badge is electric vehicles that are green. Our consumers and regulators are also telling us we need to cut down emissions.' We already know there've been commitments to be at net zero by 2030 and 2050. So it's very important that upstream industries like glass, cement, steel and mining are all able to decarbonise their operations - all to meet the needs of their customers before it even gets to an end consumer like you and me.

GMP&A: Using a glass-specific example, what can you tell us about Schneider Electric's offer to its customers in the area of industrial software?

AR: Some time ago Schneider Electric acquired industrial software company Aveva, thanks to which we can now offer an agnostic, end-to-end software portfolio and platform that will provide accompaniment from design of a new plant right the way through to operations, asset performance management, etc. That digitisation also filters down to every level of technology. We're currently working with a new open automation architecture where we're helping a customer embed a digital control inside products to ensure they get continuous glass production without interruption, thus saving on capex and opex, reduced downtime, etc. A typical flow glass operation typically necessitates control by two or three motors, which is to ensure consistent speed. If one motor goes down you need the other motor to pick it up so you have consistency and so the production process isn't disrupted. You can do that today with traditional automation systems: you have hardwiring, you have control etc. Where our new automation architecture is different is that it will embed a digital programme within the drive so the motor can run intelligently. When it comes to a new installation you save on your capex costs and you save on your engineering time. Besides, you can retrofit that into existing installations, thereby taking what is an existing piece of technology and making it intelligent. So you're also future proofing. ■

Schneider Electric

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MARPOSS VISIQUICK & ATMOS to ensure perfumery packaging quality and sustainability

In the following feature article, MARPOSS International Industry Manager for Glass Packaging Eleonora Bordini explores advanced measurement solutions for perfumery glass by examining how her company's VISIQUICK and ATMOS systems enable precise, automated quality control that will also support complex design.

Perfumery bottles

MEETING THE DEMAND FOR UNIQUE, SUSTAINABLE PACKAGING

Perfumery bottles are among the world's most captivating objects. When entering any perfumery shop in our cities, or even a duty-free shop in an airport, we're typically enchanted by the sheer variety of shapes, colours, decorations and accessories. Some bottles feature especially unique designs, such as those shaped like stilettos or robots. Examples like these are

Line including VisiQuick and Atmos

abundant. Each perfume must stand out immediately among all others, and designers from fashion maisons are constantly generating ideas for new, distinctive packaging to differentiate their products. Here, glass container manufacturers face the challenging task of transforming these creative sketches into real bottles. I recall a conversation with a manager at a perfumery and cosmetic glass manufacturer who, in a fit of frustration, told me, "Fashion designers are the craziest people in the world!" Consumers appreciate new, iconic shapes, but they are also increasingly concerned about environmental issues. They want to purchase luxury products while also caring about sustainability. To meet this need, brand owners have introduced refillable bottles. Customers now have the option to buy a refill of their favourite perfume, allowing them to retain their beautiful, often expensive original bottles rather than discarding them each time the perfume runs out. They can refill these bottles themselves, saving costs, as a refill bottle is usually less expensive than a new one. The requirement for refillability, however, adds complexity to perfume bottle design. The spray mechanism must be easy and safe for the consumer to unscrew for refilling, yet it should not come apart unintentionally. To address this, unscrewing-prevention features -like the so-called 'rice grain' have been added to the bottle's threaded finish. This feature complicates bottle design and requires precise measurement to ensure functionality and compliance. Another eco-friendly practice is reducing the use of raw materials and maximising recycled glass in the production of glass containers, which also lowers the energy needed for melting. Improving quality and minimising scrap production are additional ways glassmakers contribute to sustainability and cost savings. Manufacturers of glass containers for perfumery and cosmetics must carefully select the most suitable measurement systems and technologies to uphold the quality of their uniquely designed products. This sector represents a small niche compared to the much larger beverage bottle market, with only about ten companies worldwide dedicated to it. These containers are complex, so suppliers of general measurement and inspection machines for glass containers are often uninterested in this niche, preferring to focus on solutions for round bottles, such as those for beer. Marposs, however, is different. Not only does Marposs embrace challenges, but it also possesses the technical expertise required to meet them. This is why the market for perfumery and cosmetic glass containers has our attention. It's a growing sector, valued at USD 2.24 billion in 2023 and projected to reach USD 3.65 billion by 2032, with a Compound Annual Growth Rate (CAGR) of 5.6 percent (Source: Straitsresearch.com). The demands of this market are challenging due to the intricate shapes and high-quality standards expected by brand owners. Solutions developed for this segment benefit glassmakers across various sectors. In fact, Marposs's first customer in the glass packaging industry was a well-known Italian manufacturer of perfumery and cosmetic glass containers.

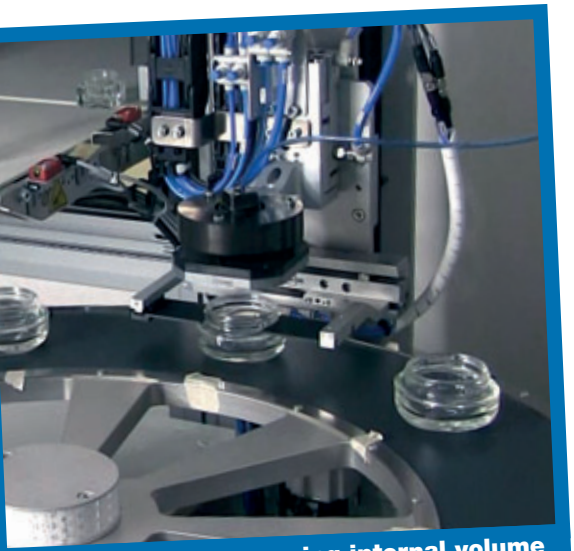
VISIQUICK: ADVANCED DIMENSIONAL MEASUREMENT FOR COMPLEX DESIGNS

In response to the needs of this client, Marposs developed VISIQUICK fifteen years ago, a fully flexible machine that measures the external dimensions of any kind of glass container using optical technology. VISIQUICK has since undergone numerous technical developments and upgrades, culminating in its most advanced version, launched in 2024, which uses an anthropomorphic robot for container handling. Robotic handling offers several advantages, including simplified maintenance and the ability to gently move even the smallest containers.

VISIQUICK'S MEASURING STATIONS INCLUDE:

- External dimensions measuring station with dual cameras, customizable telecentric lenses and illuminators and an extensive database of algorithms for measuring various features on the body, neck and finish (including the rice grain).
- Bore diameter and profile measuring station, which includes a single-contact bore gauge with a customizable measuring range starting from 6mm.
- Wall thickness measuring station.
- A patented system for measuring the profile of the labelling area, detecting and measuring sinks and bulges.
- Weight and push-up measuring station.

VISIQUICK is available for standalone installation, with single or multiple infeed conveyors, or for online integration, with containers diverted directly from the production line to the machine. It can be installed in either the production environment or the laboratory. Marposs's VISIQUICK system for perfumery containers includes a suite of specific measurements, dedicated algorithms and an optimised optical setup.



Atmos measuring internal volume of a cosmetic jar

ATMOS: REVOLUTIONARY INTERNAL VOLUME MEASUREMENT TECHNOLOGY

Marposs also offers ATMOS, a fully automatic machine that measures the brimful internal volume of glass containers using pneumatic technology rather than water. This innovative system can be installed as a standalone machine or downstream of a VISIQUICK machine for dimensional measurement. While pneumatic systems for internal volume measurement have existed previously, they were inaccurate and required a separate physical reference volume for each nominal volume, making them impractical for glassmakers producing a wide range of articles. ATMOS, however, accurately measures the brimful capacity of containers with nominal volumes from 5ml to 250ml and bore diameters ranging from 4-75mm, without job changes or the need for physical reference volumes. Marposs's technology is grounded in its extensive experience in measurement and testing, including leak testing, for demanding industries like automotive and aerospace. After measurement, containers are delivered to an accumulation table, where conforming and rejected items are separated. Good containers are kept apart to prevent scratches from contact. ATMOS enables manufacturers of perfumery glass containers to automate the internal volume measurement process, thereby reducing labour costs. Traditional automatic machines for internal volume measurement that use water cannot measure containers with bores smaller than 15mm. Once filled with water, containers cannot be reintroduced into the production flow, even if they meet specifications. This results in the wasteful destruction of many viable containers daily - a practice that is neither sustainable nor economical, especially for expensive luxury containers. On average, an estimated 64 containers per shift per line must be inspected, equating to 192 per day per line, or over 70,000 per line annually. In a plant with ten lines, this translates to approximately 700,000 containers rejected each year. With a selling price of up to EUR 1 per container, this represents EUR 700,000 in lost revenue annually. With VISIQUICK and ATMOS installed sequentially, manufacturers of perfumery and cosmetic glass containers can fully automate their measurement process, conducting all dimensional and volumetric controls without manual intervention. This leads to significant labour savings while providing real-time, accurate data essential to the production setup. Marposs counts several European and global manufacturers of perfumery and cosmetic glass containers as its customers, as well as many others producing containers for the beverage, food and pharmaceutical industries. For more information on Marposs products for the glass packaging industry, please visit the Marposs website. ■

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NEOM: A Lucrative Opportunity for The Glass Industry

Saudi Arabia's Neom development project presents potentially lucrative opportunities for glass producers. Part of Saudi Arabia's Vision 2030 plan, the Neom development spans an area the size of Belgium and includes the glass sided 500 meters tall smart city called The Line.

