glass machinery world plants&accessories

BI-MONTHLY INTERNATIONAL MAGAZINE FOR GLASS MANUFACTURING

YEAR 36 • ISSUE NO. 3/2024

HOT Systems by TIAMA signal greatly improved glass production

Hydrogen furnace trial sees SORG and Hrastnik1860 team-up

Innovations at STARA GLASS advance automation and new technologies

Decarbonisation with glass recycling: another Zippe tour de force

Cullet scraper conveyors unleash VIDROMECANICA recycling mastery

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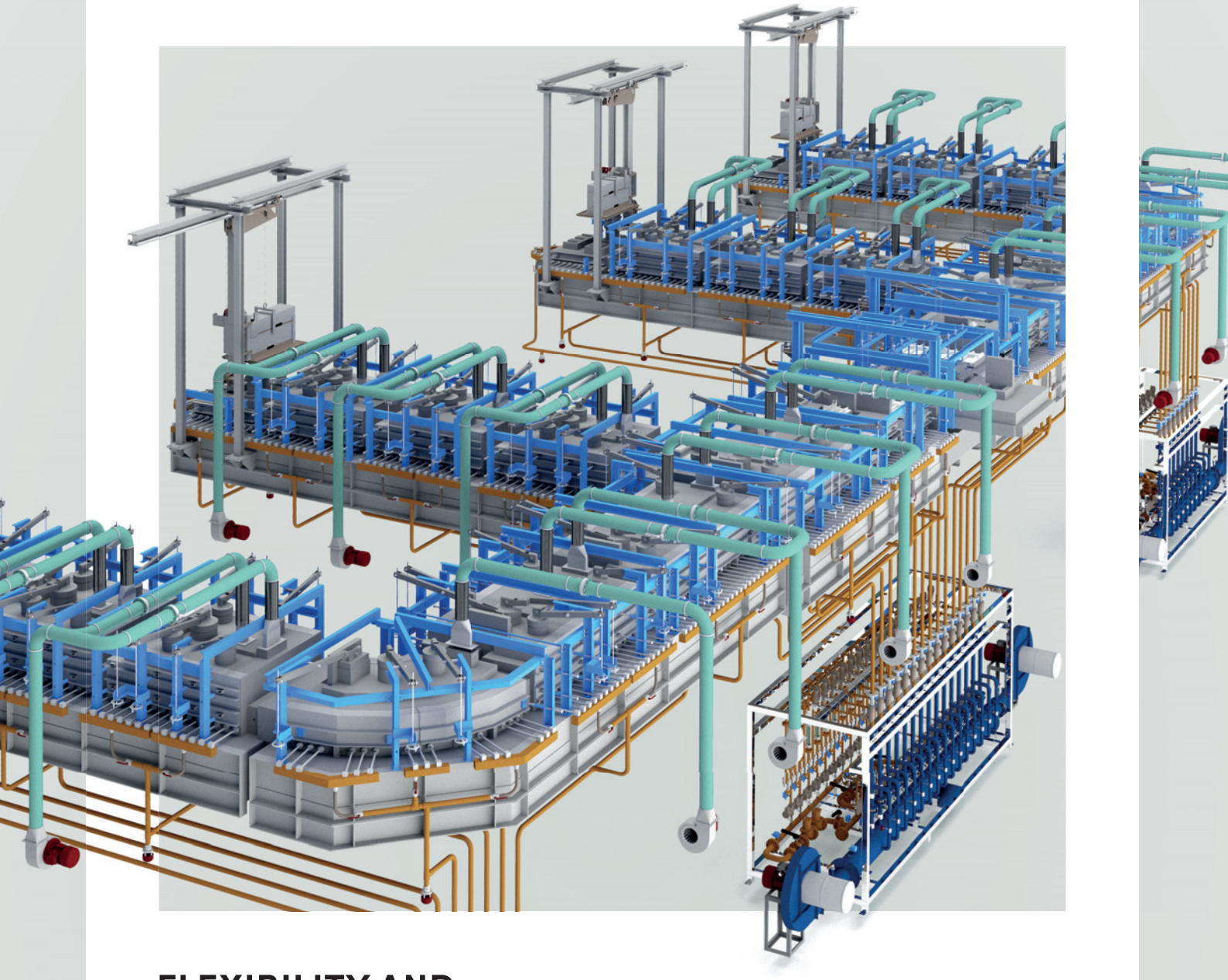

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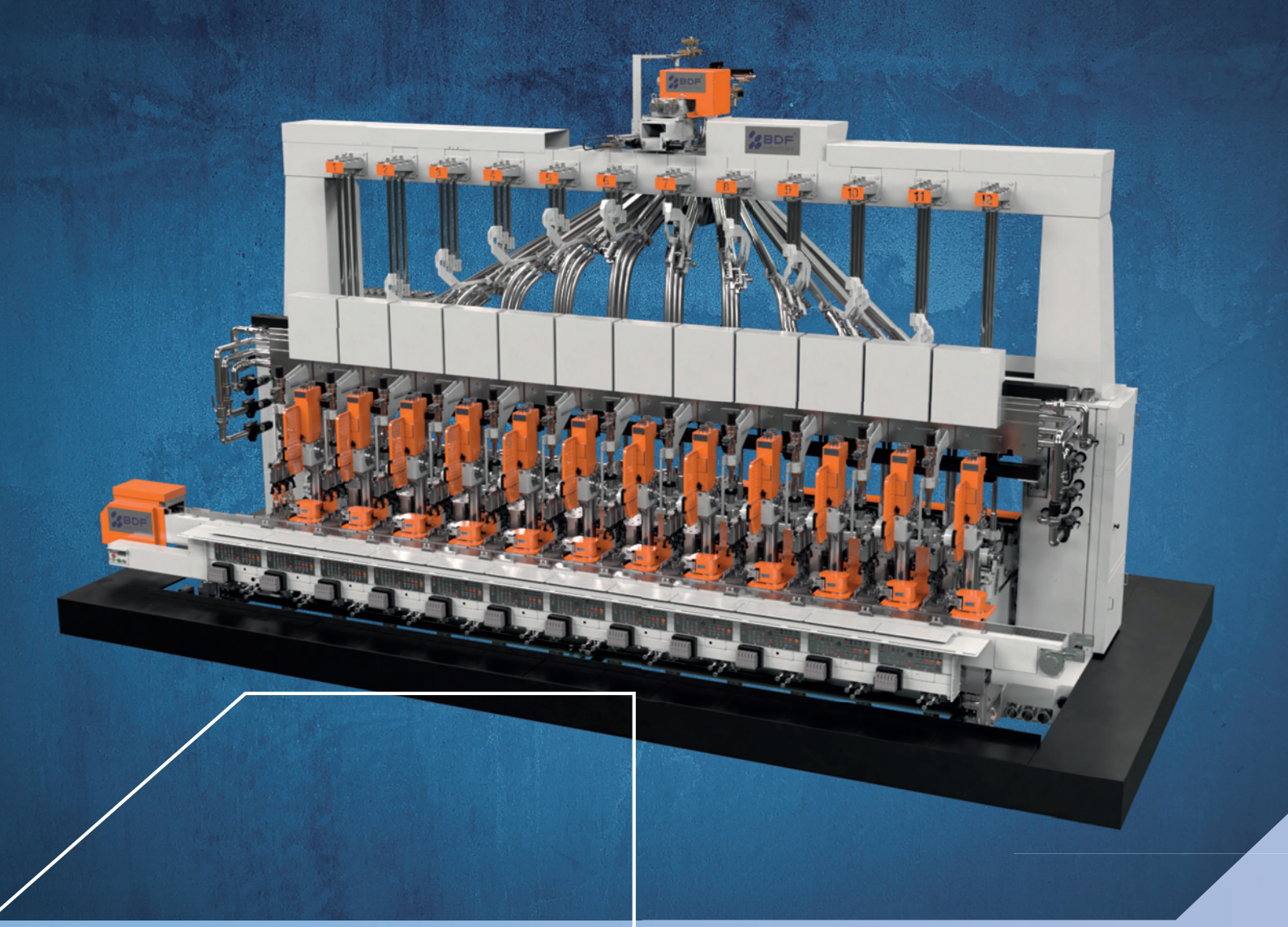

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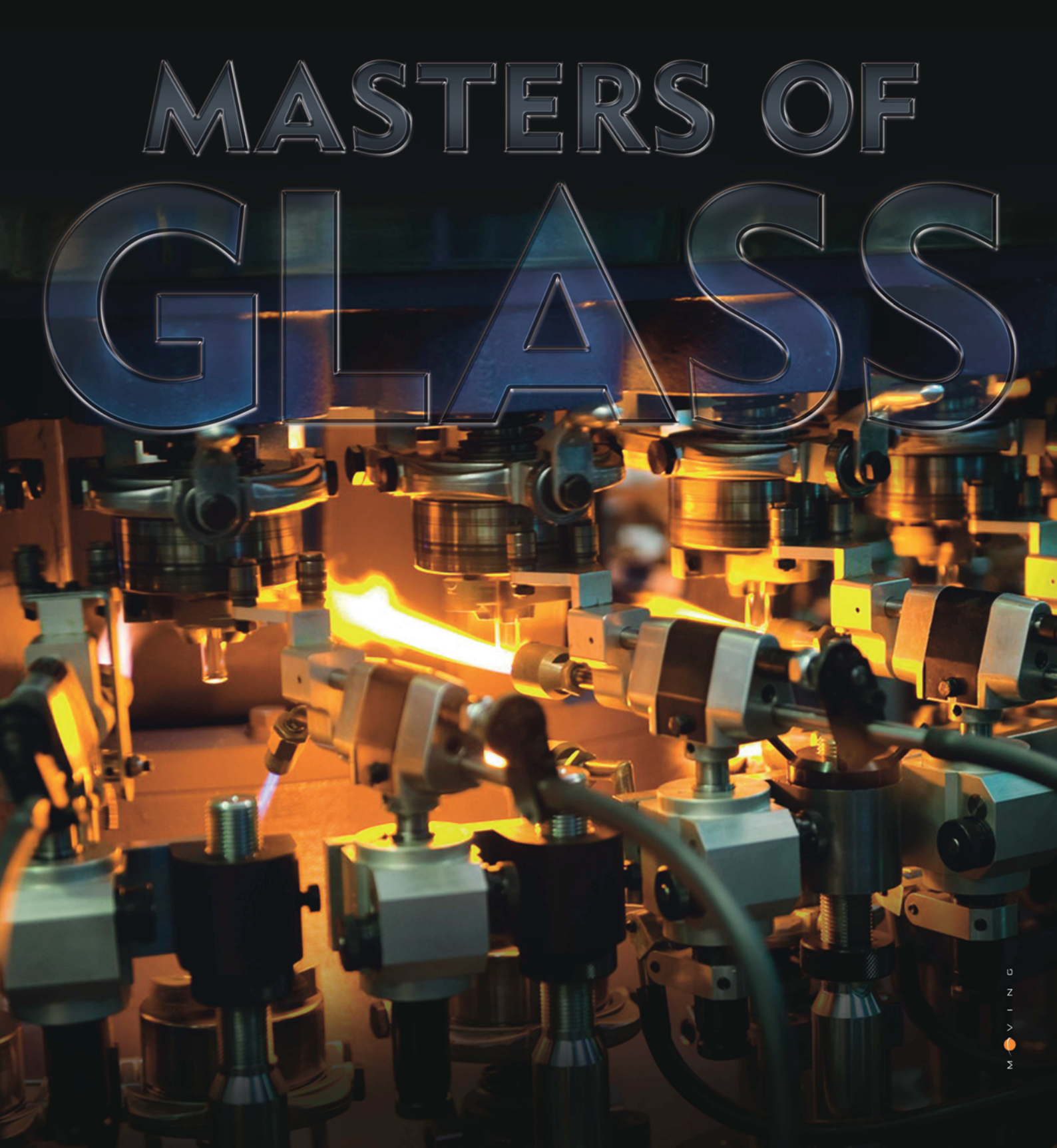

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2024 TRADE FAIRS CALENDAR

The magazine will be distributed at the following Events

	issue	exhibition/conference	date	venue	deadlines
2024	1	MIR STEKLA	27 February 1 March	MOSCOW Russia	
		COSMOPACK	21-23 March	BOLOGNA Italy	Editorial files: 22-01-2024
		FEATURED CONTENT: RAW MATERIALS - BATCH CHARGE - REFRACTORIES			Deadline Adv files: 29-01-2024
2024	2	CHINA GLASS	25-28 April	SHANGHAI China	Editorial files: 15-03-2024
		FEATURED CONTENT: FORMING - ANNEALING - COATING			Deadline Adv files: 22-03-2024
2024	3	GLASSMAN LATIN AMERICA	15-16 May	MEXICO CITY Mexico	
		PACKAGING PREMIERE	21-23 May	MILAN Italy	Editorial files: 12-04-2024
		GLASS TECHNOLOGY CONFERENCE	27-29 May	AACHEN Germany	Deadline Adv files: 19-04-2024
2024		Glass Industry Directory 			Editorial files: 07-06-2024 Deadline Adv files: 14-06-2024
2024	4	ICG ANNAL MEETING	25-28 August	INCHEON South Korea	
		CONFERENCE ON GLASS PROBLEMS	16-20 September	TOLEDO (OH) USA	
		AFGM	23-27 September	BALI Indonesia	
		CPHI	8-10 October	MILAN Italy	Editorial files: 22-07-2024
		FEATURED CONTENT: GLASS MOULDS			Deadline Adv files: 29-07-2024
2024	5	GLASSTEC	22-25 October	DÜSSELDORF Germany	Editorial files: 20-09-2024
		ALL GLASSTEC EXHIBITORS ADVERTISING IN THIS ISSUE ALSO RECEIVE A FREE GLASSTEC PREVIEW			Deadline Adv files: 27-09-2024
2024	6	ALL4PACK	4-7 November	PARIS France	
		ICG - INTERNATIONAL CONGRESS OF GLASS	20-24 January 2025	KOLKATA India	Editorial files: 21-10-2024
		SPECIAL ISSUE: POST-GLASSTEC REVIEW			Deadline Adv files: 28-10-2024

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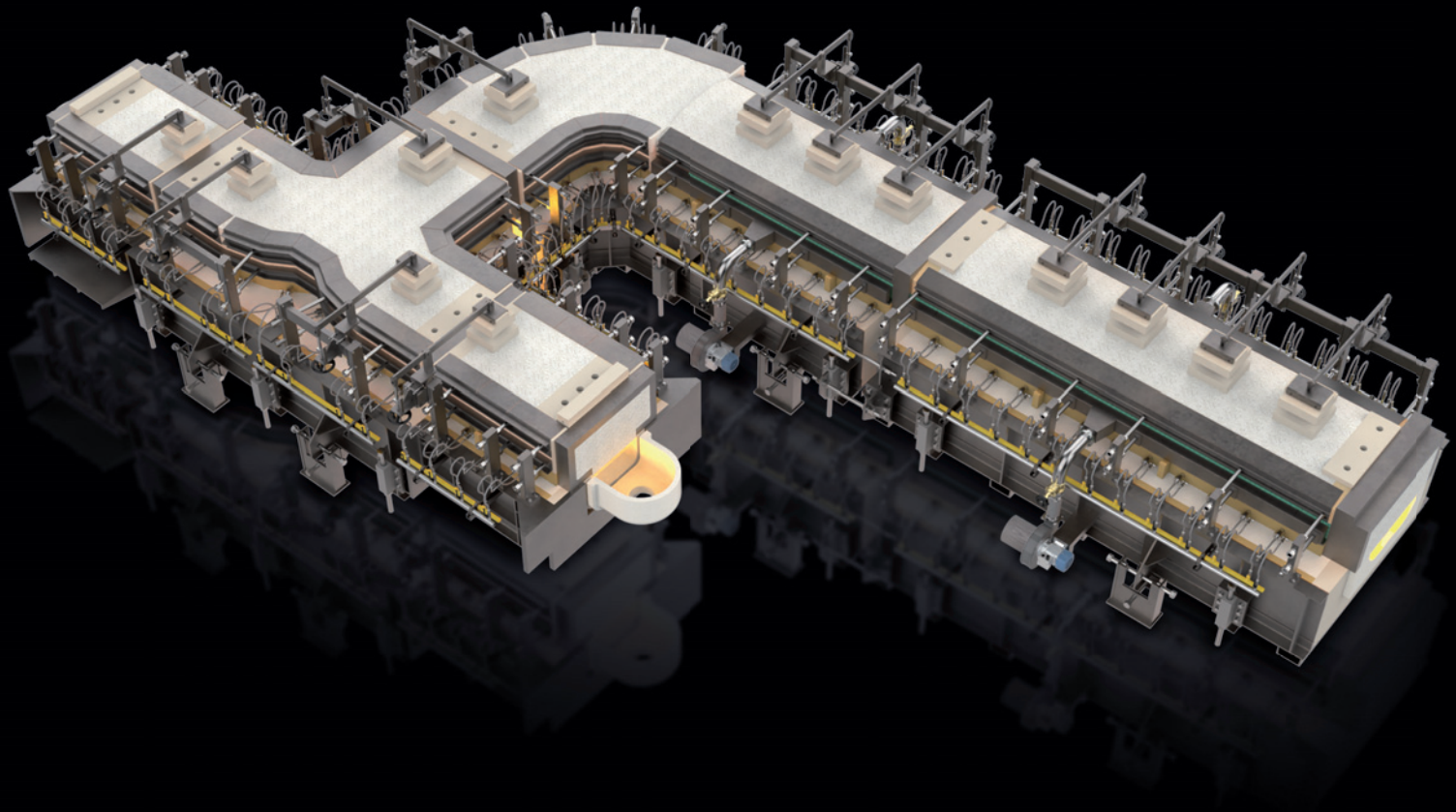

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ORI MOULD

Leading the trend of glass mould intelligent manufacturing

In today's rapid technological development, the wave of intelligent manufacturing is sweeping the world, and every industry is seeking innovation and breakthroughs. In the field of glass mould manufacturing, **ORI MOULD** is a trend leader with its forward-looking vision and excellent technical strength.

Breaking with tradition and leading through innovation

ORI Mould has not only introduced the advanced automatic production line, but also ensured mould dimension accuracy through a sophisticated control system. Combined with its advanced laser welding technology, ORI's efficient, precise and reliable manufacturing process is in place. It has greatly improved ORI production efficiency and ensured the high quality and consistency of its mould products.

Disruptive changes in the new intelligent foundry

Especially remarkable is the advanced intelligent automatic glass mould foundry that ORI Mould put into operation in March this year. This innovative move marks ORI moving towards a new stage of intelligent and efficient production. From raw material proportion to pouring operation, from heat treatment to casting transportation, the entire process is precisely controlled by an intelligent system, which ensures the stability, uniformity and longer service life of the materials. The foundry is also equipped with advanced, high-precision material analysis equipment.

Excellent quality, winning trust

With its persistent pursuit of product quality and excellent service, ORI Mould has become a leader in the industry. The combination of automatic production line and intelligent automatic foundry further consolidates its leading position in the field of high-end glass mould manufacturing. Its forward-looking strategy not only demonstrates the company's innovative capabilities but also sets a new benchmark for the future development of the industry.

Looking to the future to jointly create brilliance

With its advanced automatic equipment and intelligent foundry, ORI Mould is moving towards a new stage of development. This is not only an upgrade of technology or equipment, but also a guide for the future of glass mould manufacturing. We expect that in the days to come, ORI Mould will continue to lead the trend and provide its customers around the world with higher quality, more cost-effective mould products.

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FORGLASS & AGP EUROPE

Partnership expands to more locations

Ardagh Glass Packaging Europe (**AGP EUROPE**) has once again placed its trust in Forglass with a contract to rebuild three forehearths at its Gostyń glassworks in Poland. The recently-completed project included new steel construction delivered by **FORGLASS** Manufacturing Sp. z o.o. and heat-up of the forehearths - allowing Ardagh to resume production following major repairs of the furnace.

The partnership between Ardagh and Forglass is hardly new. The two companies have completed many major projects together and have developed a close relationship based on mutual understanding. Ardagh is committed to protecting the environment by reducing its energy consumption and emissions; Forglass supports those efforts by supplying the global glass producer with new technologies and maintaining its furnaces in optimal working condition.

The project in Gostyń has been exemplary both in terms of workmanship quality and safety. Also noteworthy is the flexibility of Forglass technicians and engineers when working on a project that involves multiple contractors - resulting in on-time, on-budget completion.

