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BI-MONTHLY INTERNATIONAL MAGAZINE FOR GLASS MANUFACTURING



YEAR 35 • ISSUE NO. 4/2022



SORG - still determined in its mission to slash emissions

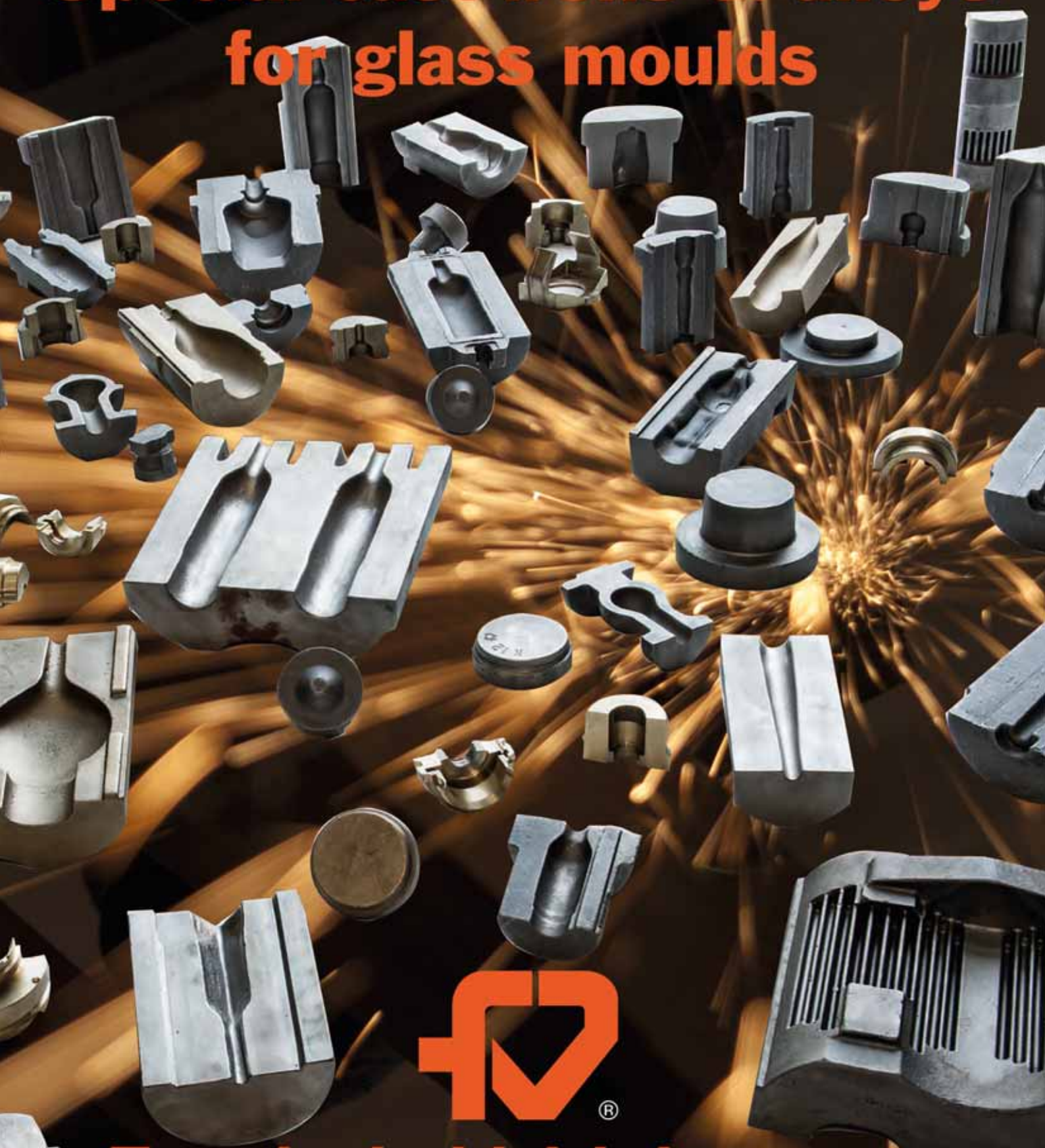
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PRINTED BY:

BICIDI ARTI GRAFICHE

Via San Felice N° 37d 16138 Genoa - Italy

BACK COPIES: € 29 air mail included | Italy: € 15

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GLASS MACHINERY PLANTS & ACCESSORIES,
N. 203, ANNO 35, 2022, PERIODICO BIMESTRALE.

www.glassOnline.com

WEB SERVICE



WEB PUBLICATIONS

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BI-MONTHLY MAGAZINE
PUBLISHED BY



Via Antonio Gramsci, 57 - 20032 Cormano (Milan) - Italy
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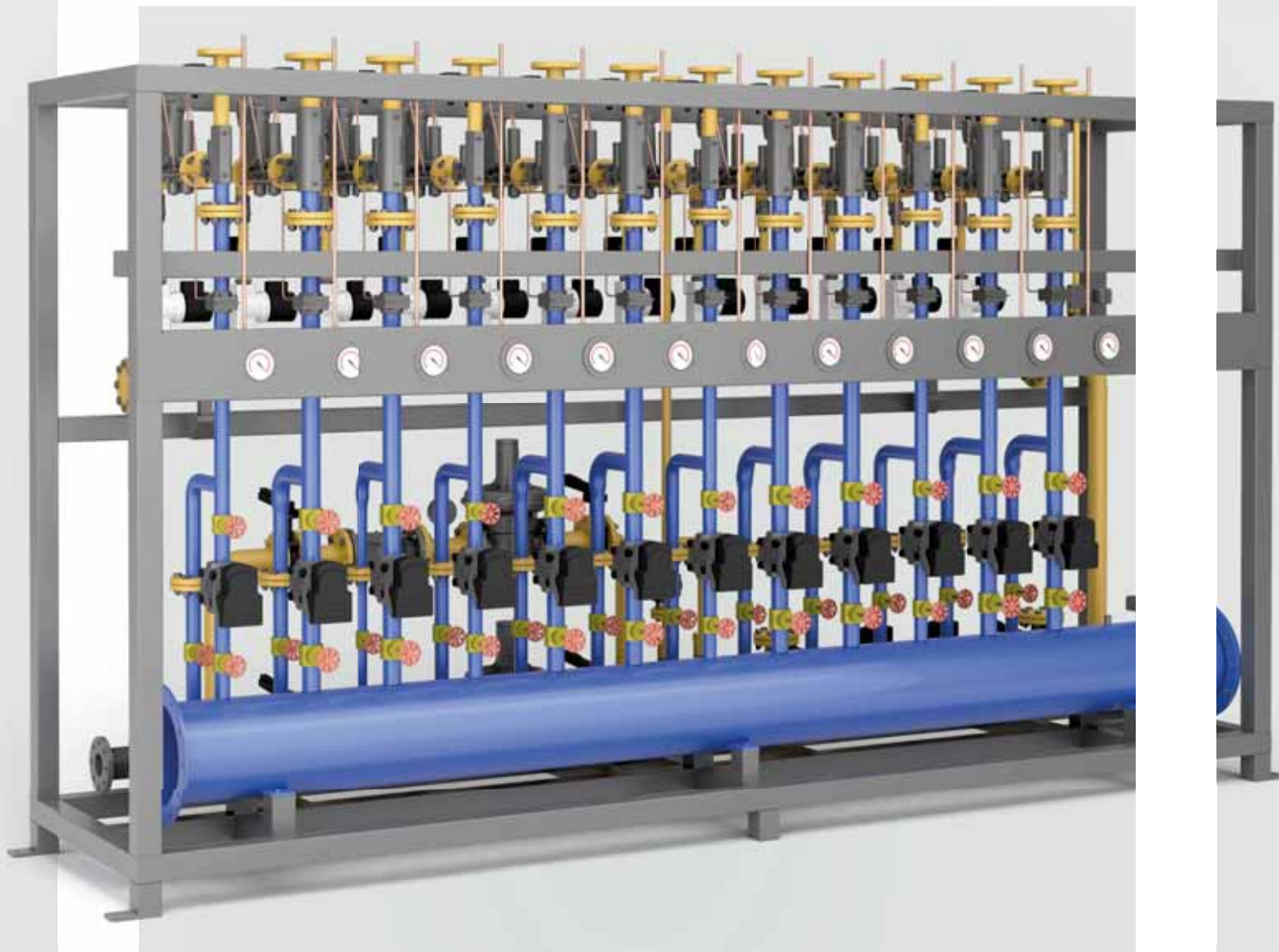