Saudi Arabia's Neom project offers a number of potentially lucrative business opportunities for producers of flat and hollow glass. The total area under development amounts to around 26,500 square kilometres (10,200 square miles) – approximately the same size as Belgium.

Makers of machinery for the glass industry could also stand to benefit from companies seeking to increase production capacity to meet the demands of this enormous project.

The Neom project is part of Saudi Vision 2030, a program launched by the Saudi Arabian government to prepare the nation economically, socially and culturally for the future.

While some might view Saudi Arabia as a desert kingdom, the south west of the nation has a more temperate climate with beaches and snow-capped mountains making the area ideal for tourism and even for industry. Indeed, Neom positions itself as a global hub for business and aims to set standards for livability too.

One of Neom's key projects is The Line, a glass sided linear smart city that will reach from the southern end of the Gulf of Aqaba eastwards 170 kilometres into the desert. The Line is one of Neom's 16 large scale developments. On Google Maps today, it is possible today to see initial excavations for the structure's foundations.

A 2.4 kilometre first phase will provide living space for 300,000 people and is due for completion by 2030. Completion of the entire structure of The Line is expected by 2045.

Once complete, the Line will be able to house 9 million people. Residents in this smart city will never be more than 5 minutes away from local amenities. Travel from one end to the city to the other will only take 20 minutes via a high speed transit system.

The dimensions of the line, as well as its length, are striking. Not only will the main structure be 500 metres high, it will also be 200 metres wide. Quick calculations will reveal just how much glass is likely to be required for its external surfaces. Seeing as The Line is to be as energy efficient as possible, the glass panels are likely to be double, if not triple-glazed units.

Glass producers interested in supplying the project would do well to note that The Line project has generated some controversy. Indeed, companies considering involvement in the supply of materials for the project should also pay attention to potential reputational risk issues.

All projects of this size carry risks but if there are doubts surrounding the Neom project, the completion in October 2024 of the Sindalah region should go some way towards allaying them.

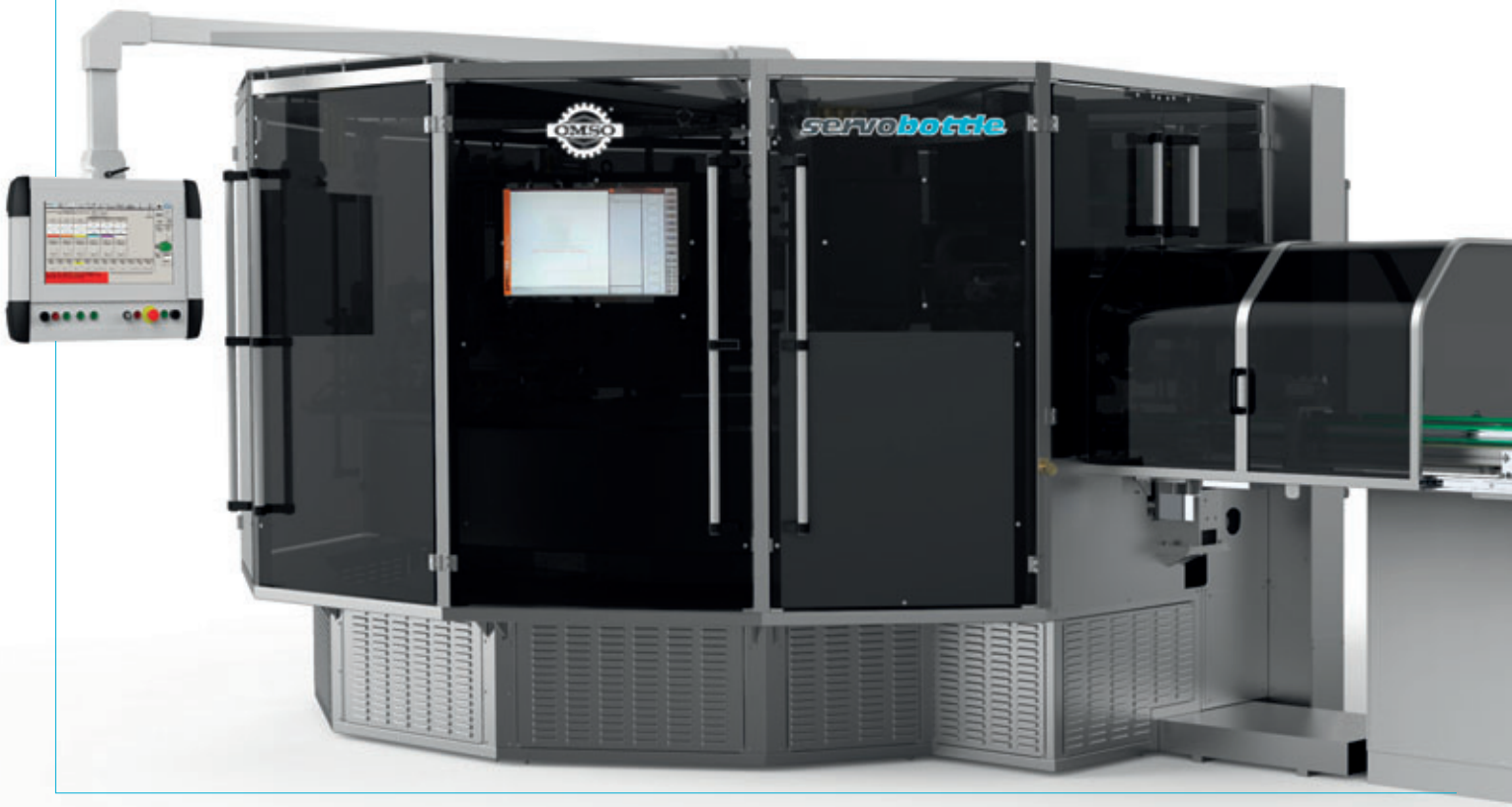
The luxury resort of Sindalah, the first Neom Region to be completed, is situated on an 840,000 square metre (9 million sq ft) island in Saudi Arabia's Tabuk Province.

Clearly, the Neom series of construction projects will all require, to a greater and lesser extent, glass. In view of the location of Neom's regions, the range of glass products required will be extensive.

Less obviously perhaps, many of these developments will require decorative glassware as well as many other hollow glass products. Find out more about the projects on the following websites: **https://www.neom.com and https://www.vision2030.gov**

Trailblazing innovations in OMSO's Servobottle and SB021 machines

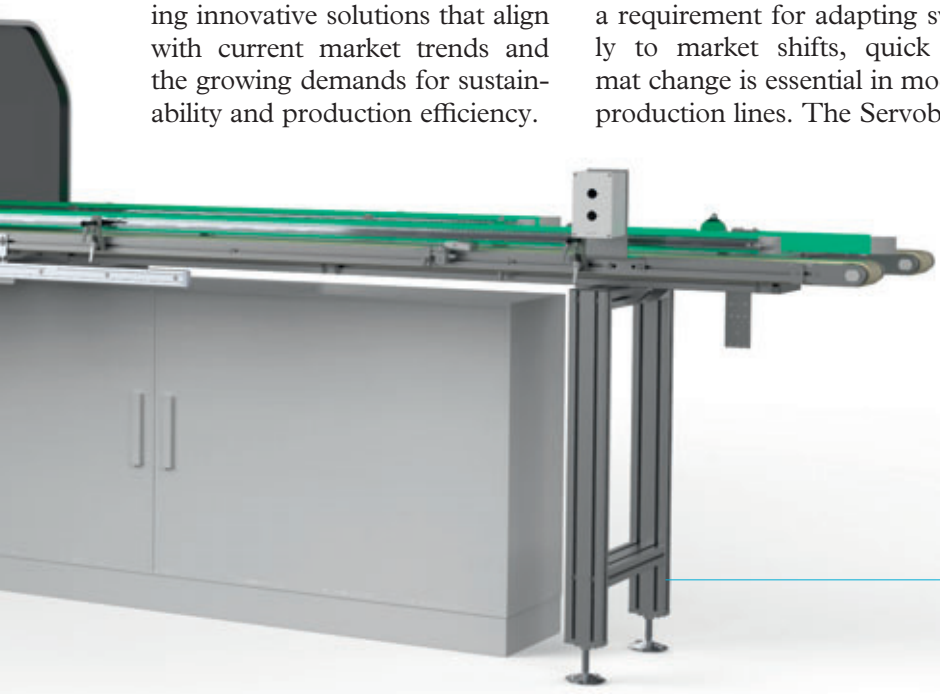
Founded in 1952, OMSO is recognized globally as a leader in the production of screen printing and decoration machines for three-dimensional objects. With its head office in Reggio Emilia, the Italian company operates an 11,000-square-metre manufacturing facility where it develops technologically-advanced machinery for the decoration of glass containers within the beverage, spirits, cosmetics and pharmaceutical industries. Thanks to an extensive global distribution network, OMSO supplies over 85 countries worldwide, including the United States, Europe, Asia and South America. Among its standout products, the Servobottle and SB021 machines, designed specifically for direct printing on glass, meet the needs of customers looking for efficiency, flexibility and sustainability.