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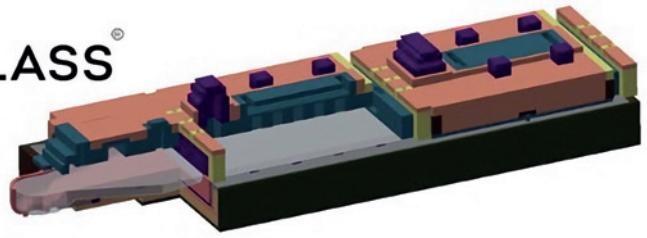

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CELSIAN

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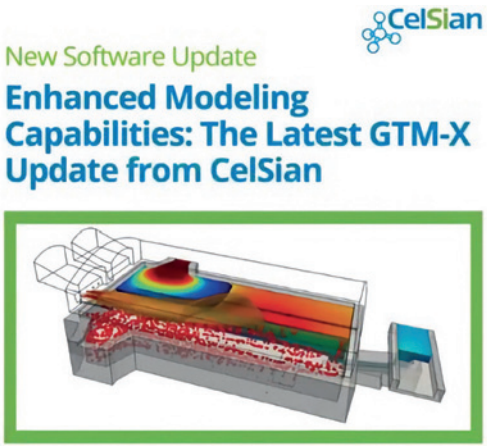


In the fast-paced world of glass production, precision and efficiency are crucial. **CELSIAN**'s GTM-X simulation software is a game-changer, enhancing furnace operations with its advanced capabilities.

What is GTM-X

Powered by Computational Fluid Dynamics (CFD), GTM-X allows precise simulations of glass furnaces, predicting crucial factors impacting production yield and quality. It can be used for design purposes and solving production quality issues, offering unparalleled accuracy and efficiency. GTM-X calculates the batch blanket behaviour and the redox chemistry, combined with bubble predictions. The software helps address current industry requirements such as low energy use, good quality products, low emissions and longer furnace life.

Recent GTM-X update further improves modelling capabilities

With this new release, the emission of batch reaction gases from the batch blanket into the combustion space can be modelled in more detail. This will provide more information on the details of the flow and temperature fields in the combustion space above the batch blanket as well as the local composition of the flue gas. Furthermore, setting up a cold-top furnace model is now more intuitive, resulting in shorter times to set up such a model. Finally, based on user feedback, several improvements have been implemented to help users set up, run and analyse a model.

WWW.CELSIAN.NL

SCHOTT PHARMA

Complete testing suite offered for container selection

Registered with the Food and Drug Administration (FDA) in the US as an independent lab, **SCHOTT PHARMA** has completed its testing suite to help pharmaceutical companies accelerate drug submission.

"The testing and submission processes for new drugs are complex, time- and cost-intensive," said Andreas Reisse, CEO of SCHOTT Pharma. "With our deep understanding of regulatory requirements and processes we are supporting drug developers with a one-stop solution to simplify and accelerate the entire drug development journey."

SCHOTT Pharma's analytic testing capabilities reinforce the company's scientific expertise, which stems from decades of developing solutions for the pharmaceutical industry. The extensive line of services including drug and material compatibility testing is now completed by functional testing and container closure integrity testing (CCIT). The lab is accredited according to DIN EN ISO/IEC 17025.

A typical drug development journey spans multiple years with the clinical phase being essential to testing, developing and processing a product before submitting it to the authorities for approval. In this stage, drug manufacturers need access to specific technology, personnel resources and expertise to complete numerous tests, while navigating the complex regulatory landscape from the FDA.

Now, with SCHOTT Pharma's PartnerLab, drug developers benefit from a one-stop solution fulfilling all testing demands ranging from functional testing, and CCIT, to delamination studies and particle analysis, among other capabilities. In order to meet various market requirements, the lab is able to test all materials - from glass ➜

← to rubber components and polymer. The complete package with robust documentation and guidance thereby helps to relieve complexity, accelerate submissions and offer assurance that the testing process was completed accurately and reliably.

WWW.SCHOTT-PHARMA.COM

SGD PHARMA

Successful hydrogen burner trials

It the end of January, SGD Pharma started a two-week trial using 100 percent hydrogen burners for industrial-scale glass production. The trial, conducted at SGD Pharma's state-of-the-art Saint-Quentin-Lamotte (SQLM) manufacturing plant in France, was a resounding success and will inform **SGD PHARMA**'s decarbonisation roadmap, which aims to reduce CO2 emissions from 2020 by 35 percent in 2030 and by 65 percent in 2040.

During the trial, up to 50 percent of the burners at SQLM were converted to operate using a combination of hydrogen and oxygen combustion instead of the previously used Oxygas. The hydrogen burners contributed around 75 percent of the total volume of combustion gases.

Air Liquide supported SGD Pharma during the trials by the provision of equipment and hydrogen as well as technical assistance and expertise. The outstanding results of the trial confirm the possibility of using hydrogen to decarbonate the combustion of its furnaces.

SGD Pharma intends to lead the decarbonization of the glass pharma industry and this step is just the latest on its ambitious roadmap.

Olivier Rousseau, CEO of SGD Pharma, explained, "We have been working with the Science Based Targets initiative (SBTi) on the reduction of CO2 emissions across our five glass manufacturing plants (including SQLM in France, our two other EU plants, and both our Indian and Chinese plants) and have developed a 1.5 degree Celsius decarbonization pathway and target validation. As part of the plan, we are currently rebuilding one of the furnaces at SQLM which will increase electricity output of the furnace by 40 percent. The trialled hydrogen burners will help us to achieve our SBTi targets and to continue with the investment in our SQLM plant which is the world's most advanced pharma-grade glass manufacturing plant, as well as upgrading our other sites across multiple geographies."

WWW.SGD-PHARMA.COM

FALORNI TECH

Tableware furnace at Nover plant refurbished

Falorni Tech recently refurbished an existing tableware furnace at the Nover plant in Chlef, Algeria. On March 5 and 6, Falorni Tech's Commercial Director, Andrea Zucconi, and Technical Director, Biagio Bifano, visited the plant and conducted a comprehensive furnace survey. They also held extensive technical discussions with the General Manager, Bouaissi Bouralem, and all the Technical Managers of the plant to prepare the preliminary engineering work required to manufacture all the plants and equipment for the furnace revamping.

This refurbishment project is crucial for the Nover plant as it will significantly improve the furnace's production capacity and efficiency. Once completed, the new furnace will be capable of producing up to 50 tonnes of soda-lime tableware glass per day using press production lines. The success of the project will also create new opportunities for the local workforce and boost the economy of the region. Nover has recognized Falorni Tech's outstanding contribution to its strategic project and the team at Falorni Tech is extremely proud to be part of this initiative. With the aim of putting the plant into operation before the end of 2024, the management and entire team at Falorni Tech are committed to leveraging all the expertise and resources towards the successful completion of the project on time and with the best results.

WWW.FALORNITECH.COM

STEVANATO GROUP

EU GMP-Annex 1

The revision to Annex 1 to the Good Manufacturing Practices guide by the European Medicines Agency introduces new challenges for pharmaceutical manufacturers implementing contamination control and sterility assurance strategies.

Any company that's after producing sterile medicinal products to be marketed on the European territory must first provide complete documentation that allows regulatory authorities to verify the robustness and reliability of the measures taken to comply with GMP.

The packaging industry has already responded to the market's needs by proposing updated solutions that comply with the latest standards and requirements. The offer of sterile and ready-to-use packaging can represent a possible solution to reduce execution times and costs.

Stevanato Group's EZ-fill® pre-sterilized platform can aid compliance with EU GMP Annex 1 as it is a fully integrated pre-sterilized containment solution for aseptic manufacturing that meets the strictest of requirements for contamination control, as outlined in the strategy of Annex 1. Total costs are reduced by relying on experienced external partners for non-core activities.

WWW.STEVANATOGROUP.COM

SCHOTT PHARMA

US expansion with syringe manufacturing facility

Schott Pharma is to build its first US facility, in Wilson, North Carolina, to manufacture prefillable polymer syringes required to meet the need for deep-cold storage and transportation of mRNA medication. In addition, the site will have the capability to produce glass prefillable syringes for GLP-1 therapies, for example to treat diseases such as diabetes or obesity. The project will add 401 jobs to the region and include a total investment of USD 371M, with ground breaking expected by the end of 2024, and projected operations starting in 2027.

The new site will expand the US supply chain for in-demand syringes that deliver lifesaving injectable medicines, vaccines and other fields of applications - allowing **SCHOTT PHARMA** to triple its contribution of glass and polymer syringes to the US market by 2030. Bringing production to the US will reduce lead times and slash transportation costs as well as protect against future shortages of critical drugs and ensure pandemic preparedness.

The top 30 global pharma companies and more than 1,800 customers rely on Schott Pharma containers and systems - including the US and global leaders in the pharmaceutical and biotech categories. Many of these companies have designated Schott Pharma as a critical supplier of one or more of the most essential components within their supply chain.

For over two decades, Schott Pharma has been manufacturing vials at its Lebanon, PA, facility, serving as a reliable partner for the pharmaceutical industry. Being that the US is a key strategic market for the entire Schott Group, the company underwent a nationwide site selection process for a campus-like property to serve further growth opportunities. While Schott is not guaranteeing additional investment to support other markets at this time, the site in Wilson offers the possibility of future expansion.

The project location is contingent on final real estate negotiations.

WWW.SCHOTT-PHARMA.COM

BA GLASS

Closure of Athens plant

BA Glass Greece recently announced the decision to cease production activities at its plant in Egaleo, Athens, Greece - effective since the end of March this year.

Yioula Glassworks and its factory in Egaleo were sold by the Voulgarakis family's HGI to the multinational Portuguese conglomerate BA Glass Group seven years ago, a sale made then in an attempt to save the company. With the closure of **BA GLASS** Greece's plant the Greek glass packaging industry is also permanently shutting down, as this was the last glass packaging product maker left in the country.

This decision comes as a result of the current market conditions within the glass industry. Over the past months, the glass market has experienced a notable decrease in demand - leading to a corresponding decline in sales. This trend has been further exacerbated by a significant increase in stock levels, prompting the need to halt certain production lines.

Despite efforts to adapt to these challenges, the persistent shortage of demand coupled with the escalating costs of warehousing and its limited availability has unfortunately led to the closure of the production operations at the Greek plant.

WWW.BAGLASS.COM

O-I

Plant in San Polo, Italy, completes water reduction projects

Water is a vital resource and reducing water consumption by 25 percent by 2030 is one of O-I's ten corporate sustainability goals in line with the SDGs. Before now, water supply was not historically a challenge in northern Italy, but due to climate change, regions there have faced long periods of drought. **O-I**'s plant in San Polo, Italy, recently completed two projects to reduce water use.

Water reduction at O-I's San Polo plant

Glass plants use water during the cooling portion of the manufacturing process. The San Polo plant in northern Italy recently examined its water use and found areas of opportunity. One project created a closed-loop water system of the kettles in kiln 1. Instead of draining the water, it's now sent to the filter cooling system of oven 1. Creating a closed-loop water system reduces the amount of new water the plant needs to make glass. The improvements also enable the plant to continue producing glass through future drought periods, sustaining it through potential water supply rations that would have otherwise limited supply. Teams also installed modern new sinks in the hot zone. The new sinks feature a pedal system that allows workers in the hot end to better control how much water they need for hydration - as well as washing their hands. Together, the two water-saving projects save an estimated 60 mc/day; the annual water savings is equivalent to the water needed to fill an Olympic-sized swimming pool more than eight times.

Commitment to responsible water management

O-I is focused on being a good steward of the water used in the glass-making process. The company launched a water reduction roadmap back in 2022 to chart its journey. O-I is also focused on improving its monitoring systems and standardizing its data collection globally.

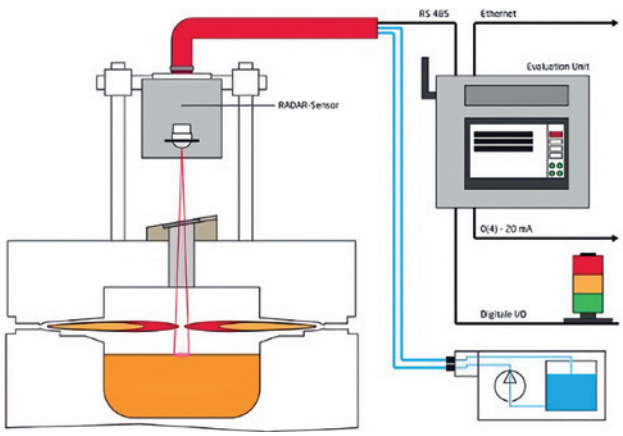
WWW.O-I.COM

SORG

Glass levels measured with radar precision

Nikolaus Sorg recently took a leap forward in the field of glass production by incorporating radar technology achieving greater accuracy in the measurement of glass levels and the highest standards of production efficiency. The importance of this precise measurement cannot be overstated, as even minor inaccuracies can lead to substantial errors and increased loss rates - especially in sensitive processes like the narrow-neck press-blow (NNPB) method for container production.

Other industries are using radar technology, but its application in measuring glass levels is an advancement for both **SORG** and the glass manufacturing sector at large. This new, contact-free method boasts a measuring accuracy of +/- 0.1mm, setting a new benchmark for precision without the need for any mechanical components. The design of this radar measurement system is specifically engineered to withstand the harsh conditions of glass production environments. It features a water-cooled and fully sealed unit, which is placed above the target measurement area. The system operates through an opening shielded by a specially designed disc that is permeable to radar waves, allowing for accurate distance measurement between the glass surface and the radar sensor. This set-up ensures that the system remains unaffected by the extreme heat and dust common in glass manufacturing facilities.



One of the main advantages of this system is its flexibility in positioning the measuring point to fulfill the specific operating requirements and environmental conditions. Moreover, this technology is designed to be inherently safe, as it does not produce any harmful radiometric emissions - making it a safe choice across all types of glass production, regardless of the colour of the glass being manufactured.

The radar-based glass level measurement system is not only recognised for its technical and operational benefits but also for its economic advantages. It is characterised by low installation costs and ongoing maintenance requirements. The system's design facilitates remote servicing - enhancing both its usability and its efficiency. Furthermore, it is designed with compatibility in mind, enabling seamless integration into existing production and control systems. This adaptability also extends to retrofitting capabilities, allowing facilities with pre-existing set-ups to upgrade to this advanced technology without significant modifications.

WWW.SORG.DE

ZIGNAGO VETRO

Biagio Costantini nominated as new CEO

Biagio Costantini has been nominated as the new Chief Executive Officer of Zignago Vetro. The whole company has united in congratulating him on his appointment and wishes him all the best in this new venture. **ZIGNAGO VETRO** expects that Biagio Costantini's leadership and vast experience in the industry will take the company towards new goals and new successes.

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O-I GLASS

Reception of USD 125M investment from US Department of Energy

O-I Glass was recently selected by the US Department of Energy (DOE) Office of Clean Energy Demonstrations to begin award negotiations for up to USD 125M in Bipartisan Infrastructure Law and Inflation Reduction Act funding as part of the Industrial Demonstrations Program (IDP).

The O-I decarbonization project was selected as one of 33 projects across more than 20 states to receive up to a total of USD 6 billion to demonstrate commercial-scale decarbonization solutions needed to move energy-intensive industries toward net-zero while strengthening local economies, creating and maintaining high-quality jobs, and slashing harmful emissions that jeopardize public health.

The Glass Furnace Decarbonization Technology project, led by **O-I GLASS**, plans to rebuild four furnaces across three of its facilities in California, Ohio and Virginia to reduce scope 1 carbon dioxide emissions by an estimated 48,000 tonnes per year, an average of 40 percent reduction of scope one emissions across the four furnaces and their corresponding production lines.

The proposed rebuild plan is to combine five cutting-edge furnace technologies on each furnace, making the first time that all five technologies have been implemented simultaneously. These technologies reduce waste heat and increase electrification, making the furnaces more energy efficient and reducing both direct and indirect emissions. The project provides O-I the opportunity to demonstrate the functionality of combining multiple technologies across different glass colours and container types.

O-I anticipates each project would support up to 300 construction jobs (up to 1,200 across four furnaces) and plans to establish Project Labor Agreements and Community Workforce Agreements as needed throughout the project to ensure project success and workers' rights.

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SEFPRO

Acquisition of Glass Service Group completed

SEFPRO has recently completed the acquisition of the Glass Service Group, including Glass Service, FlammaTec and F.I.C. (UK). This partnership marks a strategic collaboration focused on innovation, digitalization, decarbonization and sustainability within the glass industry.

In January this year **SEFPRO** announced that it had entered into a definitive agreement to acquire the Glass Service Group.

Laurent Cohen-Scali, Vice President at SEFPRO, said: "I am happy to warmly welcome in this day the teams of GLASS SERVICE, a.s. Service, FIC, and FlammaTec to the SEFPRO family.

"Beyond the business synergies, we share a common passion for the glass industry and a vision for its development, especially in the areas of digitalization and decarbonization. We are joining our forces to design more efficient and innovative solutions and services to accompany our customers in their journey towards a brighter, more sustainable future. Together, we will continue to grow as a strong, reliable, and innovative partner to glassmakers worldwide. Together we will shape a carbon neutral glass industry, for a brighter future."

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BORMIOLI PHARMA

47 percent increase in North American sales for 2023

Bormioli Pharma has announced a significant increase of 47 percent in its North American sales for 2023. This notable growth is a direct result of the company's rapidly evolving infrastructure and expanded capacity, tailored to meet the unique demands of the North American pharmaceutical market, including an increased need for pharmaceutical glass vials.

BORMIOLI PHARMA strengthened its strategic focus on the US market four years ago by establishing a new legal entity and a commercial branch in the US. From then on the company's on-site commercial team has been expanded, an FDA-approved warehouse established, and dedicated product offerings compatible with regional standards have been designed. For North American customers, this translates into the availability of a reliable and flexible packaging partner that can streamline their purchasing processes while reducing supply chain complexity, shortening their time-to-market and supporting them in the development of high-value projects with local, qualified support.

"As we grow our presence in North America and expand our capabilities to meet regional standards, we are committed to the partnerships that enable us to broaden our reach," said Johann Depperschmidt, Bormioli Pharma's Head of Sales, Americas. "To best serve our North American customers, we've adapted our manufacturing processes to produce Type I Glass expansion 33 vials in our European facilities, ensuring robust production and backup. We have an on-site, dedicated US sales team and a local warehouse, and we look forward to expanding these resources further in 2024. Additionally, we are collaborating with a US-based sterilization company to prepare ready-to-use packaging kits."

Bormioli Pharma's CEO, Andrea Lodetti, noted: "Our momentous growth in the North American market embodies our dedication to meeting and exceeding the evolving needs of this dynamic market. We are not just expanding our footprint but also enhancing our efficiency and adaptability. This growth aligns perfectly with our mission to provide innovative and sustainable pharmaceutical packaging solutions, and we are proud to say that our growth is not only robust but also responsible."

WWW.BORMIOLIPHARMA.COM

HFT

Selection for PQ's Augusta, Georgia expansion

PQ LLC recently hired HFT to design and build its new silicate production line in Augusta, Georgia, USA. The new line will be built on an existing site and will utilize the latest technology to reduce greenhouse gas intensity.

McMurray **HFT** will serve as engineering, procurement and construction (EPC) contractor on the project, and will begin with detailed engineering, early site work and long-lead equipment procurement in the first quarter 2024. PQ and HFT expect the project to be completed for production to begin next year.

This project showcases HFT's ability to deliver a single-source, fully-integrated project solution. HFT will bring the expertise to execute all elements of the project from site/civil through the process.

"HFT is excited to work with PQ as they enhance their production capabilities in a way that delivers on their core value of sustainability," said HFT President and CEO Mark Piedmonte.

PQ is a leading global provider of silicates, silicas and derivative products. PQ's products are used in a wide variety of industrial processes and many customer products, from decorative paints to green cement, from clean drinking water to green tires, and from toothpaste to biofuels and beer. Supported by 1,400 employees across 32 facilities in 13 countries, PQ serves more than 900 customers around the world.

WWW.HFT.COM

PENNINE INDUSTRIAL & RONDOT GROUP

Acquisition

Pennine Industrial was recently acquired by the French **Rondot Group**, which thereby became sole owner of the company as well as adding Pennine Prostamp and Pennine Industrial Holdings to its portfolio.

Pennine's full range of chains, sprockets, plastic extrusions and plastic machined components will continue to be manufactured and distributed from the same site. Its dedicated sales and support team is also perfectly positioned to keep delivering unparalleled service for customers in the UK and right across the globe.