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issue	exhibition/conference	date	venue	deadlines
2022 1	GLASSMAN ASIA	postponed to 2023	SEOUL South Korea	Editorial files: 14-01-2022 Deadline Adv files: 21-01-2022
	GLASSPEX INDIA	postponed to 2023	MUMBAI India	
	COSMOPACK	postponed to 28 April - 2 May	BOLOGNA Italy	
2022 2	CHINA GLASS	postponed	SHANGHAI Cina	Editorial files: 25-02-2022 Deadline Adv files: 04-03-2022
2022 3	GLASSMAN LATIN AMERICA	11-12 May	MONTERREY Mexico	Editorial files: 04-04-2022 Deadline Adv files: 11-04-2022
2022 4	MIR STEKLA	6-9 June	MOSCOW Russia	Editorial files: 28-04-2022 Deadline Adv files: 06-05-2022
	ICG ANNUAL CONFERENCE	3-8 June	BERLIN Germany	
2022	<div><div><h1>Glass Industry</h1><div><div>NEW CONTENTS</div></div></div><div></div></div>			Editorial files: 06-06-2022 Deadline Adv files: 20-06-2022
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	XXXIV INT'L ATIV CONFERENCE	19-21 October	PARMA Italy	
2022 6	INTERNATIONAL YEAR OF GLASS		SPECIAL ISSUE	Editorial files: 01-10-2022 Deadline Adv files: 8-10-2022
	AFGM	30 October - 3 November	PATTAYA Thailand	
	CONFERENCE ON GLASS PROBLEMS	31 October - 3 November	COLUMBUS (OH) USA	
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LIBBEY GLASS

European operations purchased

Dutch investment company Anders Invest has acquired its interest from **Libbey Glass LLC** after Libbey decided to divest its European activities to strategically prioritize and expand its business within its core markets, especially the Americas. Anders Invest recently signed an agreement to purchase a 100 percent participation in Royal Leerdam and its affiliated company Crisal – Cristalaria Automática S.A. The companies manufacture table glass for the European market from the Netherlands and Portugal. Under the Royal Leerdam and Crisal Glass brands, it has a turnover of approximately EUR 120M and employs more than 600 employees in the Netherlands and Portugal.

Glass has been produced in Leerdam since 1765. With



the arrival of the glass factory in 1878, Royal Leerdam was founded. With the Crisal factory in Portugal, founded in 1944, Royal Leerdam has grown into a strong player in the European market of table glass. The company operates from the production site in Leerdam in the Netherlands and Marinha Grande in Portugal. In addition, the distribution centre is located in Gorinchem. Royal Leerdam and Crisal serve customers in retail, wholesale and hospitality throughout Europe, Australia, India, New Zealand and the Middle East.

With the closing of the transaction between Libbey and Anders Invest, the two maintain an ongoing commercial relationship, including uninterrupted access to products and other support.

WWW.LIBBEY.COM

STOELZLE

Rebuilt Częstochowa furnace successfully started

On 9 May the Stoelzle Glass Group's Polish production site **Stoelzle** Częstochowa started to empty its flint furnace, which will be demolished and rebuilt, as well as enlarged over 2 and a half months. The new flint furnace will reach a daily capacity of 480 tonnes and will allow the installation of three more efficient production lines. The construction work is scheduled to take only 78 days, including the installation of the three new production lines. This investment amounts to EUR 45M in total.

The molten glass is cooled by water and collected as cullet to be re-used in production.



The construction of the new furnace is the next stage in Stoelzle's development strategy. The first one was the opening of the new Logistics Centre, which helps avoid complications in global supply chains and prepares for the implementation of the next stages of the sales and operational strategy. The next step was the launch of a new high-speed spray line in the decoration area. The furnace rebuild and modernisation of the infrastructure associated with it, will be the third milestone.

"This investment has been a huge challenge for Stoelzle, above all, the timing of the project, which has been planned in detail over the past two years. Being larger than the old one, the new furnace will allow more efficient and faster production lines. This investment will help increase the product portfolio for current customers, as well as acquire new ones and meet their purchase expectations

efficiently," said Artur Wołoszyn, CEO at Stoelzle Częstochowa.