At Glasstec this October, OMSO showcased its Servobottle and SB021 machines, both of which captured the attention of event attendees thanks to their innovative capabilities in quick format changes, energy-efficient LED technology and integrated quality control. Such features reinforce the company's commitment to glass printing solutions of high-quality that are both sustainable and flexible - thus solidifying its role as a global leader in glass decoration.

GLASSTEC SUCCESS STORY

From October 22 to 25, 2024, OMSO showcased its latest advancements at Glasstec in Düsseldorf, one of the glass industry's most important trade events. Here the Servobottle and SB021 machines took the spotlight, generating substantial interest among visitors, both for their configurability and for their ease of format changes. Such are the features that solidify OMSO as preferred technology partner for companies that are after flexible, cutting-edge solutions. Indeed the success of these models at Glasstec reflects OMSO's commitment to providing innovative solutions that align with current market trends and the growing demands for sustainability and production efficiency.

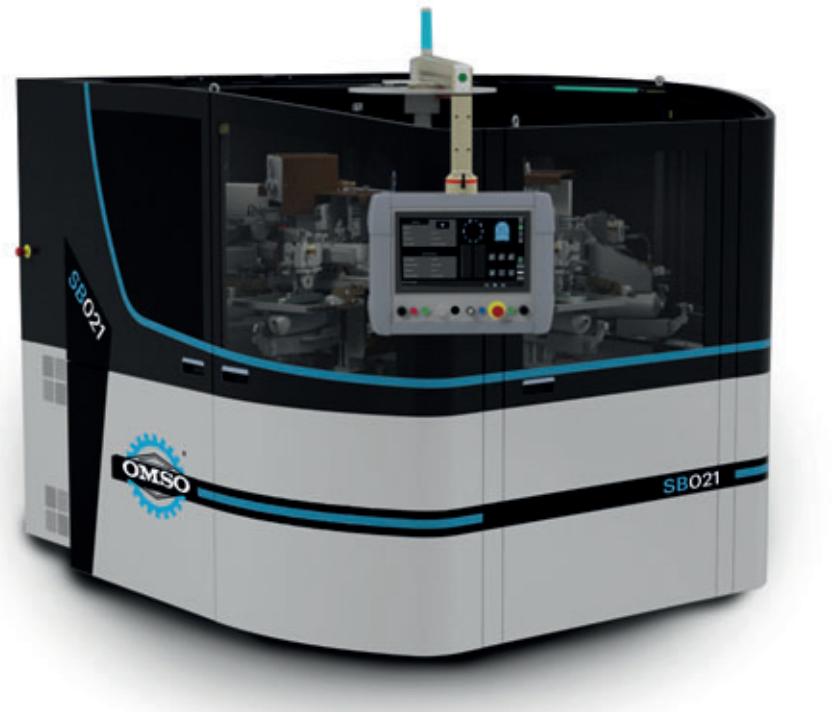


QUICK FORMAT CHANGE AS COMPETITIVE ADVANTAGE

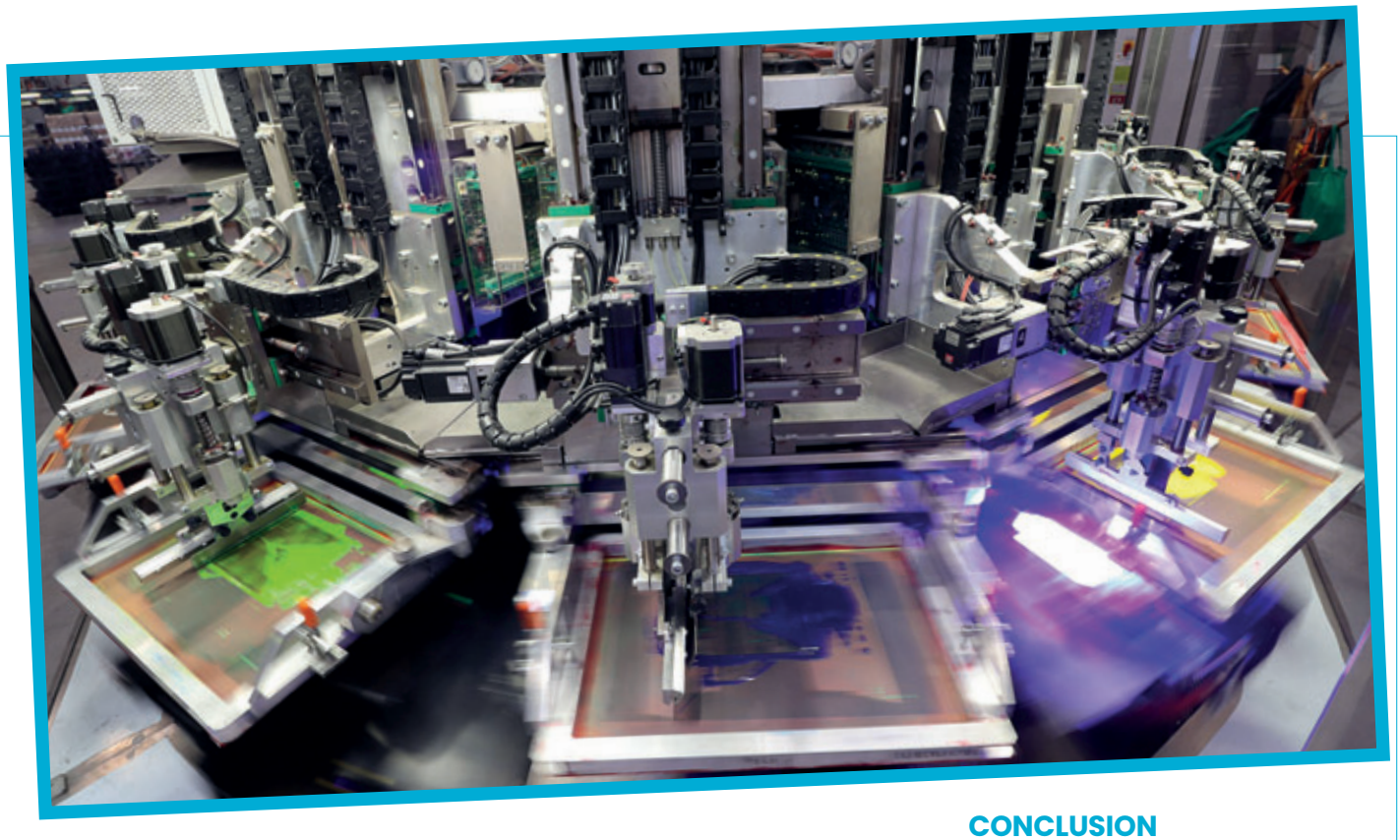
Given that agility has become a requirement for adapting swiftly to market shifts, quick format change is essential in modern production lines. The Servobottle and SB021 models are engineered for fast, intuitive format changes that reduce downtime and boost productivity. This capability is especially critical in the cosmetics packaging industry, where frequent changes in container formats and models are standard. With a tool-less system and the ability to store preset configurations, these machines facilitate product changes in just minutes. Such efficiency directly translates into overall cost savings - a tangible benefit for companies aiming to optimize production processes.