Pennine Industrial is one of the world's leading manufacturers of silent inverted tooth conveyor chains and sprockets that are used in the transportation and handling of hollow glass, container glass, tableware and stemware.

WWW.PENNINE.ORG - WWW.RONDOT-GLASS.COM

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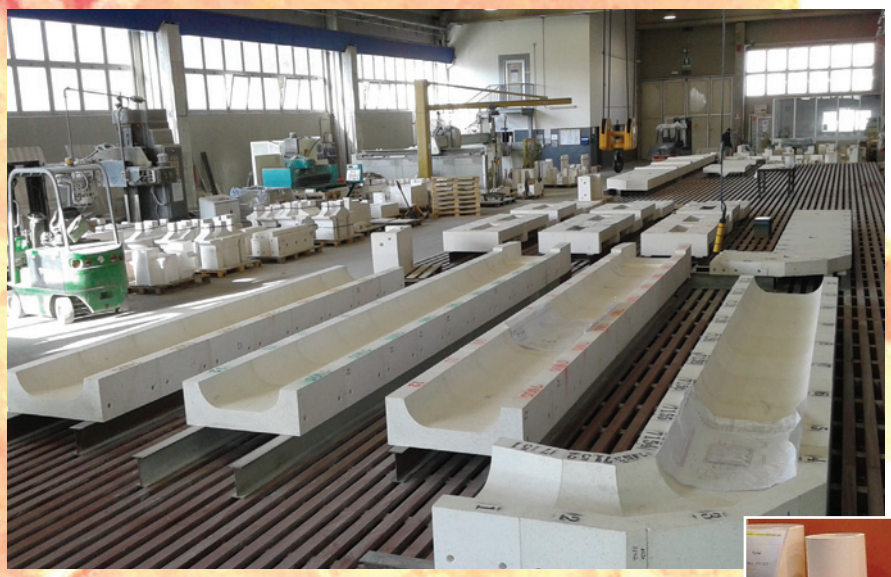

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TEC REF
TEC REF RANGE OF PRODUCTS

AND&OR GROUP & ICEBEL

Acquisition of ICEBEL

AND&OR, an industrial automation company headquartered in Palomares del Río, Spain, recently announced the acquisition of **ICEBEL**, a leading Portuguese company specializing in cold end equipment for the glass container industry. This operation reflects the continued growth and expansion of the **AND&OR GROUP** in the market, further solidifying its position as a leader in automation solutions for the industry.

The acquisition of ICEBEL represents a key strategic step for the AND&OR Group, as it combines its expertise in handling plastic packaging (PET, HDPE) with ICEBEL's analogous experience in glass packaging. This complements the product and service portfolio of the AND&OR Group, allowing both companies to leverage synergies and collaborate in creating comprehensive solutions for the industry.

Both companies share a common vision of innovation, excellence and customer service - all fundamental values that will guide the integration of ICEBEL into the AND&OR family.

This integration will enable the Group to offer an even wider range of solutions, increasing its manufacturing capacity to address the growing demands of the market and provide greater value to its customers.

"We are delighted to welcome ICEBEL to the AND&OR family. This acquisition reflects our ongoing commitment to excellence and innovation in the field of industrial automation," said Antonio Ortega Suarez, CEO of AND&OR. "Together, we are better positioned to provide comprehensive and advanced solutions to our customers across Europe, strengthening our position as industry leaders."

Alfonso Cardeira, Managing Director of ICEBEL, stated, "This integration into the AND&OR Group is a great opportunity to drive the company's growth and progression. We are focused on ensuring that our relationship with all stakeholders is strengthened with this acquisition."

Both companies will work together to ensure a smooth transition that benefits both employees and customers. It is expected that this acquisition will strengthen the Group's international presence.

WWW.ICEBEL.COM - WWW.ANDYOR.COM

ARDAGH EUROPE

Rooftop solar energy plant launches in Scotland

Ardagh Glass Packaging-Europe (**AGP EUROPE**), an operating business of Ardagh Group, recently announced that a new solar installation at its glass facility in Irvine, Scotland, is now generating on-site renewable electricity, which will add enough electricity back to the grid to remove the equivalent of an estimated 356 tonnes of CO_2e annually.

During the summer months the solar panels will provide up to 25 percent of AGP-Irvine's total electricity usage. The remaining renewable electricity used at the facility will continue to be supplied by a third party.

Working together with energy partner ESB Energy, AGP has installed a 1.75MWp solar PV system of 3842 panels on two warehouse roofs at the facility, which will generate approximately 1.584MWh of electricity each year, to support the site's production of over 350 million glass bottles for some of the world's leading spirits brands.

Graeme Shepherd, Plant Director at AGP-Irvine, said: "This solar installation is another step forward in enhancing the sustainability of our operations at Irvine, as

well as reducing the amount of electricity we take from the grid. It shows our commitment to decarbonising the glass containers we produce while maintaining the highest standards of quality and excellence."

Annelene Ikemann, Sustainability Director at AGP-Europe, added: "The Irvine installation achieves another step in our decarbonisation strategy. It is one of three AGP-Europe on-site sustainable solar projects that, together, are expected to replace more than 12,000 MWh of electricity consumption from the grid, avoiding the release of around 5,000 tonnes of carbon emissions per year."

The project contributes to Ardagh Group's strategy to use 100 percent renewable electricity by 2030 and follows the launch of solar power installations in Ardagh's glass and metal production facilities in the Netherlands, in the past six months. Ardagh Group plans to install more solar power at its facilities across Europe in the coming years, to progress toward its 2030 targets.

WWW.ARDAGHGROUP.COM

ŞIŞECAM

World's largest glass production complex in Eskişehir announced

Şişecam recently ignited its new glass packaging furnace in Eskişehir and put its glassware furnace into operation after cold repair.

With these significant investments, totalling USD 174M, Şişecam's consolidated production capacity for glass packaging and glassware in Eskişehir has reached approximately one million tonnes. This milestone establishes the Şişecam Eskişehir complex as the world's largest integrated glass production location, poised to deliver higher efficiency in resource use and operational productivity.

ŞIŞECAM's Chairman and Executive Member of the Board, Dr Ahmet Kirman, shared insights on the investment, "Our glass packaging furnace, initiated with an investment of approximately USD 145M, will provide employment for an additional 127 people. The furnace, with an annual gross capacity of 198 thousand tonnes, is set to produce high-quality bottles and jars. This investment, made in a challenging economic climate, ensures we meet increasing demand and support the sectors we serve. As a result, Şişecam Eskişehir Glass Packaging Factory, equipped with five furnaces and 24 lines, has become the world's largest with a total production capacity of about 760 thousand gross tonnes annually."

Şişecam becomes global leader in glassware

Görkem Elverici, Şişecam's CEO, stated: "Our investments in Eskişehir are not just about glass packaging. The cold repair of our second furnace at the Eskişehir Glassware Production Facility, completed with an investment of around USD 29M, has significantly enhanced our capacity, establishing Şişecam as a global leader in glassware production. The updated furnace, with an annual gross capacity of 64 thousand tonnes, will also create 246 new jobs. Consequently, our glassware production capacity in Eskişehir has reached approximately 190 thousand gross tonnes annually."

WWW.SISECAM.COM.TR

DMA MASCHINEN UND ANLAGENBAU

New location

The relocation of **DMA MASCHINEN UND ANLAGENBAU** to its new site in Marienmünster, Germany, at the end of 2022 and the takeover of the company by long-standing employees Moritz Disselhoff and Tobias Schaperdot were major challenges for the company last year. The processing of orders and setting up the new business premises ran in parallel and did not always make work easy. But the highly motivated DMA team also mastered this difficult task. Turnover also developed positively, significantly exceeding the planned target and surpassing all expectations. DMA is entering 2024 with a good order situation and already has orders on the books for 2025. As in 2023, the focus is on orders in the glass industry. The other industries that DMA supplies are beverage bottling, the bakery industry, dairies and the food and luxury food industry. The DMA team is looking positively to the future and to new challenges.

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Evolving through five generations, Oculus is a testament to the innovative spirit of the company. With a standard configuration of eight cameras and limitless upgrade options, Oculus ensures comprehensive check detection across all container components.

Video Systems' collaboration with end-users and machine builders over the past two decades has been crucial in refining Oculus for seamless integration with machines of any vintage or brand.

Today, Oculus undergoes rigorous testing on carousel machines of all generations, empowering customers to effortlessly enhance their quality inspection processes.

HTTPS://VIDEOSYSTEMS.IT/EN/

VIDRALA

CEO succession plan announced

Vidrala has recently announced that, as a result of a planned succession process, its Board of Directors has elected current Chief Financial Officer (CFO) Raúl Gómez, as next Chief Executive Officer (CEO), effective June 30, 2024. The Board will consider the current CEO, Gorka Schmitt, to be proposed to serve as a member of the Board.

"It has been a privilege to be part of **VIDRALA** for more than 26 years and serve as CEO for the past 13 successful years," said Gorka Schmitt. "I have been fortunate to have worked with a great team at a great company delivering superior results, and I will support Raúl to secure an efficient transition."

"I am honoured and grateful to receive the confidence of the Board, proud to take responsibility and build upon Gorka's legacy by further strengthening the Group's leading position and executing on the many compelling opportunities ahead," said Raúl Gómez. "We are today a different and stronger company, with leading competitive positions in growing markets, a clear strategy after a deliberate refocus in core regions, and a talented and agile team for continued profitable growth.

"I promise that customers, cost and capital will all firmly dictate our strategic and management principles. I look forward ➜

to working with our Board, leadership team and all our people to continue creating superior value for our shareholders - with our customer in mind and with the firm aim to make our products and serve our markets in the most sustainable way." The Board of Directors have thanked Gorka for his leadership noting that during his 13-year tenure the team has transformed Vidrala, simultaneously delivering superior performance while creating even greater future potential. Concerning Raúl, he has reported to have been a close partner in the executive team over the years, playing a relevant role in the corporate actions that have accelerated the company's growth and diversification, while maintaining a solid financial position. With the company well positioned, the Board considers it to be the right time to transition the role to Raúl - expressing its confidence in his leadership capabilities to successfully face future business challenges.

WWW.VIDRALA.COM

HORN

HRD-BEAM glass level measurement system

A constant glass level in the melting end is a very important control component in the glass melting process. Indeed glass level variations influence the steady operation of the furnace and have a significant influence on gob weight. The high measuring accuracy of the HORN HRD-BEAM allows the precise control of the glass level together with all common charging machines. The measuring device can either be installed as a stand-alone version or can be integrated into a HORN control cabinet and comes together with a touchscreen evaluation computer. The HORN HRD-BEAM reduces all maintenance work to a minimum because no mechanical moving parts are built in.

Features

- Simple opening for measurement in the distributor/working end crown
- Easy installation of the system; no welding necessary
- Network connection; remote access easily possible
- Measurement independent of glass colour
- Minimum maintenance effort
- No special housing/safety fences, etc. necessary
- No influence by cooling air
- No spill air necessary

Measuring procedure

The water-cooled radar sensor acts as a transmitter/receiver module in one unit. Radar waves are sent to the glass surface and are reflected by it. The glass level is calculated according to the time between the emission and the reflection of the waves.

Installation

The measurement device can be installed on top of the distributor or forehearth (for a container glass furnace) or on top of the working end (for a float glass furnace). HORN suggests an open hole with a diameter of 80 millimetres (covered with a ceramic protection plate) where the radar sensor can measure through. Other holes are also possible but this needs to be checked in detail by **HORN**.

Technical data HRD-BEAM

Measurement accuracy: distance between glass surface and sensor at two metres with an accuracy of +- 0.1 millimetre or better. Greater distances are also possible, but need to be checked in detail.

Ambient temperature maximum: 250 degrees Celsius.

Cooling water requirement: 4-5 litres per minute.

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HOT Systems by TIAMA signal greatly improved glass production

TIAMA continues to wow customers with its glass production revolution in innovative hot-end to cold-end process monitoring. Enhancing efficiency while reducing defects -all within the YOUniverse concept- the company's technologies are leading to both significant savings and improved production quality.

Lucie Jouve -
Hot End product Leader at
TIAMA

For more than ten years now, Tiama has been a major player at the hot-end launching several systems dedicated to process monitoring. The very first one was the I-Care machine which was equipped with two infrared cameras located just after the IS machine. In 2014, the company launched its HOT systems, adding to its historically-provided cold-end products a fresh range of sensors dedicated to the hot-end. This was the beginning of a new era and the first steps towards what is now known as YOUniverse. Today, the Tiama HOT systems range consists of four

sensors, each located in a different area around the IS machine - from the gob with the Tiama HOT mass 2 to the exit of the IS machine with the Tiama HOT eye, the Tiama HOT form and the Tiama HOT move.

PROCESS MONITORING TOOLS

The Tiama HOT eye is equipped with two high-definition cameras integrated inside two metallic tubes, as well as a light source, flashing articles on the conveyor with infrared light so that operators working on the line won't be disturbed. The main functions of the system are the detection of defects and the dimensional analysis of the containers. In dimensional terms, the system can provide verticality, height and diameter measurements.

The Tiama HOT move is an additional feature of the Tiama HOT eye, monitoring the transport of articles on the conveyor and providing information on positioning of the articles in both directions. The system also rejects the stuck or fallen articles on the conveyor.

The Tiama HOT form uses one or two infrared cameras while measuring the infrared emissivity of articles on the conveyor to

identify problems with glass distribution or temperature. In this way such defects as thin glass or uneven bottom can easily be identified through the Tiama HOT form. The system also provides statistical data to identify production drifts at the early stage of the process. To limit the footprint on the production line, the camera of the Tiama HOT form can be integrated into one of the tubes of the Tiama HOT eye.

The systems are all synchronized with the IS machine - enabling the images and the various data supplied by the sensors to be linked to the sections and cavities of the IS machine. In the event of a drift, the operators know directly where problems arise on the IS machine.

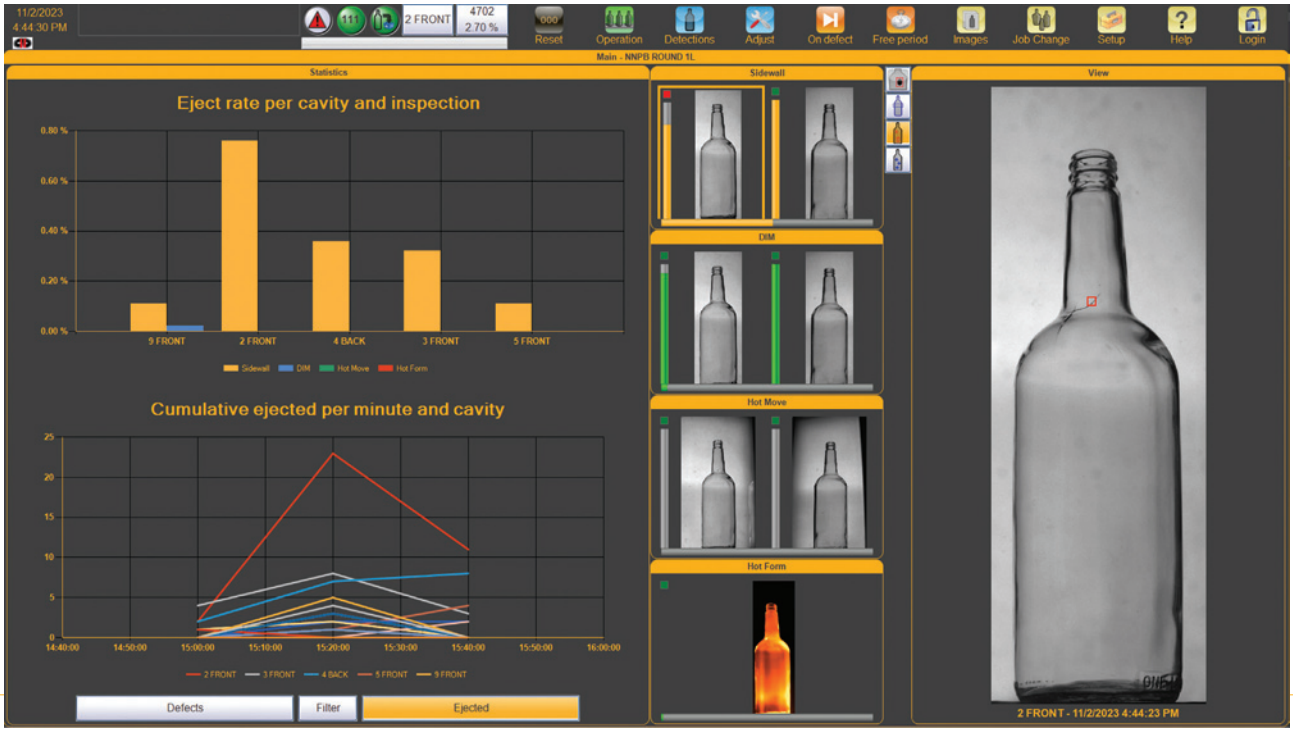
This modular approach enables customers to meet their specific needs according to their production issues. Modules can be added step-by-step so customers can take time to understand how each machine works in order to facilitate ownership by operators.

HIGH PERFORMANCE IN HOT-END DEFECT DETECTION

The Tiama HOT eye uses a unique and innovative technology at the hot-end. The high-definition matrix cameras and measurement by transmission both achieve an excellent defect detection level compared to infrared camera technology. Infrared images have areas with different brightness levels creating very dark or very bright areas where it makes it impossible to detect defects. The Tiama HOT eye is not impacted by these differences in radiation - which allows for complete inspection of the article from bottom to finish.

CONTINUOUS SENSOR IMPROVEMENT

Since the launch of these products, several developments have been made and implemented on the Tiama HOT eye and the Tiama HOT form. Owing to limited available space on production lines at the hot-end, Tiama has decided to launch a new version of its Tiama HOT move sensor - with no footprint. This new version is now only a software that can be installed as



an option on the Tiama HOT eye module. The old version of the Tiama HOT move was composed of a camera and several mechanical parts whereas the new one retains the same features. Tiama has always wanted to have products that can work on all production lines, which is now possible since the company recently developed the multi-product management on the Tiama HOT eye, Tiama HOT form and Tiama HOT move.

CUSTOMER BENEFITS

The Tiama HOT systems are sensors that help customers to monitor and improve the glass process. Defects are detected at the hot-end by the Tiama HOT eye, allowing operators to perform quick corrective actions on the IS machine without waiting for cold-end feedback. Data measured by plants equipped with the Tiama HOT systems has shown that critical defects have been seen at the hot-end seven times more since the systems were installed. It also allowed a 20 percent reduction of blocked pallets and a halving of customer complaints - leading to significant savings for the plant.

Thanks to the glass distribution analysis provided by the Tiama HOT form, defect creation can even be anticipated. Furthermore, data shared by customers has shown that the number of sidewall cold-end rejects has halved following installation of the Tiama HOT systems. Besides, ware handling has improved with the Tiama HOT move. Jams on the production line have seen considerable reduction and pusher settings have been optimized thanks to sensor-provided information.

SOLUTIONS THAT WORK WITHIN THE COMPANY'S RANGES

Tiama HOT systems provide a full range of data that can be used for a global plant overview from hot-end to cold-end. A few big data analysis projects have been carried out on lines equipped with all Tiama HOT systems sensors. Here the data provided by the systems can be correlated with different parameters of glass process and IS machines, allowing for production efficiency improvement afforded by certain defect reduction - all thanks to better process control. Tiama HOT systems are fully part of the YOUniverse concept in which its six fields of expertise are all necessary to move towards smart factories. Traceability, Inspection, Intelligence, Sampling and Services are all very important in the Tiama strategy with Monitoring being key to the life of YOUniverse.

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Hydrogen furnace trial sees SORG and HRASTNIK1860 team-up

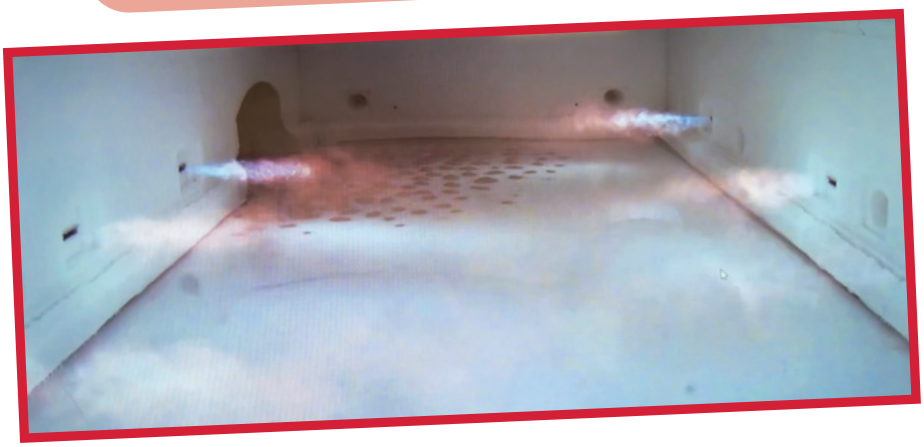
A PILOT TEST NOT WITHOUT PRECEDENT

Hydrogen is a solution for significantly reducing CO2 emissions from the combustion of a glass melting furnace whereby the use of green hydrogen will avoid them altogether. Recently SORG and Hrastnik1860 worked on a laboratory and pilot scale to test the use of hydrogen for glass production. SORG has already tested various burner types, and newly developed gas-oxygen and underport burners (SDB) are being prepared on an industrial scale. The SORG SDB underport burner has been operated with 100 percent H2 in the GWI Hy-Glass project, while another test with a natural gas/H2 and LPG/H2 mixture is currently in the process of starting. In this industrial style set with Hrastnik1860, the safety measurement, control system and calculation software were specifically designed for hydrogen and thereupon delivered. Installed on a furnace so that both hydrogen and pure operation with hydrogen or gas could be supplied in normal operating conditions, the existing gas and oxygen supply equipment were used in the process chosen by SORG. Here the H2 supply and control systems met all applicable standards and regulations while gaining official safety approval as well.

FIRST TEST

During December of last year the oxyfuel-powered glass pro-

World leader in glass melting and conditioning technology, Nikolaus SORG joined forces recently with renowned Slovenian high-quality glassware producer HRASTNIK1860 to test how furnace system technology and control could potentially facilitate a definitive energy switch to hydrogen.



duction plant of Hrastnik1860 was switched from gas to hydrogen. Individual burner pairs were gradually switched to hydrogen and the hydrogen content in the gas was gradually increased. Gas content was reduced to an energy equivalent and the oxygen was adapted to the lower oxygen demand. Only the Vol-percentage - H2 proportion was set on the control system, with all heating parameters calculated and controlled automatically. The burners were operated with 100 percent hydrogen for several days.

SECOND TEST

A second test switched the melting furnace burners directly from 100 percent natural gas to 100 percent hydrogen. Over the experimental period, the relevant factors were recorded and evaluated:

- Combustion process
- Emissions
- Glass melting process
- Quality of glass

CONCLUSIONS

The trial indicates that it is indeed possible to switch to hydrogen with the appropriate system technology and control. The results also tell us that it's relatively easy to switch and revert a furnace to hydrogen by adapting the heating system to the different physical properties of gas and hydrogen. Moreover, operational changes were within the expected range and controllable. ■

SORG

NIKOLAUS SORG

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Remote Monitoring Service from FAMA enhances production processes

FAMA was pleased recently to announce the launch of its Remote Monitoring Service - an advanced solution designed to track production processes round the clock. The company's monitoring service offers a comprehensive approach to boosting operational productivity. By proactively identifying failures and process variables in equipment, access is gained to detailed information - including alarm status, operational efficiency, maintenance stoppages, downtime and operating times. Armed with this data, companies can make informed decisions that significantly enhance their business productivity while extending the lifespan of valuable assets.

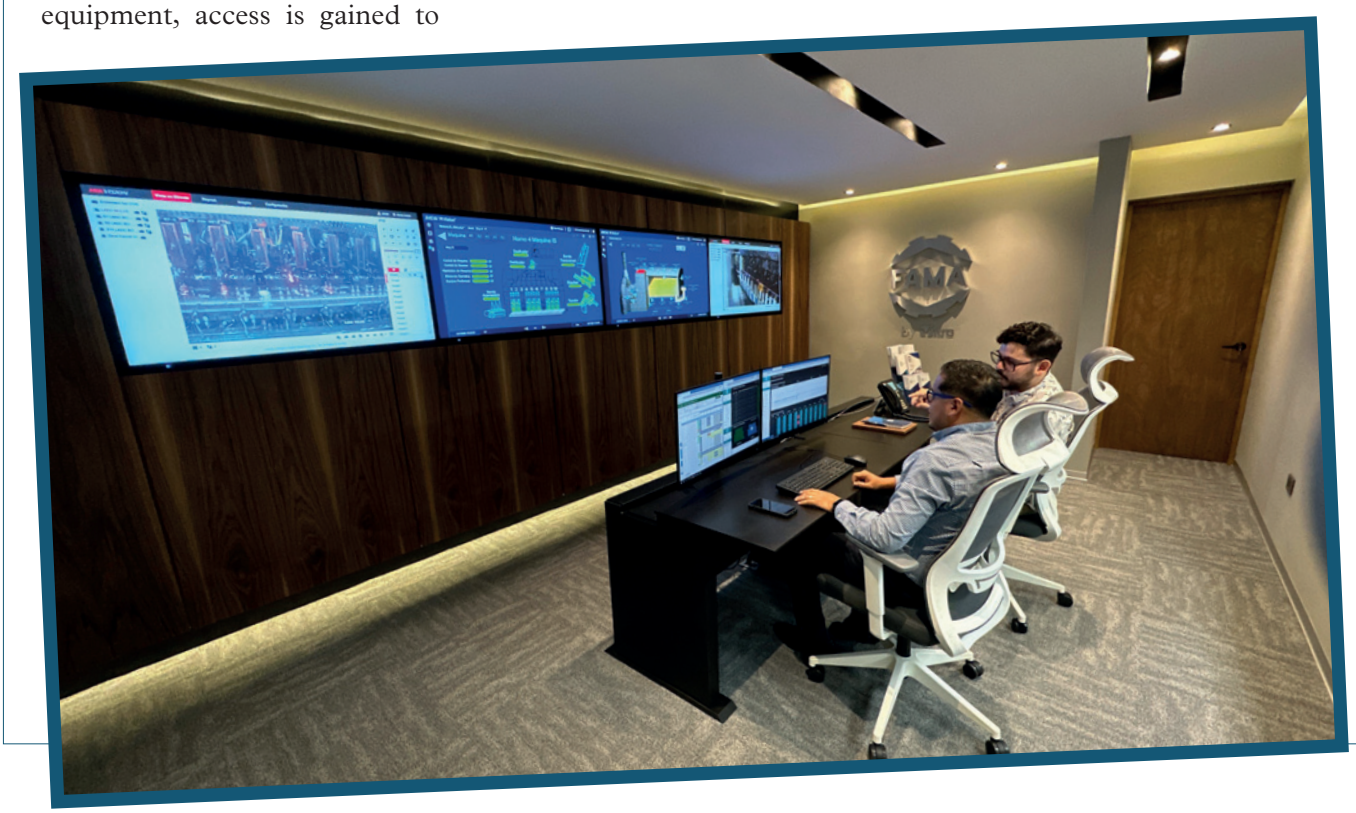
Some key features follow here:

24/7 MONITORING

FAMA's monitoring service operates around the clock, ensuring continuous oversight of production processes. Whether it's day or night, companies can have real-time visibility into critical aspects of their operations.

REAL-TIME MONITORING

Saying goodbye to unexpected



With its newly-introduced Remote Monitoring Service for glass manufacturers, FAMA boosts efficiency and reduces downtime. The service utilizes advanced technology to remotely monitor equipment performance, provide advanced detection and offer timely support - all to ensure uninterrupted production while maximizing productivity.

downtime. FAMA's system provides instant alerts when anomalies occur. Whether it's a sudden drop in efficiency or an equipment malfunction, companies are promptly notified - allowing for timely interventions.

SAFETY IN HAZARDOUS ENVIRONMENTS

Given that some production environments can be challenging, FAMA's monitoring solution is designed to operate safely even in hazardous conditions. It can be relied upon to keep processes on track, no matter the circumstances.

ALERTS FOR OUT-OF-RANGE CONDITIONS

An early warning system for process deviations. The service detects out-of-range conditions and sends alerts, empowering companies to take corrective actions before they escalate.

REDUCED MAINTENANCE COSTS

Proactive monitoring means fewer surprises. By addressing issues before they become major problems, companies can save on maintenance costs. Indeed planned maintenance is always more cost-effective than emergency repairs.

MAXIMIZED UPTIME

Downtime is the enemy of productivity. With FAMA's monitoring service, companies can maximize uptime while keeping production lines rolling, meeting deadlines and satisfying customer demands without unnecessary interruption.

DATA ACCESS AND RETRIEVAL

For retrieving historical data and analyzing trends, the system provides easy access to detailed information. Whether evaluating performance over time or investigating specific incidents, the data is ready to hand.

CAPACITY AND VISION FOR GROWTH

Beyond immediate benefits, the monitoring service equips companies with insights for the future. Here data can be leveraged to plan for expansion, optimize processes and stay ahead of the curve.

Finally, FAMA Remote Monitoring Service isn't just about technology; it's about empowering businesses to thrive. ■

FAMA by Vitro

FAMA

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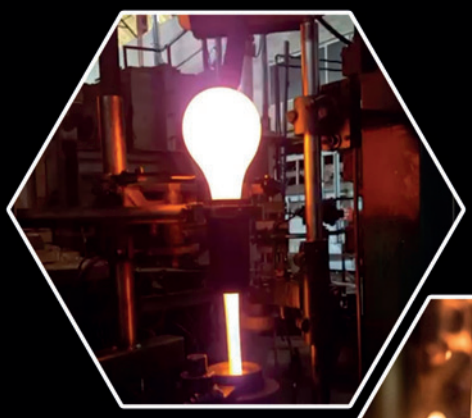
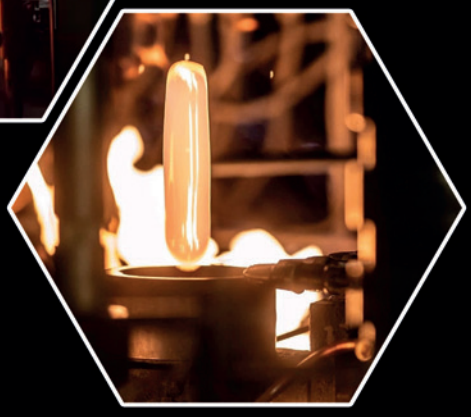
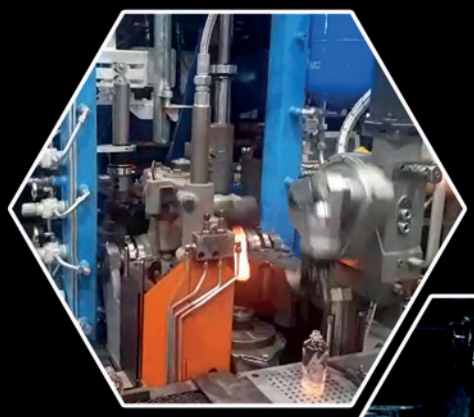
for the glass industry

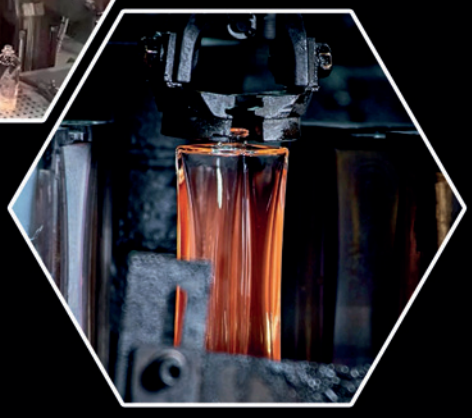


GLASS GOB LOADING





FORMING



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FLAME POLISHING

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Formidable as ever, FAMOR ENGINEERING marks its half-centenary

As FAMOR ENGINEERING approaches its 50-year milestone of successful activity and a winning tradition in hollow glass machinery production, the company looks forward now to its next half-century in the industry. Here we examine some of the many achievements it has wrought over the decades since its founding in 1977.

An important acquisition for the new future of Famor Engineering Srl, 100 percent of its share package passed in February to Falorni Gianfranco Srl, its parent company. All machinery is produced internally, representing an important competitive advantage that Famor Engineering is making the most of as it supplies its customers with forming machines, burners and equipment, as well as including tools. However, even against the backdrop of its ongoing commitment to achieving its company goals, Famor Engineering

General Manager Renato Trotta insists that 'the future depends upon the success of those among us' as he encourages and motivates both employees and collaborators to keep developing and sharing together both quality and talent. A specialist in the production of glass machinery, Famor Engineering is now reaching an important milestone, namely the 50-year anniversary since its foundation. Today the company provides a wide range of glass equipment, as well as production technology and high-tech machinery. Located at the northern outskirts of Turin in an industrial area north of the city, it covers an area of 2000 square metres where over fifteen employees work.

EQUIPMENT RANGE

Research, innovation and continuous technological development have all allowed the company to become a leading brand worldwide - providing 'turnkey' systems and services tailored to any production need. This is why Famor Engineering is a leader in the design, production, installation and commissioning of plants, systems and machines for hollow glass-forming - an all-round technological partner that can tackle any production-related problem with maximum effectiveness.

ITS CURRENT PRODUCTION FORMING MACHINES ARE:

- Semi-automatic machines
- Automatic machines
- Flame polishing machines
- Handling and transport system

While for complete forming production lines the company caters to:

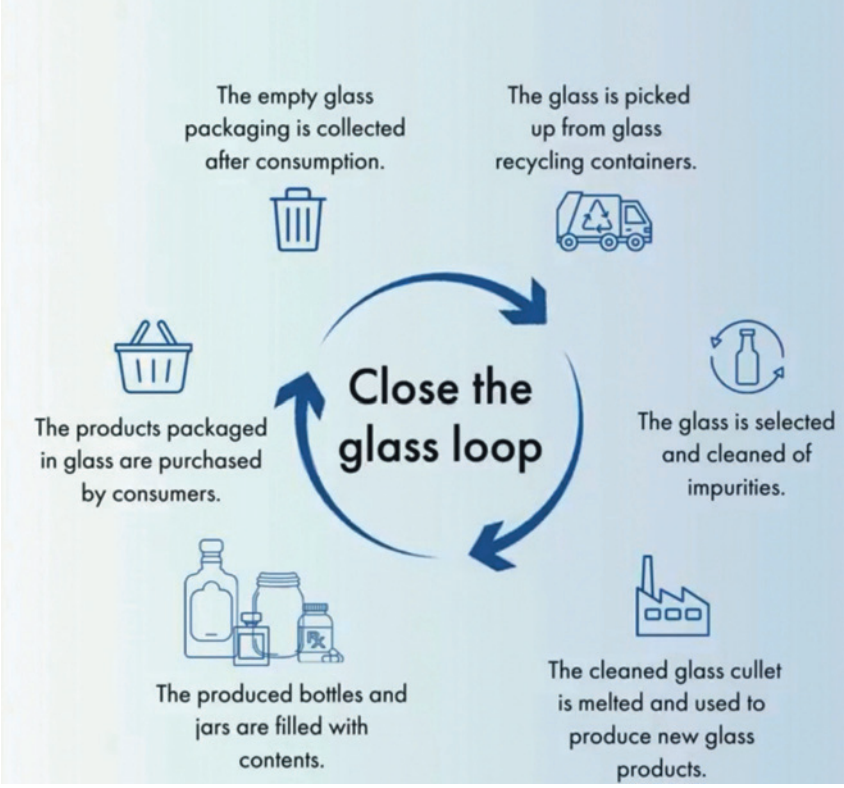
- Tableware and kitchenware
- Stemware
- Lighting ware
- High voltage insulators
- Glass blocks
- Car headlight lenses.

TEAMWORK THAT DRIVES THE FUTURE

Every year Famor Engineering sets itself new goals, challenging the market to try to reach them - an important commitment which starts from the core value that 'the future depends on the success of all,' so a combination of quality and talent. The company operates successfully in the domestic market, in Europe and in the Mediterranean basin. As such it seeks to solve the specific problems of glass factories by offering quality technology and tailor-made machinery. To that end it has developed its own working method based on quality and continuous innovation. Here results that have been obtained demonstrate an approach that's more than correct - all clearly appreciated by the company's market sector as is demonstrated by the number of machines and equipment sold annually as well as the loyalty with which customers return to the company with new investments.

TECHNICAL DEPARTMENT

The technical department is composed of three separate



wings, namely those of mechanics (where CAD2 and 3D are used), software and systems. Of these the latter works on pneumatics, hydraulics and electric - supervising entire projects from initial technical specification right up to machine commissioning.

QUALITY MANAGEMENT

Back in the late 2008's, Famor Engineering established a Quality Management System to control its order fulfilment process, which oversees specifying, designing, building, testing, shipping, installing and commissioning. This enables the office to have fish eye vision of each line on offer and/or in production at any given moment, thereby serving as a meeting point for all technical offices while enabling them to work together as they

avoid (for instance) incompatibilities in the final product.

AFTERSALES AND TECHNICAL SERVICE

Famor Engineering guarantees the reliability of the supply and availability of spare parts: new and innovative components to improve productivity and upgrade forming machines. Available 24 hours a day, seven days a week, its team remains always at the ready to assist customers.

ONSITE INSTALLATION

Skilled, professional engineers are ever present on site to provide support - offering such all-important services as installation and commissioning of new machines.

REMOTE ASSISTANCE HOTLINE

Famor Engineering has also implemented its remote assistance service to shorten intervention times. Whenever possible, its team of engineers helps customers to solve any problems directly from headquarters.

MACHINE TECHNICAL AUDIT

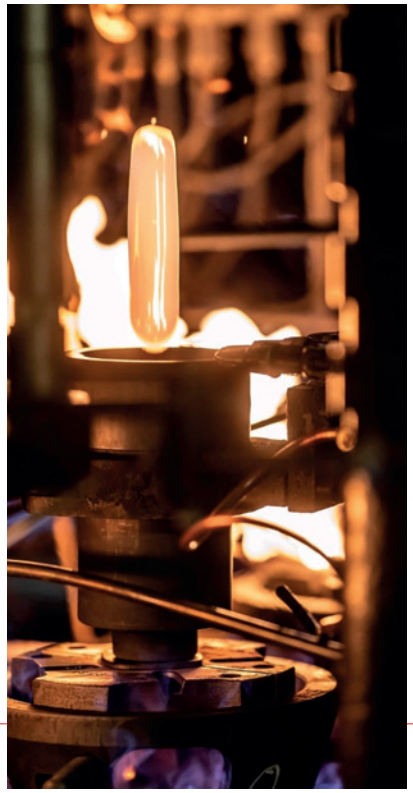
A dedicated team will also make necessary assessments of the state of a line, whether seeing to any damage or simply furnishing upgrades according to the latest technological solutions developed in new plants. Here evaluations can be conducted for both the mechanical and electronic parts.

PRODUCTION ASSISTANCE

Production experts are available to advance product quality excellence. Here the team is also available for subsequent refresher training at customer sites - evaluating both production tools and variable equipment.

MEMORABLE COMPANY MILESTONES

1977 Founding of Famor and registration in Turin, Italy
1980 First glass forming machine prototype
1990 Supplier for rotary forming machines manufacturer
1996 intensive machines overhauling programme
2012 New generation of automatic forming machines
2020 Takover of the glass supply of Putsch & Meniconi
2021 Cooperation with Eglass for the construction of Platinum Feeders
2022 New generation of servo IS machines for high quality bottles
2023 New generation of servo press machines for tableware ■



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PHARMA

Optimum solution choice simplified by GERRESHEIMER performance levels

An innovative system and solution provider and a global partner for the pharma, biotech and cosmetic industries, Gerresheimer recently presented its new performance levels for injection vials, syringes, cartridges and ampoules in Düsseldorf. Within the relevant product category, customers can choose from three performance levels, namely Gx Value, Gx Advance and Gx Elite - a new structure which makes it easier to select the right product platform according to require-

Gerresheimer's new, standardised division into three different performance levels for injection vials, syringes, cartridges and ampoules makes it easier to choose the right solution.

GERRESHEIMER's stellar performance at producing injection vials, syringes, cartridges and ampoules was exhibited recently in Düsseldorf to great acclaim as its expertise and innovation in glass manufacturing continues to set a benchmark in the industry – all thanks to the company's high quality standards.

ments of the pharmaceutical active agent or area of application. Gx Elite products offer the highest performance and are especially suitable for innovative biopharmaceutical products. Says Holger Krenz, Global Vice President Business Development High Value Products Tubular Glass: "We offer the right solution for all active ingredients, therapeutic areas and production requirements. The new performance levels give our customers a transparent overview of our portfolio and make it easier to select the right product."