ENERGY EFFICIENCY AND UV LED TECHNOLOGY

OMSO places a high priority upon the energy efficiency of its machines - implementing tech-



nologies that minimize consumption and emissions. Equipped with a high-efficiency torque motor, the Servobottle delivers both performance and reliability. Together with high-efficiency brushless stepper motors, it achieves consistently high production speeds over time whilst optimizing energy consumption. The adoption of LED lamps over traditional mercury vapour lamps marks a major breakthrough in energy savings. As they maintain the same drying efficiency, LED lamps achieve significantly lower energy consumption. OMSO collaborated with the University of Modena and Reggio Emilia (UNIMORE) to conduct a study through the Industrial Plant Design and Management Laboratory of the Department of Sciences and Methods for Engineering (DISMI). The study measured energy savings in various machine configurations and operating conditions. Here findings reveal substantial results: LED technology reduces energy consumption by up to 80 percente compared to mercury vapor lamps, with a significant reduction of CO2 released into the environment. OMSO has incorporated this data into its machine management software, which includes a dedicated page for calculating the CO2 saved in each production run. This feature allows companies to track their environmental impact in real time. Additionally, in terms of sustainability, LED lamps have an average lifespan approximately 20 times longer than traditional lamps. They require no bulb replacements and LED end-of-life disposal has a far lower environmental impact than that of mercury vapor lamps.



PRECISION AND PRINT QUALITY ON GLASS

OMSO is renowned for its expertise in printing on three-dimensional objects and the Servobottle and SB021 exemplify how the company has translated this know-how into high-performance machines. Screen printing on glass demands an exceptional level of precision. These models meet this requirement by delivering accurate colour registration with tolerances of between 0.1 mm and 0.2 mm. Both models can be equipped with a camera-based quality control system - an optional feature that automatically detects print defects, colour variations and surface imperfections, thus ensuring consistent product quality. Integrating quality control directly within the machine minimizes waste, as potential issues are identified immediately, thus improving overall production efficiency. Indeed with over seventy years of experience, OMSO has solidified its position as a global leader in hollow glass printing. Here, by offering solutions of the highest quality, it is not only catering to the current needs of the industry but is also paving the way for a more sustainable future.

MEETING MARKET DEMANDS IN EFFICIENCY, FLEXIBILITY AND SUSTAINABILITY

As the market's demand for efficiency, flexibility and sustainability grows, OMSO's Servobottle and SB021 models stand out as ideal solutions for businesses looking to stay ahead. The simplicity of format changes, coupled with the significant energy savings from LED technology, sets these machines apart as cost-effective, sustainable options. The in-built quality control systems further enhance these models, allowing manufacturers to consistently produce high-quality glass products while minimizing their environmental impact. Through its investment in technology and commitment to environmental stewardship, OMSO continues to lead the way in glass screen printing. With a portfolio that meets the demands of diverse industries, the company reinforces its role as a reliable partner for companies seeking innovation in the decoration of three-dimensional glass objects. OMSO's enduring commitment to quality and environmental responsibility supports the glass industry's progression toward a more sustainable future - one print at a time.

CONCLUSION

OMSO's innovative Servobottle and SB021 machines offer a unique combination of quick-change functionality, energy-efficient UV LED technology and integrated quality control systems, making them invaluable assets for companies in the glass decoration sector. With these offerings, OMSO sets a benchmark in the industry - blending Italian craftsmanship with forward-thinking solutions to address contemporary production challenges and future-proofing the glass decoration process. Through sustained research, collaboration and an eye toward eco-conscious practices, the company continues to drive advancements in glass screen printing, underscoring its legacy as a pioneer in the global glass industry. ■

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VACUUM PUMPS

PNEUMOFORE glass furnace technologies make ARGLASS manufacturing greener

Most popular vacuum pump Pneumofore UV50, efficient and durable

Aiming at enhanced efficiency in its glass production, ARGLASS has opted for PNEUMOFORE's advanced 12,000 m³/h vacuum technology - a choice that aligns with industry shifts toward durable, eco-friendly systems while reducing both costs and environmental impact. Equipped now with VacMan and UL-certified components, Arglass thus demonstrates its commitment to modern, sustainable practices in manufacturing.

Marking a transformation within the glass manufacturing industry, Arglass has made a decisive step forward by opting for a state-of-the-art 12,000 m³/h vacuum flow solution from Pneumofore. Signalling a bold investment in sustainable and efficient glass production, outdated glass furnaces are being retired, with companies like Arglass turning to advanced Greenfield projects by taking advantage of innovations that provide higher efficiency, longevity and reduced environmental impact. This trend reflects a broader shift in the industry, where technological advancements are making a compelling case for new installations over continuous costly repairs of ageing infrastructure.

A NEW FUTURE

As the glass industry navigates the complexities of modern demand, companies are increasingly prioritising equipment that combines durability with reliable performance. Arglass's choice underscores a clear preference for machinery that aligns with the industry's urgent decarbonization efforts, a priority driven by both regulatory pressures and corporate sustainability goals. This evolution is evident across all aspects of glass production, from the furnaces and IS machines to the quality control systems, palletizers - and more. Selecting machines today requires an exhaustive review of the Total Cost of Ownership (TCO), particularly for energy-intensive components like air compressors and vacuum pumps that can significantly impact a facility's operational costs and environmental footprint. For facilities operating with gas-driven furnaces, pneumatic systems account for the largest share of electric power consumption, making energy-efficient machinery a crucial investment. With solutions like Pneumofore's UV50 vacuum pumps, Arglass has positioned itself at the forefront of energy-conscious glass production and setting a benchmark in sustainable industrial practices. The extraor-

5 units air-cooled UV50 installed at BGI in Ayutthaya, Thailand

Four UV50 vacuum pumps being tested at Pneumofore for 12,000 m^3/h capacity, November 2024

dinary efficiency-guarantee of 10 years was decisive for the selection of the vacuum pump supplier.

TAILORMADE SOLUTIONS

Customization is a central element in selecting high-performance equipment, and the Pneumofore vacuum pumps chosen by Arglass are exemplary in this regard. Each vacuum pump is equipped with a Siemens PLC (Programmable Logic Controller) and HMI (Human-Machine Interface), which dually enhance operational control and ease of use. Additionally, the entire system is UL certified, ensuring compliance with North American safety standards and is water-cooled for thermal management. Furthermore, the pumps are integrated with Pneumofore's proprietary VacMan control system - designed to connect seamlessly to the facility's central control network. VacMan functions as a sequencer and integrates with SCADA (Supervisory Control and Data Acquisition) via TCP/IP or Ethernet, enabling real-time communication of machine status and performance metrics. This connectivity provides Arglass with enhanced oversight and operational efficiency, allowing for timely adjustments and preventive maintenance.

ENERGY SAVINGS

In an industry where installed power for compressors and pumps can total thousands of kWs, companies are recognizing the critical role of energy-efficient technologies. Through careful evaluation of available solutions, engineers can pinpoint the systems that bring long-term savings and reliability. Factors like operational lifetime, maintenance requirements and power consumption are all key drivers in these decisions - reflecting a growing emphasis upon the reduction of greenhouse gas emissions while minimising energy costs. Here the choice of Pneumofore's technology aligns with Arglass's commitment to both sustainability and innovation. As the glass manufacturing industry continues to evolve, this project highlights the possibilities that emerge when cutting-edge technology meets responsible industrial practices. With durable, efficient and customised equipment, here Arglass is setting a new standard in glass production - exemplifying how sustainable choices can lead to profitable outcomes and industry-wide change. ■

A rising preference for SUSTAINABLE GLASS PACKAGING

With an ever-increasing sensitivity to the reduction of our environmental footprint, SUSTAINABLE GLASS PACKAGING begins to emerge as the go-to option for consumers. Here, offering us a walkthrough of how recent studies indicate a decisive trend in this direction, O-I Glass Content Strategist Kelsey Lambers examines why more of them now favour brands that privilege recyclability.

Kelsey Lambers - Content Strategist, O-I Glass

In today's environmentally-conscious world, consumers are increasingly demanding sustainable packaging solutions - and they're willing to pay. New studies show that glass packaging stands out as a preferred consumer choice due to its recyclability and minimal environmental impact.

GLASS PACKAGING AS A SUSTAINABILITY AND HEALTH DECISION

Recent research consistently shows that consumers favour glass for its sustainable properties. Not only do they articulate a preference for it. They also pursue it while shopping and are even willing to spend more on products that use glass packaging. Indeed half the respondents in a 2022 independent research survey carried out among over 4,000 consumers across 13 European countries, commissioned by FEVE for Friends of Glass, said they buy more products in glass specifically because it can be recycled more effectively than other packaging materials. And in a 2022 poll from the Glass Packaging Institute (GPI), consumers said they not only prefer glass packaging due to its environmental benefits but are also motivated to adjust their buying habits. According to the poll:

- 92 percent of respondents said they would feel positively toward a company that offered more glass packaging because of its lower environmental

impact than other materials;
- 76 percent of respondents were familiar with the fact that glass is infinitely recyclable;
- 58 percent said knowing that glass was infinitely recyclable could make them change their purchasing behaviour;
- 73 percent of respondents said they wished more companies offered their food and beverage products in glass packaging.