CLEAR STRUCTURE HELPS WITH FINDING THE RIGHT SOLUTION FAST

By dividing its product portfolio into the three above listed performance levels, Gerresheimer has created a standardised structure for its product platforms for both bulk and pre-sterilized 'ready-to-fill' primary packaging. This lets customers quickly find the right product for their application. The portfolio encompasses syringes, cartridges, ampoules and injection vials for the full spectrum of pharmaceutical applications in human and veterinary medicine, including solutions for innovative biopharmaceutical products in the areas of cell and gene therapy.

GX VALUE: PROVEN PHARMACEUTICAL-GRADE PRODUCTS

The Gx Value product line for injection vials, syringes,

ampoules and cartridges encompasses pharmaceutical-grade products made of type I borosilicate glass. Having proven their value millions of times over, these items mark the entry point of the Gerresheimer product world. Gx Value products meet all qualitative, regulatory and technical requirements. Gerresheimer produces Gx Value products worldwide for the various regional markets. With local production sites, Gerresheimer is able to ensure high product availability and fast delivery. Gx Value solutions are used for a broad spectrum of pharmaceutical products, such as anticoagulants and anaesthetics.

GX ADVANCE: HIGHER EFFICIENCY DURING THE FILL & FINISH PROCESS

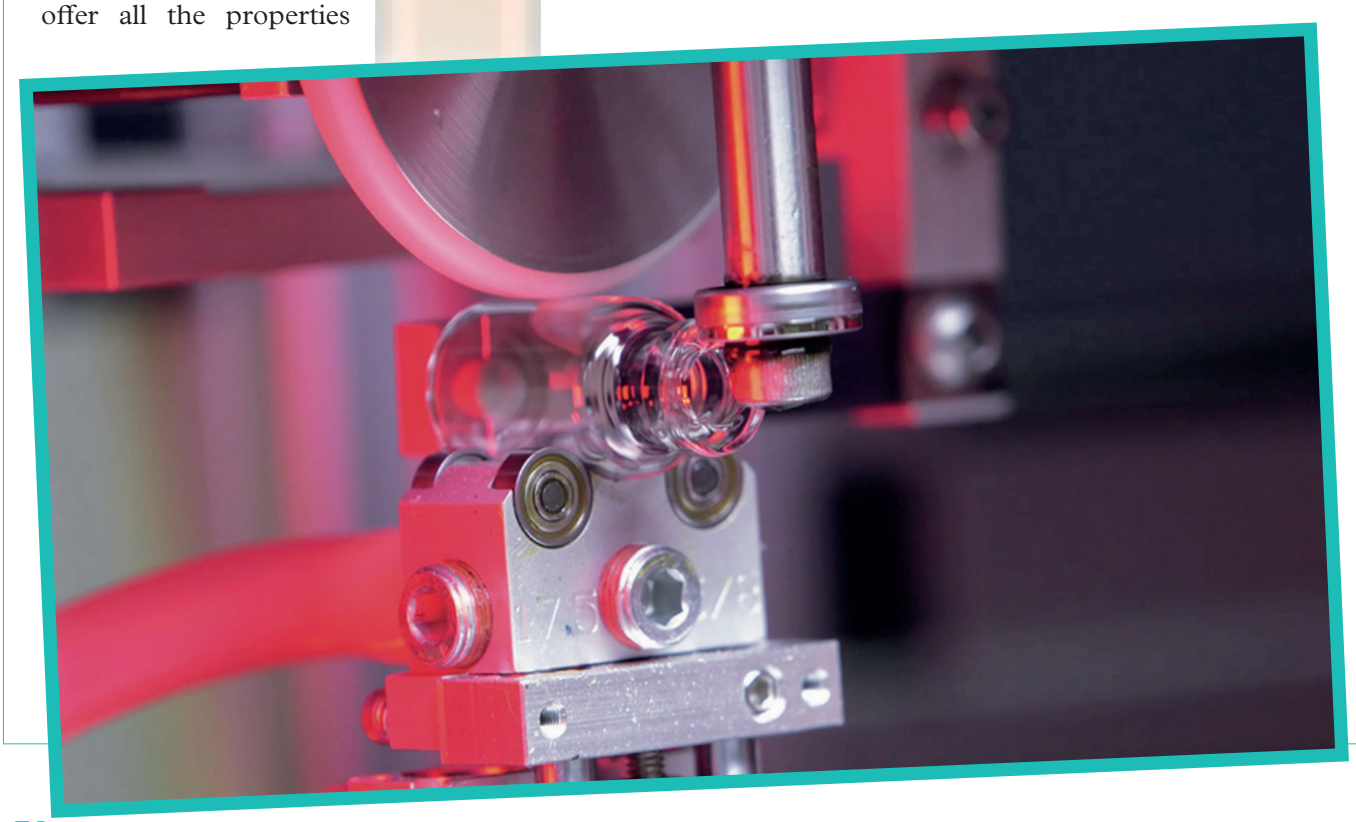
Gx Advance injection vials, syringes, ampoules and cartridges offer all the properties of Gx Value products, plus expanded product features, including the enabling of greater filling efficiency. This means tighter tolerances, reduced glass-to-glass and glass-to-metal contact and higher surface quality. It allows for an efficient filling process that can lower costs. Gx Advance syringes and Gx Advance cartridges are also optionally available as ready-to-fill (RTF) products. Gx Advance solutions are typically used in large-scale industrial mass production where they are applied for such items as vaccines or for active agents for diabetes treatment - such as insulin or GLP-1.

GX ELITE: HIGHEST PERFORMANCE AND TOP-NOTCH PROTECTION FOR SENSITIVE PHARMACEUTICALS

Gx Elite injection vials, syringes and cartridges offer all the advantages of the Gx Advance level while also providing significantly higher breakage protection, strict adherence to tolerances and maximum surface quality. This ensures a highly-efficient and reliable filling process as well as top-notch protection for the pharmaceutical products. Such product characteristics are achieved through a special production process that is gentle on the materials, with no glass-to-glass contact and minimised glass-to-metal contact. Gx Elite products are an optimum choice for pharmaceuticals with special requirements, including such biopharmaceuticals as mRNA active agents, gene therapies and applications for ophthalmology use.

READY-TO-FILL WITH ECO-FRIENDLY STERILISATION

All Gx Elite products are available presterilized in a ready-to-fill (RTF) version. For this Gerresheimer offers two packaging platforms, namely EZ-fill and EZ-fill Smart. For the first time, vapourised hydrogen peroxide



(VHP) sterilisation will also be available for the EZ-fill Smart packaging platform. This eco-friendly, resource-conserving method uses no toxic substances at all - meeting the most stringent requirements set of the U.S. Food and Drug Administration (FDA). Gerresheimer is taking on a leading role by implementing VHP sterilisation in the RTF manufacturing process. Customer benefits include optimised delivery times for the EZ-fill and EZ-fill Smart packaging platforms, both of which are compatible with all standard commercially available fill & finish lines - enabling a flexible, reliable and cost-effective filling process.

COMPLETE SYSTEMS AND SOLUTIONS

All injection vials, syringes, cartridges and ampoules at the GX Value, Advance and Elite performance levels are also available as complete systems with the suitable components. This includes a broad array of different sealing and closure solutions along with various rubber components and built-in needle protection systems for prefillable syringes. Some products are also available in special configurations, such as silicone oil-free prefillable syringes. The new Gx performance levels are supplemented by Gx Choice, which lets customers freely configure a broad range of customer-specific product solutions. ■

gerresheimer

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ABOUT GERRESHEIMER

Gerresheimer is an innovative systems and solutions provider and a global partner for the pharma, biotech and cosmetic industries. The company offers a comprehensive portfolio of pharmaceutical containment solutions, drug delivery systems and medical devices as well as solutions for the health industry. Its product range includes digital solutions for therapy support, medication pumps, syringes, pens, auto-injectors and inhalers as well as vials, ampoules, tablet containers, infusion, dropper and syrup bottles - and more. Gerresheimer ensures the safe delivery and reliable administration of drugs to the patient. With 35 production sites in 16 countries in Europe, America and Asia, it has a global presence and produces locally for regional markets. With around 12,000 employees, the company generated revenues of around EUR 2 billion in 2023. Gerresheimer AG is listed in the MDAX on the Frankfurt Stock Exchange (ISIN: DE000A0LD6E6). Gx®, RTF® and EZ-fill SmartTM are all registered trademarks of Gerresheimer.

Innovations at STARA GLASS advance automation and new technologies

Whether it's hollow glass, flat glass, fibres or anything similar, the glass industry has often led the way in automation technologies. However processing this type of high performance, ecological and modern material requires advanced technologies that must be precise and reliable. Over the years, automation has been leveraged to optimise productivity, safety, emission control and energy saving - consistently obtaining higher and faster returns on investment. Here important results have been

A leader in automation tech for the glass industry, STARA GLASS enhances productivity, safety and eco-friendliness. To these it adds such innovations as low NOx emission furnaces and steam reforming systems, which tackle today's dual challenges of energy consumption and CO2 emissions. The company is also integrating Industry 4.0 and Dark Factory concepts - ensuring both efficiency and sustainability for the future.

reached thanks to the contribution of process control automation and companies' know-how like Stara Tech, Hydra Group, who, via its innovations, has transformed the approach to the automation.

Thanks to factory automation, extending to the entire glass plant from batch houses to warehouses -and thanks to the integration of the entire system- factories can now increase both the quantity and quality of their production by managing information from various operations. In fact, it is possible to control, process and monitor parameters in real-time by using state-of-the-art instruments to measure physical quantities and suitable final regulation elements. In addition, advanced SCADA vision techniques achieve precise and reliable measurements in such hostile environments as glass furnaces.

SYSTEM PHILOSOPHY

Once collected, information is sent to the Control System - the heart of the glassmaking process. Here operators can interact with the whole production system using simple interfaces that are located directly at their local HMI rooms or close to the machines. The main supervision devices used by operators are redundant SCADA PCs, to which client PCs and/or operator panels are connected. The structure to access data is significant. It's also safe and based upon different levels of access,

is protected by passwords and is organized on request according to updated regulations. This is a standard for such demanding markets as the pharmaceutical sector. Here the control structure is based upon such redundant components as DCS systems or PLCs with CPUs, power supplies and remote I/O modules - all connected via an industrial field bus. Redundancy is essential for this type of process as it runs 24 hours per day, 365 days a year and never stops during the operational life of the system - which usually varies from ten to twelve years or more. This solution also enables economies of scale for cableways, signal cables and power cables. In turn, acquired data is sent to the ERP (Enterprise Resource Planning) via MES (Manufacturing Execution Systems) software applications, which elaborate and send them to plant controllers. Complete accessibility to data means that this type of approach is extremely safe and easy to use, as both operators and management can modify the system by optimizing productivity, efficiency and investment yields.

TOMORROW'S CHALLENGES

The implementation of automation technologies and efficient integrated systems enables the glass industry to face future challenges posed by both the global economy and current market demand. The European Union and IEA's Roadmap Organization sets a target of less CO2 emissions by 2050 which, in turn, means that this sector needs to take advantage of energy saving strategies. This is essential not only in economic terms to be competitive but it is also important at the social and environmental level. The situation is not easy, as energy consumption is a major problem. In fact, glass requires furnaces with temperatures that reach 1600°C which, of course, need much energy. Nonetheless, producers are facing up to the challenge and investing in up-to-date technologies while improving cost containment. Stara Glass is fully involved in this new philosophy and the first results are on the table with new technologies such as the low NOx emission furnace, the CENTAURO, or the next steam reforming system SU.G.A.R., which is presently under development - born for the production of hydrogen recovered from furnace exhaust fumes and thereupon reused as free additional fuel - both developed by the company's R&D team. To date, consumption has been optimized using sophisticated technologies to monitor energy consumption, as well as technologies that provide actual savings.

Systems for the acquisition of information on electricity, gas and compressed air consumption have proven particularly effective and are available for PC networks (even remote ones) or for process control

networks. Finally, research and production, together with sustainability policies, all seek to achieve an active role in the development of a low emission economy as required by one of the European Union's 2050 objectives. Indeed the use of fossil fuels for furnaces alongside carbon released during processing are the main reasons for CO2 emissions in the glass manufacturing industry.

REDUCING POLLUTANTS

Unfortunately, it is difficult to eliminate such problems, as glass cannot be made any other way, no matter how much the use of recycled cullet is promoted. Nonetheless, significant efforts are being made for the creation of reduced polluting emission plants. Here the company has been able to propose patented systems for the reduction of NOx emissions to the atmosphere which are recognized by the competent bodies of the European Community. The two systems are different from each other and based upon different technologies. The former results from the principle of flue gas recirculation between the chambers of an End Port furnace (SWGR System). The latter results from the staged combustion. However, partializing the air rather than the fuel (HEAS System) for End-Port furnaces means their operation is based on a synchronized, automatic automation and control system that allows for conduction without operator intervention. Here's how they represent yet another example of the level of importance that automation is assuming in the management and control of a production plant. According to Stara Glass, aspects related to real-life experience currently in progress after the introduction of Industry 4.0, combined with the same concept of Dark Factory, will have to take the form of a 'happy' mix of 'work efficiency' and 'technological enablement' - albeit always under the guidance of the entrepreneur and her/his collaborators. The technological innovation resulting from the introduction of Industry 4.0 and approaches to Dark Factory concepts also affects environmental and green questions. The transition to greater automation in industry and the reduction of pollution is a direct and easy link to understand. In many instances automation and advanced process control replace obsolete plants and machinery, increase efficiency and decrease waste - thereby benefiting both the planet and future generations. ■

STARA GLASS

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Proud among Millennials, NOVAXION approaches its twenty-year mark

Since its founding in 2005, NOVAXION has been a pioneering force in the area of robotics technologies within the glass industry. Ever since its initial provision of gathering robots for handcraft and semi-automatic glassware production, the company has swiftly evolved.

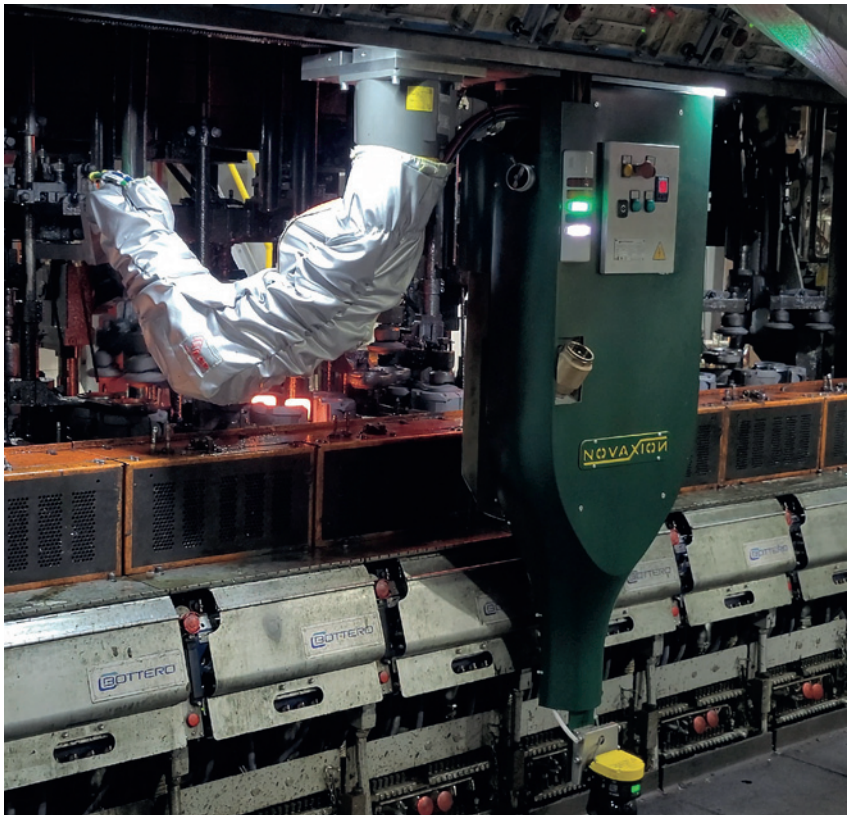
Back in 2006 Novaxion made significant strides by introducing an advanced solution, namely its high-performance Swabbing Robot. Engineered to apply specialised swabbing-spray to moulds, the innovation marked a pivotal moment for the company - showcasing its commitment to pushing boundaries while enhancing efficiency within the industry. As the years progressed, Novaxion has solidified its expertise, becoming a cornerstone in robotics technologies for glass manufacturing. It cemented its position further in 2019 by joining the prestigious Rondot Group as a full member. Despite its growth and evolution, Novaxion remains dedicated to its core values, continuing to provide such unparalleled solutions as automatic swabbing of blank moulds as well as neck rings on IS Machines. Now with over 200 installations worldwide, Novaxion is making a global impact as it continues to shape the future of glass production through innovation and ingenuity.

VALVE BLOCK (EPVB) MOUNTING

As trendsetter within the glass production landscape, Novaxion has introduced its latest advancement for all IS Machines, namely its NX-VR-300 swabbing robot with enhanced Valve Block (EPVB) mounting system. A truly cutting-edge solution, it boasts an improved rail system that's designed to rest upon the blank side valve block, thereby ensuring the unparalleled rigidity necessitated by high-speed, on-the-fly swabbing operations. Whether serving single or tandem machines, the NX-VR-300 delivers optimum performance - promising seamless integration and optimal efficiency for glass manufacturers worldwide.

SUSPENDED SWABBING ROBOT

Revolutionising swabbing technology as well, Novaxion offers its NX-SR-300 - a suspended swabbing robot that's also tailored to all IS Machines. With its novel fixation method and a structure that will match the overhead panel of existing



IS machines, this suspended version will provide uncompromising rigidity, which is crucial for maintaining precision during high-speed swabbing processes. Available for both new installations and conversions of existing setups, the NX-SR-300 exemplifies Novaxion's singular efforts to provide adaptable solutions that can cater to the diverse needs of glass manufacturers.

NOVAXION SWABBING FEATURES

At the heart of Novaxion's swabbing robot solutions is a veritable array of advanced features - all aimed at optimising performance and maximising efficiency. With automatic swabbing capabilities that cover both moulds and neck rings, the company's robots exceed expectations in delivering superb results within a single section cycle - virtually eliminating rejects. Here, employing smart spray nozzle technology, Novaxion ensures closed mould swabbing without direct contact, thus minimising lubricant usage and extending mould lifespan. This innovative approach not only reduces consumable costs. It also underscores Novaxion's commitment to sustainability and excellence in glass production technology.

GATHERING ROBOTS

In the area of both semi-automatic and high-end glass production, Novaxion Gathering Robots stand out globally as exemplary. Renowned for their precision and efficiency, the robots are elevated now with the introduction of a user-friendly operator software, which enhances functionality and provides end-users with an array of additional features and adjustment options. This latest development not only streamlines the gathering operation. It also ensures top-quality results in semi-automatic glass production, thereby reaffirming Novaxion's commitment to innovation and excellence in the industry.

SERVICES

Novaxion's commitment to customer satisfaction extends beyond the provision of cutting-edge technology - encompassing comprehensive support services as well. Equipped with remote diagnosis and support accessibility, the company ensures prompt resolution of any technical issues that may arise. Moreover, it offers tailored training programmes which are conducted either onsite at the customer's factory or within Novaxion's dedicated training room. For ongoing peace of mind, maintenance contracts and follow-up training agreements are available - providing customers with the assurance of both continued support and expertise. Here, with its round-the-clock support and the option for lubricant qualification, Novaxion demonstrates its dedication to facilitating seamless operations - all while maximising the value of its robotic solutions for clients worldwide. ■

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Decarbonisation with glass recycling: another Zippe tour de force

Showcasing numerous reference projects, Zippe has taken glass recycling forward for many decades now. Already back in 1965, the company built its first cullet preparation plant for both hot and cold ends. Here, recycling is generally divided into its two typical areas, namely those of post-consumer glass and factory cullet.