In a 2022 poll from the Glass Packaging Institute (GPI), 76 percent of respondents were familiar with the fact that glass is infinitely recyclable. In addition, results from a 2023 Hart Research Online Survey from the Glass Packaging Institute (GPI) revealed that a majority of consumers prefer glass. The survey showed that when consumers are educated around the sustainability and health benefits of glass, they prefer glass packaging. When consumers are provided information about the sustainability benefits of glass compared to plastic containers and aluminum cans that contain plastic liners, 73 percent said they prefer glass packaging. In a 2022 poll from the Glass Packaging Institute (GPI), 73 percent of respondents said they wished more companies offered their food and beverage products in glass packaging.

THE INCREASING TRACTION OF SUSTAINABLE PACKAGING BRANDS

Consumers aren't just choosing glass for themselves - but they're expecting brands to take the lead in offering sustainable packaging solutions.

"Consumers want products in glass, value the sustainability of glass, and want to buy from companies that offer glass packaging. Americans across the board are concerned with the environmental impact of their food and beverage packaging choices, and this poll is a signal to companies to take note," said GPI President Scott DeFife in a news release.

A 2023 study conducted by McKinsey and NielsonIQ showed a clear correlation between consumer spending and sustainability-related claims on product packaging. The study looked at five years of U.S. sales data across 44,000 brands and found that products making ESG related claims averaged 28 percent cumulative growth, versus 20 percent growth for the products that made no such claims over the same time period.

According to the 2022 survey commissioned by FEVE, four out of five consumers surveyed agreed that companies have a moral obligation to use sustainable packaging.

"As an industry we are constantly looking for ways to innovate to ensure glass continues to be a sustainable material that we can rely on to protect our health and that of the planet," said Adeline Farrelly, Secretary General of

CONSUMERS WANT MORE GLASS PACKAGING

About 3 in 4 consumers wish more companies offered their food and beverage products in glass packaging

Source: CARAVAN Omnibus Survey, 2022

FEVE, the European Container Glass Federation. "We're happy to see consumers recognize these qualities and validate that glass is the packaging material that will see us into the future. Now it's over to our favourite brands to pick up that challenge."

In a 2022 poll from the Glass Packaging Institute (GPI), 92 percent of respondents said they would feel positively toward a company that offered more glass packaging because of its lower environmental impact than other materials.

GLASS AS SUSTAINABLE PACKAGING MATERIAL

For consumers and brands opting for more sustainable choices, glass packaging is the clear winner.

Glass is infinitely recyclable, meaning it can be recycled over and over again without a loss in quality. Recycled glass can be made into new glass bottles or jars in as little as 30 days. As the amount of recycled glass increases in the production process, the energy needs decline - every 10 percent of recycled glass used in production leads to a 5 percent reduction in carbon emissions.

Glass is made from four simple, all natural ingredients - sand, limestone, soda ash and recycled glass. For the glass that doesn't end up recycled - that means no harmful chemicals leaching into the earth, oceans or water supply. And when glass breaks down, it eventually returns to the earth instead of sitting in a landfill. Consumers are purchasing brands packaged in glass to reduce their environmental impact, support the circular economy and enjoy the quality and taste of their food and beverages. Proof positive that glass is the packaging material of the past, present and future. ■

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Glass container manufacturing bolstered by HSTEC's AIQ Workstation

TRANSFORMING GUIDE PLATE QUALITY INSPECTION

In the current production process for glass containers, the quality inspection of, for example, guide plates is largely reliant on manual checks by human operators. Each guide plate, essential for forming the top portion of glass containers, must be closely examined to ensure defect-free functionality. This process, however, is prone to human error and requires intense concentration and physical effort from operators. The repetitive nature of this work, combined with the need for unwavering precision, can lead to missed defects and inconsistent quality, especially during extended shifts. To address these challenges, HSTec's AIQ Workstation redefines the inspection process by offering an AI-powered, automated solution that delivers 100 percent accuracy without the limitations of manual checks.

A VERSATILE SOLUTION FOR 100 PERCENT QUALITY CONTROL

The AIQ Workstation can either be deployed as a standalone unit, integrated into an automated robotic cell, or placed within a functional robotic work cell, thanks to its compact design. This small footprint ensures it can easily fit into various production settings, even those with limited space, without requiring extensive reconfiguration. Whether as an individual unit or part of an automated line, it adapts seamlessly to support the specific requirements of the glass container manufacturing process.

ADVANCED ANOMALY DETECTION AND TRACEABILITY

Equipped with high-resolution cameras and AI-driven anomaly detection algorithms, the AIQ Workstation excels at

AI-driven and ensuring 100 percent defect detection, the AIQ Workstation from HSTEC revolutionizes quality control for glass container manufacturing by automating the traditional, manual process of guide plate inspection. Enhancing traceability while providing real-time data access, with its versatile deployment options it improves accuracy, efficiency and consistency - ultimately raising glass container quality standards.

identifying a wide range of surface defects on various parts of glass container mould equipment, including scratches, dents and micro-inconsistencies that can impact container quality. As production demands evolve, it can be upgraded with additional cameras to expand coverage, capturing even the smallest deviations with precision. The AIQ Workstation also features integrated Optical Character Recognition (OCR) capabilities that read engravings on each guide plate. This enables full traceability, linking each inspection outcome to a specific workpiece and ensuring a comprehensive record of quality compliance. This traceability feature supports quality control teams in tracking and analyzing defect patterns, helping to inform improvements in upstream manufacturing processes.

REAL-TIME DATA ACCESS AND CONNECTIVITY

The AIQ Workstation also enhances operational oversight through its advanced connectivity options. Integrated into the local network, it provides real-time inspection data that quality control teams can access instantly, enabling quicker responses to production anomalies. Alternatively, with 5G connectivity, the AIQ Workstation allows remote access to inspection data, facilitating off-site monitoring and diagnostics. This flexibility ensures that inspection data and insights are readily accessible from anywhere, supporting dynamic and proactive quality management.

IMPROVED PRODUCT QUALITY AND OPERATIONAL EFFICIENCY

By automating the inspection process, the AIQ Workstation eliminates the inconsistencies and strain associated with manual checks. It ensures that every glass container mould part meets stringent quality requirements, minimizing the risk of defects in the final glass containers and reducing costly rework. Its ability to conduct 100 percent inspection with high accuracy not only elevates the reliability of glass container mould equipment. It also streamlines production efficiency, enhancing overall product quality and customer satisfaction.

The AIQ Workstation represents a forward-looking solution for quality control in glass container mould equipment manufacturing. Its modular design, expandable hardware and advanced connectivity capabilities make it an invaluable tool for ensuring consistent product standards in an industry where precision and reliability are paramount. ■

Life SUGAR has STARA GLASS driving sustainability in glass

With sustainability and innovation being no longer optional but imperative in the glass industry, a crucial initiative is currently underway - piloted by Stara Glass and with the involvement of key European partners. Leading the mission is the LIFE SUGAR project, which has the collaboration of Kinetics Technology, Nextchem, Johnson Matthey, Stazione Sperimentale del Vetro and the University of Genoa. Through groundbreaking advances in furnace technology, LIFE SUGAR promises a substantial leap toward reducing energy consumption and CO_2 emissions. In the following article we explore the goals, impact and upcoming pilot of LIFE SUGAR, which is set to launch at Vetrerie Meridionali S.p.A. by mid-2025.

A STEP TOWARD CARBON-NEUTRAL GLASS

The glass industry is under intense pressure to reduce its environmental impact. Albeit sustainable due to its recyclability and inert properties, glass production remains nonetheless energy-intensive - contributing significantly to greenhouse gas emissions. The LIFE SUGAR project, co-financed by the European Union, addresses this challenge by developing a total recovery furnace that reclaims waste energy and transforms it into a usable fuel source - reducing both energy usage and CO_2 emissions. Indeed the technology behind LIFE SUGAR involves steam-methane reforming (SMR) within Stara Glass's Centauro furnace architecture. This approach uses residual heat from exhaust gasses to produce hydrogen-rich syngas - an innovative method that replaces part of the natural gas fuel with a cleaner, high-energy alternative.

PILOT AT VETRERIE MERIDIONALI S.P.A.