Waste (post-consumer) glass bin

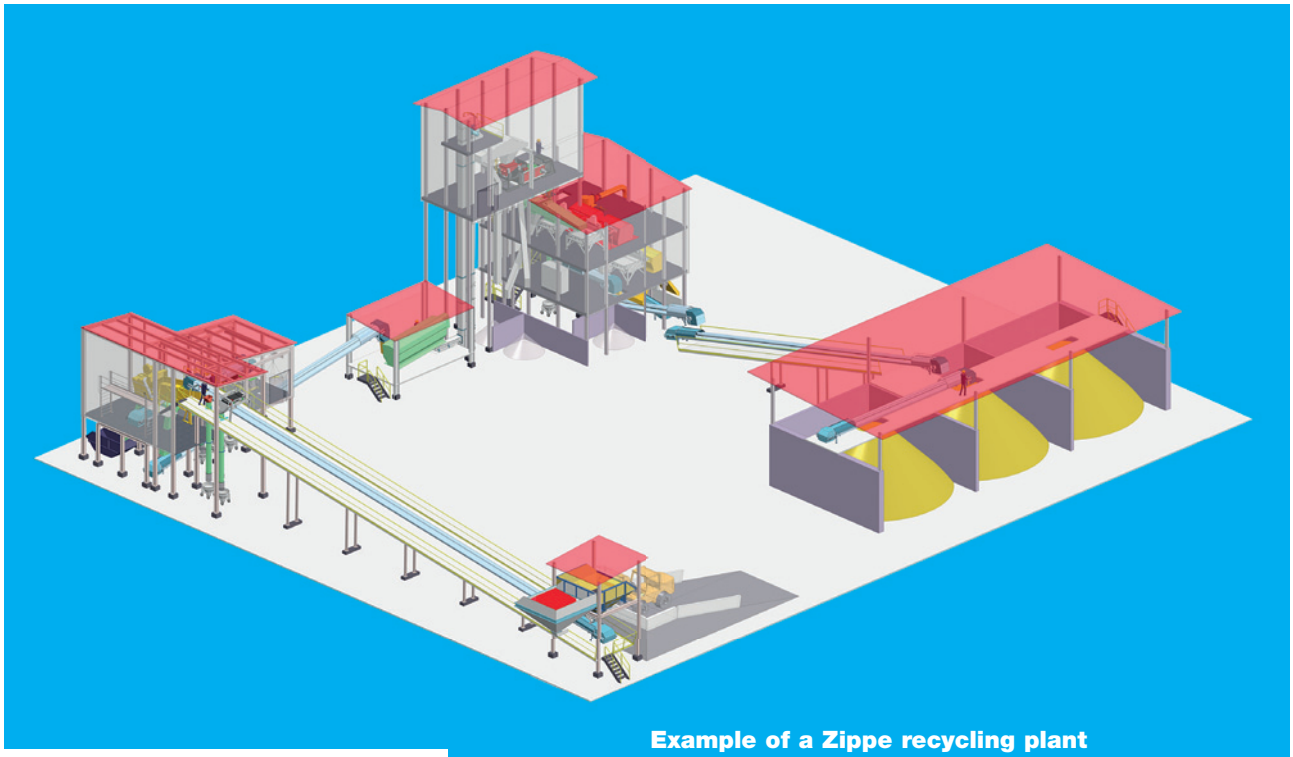
Waste glass can be endlessly melted and used to create new glass products. Such reutilisation is environmentally-friendly and can save up to 27 percent of energy (with 90 percent cullet usage) whilst saving many raw materials - as long as different glass products like bottles and window panes are properly disposed of at the end of their lifecycle. Recycled glass (cullet) melts at significantly lower temperatures as compared to the other raw materials. Therefore, the use of cullet significantly reduces energy consumption (0.2 to 0.3 percent for every one percent of cullet used). In this way, melting waste glass both protects the climate and saves such resources as quartz sand, soda and lime. All this also contributes to reducing any environmental impact attributed to the manufacturing process. Moreover, the costly disposal of reused waste glass is eliminated. Glass manufacturers also incorporate whatever cullet results from defects during their own production. That said, pre-sorting by the end-consumer during disposal remains nonetheless necessary. Laminated glass, crystal glass and heat-resistant glass such as laboratory glass, Ceran® or Pyrex® are all difficult to sort during waste glass processing - leading to high production losses or the accumulation of heavy metals in the container glass cycle (for example, due to lead crystal glass cullet). Therefore, these types of glass should not be disposed of in waste glass bins. The general use of externally-sourced and processed waste glass depends upon specific manufacturing requirements for the requisite cullet purity level of whichever product is being produced. Various glass colours and types need specific purity levels for production. Depending on the application, that can vary considerably. Additionally, foreign objects such as organics, ceramic pieces, stones, or metal parts all disrupt the production process and affect the quality of the end products. Given the current raw material situation on the market, a question arises as to which path is more economical: procuring pre-processed cullet from the market or becoming more independent by investing in a processing plant and having the required 'in-house' quality.

TYPES OF RECYCLING

Post-consumer Glass Recycling

Recycling is gaining always greater traction as a topic. What was already the norm for industrialised countries long ago, has become commonplace in nearly all countries around the world. However, significant differences remain in the quality of collection systems. In some countries, glass materials are sorted by colour while in others they are collected as mixed. Additionally, levels of foreign substances (metals, ceramics, general waste, etc.) vary greatly by country. Waste glass cannot simply be added to the production process. It must rather be processed to meet purity and grain size requirements of the glass industry. All this information, along with the required plant capacity, is typically discussed between Zippe and the customer already at the outset in order to design a recycling plant that tailored to the customer's needs. Post-consumer glass recycling plants generally include conveying technology, crushing technology, screening technology and sorting technology (for example ceramic, stone, porcelain, all metal and colour sorting). Here, Zippe designs, supplies, and constructs complete post-consumer glass recycling plants.

Post-consumer glass



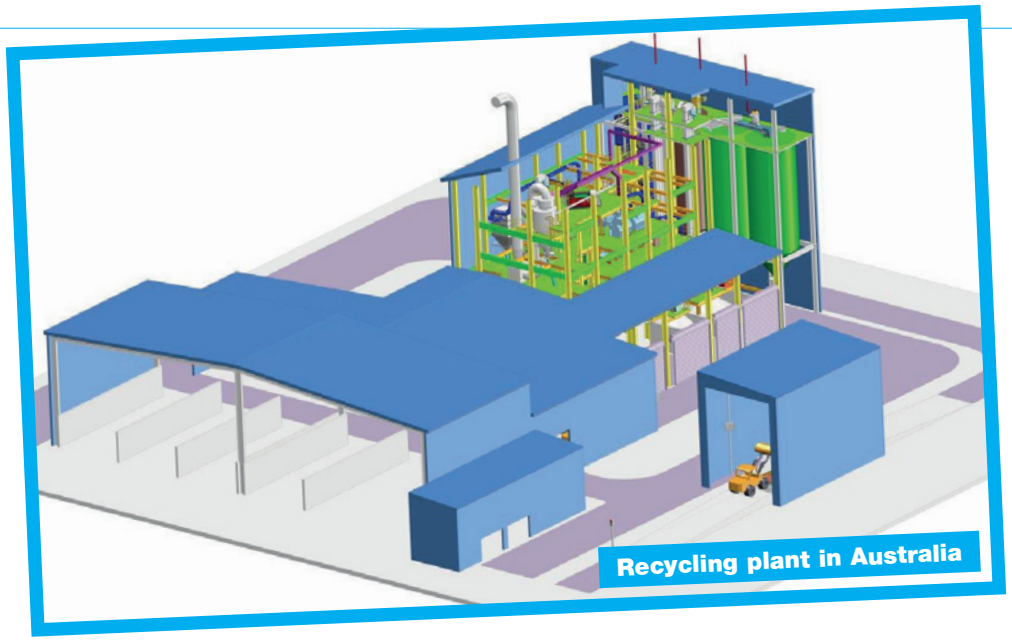
Example of a Zippe recycling plant
1. Material feeding - 2. Manual sorting - 3. Label removal
4. Ferrous and non-ferrous metal separation
5. CSP (ceramic, stone, porcelain) sorting
6. Colour sorting - 7. Storage

Internal cullet recycling / Factory cullet recycling

During the production of glass products, a certain amount of glass waste is generated in the form of hot and cold waste glass. However, glass cullet is a valuable secondary raw material for glass production. It is one of the important sources for raw material and energy savings. Sophisticated technology is necessary to effectively process hot liquid scrap glass - which can occur in droplets (hot gobs) or streams. Here, the goal is to environmentally and economically reintroduce production waste glass into the melting process. Also for this, Zippe designs, supplies and constructs complete cullet recycling plants. Such is its contribution to environmental protection as well as the recovery of both energy and raw materials.

RECYCLING PROCESS

Following the introduction of cullet, manual sorting workstations are often included in recycling plants - allowing for the initial removal of larger foreign materi-



Recycling plant in Australia

als. Thereafter entire bottles are crushed, together with large cullet, to facilitate more efficient sorting later on. The initial extraction of lightweight materials (such as paper, lightweight plastic parts) is often integrated at the beginning of the recycling plant. A special organic separator is used, where lightweight materials are separated from heavier glass using a blower. To minimise the subsequent ejection of incorrectly identified cullet (due to the presence of labels), the use of a label removal system is highly recommended. In the final step, the cullet is sorted according to the required colours.

Recycling plant in Australia

ZIPPE'S ALL-INCLUSIVE APPROACH

Based on the customer's information, Zippe and its partners design, construct and offer an optimal plant - globally. Here, the customer decides whether to opt for 'only' basic engineering, equipment, assembly supervision and commissioning by Zippe, or for additional services as well, such as steel construction, on-site assembly or training. Thanks to its extensive experience, Zippe advises each customer individually. The higher-level control, also developed and built by Zippe, regulates all processes of the machines used. Zippe's offer also includes a layout. Important information such as building dimensions and machine arrangement is already depicted. Thus, the customer can anticipate the space and facilities needed well in advance. Adjustments to fit the new recycling plant into existing structures are implemented by Zippe in direct consultation with the customer. Additionally, the Zippe service encompasses assembly and ultimately the commissioning of these plants. With customers able to reach the company 24/7 via its hotline, Zippe's subsequent services (troubleshooting, maintenance, etc.) are all included among its core values concerning quality standards - as is also the case with all the systems it supplies. ■

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Singular artistry sparks P&P PROMOTION's decorating revolution

Still making waves for its unique expertise in glass bottle decoration, P&P PROMOTION continues to shine, thanks also to its CMCV patents and winning innovation partnerships. Set to unveil its range of solutions at Packaging Première, the company offers various printing options while remaining ever focused upon sustainability as it continues to evolve.

Part of the company's new Cmcv2 plant

The Lorusso family: Paolo Lorusso, Company Founder and CEO, his wife Paola, Administrative Manager, and Luca and Francesca (Quality & Production Manager - Sales & Marketing Manager)

An Italian leader in the decoration of glass bottles, P&P Promotion has shown itself to be a rising star in the industry thanks to its CMCV patents (Molecular Change of Glass Colour and Molecular Change with Vitrifiable Colours). That extends to its robust collaboration with important brands that rely on the company. All this is accounted for by P&P's technical competence, coupled with a core business attributable to its solid research and innovation - where the unspoken word 'impossible' has never been uttered.

PROUDLY STRADDLING TWO MILLENNIA

Born in 1990 out of the passion of its founder for mechanics and printing, Arte&Stampa made its debut in advertising thanks to the previous commercial and lithographic experience of Paolo Lorusso himself. After he and his wife Paola tied the knot, the brand became known as P&P Promotion - dedicating itself to the world of promotional screen printing. Here to create a new business Paolo was inspired by continuous research together with friendships cultivated within the wine sector, dedicating himself to direct glass bottle customization - which resulted in the purchase of the first hollow glass screen printing machine in 1997. Since 2016, the company headquarters have moved to Costigliole d'Asti where its current plant spans more than 6,000 square metres over an area covered with photovoltaic panels - conspicuous testimony to the eco-sustainability that drives the company's core values. Today P&P Promotion's turnover rests upon its use of coloured glass powder. It replaces the most-used glazes, acids, inks and paints - thereby guaranteeing optimised resistance, indelibility and an important attention to sustainability thanks to high temperature furnaces.

THE SCREEN PRINTING AND CMCV PROCESS

Besides screen printing in standard colours which approach the Pantone or RAL ranges, P&P Promotion can print such precious metals as gold, silver, platinum and copper, as well as gold and powder effects yielding a metallic result thanks to the presence of glass powder of greater grain size. This is followed by special processes which include glitter printing, transparent printing, screen printing on flacons and glasses as well as screen printing in relief, alternations of tone-on-tone textures and contrasts between glossy and opaque finishing. Toi these we add filigree and glass on glass effects together with the newest gold or platinum relief,

and much more.

P&P Promotion has also built 'P&P Art' - an internal laboratory of artists who both apply and create such materials as zamak, resins, metal plates, tin, pewter and Swarovsky. They also use indirect screenprinting and the semi-automatic application of decals thanks to an unprecedented machine designed.

COURSING THE PATH AHEAD, TRIUMPH AFTER TRIUMPH

Advertising and digital printing constitutes only a modest part of P&P's turnover these days. Nonetheless, the company has no intention of abandoning this part of the sector, which continues to inspire new trends. That choice recently saw the company conclude its acquisition of a non-UV digital direct printing machine - all based on a nanotechnology that ensures swiftness in covering glossy and transparent colours with the possibility of using CMYK while managing both small and large print runs. Today P&P Promotion has almost 50 specialized employees and is preparing its generational change thanks to the contagious passion of Paolo and Paola, who's children Luca and Francesca are now Production & Quality Management Officer and Marketing & Commercial Manager respectively. The company's current turnover of over EUR 4.5M is constantly growing, as is its daily productivity which, in just a short time, has soared from about 55K units to one that oscillates between 70 and 100K.

The countless Cmcv-created coloured effects

PORTFOLIO

Equipped with most excellent machines, P&P Promotion allows for a varied range of possibilities. Starting from its series of semi-automatic machines, mainly dedicated to product testing, short runs or samples on different media, it has automatic screen printing technologies as well:

- an automatic two-colour machine, electronic control for cylindrical, truncated, ovoid and rectangular shapes;
- a six-colour, mechanically controlled machine for cylindrical and conical shapes;
- one machine with eight ceramic colours, and four UV colours, electronically-controlled for cylindrical, conical, rectangular, ovoid shapes with automatic centering.

The three ovens for fixing glass dust boast a capacity extending over three metres wide and approximately 50 long. These feature 15 controlled, slow annealing areas where times vary from three to four hours, ensuring not only perfect colour adhesion but also the absence of tension, breaks and thermal shocks. Here, as for glass coloration, the process relies on coloured glass powder, which ensures scratch and stain resistance, high chemical and mechanical durability and sustainability. Glass powders can be recovered and repurposed

Special effects, the company's core business

for other sectors. Since 2006 the CMCV patent (Molecular Glass Colour Change) has featured a colouring booth with fast-dispensing guns. This enables satin, satin-coloured and translucent colours, covering tones as well as such special effects as pearlescent and metallic. Then in 2023 the new CMCV2 patent (Molecular Change with Vitrifiable Colours) added such natural effects as granite, ceramics, volcano and sand. All this is achieved through three staining booths with longer dispensing speeds - increasing general quantitative refunds by 30 percent. Dispensers are electronically-managed by way of a 4.0 feed - enabling precise control over processing stages, gas and energy consumption per bottle, as well as reduced emissions.

New poured effect which allows thickness to be added to real gold, thereby embellishing the product

SPREADING THE LOVE

P&P Promotion thrives on both constant collaboration and enduring curiosity across sectors. Affiliated with Fespa (an international association which represents the specialist press market in its various fields of application), of which Paolo is both Vice President and a founding member, it visits in over 15 trade shows per year - always studying new segments for inspiration as it forges ahead with creating new finishes and trends. Here dedicated research teams implement new technologies and practices - with over 1500 hours annually devoted to R&D.

The company aims to transform standard or complex bottles into works of art while emphasizing tactile and visual emotions that can add value to the product. Here fundamental pillars include authentic sustainability, meticulous quality control and innovation. While ongoing expansion plans eye both Europe and beyond, the Italian market remains P&P Promotion's primary target.

The company collaborates with brands both great and small, graphic agencies and start-ups. Moreover, its expertise and glass protection measures make it a preferred choice for domestic and international glass companies alike.

Finally, P&P Promotion showcases its commercial strength at such leading trade shows as Prowein, Vinitaly, Packaging Première, Luxepack as well as biannually at Simei. Upcoming at Packaging Première, exclusive company news is to be presented at its booth, where visitors will be invited to explore its rich product portfolio. ■

P&P Promotion
DECORING GLASS

P&P PROMOTION

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Cullet scraper conveyors unleash VIDROMECANICA recycling mastery

Effective management of hot waste glass recycling is crucial to ensuring smooth operation of the production flow. Under normal working conditions, errors are not tolerated by this equipment. Here it is essential to manage water consumption intelligently while prioritizing environmental considerations.

In today's glass industry, production rates and furnace capacities are increasing continuously. Equipment must therefore be designed and sized to facilitate efficient energy and environmental management while minimizing human intervention - all to ensure maximum reliability.

Glass manufacturing has evolved into a modern, high-tech

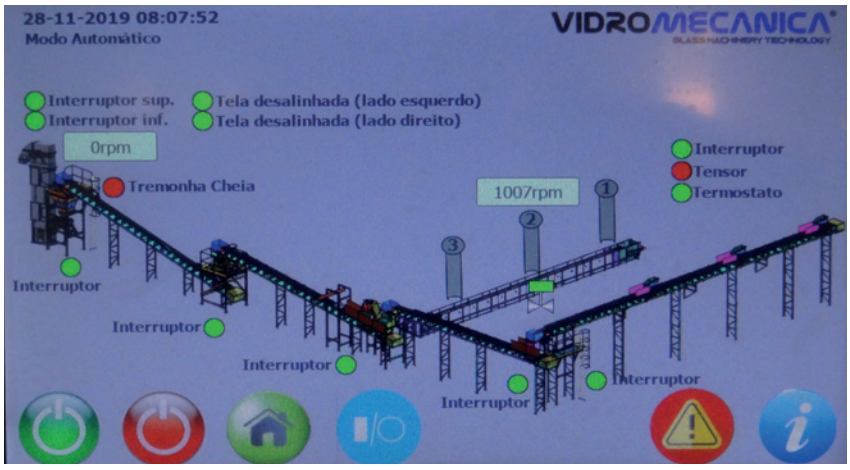
Showcasing VIDROMECANICA's singular expertise in hot waste glass recycling, its Cullet Scraper prioritizes energy efficiency, reduced water consumption and reliability. In this way the company addresses crucial factors in modern glass manufacturing against a backdrop of increasing production demands and growing environmental concerns.

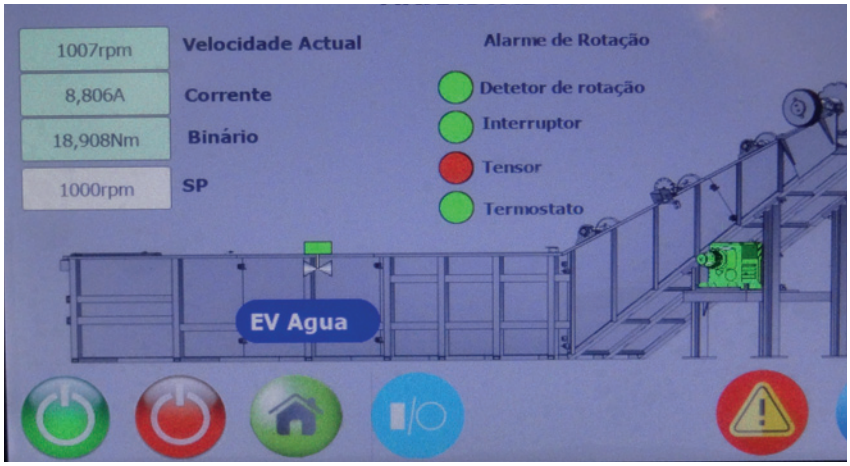
industry that operates in a competitive global market. Here, key factors for maintaining market share are threefold, namely quality, design and service levels.