Before the pilot phase, the SUGAR system was tested at the Savona Campus of the University of Genoa to ensure its reliability and efficiency. Now the upcoming pilot at Vetrerie Meridionali S.p.A will be a key milestone, showcasing how the technology can scale and perform in real-world conditions and thereby offering valuable

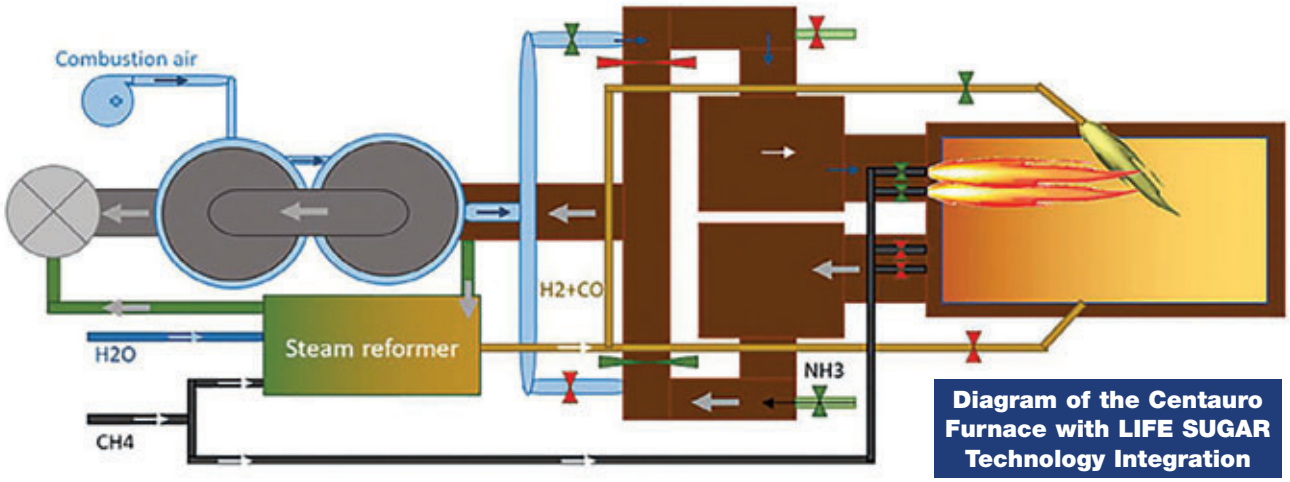

Diagram of the Centauro Furnace with LIFE SUGAR Technology Integration

Set to launch in 2025, the LIFE SUGAR project marks a critical step toward sustainable, carbon-neutral glass manufacturing. Led by STARA GLASS and its European partners, it aims to revolutionize glass production by way of a pioneering furnace technology that harnesses waste energy to produce cleaner fuel - all to drive significant reductions in energy use, CO_2 and NOx emissions.

insights for the glass industry's shift toward sustainability.

The mock-up installed at Savona Campus, University of Genoa

Exterior images of Vetrerie Meridionali S.p.A.

The pilot's installation is expected to begin in mid-2025, with the support and leadership of Eng. Leonardo Spinelli, the company's Plant Director. This installation will not only test the scalability and efficiency of the LIFE SUGAR model but also serve as a benchmark for future sustainable practices across the industry.

THE ROLE OF INNOVATION AND COLLABORATION

Central to the success of LIFE SUGAR is the innovative spirit and collaboration between Stara Glass and other industry experts. Here Eng. Ernesto Cattaneo, Head of Innovation Department at Stara Glass, underscores the importance of advancing sustainable glass production methods. By integrating SMR within the Centauro furnace, Stara Glass combines cutting-edge technology with operational feasibility, presenting a tangible pathway toward a carbon-neutral future. That said, beyond energy savings, the LIFE SUGAR system is designed to work with different furnace types, extending its applicability to other high-energy industries. This adaptability speaks to the broader potential of LIFE SUGAR as an innovative solution for energy-intensive sectors striving to reduce their carbon footprint.

LOOKING AHEAD

The LIFE SUGAR pilot at Vetrerie Meridionali S.p.A. is poised to be more than just a technological experiment; it embodies a commitment to environmental responsibility and sustainable industrial practices. By offering a glimpse into a future where sustainable production aligns with business growth, the LIFE SUGAR project is creating a valuable roadmap for industries worldwide. The project's goals are ambitious but achievable, with targeted reductions of 15 percent in energy consumption and CO_2 emissions. Additionally, the system aims for a 50-70 percent reduction in NOx emissions, thanks to an integrated Selective Non-Catalytic Reduction (SNCR) system. These advancements underscore LIFE SUGAR's role in pushing the glass industry closer to climate neutrality. More information on the project and Stara Glass's commitment to sustainable glass production is available from the company's website on the LIFE SUGAR project page. ■

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Warehouse sensation: VETROPACK's fully-automated Boffalora sopra Ticino site

Setting a benchmark in glass manufacturing, VETROPACK's new fully-automated warehouse at Boffalora sopra Ticino in Italy integrates cutting-edge logistics and automation while enabling real-time traceability, enhanced safety and sustainable operations. Exemplifying the company's dedication to smart factory innovation, it maximises efficiency while advancing both environmental and operational standards.

THE SMART FACTORY: SETTING NEW STANDARDS

A leader in European glass manufacturing, Vetropack recently unveiled a state-of-the-art, fully-automated warehouse at its advanced production facility in Boffalora sopra Ticino, Italy. This milestone reflects the company's commitment to embracing the latest in smart factory innovation. The cutting-edge facility provides streamlined logistics, real-time traceability, and a significant reduction in lead times - key advantages for Vetropack's diverse clientele. Says Jaroslav Mikliš, Vetropack Group Supply Chain Projects and Transformation Manager: "At Boffalora, all processes are aligned with the latest technology," highlighting the site's commitment to operational excellence.

OPTIMISED EFFICIENCY THROUGH FULL AUTOMATION

Equipped with advanced automation technology, Vetropack's new warehouse optimises logistics, elevating productivity and accuracy far beyond that of traditional or semi-automated systems. Full traceability is maintained in real time, allowing Vetropack to identify and respond immediately to any logistical variations. The smart system also ensures that tasks are distributed seamlessly across resources, minimising bottlenecks and maximising capacity utilisation. The warehouse was meticulously designed with simulations to maximise efficiency. "In a fully-automated set-up, unnecessary movements are eliminated, while precise data acquisition empowers us to

control and monitor with exceptional accuracy," says Mikliš. The warehouse's integrated monitoring system even allows for remote operation oversight - further enhancing operational resilience.

A SAFER, MORE SUSTAINABLE FUTURE

Automation at Boffalora goes beyond logistics, contributing to Vetropack's sustainability and safety objectives. By minimising manual intervention, the warehouse significantly enhances worker safety and protects the quality of secondary packaging, preventing incidents that could lead to product damage or safety hazards. Additionally, all transport vehicles in the facility are powered by high-efficiency lithium batteries, reducing both the duration and energy requirements of charging cycles. "Through efficient use of the space, we're not only reducing shuttle traffic but are on track to eliminate it completely," added Mikliš, underscoring Vetropack's drive to reduce its environmental impact.

The Boffalora facility stands as a model of what's possible in modern, resource-efficient manufacturing, embodying Vetropack's vision for the future of sustainable and high-performance glass production. This new warehouse solidifies Vetropack's leadership in the industry, setting a high benchmark for both operational efficiency and environmental stewardship. ■

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CHINA GLASS 2025

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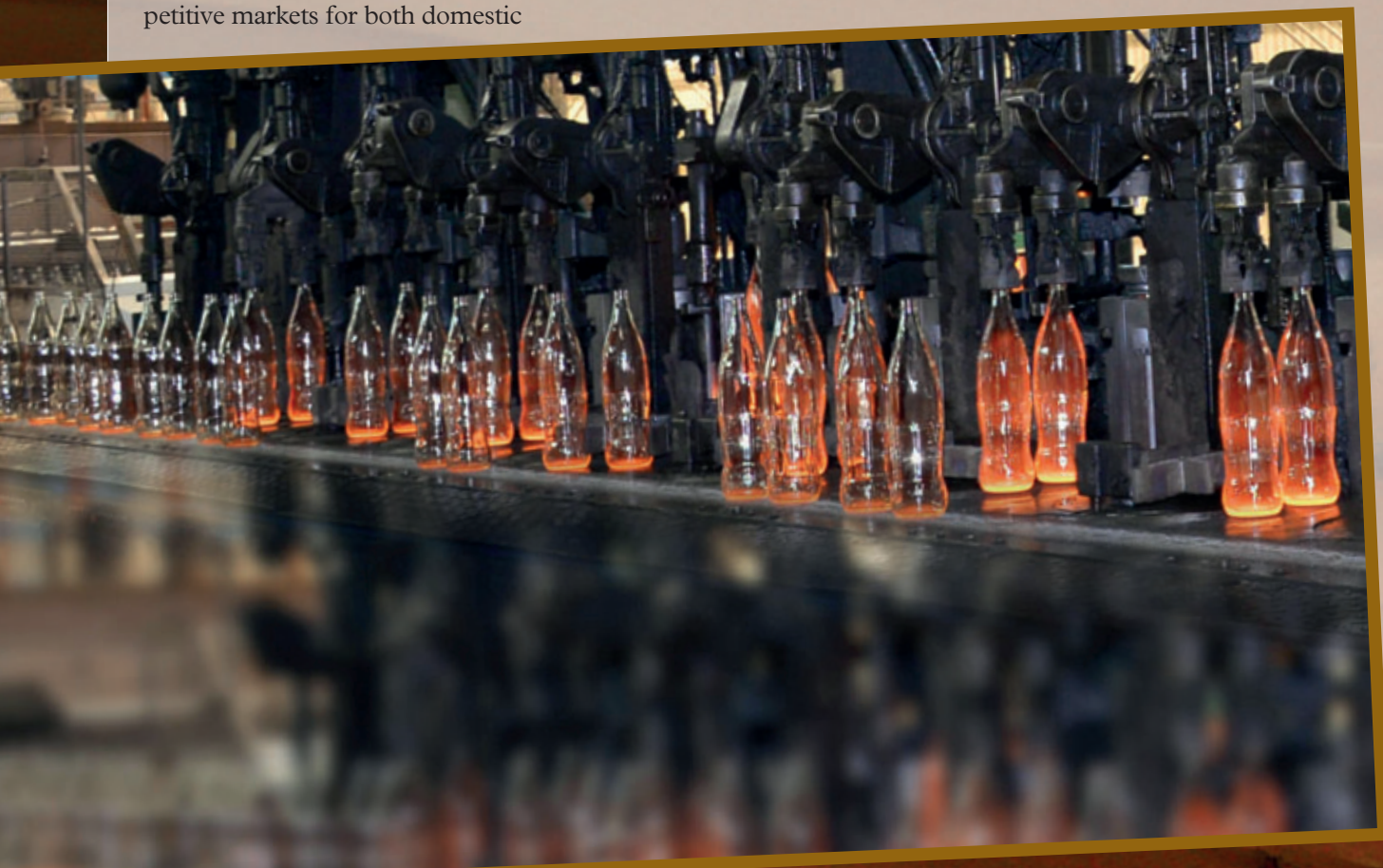
COUNTRY STUDY

Overview of the SAUDI ARABIA beverage market

Rajeev Jetley

With a population nearing 34 million by the end of 2023, Saudi Arabia is the most populous country in the GCC region. In 2023, Saudi Arabia's GDP was estimated at USD 795 billion, positioning the country as the largest economy in the Arab world. The country is recognized as the largest beverage market in the region. With rapidly changing demographics, including a large, young population with high disposable income, Saudi Arabia is expected to become one of the most competitive markets for both domestic and international beverage companies in the coming years. Led by carbonates, bottled water and fruit juice segments, per capita soft drink consumption is notably high. Consumption of hot beverages, such as tea and coffee, is also significant. Saudi consumers are brand-loyal and interested in new, innovative products. Carbonated beverages are especially popular in Saudi Arabia. Both major US-based cola producers have launched a variety of carbonated products in addition to their flagship cola offerings. Juices, both 100 percent and flavoured, represent one of the fastest-growing categories in the beverage market.

In per capita terms, consumption of non-alcoholic beverages – which includes bottled water, carbonates, juices and functional drinks (such as energy drinks) – increased from 240 litres in 2010 to 386 litres in 2023. In value terms, the industry grew from USD 5.2 billion to USD 10.9 billion, with bottled water and carbonates accounting for around 64 percent of sales. Saudi consumers remain brand-loyal and increasingly interested in innovative products, which is driving demand for non-core soft drink segments like energy drinks. These are expected to experience strong growth in



Being the largest beverage market within the Gulf Cooperation Council for container glass producers today, SAUDI ARABIA presents strong growth potential. Against the backdrop of Vision 2030 investments in leisure and entertainment, as well as ongoing reforms, demand for glass containers is expected to rise. Here, Glass Machinery Plants & Accessories offers an exclusive preview of this thriving sector of the Kingdom.

the coming years. Fruit juices are projected to perform especially well, significantly outperforming the established carbonates segment. Several unique beverage products are popular in Saudi Arabia. One such product is 'Saudi Champagne.' Although it contains no alcohol, Saudi Champagne combines sliced fruits, apple cider and sparkling water. Its colour and effervescence give it a champagne-like appearance, which inspired its name.

Saudi Arabia is undergoing substantial change, evident in the expansion of its tourism and entertainment sectors. This transformation is expected to reshape the beverage industry landscape as part of the government's modernization and economic diversification initiatives. The carbonates category is domi-

Year	Value (in USD million)	Value (in Million Saudi Rial)	Volume (in Million Litres)
2022	10,879.21	41,089.33	13,660.20
2021	10,654.30	40,116.20	13,481.89
2020	10,193.79	38,226.76	13,076.88
2019	9,971.92	37,394.70	12,725.50
2018	9,747.30	36,552.41	12,434.89
2017	9,585.39	35,945.25	12,129.51
2016	7,594.46	28,479.25	11,970.04
2015	6,966.15	26,123.05	11,352.01
2014	6,375.41	23,907.79	10,347.08
2013	5,904.38	22,141.41	9,564.62
2012	5,492.16	20,595.59	8,793.61
2011	5,114.03	19,177.62	8,162.36
2010	4,769.10	17,884.14	7,694.62

Source- World Health Organisation (WHO) Report

Table- Beverage consumption volume and value in Saudi Arabia in last thirteen years

nated by two major international players: PepsiCo Inc. and the Coca-Cola Co. The category is led by PepsiCo, through its subsidiary Al Jomaih Bottling Plant, which holds a larger share of the Saudi carbonate market than its rival Coca-Cola.

SAUDI ARABIAN CONTAINER GLASS

Saudi Arabia is also the largest producer and consumer of container glass in the GCC region. Three primary container glass producers—Mahmood Saeed Glass Industry Company, National Company for Glass Industries and Saudi Arabian Glass Company Limited—collectively produce nearly 1,700 tons of glass containers per day for both domestic and export markets. Although Saudi Arabia has been the largest Arab economy, its development outside oil and gas was previously slow and many of its social laws were considered outdated by Western standards. However, recent changes have brought positive developments for both the beverage and container glass industries.

Currently, the beverage sector accounts for an estimated 60 percent of the country's container glass demand. The absence of alcoholic beverages makes non-alcoholic drinks the primary demand driver for the container glass industry in the country and the wider region. The rapidly growing beverage sector is expected to drive demand for glass containers in the short, medium and long term. Saudi Arabia's population is expected to grow to 41 million by 2030, making it an attractive consumption market for beverages and,

Company	Location	Installed Capacity
Mahmood Saeed Glass Industry Company	Jeddah	360 tonnes per day
National company for Glass Industries	Riyadh	430 tonnes per day
Saudi Arabian Glass Company Limited	Jeddah	1,000 tonnes per day

Table- Container glass producers in Saudi Arabia

indirectly, glass containers. High disposable income, around USD 15,600 per capita, along with projected inbound tourism of 30 million visitors by 2030, are also expected to boost container glass consumption for the beverage industry in the Kingdom. The rapid growth in the beverage sector has encouraged several international companies to invest and engage in joint ventures with Saudi companies, enter into licensing agreements with local manufacturers, or acquire existing Saudi beverage companies. Recent examples of companies entering or expanding their operations in the country include Mars Inc., Mondelez International, Cargill, Del Monte, Frito-Lay, Heinz, Danone Ltd., Arla Foods Amba, Fonterra, Coro Foods and the Lactalis Group.

MAHMOOD SAEED GLASS INDUSTRY (MSGI)

Based in Jeddah, Saudi Arabia, Mahmood Saeed Glass Industry is one of the Kingdom's three major container glass producers. Established in 1994 to meet the region's growing demand for premium glassware, the company has become a prominent manufacturer specializing in high-quality glass products. Over the past three decades, MSGI has consistently delivered a wide range of products, including bottles, jars and specialized glass containers, as well as tableware items. MSGI has an installed capacity of 400 tons of glass per day.

SAUDI ARABIAN GLASS CO. LIMITED (SAGCO)

Saudi Arabian Glass Co. Ltd. (SAGCO) is the largest container glass producer in the GCC region and the broader Middle East. Entering the container glass industry in 1985 with a single furnace and a capacity of just 60 tons per day, the company has continuously expanded its capacity over the last 39 years. SAGCO now boasts an installed capacity of 1,000 tons per day, supported by five furnaces and thirteen production lines. SAGCO produces glass containers in flint, green and amber colours, available in various shapes and sizes. The company exports to 38 countries across Asia, Africa, Europe and the Americas.