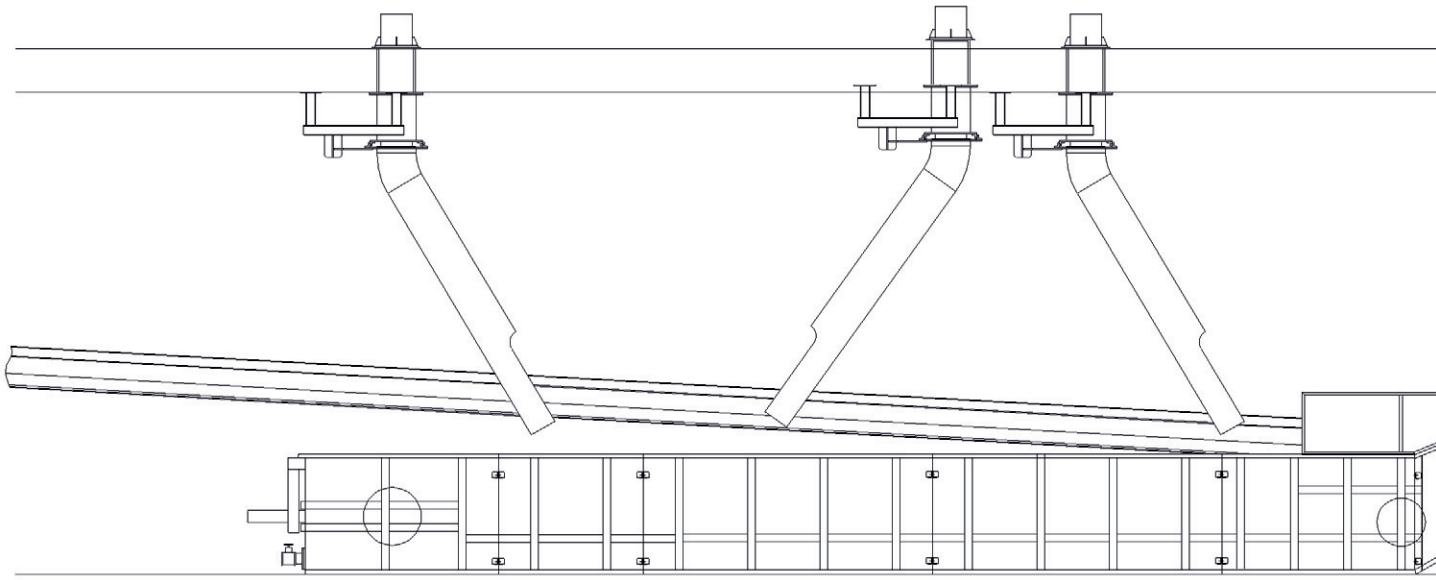
Glass containers, produced in various colours, have become an integral part of our daily lives. Glass packaging is used for a wide range of products, including wines, spirits, beers, medicines and cosmetics. As environmental concerns grow, glass recycling has gained significant importance. Recycling glass not only prevents used containers from ending up in landfills but -in comparison to melting raw materials- also saves energy. Additionally, recycling reduces the need for resource-intensive quarrying.

SCRAPER CONVEYOR 500 TPD

A crucial piece of equipment for receiving and processing hot







waste glass from furnaces and forming machines is the Scraper Conveyor. It cools and granulates the hot glass so it can be reintroduced into the production flow. This is achieved thanks to a continuous supply of water by which thermal energy from the glass is absorbed.

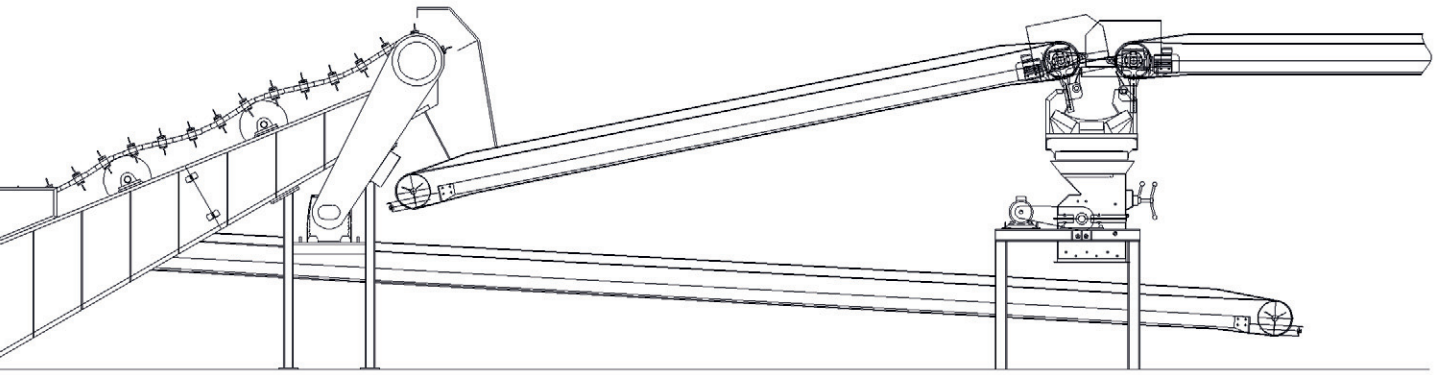
When designing such equipment, Vidromecanica employs calculation and dimension methods - both supported by numerical heat transmission analysis. Such methods ensure accurate characterization of the water flows necessary to granulate the glass effectively.

To optimize the performance of the Scraper Conveyor, it is advisable to position the hot gobs chutes near the glass exit zone. The equipment features a double bottom design, allowing for reasonable glass cooling and a significant reduction in water consumption.

By considering these factors, daily water consumption can be decreased compared to traditional cooling and granulating methods for glass equipment.

SOME PRODUCT FEATURES

Vidromecanica's Scraper Conveyor consists of a steel vat, typically 900, 1200 and 1400 mm wide and 1100 to 1200 mm high, filled with water. Inside the vat, a conveyor belt with highly wear-

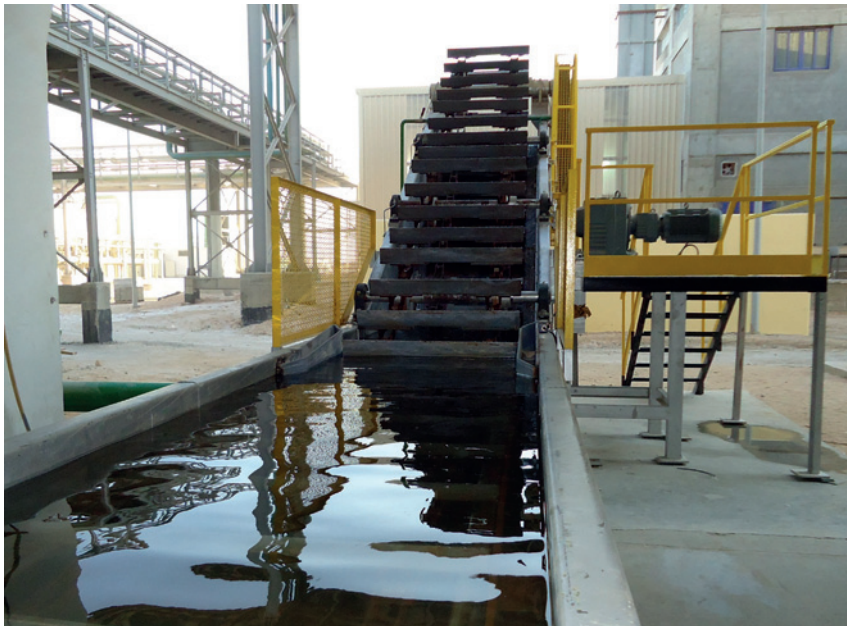


resistant dragging rods transports the glass while facilitating contact with the water. The granulation process occurs due to the thermal shock resulting from contact with the lower temperature water.

The dragging chain, a vital component, must withstand aggressive working conditions. It comprises a roller chain conveyor of high durability, with glass dragging rods connected throughout. The shape of the rods can be either T or L, depending on the type of scraper used (double or single bottom). The vat bottom is usually entirely covered with basalt plates that offer excellent resistance to erosion.

Conveyor belt speed and water temperature are continuously monitored and adjusted to accommodate glass flow received by the equipment. The double bottom design allows the glass to move in the opposite direction of the exit flow - increasing contact time with the water.

For furnaces with capacities of 400-500 T/day, it is common to have a scraper with a double bottom measuring 30 to 40 metres in length. This equipment demonstrates high performance but it requires preventive and corrective maintenance when furnaces are rebuilt.



ESSENTIAL FACTORS FOR SCRAPER LONGEVITY

To maximize the lifespan of the scrapers, several key factors should be considered:

- Whenever possible, reduce the speed of the glass-dragging chain
- Direct the hot gob chutes onto the centre of the scraper vat
- Minimize water entry temperature into the scraper
- Maintain control over water temperature inside the vat
- Regularly check and adjust the chain tension
- Implement preventive and corrective maintenance as needed

AUXILIARY EQUIPMENT

Vidromecanica offers a range of auxiliary equipment to enhance functionality of the scraper - including conveyors, pipes for hot gobs chutes, crushers for floating bottles and roller flattening gobs to facilitate efficient thermal exchange between glass and water.

WASTE GLASS

BELT CONVEYORS FOR CRUSHED GLASS

These conveyors transport the crushed glass for further processing, thereby ensuring a smooth flow within the recycling system.

PIPES FOR HOT GOB CHUTES

These tubes serve the purpose of directing the hot glass to the scrapers. Internally-coated with highly durable material to resist erosion caused by the movement of hot glass, the pipes typically have variable diameters ranging from 350 to 400 mm. They are pneumatically-driven at high speeds, allowing for efficient transfer of glass to the scrapers or nearby storage containers. The chutes play a crucial role in maintaining the equipment's operational integrity - automatically diverting the glass to the exterior of the scraper in the event of a power outage. Vidromecanica has dedicated efforts to develop robust glass conveying systems that minimize the need for preventive maintenance operations.

AUTOMATICALLY-ROTATING FALLING TUBE

This equipment facilitates controlled and efficient transfer of the glass from one location to another, thereby optimizing the recycling process.

ROLLER FLATTENING GOBS

When dealing with the production of larger glass gobs, such as those used in insulators or for washing machines, it is advisable to incorporate roller flattening gobs. These devices increase the contact area between the glass and water - enhancing heat transfer efficiency, cooling effectiveness, and glass granulation.

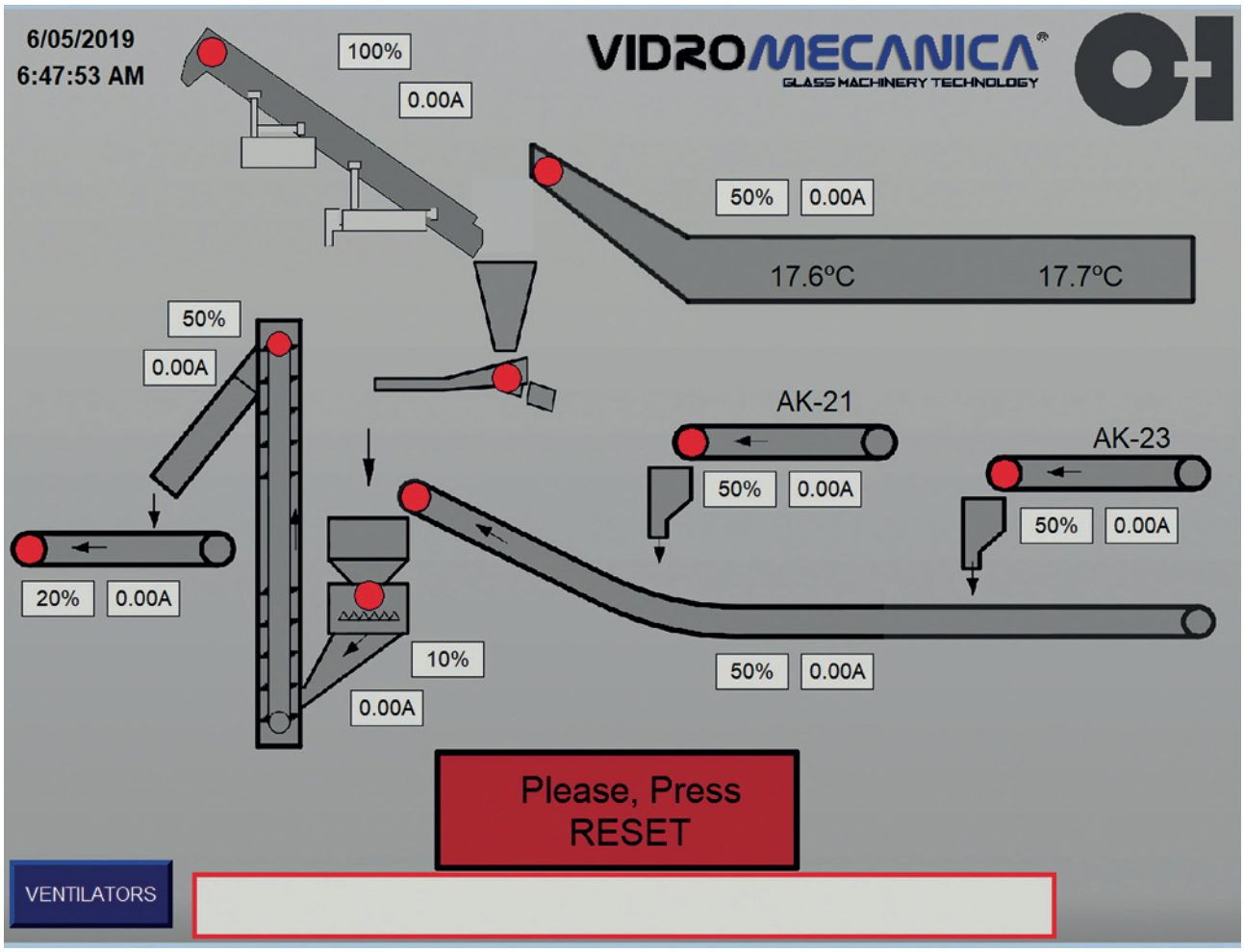
CRUSHERS FOR FLOATING BOTTLES

Floating bottles present a potential risk to the conveyor chain due to their impact and tension. To mitigate this issue, crushers installed on the scraper effectively break the floating bottles - eliminating the need for manual intervention during the bottle-breaking process.

To optimize the entire hot glass recycling process, careful consideration is given to factory layout. Here, by strategically-positioning the equipment and establishing efficient material flow, the company ensures seamless, productive operation.

With its innovative solutions for various glass industry applications, the company's equipment and systems are deployed worldwide. Whether it be glass containers, tableware, or technical glass, choosing Vidromecanica means selecting reliability and investment security.

The company won't settle for the status quo. Instead it strives continually for improvement while looking to the future with confidence. Here the approach encourages groundbreaking ideas - pushing the boundaries of conventional thinking to develop new solutions. Indeed, drawing on its extensive knowledge and experience accumulated over the years, Vidromecanica fosters continuous progress and trust. Here an overriding belief comes in fostering strong partnerships with customers while engaging in ongoing exchanges of ideas, opinions and experiences. This collaborative approach ensures that the company remains at the forefront of glass engineering - driving progress and solidifying its position as a leading company in the global glass engineering industry. ■



Gauges for efficiency show LUBEN GLASS precision solutions

Luben Glass has distinguished itself over the years by acquiring noteworthy experience in the design and construction of variable equipment control gauges and mould control gauges. With gauges, the wear of variable equipment types can be monitored and their maintenance scheduled - all while maintaining their high efficiency over time. Indeed Luben Glass provides not only standard inspection gauges which enable customers worldwide to check the measurements they need. It also develops specific solutions for each customer to solve their problems.

Luben offers gauges for the following items:

WARE CONTROL GAUGES

Mould gauges

These are designed to check shapes and dimensions of blank, blow, neck ring and bottom plate for both dovetail profile and fitter gauge etc. for checking different types of IS machine moulds.

Mould holder guage

This gauge checks die sets. Suitable counter plates are easily attached above the solid base plate to facilitate die set positioning. Through the use of special 'GO-NO GO' pads the wear condition of the mould holders can be checked.

Insert guage

This gauge, small in size for faster and more convenient use, allows for precise control of insert wear in both diameter and lip height. It's available for various types of inserts with the GO/NO-GO system that provides a quick indica-

Excelling in designing variable equipment and mould control gauges, LUBEN GLASS' solutions ensure high efficiency and maintenance scheduling. The company offers a range of gauges for wear control, including mould, mould holder, insert, neck-ring arm, and baffle alignment, along with alignment gauges for tong and plunger mechanisms.

tion of the insert's wear status.

Neck-ring arm guage

Manufactured with a specialised clamping system for fixing the arm, this enables wear and deformation to be checked by simply using a comparator. Both the spring seat and insertion diameter of the neck ring can be checked thanks to pad gauges.

Baffle and blow head arm alignment guage

Made with a solid, easy-to-handle base plate, the gauge enables wear and deviation from axis inspection of quick-change baffle and blow arms. It is equipped with both base plate and buffers to check holes in the arm (Complete with GO NO-GO pads).

Besides the above wear control gauges, Luben Glass supplies alignment control gauges for mechanisms such as, for example:

ALIGNMENTS GAUGES

Tong alignment guage

This gauge is designed so that easy, precise tong alignment will prepare it for production. Here multiple adjustment combinations will ensure excellent tong preparation to ensure that the tong is optimally-aligned with the article.

Plunger mechanism alignment guage

This gauge is deployed to align male blocks quickly and easily within each individual section. ■

LUBEN GLASS

LUBEN GLASS SRL

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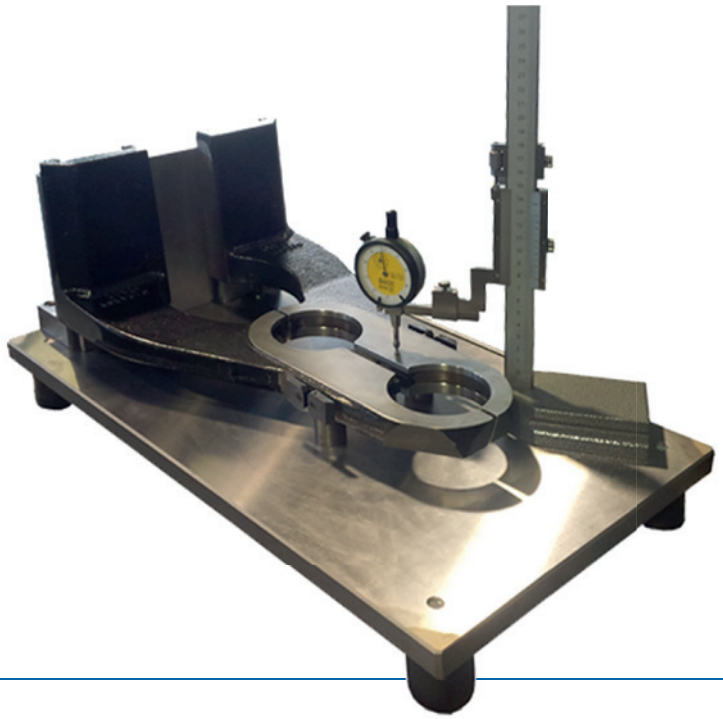

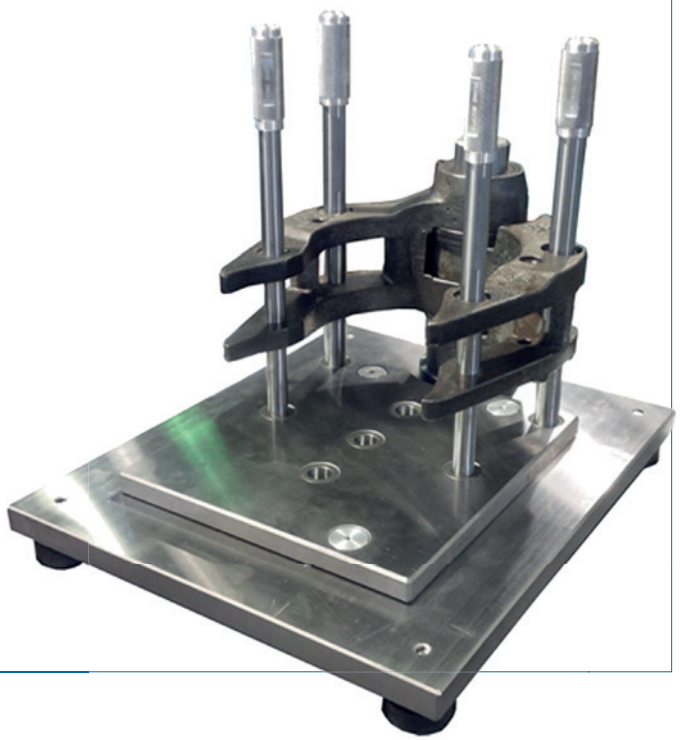

At a glance: the container glass industry for beer in MEXICO

Rajeev Jetley

OVERVIEW OF THE MEXICAN BEER INDUSTRY

Steady growth in beer consumption year-after-year has made Mexico one of the largest beer consuming nations in the Americas. Hot and dry conditions are a mixed blessing for Mexico's beer industry - one of the country's most interesting achievements. Both beer and container glass producers are enjoying the success as thirsty consumers seek solace from record temperatures. At the same time near-drought conditions present a huge challenge to the country's beer industry as water supplies become increasingly scarce.