NATIONAL COMPANY FOR GLASS INDUSTRIES

The National Company for Glass Industry, known as Zoujaj, is the second-largest container


BARBICAN
PINEAPPLE FLAVOUR

glass producer in Saudi Arabia. Zoujaj began operations in 1990 by establishing the National Factory for Glass Bottles in the Second Industrial City of Riyadh. Initially producing returnable and non-returnable flint glass bottles with an annual capacity of 54,000 tons, the plant underwent regular modernizations, reaching a production capacity of 66,000 tons per annum by 2006. In 2015, a major expansion added another furnace and two production lines, increasing total production capacity to 123,000 tons annually. The factory produces glass containers for soft drinks, juices and food products, serving both domestic and international markets. In 1992, Zoujaj acquired the Dammam Factory for Glass Industries to boost capacity and expand market reach. The acquired plant was modernized to produce returnable and non-returnable green glass containers with an annual capacity of 18,000 tons. However, this acquisition did not yield the expected results. The Dammam plant continued to operate at a loss, prompting Zoujaj to permanently close the factory in December 2019 due to unprofitable operations. In 2022, the equipment and facilities for container glass production were subsequently disposed of. ■

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BDF INDUSTRIES	www.bdfindustriesgroup.com
BUCHER EMHART GLASS	www.emhartglass.com
EME	www.eme.de
EUROMATIC SRL	www.euromatic.it
ALORNI TECH	www.falornitech.com
FAMOR ENGINEERING	www.famoreng.co
FONDERIE VALDELSANE	www.fonderievaldelsane.com

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GLASS SERVICE	www.glassservice.it
HEYE INTERNATIONAL	www.heye-international.com
NOVAXION	www.novaxion.fr
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CARPOULE AFTER FORMING MACHINES LINES

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CARPOULE FORMING MACHINES LINES

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Olivotto Glass Technologies

SECOND-HAND EQUIPMENT

BDF Industries
Ergon Meccanica
Falorni Tech
Heye International
KYP Accesories
Novaxion
Olivotto Glass Technologies

Pennekamp
Vidromecanica

SERVICES

AGR International Inc
Bock Energietechnik
EME
Ergon Meccanica
Falorni Tech
Fives
Novaxion
Olimerk
Stara Glass
TECO Group
Tecsiglass

SERVICES IN HOT-DRILLING AND CHANGE OF ELECTRODE HOLDERS

Bock Energietechnik

SHEAR BLADES

BDF Industries
Famor Engineering
Heye International
Luben Glass
WBT

SHEAR BLADES LUBRICANTS

Graphoidal Developments
Luben Glass

SHEAR SYSTEMS

BDF Industries
Bottero
Famor Engineering
Graphoidal Developments
Heye International
Luben Glass
Olivotto Glass Technologies
Waltec Maschinen

SHUTTLE CARS

Tecnoferrari

STRETCH & SHRINK FILM WRAP MACHINES

All Glass
Messersì Packaging
MSK Covertech
OMS
Tecnosens
Vetromeccanica

SHRINK OVENS

Messersì Packaging
OMS

SILKSCREEN INKS

Fluorital

SILKSCREEN PRINTING LINES: HOLLOWARE & TABLEWARE

Euromatic
Fermac

SILKSCREEN PRINTING LINES: VIALS & AMPOULES

Moderne Mecanique
OCMI OTG

SOFTWARE

BDF Industries
Bottero
Bucher Emhart Glass
Bucher Automation
GS - Glass Service
Heye International
Olivotto Glass Technologies
Stara Glass
Tecnoferrari
Tecsiglass
TIAMA
Vertech'
Vetromeccanica
Video Systems
Waltec Maschinen

SPINNING MACHINES

Famor Engineering
Olivotto Glass Technologies
Waltec Maschinen

SPOUT ELECTRICAL HEATING ELEMENTS

Bock Energietechnik

STACKERS

All Glass
BDF Industries
Bottero
Bucher Emhart Glass
Car-Met
Famor Engineering
Luben Glass
MT Forni Industriali
Olivotto Glass Technologies
Pennekamp
Regina Catene Calibrate
Vidromecanica
Waltec Maschinen

STEMWARE PRODUCTION LINES

Falorni Tech
Olivotto Glass Technologies
Vidromecanica
Waltec Maschinen

STEMWARE SEALING MACHINES

Falorni Tech
OCMI OTG
Olivotto Glass Technologies
Waltec Maschinen

STIRRERS

BDF Industries
Bottero
Falorni Tech
Fives
GCG - Glass Consulting
Glass Service
Horn
MT Forni Industriali
Olimerk
Olivotto Glass Technologies
Stara Glass
Vidromecanica

SUCTION GATHERERS

Falorni Tech
Olivotto Glass Technologies

SYRINGE AFTER FORMING MACHINES/LINES

Euromatic

SYRINGE FORMING MACHINES/LINES

Euromatic

SYRINGE FILLING INTO TRAY MACHINES/MODULES

Euromatic

SUPERVISORS MODEL BASED PREDICTIVE CONTROL

GS - Glass Service

TAKE-OUT DEVICES & EQUIPMENT

BDF Industries
Bottero
Bucher Emhart Glass
Falorni Tech
Famor Engineering
Luben Glass

Olimerk
Olivotto Glass Technologies
Ramsey Products
Vidromecanica
Waltec Maschinen

TEMPERATURE MEASUREMENT & CONTROL

BDF Industries
Bock Energietechnik
Bucher Emhart Glass
Falorni Tech
Graphoidal Developments
GS - Glass Service
Horn
KYP Accesories
Novaxion
Pennekamp
Stara Glass

TEMPERING LINES

Pennekamp
Vidromecanica
Waltec Maschinen

THERMAL CLEANING SYSTEM FOR FURNACE

Stara Glass
Tecsiglass

THERMAL SHOCK TEST MACHINES

Vidromecanica

THERMOCOUPLES & ASSEMBLIES

Bock Energietechnik
Falorni Tech
Fives
GCG - Glass Consulting
Stara Glass

THERMO SHOCK TEST MACHINES

BDF Industries

TIN OXIDE ELECTRODES & CONNECTORS

Horn
Stara Glass
TECO Group

TRAINING SERVICES

AGR International Inc

TOOLS & EQUIPMENT

Bottero
Fives
Luben Glass
Stara Glass

TUBING LINES

Falorni Tech
Olivotto Glass Technologies
Stara Glass

TURNKEY PLANTS ENGINEERING & CONSTRUCTION

Amig - Ocmi - MT Forni
BDF Industries
Falorni Tech
EME
Glass Service
Horn
Olivotto Glass Technologies
Stevanato Group
Stara Glass
TECO Group
Waltec Maschinen

UV LAMPS

Graphoidal Developments

VACUUM PLANTS & ACCESSORIES

Pneumofore

VACUUM PUMPS

Pneumofore

VIAL AFTER -ORMING MACHINES/LINES

Euromatic
Moderne Mecanique
OCMI OTG
Pennekamp
Stevanato Group

VIAL FORMING MACHINES/LINES

Euromatic
Moderne Mecanique
OCMI OTG
Pennekamp
Stevanato Group

VIAL PACKAGING MACHINES

Euromatic
KYP Accesories
Moderne Mecanique
OCMI OTG
R.Cestaro
Stevanato Group

VIBRATING EQUIPMENT

EME
Lahti Glass Technology
Vetromeccanica
ZIPPE

WASTE GAS CLEANING SYSTEMS

BDF Industries

WASTE GASES DUCT WORKS AND VALVES CLEANING SYSTEMS

BDF Industries

WATER CLEANING SYSTEMS

BDF Industries
Graphoidal Developments
Luben Glass
Tecsiglass
ZIPPE

WATER COOLING SYSTEMS

Bock Energietechnik

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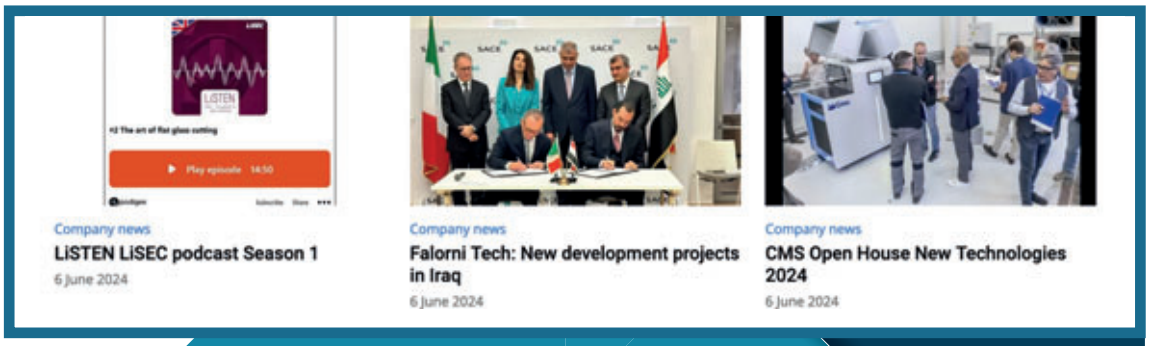

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