With per capita yearly beer consumption at nearly 65 litres, Mexico is among the top beer-drinking nations worldwide. A high number of nationals consider beer to be their favourite drink. The never-out-of-fashion hop drink accounts for USD 22 billion worth of sales - way ahead of tequila (USD 6.6 billion) and other hard drinks. Indeed, as fourth-largest beer producer in the world, Mexico is a veritable beer giant. The beer industry is one of the most important beverage sub sectors in Mexico. The country ranked as the third largest beer producing nation in the Americas in 2022 - behind only the United States and Brazil. Moreover, the industry's production value has grown in recent years. In 2022, Mexico produced 244 billion Mexican pesos worth

MEXICO has been among the largest beer producing and consuming nations in the global beer industry – partly owing to the high volume of beer produced for both the domestic market and for exports, mostly to the USA. This also benefits the country's container glass industry, where the consumption of beer from container glass bottles has always been the preference.

of beer - approximately 68 percent more than the value reported in 2017.

Investment in beer production in Mexico has scaled new heights in recent years. Heineken's Meoqui plant, the largest greenfield brewery in the company's history with six million hectoliters, was inaugurated in 2018, with an investment of USD 500M. Mexican beers are also widely-recognized and appreciated all over the world, with the Corona brand being among the most valuable globally. As a result, the country is a net exporter of the product and beer exports have consistently increased year after year. In 2022, exports of beer from Mexico exceeded its imports by USD 5.45 billion. Due to demand in foreign markets, Mexico has become one of the largest beer exporters on a global scale with its main trade partner being the United States. In 2022, nearly 97 percent of all the beer exported from Mexico went to the US market.

THE CONTAINER GLASS INDUSTRY FOR BEER IN MEXICO

With a population of 129 million (at the end of 2023), and substantial beer production and consumption, the Mexican beer industry is one of the most significant demand drivers for the country's container glass industry. Here glass bottles play a very important role in the packaging of beer in Mexico. Currently, 40 percent of all beers sold in the country come in non-returnable bottles, 24 percent in returnable bottles, and 36 percent in metal cans according to data from the National Chamber of the Beer and Malt Industry. Catered by some of the most established names in the global container glass industry, Mexican container glass industry has been among the fastest growing container glass industries in the Americas. Container glass producers including O-I, Grupo Modelo, Fevisa Industrial, Crown Holding and Grupo Pavisa all cater to current glass container packaging demand for the burgeoning beer industry of Mexico. Much like the rest of the world, other forms of packaging such as metal cans and PET bottles have been challenging the dominance of container glass producers in the beer industry. Here, while PET bottles have been unsuccessful in gaining any sizable market share, metal cans have instead proved a tough competitor for the container glass industry in beer packaging.

O-I MEXICO

The largest global container glass producer today, O-I (Owens

Illinois) is also the largest container glass producer and a major supplier to brewers based in Mexico. O-I operates a total of six plants spread countrywide in Guadalajara, Los Reyes, Monterrey, Mexico City, Nava, Queretaro and Toluca. The company had bought Mexico's Vitro SAB's glass container business back in 2015 for about USD 2.15 billion in order to strengthen its operations in Mexico. With this transaction, O-I acquired five food and beverages glass container manufacturing plants in Mexico, one plant in Bolivia and the distribution of container glass products in the United States. Vitro's Cosmetics, Fragrances and Toiletries ('CFT') segment, the company's Machinery and Equipment business, as well as its equity participation in the Comegua joint venture in Central America were not included in this transaction.

In 2019, O-I acquired Nueva Fábrica Nacional de Vidrio, S. de R.L. de C.V. ("Nueva Fanal") from Grupo Modelo, a wholly-owned affiliate of Anheuser-Busch InBev, in a transaction valued at approximately USD 188M. The Nueva Fanal facility is located near Mexico City, Mexico. This plant has four furnaces to produce and

Plant Location	Region	Remarks
Monterrey	North East Mexico	OI's Mexican head office. The plant is the oldest container glass unit in the country
Guadalajara	Western Mexico	
Los Reyes (Mexico city)	Capital city	
Toluca	Central Mexico	
Queretaro	Central Mexico	
Nava (OI- Constellation)	US Mexican border	50 : 50 JV with Constellation Brands

Table- OI's container glass plants in Mexico


Corona
Extra
35.5 cl / 355 ml
BEER·BIERE
CERVEJA·BIER
LA CERVEZA MÁS FINA
CERVECERIA MODELO, S. DE R.L. DE C.V.
MEXICO, D.F.
REG. S.S.A. Nº 7417 "8"

supply approximately 300,000 tons of glass containers annually for Grupo Modelo brands, which serve the local and global export markets. Earlier this year, OI Mexico announced a USD 44M investment to reduce emissions at its Guerrero and Ruiz Cortines plants in the country. The company has committed to a comprehensive short, medium and long-term emissions reduction programme spanning from 2024 to 2031.

GRUPO MODELO

Grupo Modelo, the beer market leader in Mexico which is fully-owned by AB InBev since 2013, operates three container glass plants in Mexico. These are located at Mexico City, San Luis Potosi and Tierra Blanca - strategically placed near breweries operated by the company. In 2021, the company invested USD 154M in the expansion of its Tierra Blanca production facility. The project increased factory production capacity from 3.5 million to 5.5 million bottles a day. Here expansion has provided materials to supply AB InBev's operations in Colombia, Ecuador and Peru - an expansion that has increased the company's daily production by 57 percent, thereby enabling it to produce about 1.4 billion bottles a year.

"Having economic reactivation as a priority, it's a great honour to announce this investment along with both the secretary of the economy and the governor of Veracruz. It is a reflection of our commitment to the Southeast region of the country. Grupo Modelo remains committed to Mexico and the Mexican people," Cassiano De Stefano, president of Grupo Modelo stated at the time of this expansion. Grupo Modelo owns 11 breweries, 10,000 Modelorama stores. These are mostly small, family-run stores with strong connections to their neighborhoods - together with ten factories for vertical operations such as malting facilities, in addition to container, cap and glass factories.

FEVISA INDUSTRIAL

Fevisa Industrial began glass container production in 1987 in Mexicali, Baja California with the objective of providing packaging solutions to the food and beverage industry through production and distribution of quality glass packaging as well as by delivering the product on time and at a competitive price. Later, FEVISA expanded its production capacity by opening a new plant in San Luis Potosi, Mexico. Located in Mexicali, the plant oversees the distribution of containers to both the west coast of the United States and to Mexico, while the San Luis Potosi plant manages distribution to such areas as Monterrey, Guadalajara and Mexico City, where the majority of the Mexican population reside.

CROWN HOLDING

US-based Crown Holdings Incorporated, one of the leading global packaging suppliers, operates two container glass plants in Mexico-Crown Sivesa and Crown Vichisa. Almost all the company's output meets the beer industry's packaging needs. Its Sivesa Glass facility is among the oldest container glass producers in the country. Located at Veracruz, the facility has an installed container glass capacity of 360 TPD. In 2018, Crown Holdings commenced commercial production from a new glass bottle manufacturing plant in the municipality of Meoqui, Chihuahua. The company invested USD 120M for the construction of this plant - a facility that has a container glass production capacity of 450 tonnes per day.

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Advanced HEYE evolution is amplified in SmartLine 2 inspection machine

As top marks continue to be awarded to HEYE International's SmartLine 2 for its Ranger 2 camera-based check inspection system, its starwheel inspection also ranks very highly among customers - successfully combining speed, reliability and flexibility to deliver accurate results in special operations such as mini-ware and non-round containers.

The latest generation of Heye International's starwheel inspection machine series, SmartLine 2 has been developed and manufactured at the company's dedicated Cold End Centre in Nienburg. This glass container inspection equipment can be configured in several different ways, with up to six available inspection stations. Employing a team of experts and featuring a modern production layout, the Nienburg facility's proximity to several German glass plants affords every opportunity to undertake both essential testing work and collaboration - all with due thoroughness.

Smartline 2

CAMERA CHECK INSPECTION BY RANGER 2

Equipped with Ranger 2, an excellent camera-based check inspection system, customers all over the world have confirmed the SmartLine 2 robustness and reliability. Proven in multiple cases, Heye's Ranger 2 provides an extensive detection range in the finish, shoulder and bottom area. It's also very well-suited to high-speed pharmaceutical mini-ware inspection to up to 400 bottles per minute. With this evolution the system can fulfill all customer requirements to container sizes and shapes.

HOW RANGER 2 WORKS

Every container produced must be considered as a unique object with an individual shape and reflections resulting from this and every concept of a crack test must consider this. Therefore, the Ranger 2 uses the concept of "Intelligent Cloud Masking", which makes any kind of "teaching" superfluous after a job change.

Assuming that each container is unique, the Ranger 2 inspects each container for itself and sets one mask for each single container. Therefore, each container is its own reference and has no negative influence on the following ones. So the zones are subject inspection of high dynamics and can immediately adapt to changes that occur during production.

NON-ROUND – HEYE'S CORE COMPETENCE

Container shapes, which differ from the standard round container, comprise one of the most common tasks in the glass container inspection industry. Heye masters these 'non-round' containers superbly. Here the range of inspectable container sizes and shapes is top class, with inspection being possible with almost all imaginable shapes - no matter if they are angular, oval or round. With this extensive range of container sizes and forms, the SmartLine 2 offers a high degree of flexibility and is therefore as suitable for customers with a wide scope of different products and many job changes as it is for the high-speed production of long runs.

IMPROVED JOB CHANGE TIMES

The application of servo technology ensures a high degree of flexibility. Fast and easy changes to an item's indexing positions and optimal use of the servo torque for up to four rotation stations are possible. Optimised motion sequences allow faster reactions to changing process parameters. The equipment's innovative design and large, easy-to-open hood provides for greater working space between inspection stations. Job changes become much easier. Here maximum article height accommodated is up to 400mm, with angular, oval and round containers processed. Thanks to the servo-driven starwheel, indexing positions from six to 48 are possible.

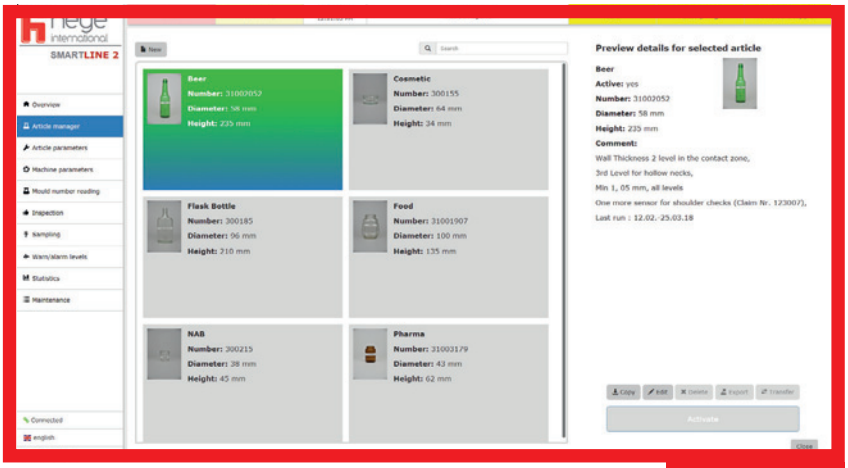
STATE-OF-THE-ART USER INTERFACE

The sophisticated design of the graphical user interface of SmartLine 2 has been conceptualised thanks to easy, fast handling within the plant - allowing for operational excellence. In orienting development the approach comes directly from Heye's customers. The two-click-management, by which the vast majority of functions can be accessed via a single submenu, is only one of many advantages besides smart configuration and a comprehensive overview over

all the statistics an operator needs to ensure easy-to-use handling.

POSITIVE FEEDBACK

Feedback generated from Heye International customers confirms the robustness and reliability of SmartLine equipment. The German engineered design and drive system in particular have been highlighted for their robust design while the control system continues to be praised for its reliable operation. ■



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ABOUT HEYE INTERNATIONAL

Based at Obernkirchen, Germany, Heye International GmbH is one of the international glass container industry's foremost suppliers of production technology, high performance equipment and production know-how. Its mechanical engineering has set industry standards for more than six decades. Extensive industry expertise combined with the positive attitude and enthusiasm of Heye International employees is mirrored by the company motto 'We are Glass People'. Heye's three sub-brands HiPERFORM, HiSHIELD and HiTRUST form the company's Smart Plant portfolio - addressing the glass industry's hot end, cold end and service requirements respectively.

heye international

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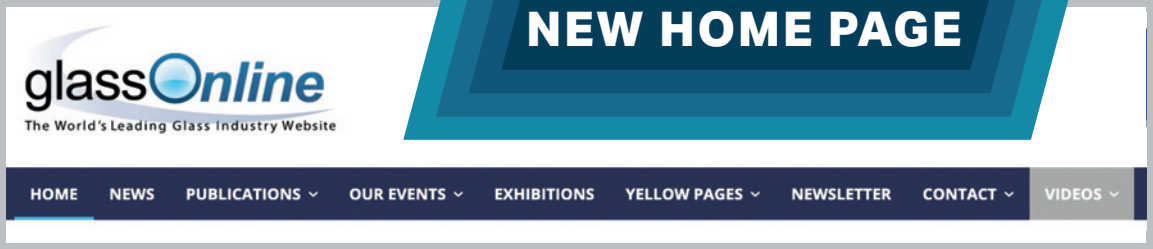

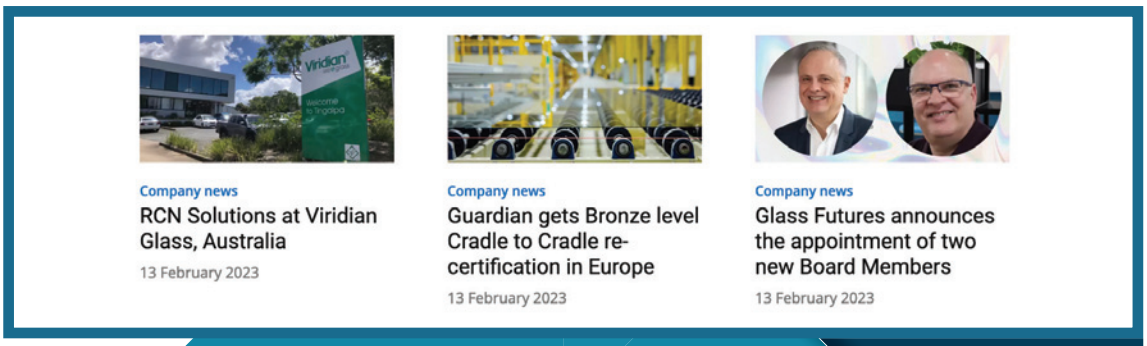

Customers involve IOCCO in feasibility studies for whole car glass sets

Among IOCCO's contribution in the manufacture of systems for the air extraction during the lamination of windscreens, laminated sidelights and sunroofs is the notable improvement for both concept and fabrication of vacuum bag furnaces....

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PRESS RECONDITIONING

Famor Engineering
Luben Glass
Olivotto Glass Technologies

PRODUCTION ASSISTANCE FOR HOLLOW GLASS

Olimerk

PUSHERS

BDF Industries
Bottero
Car-Met
EME
Famor Engineering
Heye International
Luben Glass
Olivotto Glass Technologies
Waltec Maschinen

RAW MATERIALS

Bohemi Chemicals
GCG - Glass Consulting Group
Minerali Industriali

RECYCLING PROCESSES

EME

RECYCLING SYSTEMS

EME
Falorni Tech
GCG - Glass Consulting Group
ZIPPE

RECYCLING SYSTEMS

Bucher Emhart Glass
Falorni Tech
Forglass
Linco Baxo
Olivotto Glass Technologies
S.I.G.MA.
Waltec Maschinen

REFRACTORIES INSTALLATION SERVICES

Bucher Emhart Glass
Falorni Tech
HFT
Horn
SKS - Sorg Keramik Service
Stara Glass

REPLACEMENT PARTS

Olimerk
Olivotto Glass Technologies
Stara Glass
TECO Group
Waltec Maschinen

ROBOTS: BALL GATHERERS

Falorni Tech
Glass Service
Novaxion
Olivotto Glass Technologies
Waltec Maschinen

ROBOTS: HANDLING & PACKAGING

ACH - Advanced Container Handling
All Glass
EMS Group
Euromatic
Falorni Tech
Famor Engineering
KYP Accesories
Messersì Packaging
MSK Covertech
Novaxion
Olivotto Glass Technologies
R.Cestaro
Simtech
Spami-Optrel-Stevanato Group
Vetromeccanica
Waltec Maschinen

ROTATING TABLES

Messersì Packaging
Olivotto Glass Technologies
OMS
Vetromeccanica
Waltec Maschinen

SANDBLASTING MACHINE

Luben Glass

SAW MACHINES

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
Forglass
Novaxion
Olimerk
Stara Glass
TECO Group

SERVICES IN HOT-DRILLING AND CHANGE OF ELECTRODE HOLDERS

Bock Energietechnik

SHEAR BLADES

BDF Industries
Heye International
Famor Engineering
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
Revimac-Bottero
Waltec Maschinen

SHUTTLE CARS

EMS Group
Tecnoferrari

STRETCH & SHRINK FILM WRAP MACHINES

All Glass
EMS Group
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
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
EMS Group
Famor Engineering
Luben Glass
MT Forni Industriali
Olivotto Glass Technologies
Pennekamp
Regina Catene Calibrate
Revimac-Bottero
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
Forglass
GCG - Glass Consulting Group
Glass Service
Horn
MT Forni Industriali
Olimerk
Olivotto Glass Technologies
Revimac-Bottero
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
Forglass
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

suppliers guide

YELLOW PAGES

THERMAL SHOCK TEST MACHINES

Vidromecanica

TECHNICAL ARTICLES IN RUBBER & PLASTIC

Simtech

THERMOCOUPLES & ASSEMBLIES

Bock Energietechnik
Falorni Tech
GCG - Glass Consulting Group
Stara Glass

THERMO SHOCK TEST MACHINES

BDF Industries

TIN OXIDE ELECTRODES & CONNECTORS

Horn
Stara Glass
TECO Group

TRAINING SERVICES

AGR International Inc

TRAY FORMERS

EMS Group

TOOLS & EQUIPMENT

Bottero
Luben Glass
Stara Glass

TUBING LINES

Falorni Tech
Olivotto Glass Technologies
Stara Glass

TURNKEY PLANTS ENGINEERING & CONSTRUCTION

Amig
BDF Industries
Falorni Tech
Forglass
EME
Glass Service
HFT
Horn
Olivotto Glass Technologies
Spami-Optrel-Stevanato Group
Stara Glass
TECO Group
Waltec Maschinen

UV LAMPS

Graphoidal Developments

VACUUM PLANTS & ACCESSORIES

Pneumofore
Simtech

VACUUM PUMPS

Pneumofore

VIAL AFTER -ORMING MACHINES/LINES

Euromatic
Moderne Mecanique
OCMI OTG
Pennekamp
Spami-Optrel-Stevanato Group

VIAL FORMING MACHINES/LINES

Euromatic
Moderne Mecanique
OCMI OTG
Pennekamp
Spami-Optrel-Stevanato Group

VIAL PACKAGING MACHINES

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

VIBRATING EQUIPMENT

EME
Forglass
Vetromeccanica
ZIPPE

WASTE GAS CLEANING SYSTEMS

BDF Industries

WASTE GASES DUCT WORKS AND VALVES CLEANING SYSTEMS

BDF Industries

WATER CLEANING SYSTEMS

BDF Industries
Forglass
Graphoidal Developments
Luben Glass
ZIPPE

WATER COOLING SYSTEMS

Bock Energietechnik

FRITAS PARA COLORACIÓN DE VIDRIO

SERVICIO COMPLETO

- Fritas para coloración del vidrio sobre un alimentador
- servicio de asistencia al cliente en el desarrollo de colores
- servicio de asistencia en la producción
- equipos de dosificación, mezcla y combustión para alimentadores

STUDIO GIOVATI (PR)

40° Aniversario 1984-2024

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AIS
NIS

BUCHER
emhart glass

Setting the Standard for quality in everything we do

When you choose our equipment, you're not just investing in a machine – you're embracing a vision for exceptional performance and container quality. Join us in shaping the future of glass manufacturing.

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