In the area of packaging glass production, the Częstochowa glass furnace will be one of the biggest in Europe and the largest in the entire Stoelzle Glass Group. The contractors for the project are mainly Polish, regional companies such as TechGlass, Kobnext, Zremb, MAKO, Alpinet and El-Logic, Tech-Met and Forglass.

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ENCIRC

Britvic supported in cutting emissions with new cordial deal

Leading glass bottle manufacturer and filler, **Encirc**, part of the Vidrala Group, has extended its beverages partnership with the UK's largest soft drinks company, Britvic. The new deal will now see Encirc fill Britvic's Robinsons 500ml glass cordial bottles, which it already manufactures at its Elton, Cheshire site. In addition, Encirc will continue to make and fill the soft drink giant's Purdey's bottles and J2O Spritz bottles.

The move to both manufacture and fill Britvic's cordial bottles at the Cheshire site will prevent around a thousand lorry journeys from Great Britain to Northern Ireland across the three years – resulting in significant carbon savings of up to 22,000 tonnes. This will support Britvic's aim to reduce its carbon footprint by 50 percent by 2025, aligning closely with Encirc's own Science Based Targets and its plans to create a future fit for people, and the planet.

Encirc's ability to bottle cordial is the result of direct investment in new equipment and resources, such as its Effluent Treatment Plant in Elton, which can safely treat more waste materials without harming the environment.

The plant will boost efficiency and capacity, helping Encirc expand its bottling capabilities and deal with a wider variety of beverages, including all carbonated drinks. Encirc's bottling and distributing abilities are set to be further enhanced, with parent company Vidrala investing GBP 75M in a national distribution hub for the UK and European beverages industry. The hub is set to significantly reduce lorry movements nationwide and achieve notable carbon savings across supply chains in the UK.



Adrian Curry, Managing Director at Encirc, said, "We've bottled drinks for Britvic since 2005, and this latest extension of our partnership will see us continue to work together for at least the next three years and hopefully much further into the future. We're delighted to see how glass cordial bottles are being received as more premium forms of packaging.

"Our 360 service is already one of the most advanced, complete beverage supply models for glass in the world, where we manufacture, store, fill and distribute, all from one site. We are delighted to work with Britvic as they further

make use of this service as part of their carbon reduction strategy.

"We are always looking to lead the industry on the journey to net zero, whether that is by utilising hydrogen from the HyNet scheme to power our furnaces, or by investing in our Effluent Treatment Plant and National Distribution Hub. These projects will play key roles in improving the environmental credentials of the wider industry."

Matt Phillips, Senior Procurement Manager at Britvic said, "This new contract marks the start of the latest chapter of our relationship with Encirc. Their 360 offering and shared values on sustainability gives us the opportunity to further progress against our carbon reduction goals and other key priorities which sit within our Healthier People, Healthier Planet strategy to help create a better tomorrow."

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Glass manufacturing always creates waste. Glass cullet, however, is a valuable secondary raw material in the production process. Here Zippe's scraping conveyors ensure that none of this raw material is wasted while also saving energy.

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VETROPACK

Jobs cut in Ukraine due to war situation

Vetropack Holding Ltd, one of Europe's leading manufacturers of glass packaging, has announced severe damages at its Ukrainian plant in Gostomel owing to military activity. Initial investigations into the situation have shown that only clean-up work as well as the protection and preservation of assets (including management of used glass and raw materials) are possible there in the medium term.

A resumption of the entire operation is not possible for the time being due to damaged production facilities and the overall situation in the region, which continues to be characterized by military activities. For this reason, Vetropack Group has been forced to cut many jobs at the site.

"We are aware of the impact this step will have on our employees in Ukraine – but we see no alternative at the moment," said Johann Reiter, CEO of Vetropack Holding Ltd. "The damage to our plant caused by military action is significant, although not irreparable. Nevertheless, in our estimation, it will not be possible to immediately resume our production in Gostomel – even if the war ends, which is currently not foreseeable."

Vetropack certainly has no plans to permanently close the site but wishes to reopen it after it has been repaired. "The requirements for production resumption will not be met in the near future," emphasizes Johann Reiter. "In the interest of our entire corporate group, we have to act accordingly."

In the coming weeks, a core team will continue to assess the situation on site. The team will arrange for initial steps to be taken in preparation for the eventual restoration of the production facility. This includes securing the glass packaging and raw materials stored on site.

Job cuts inevitable

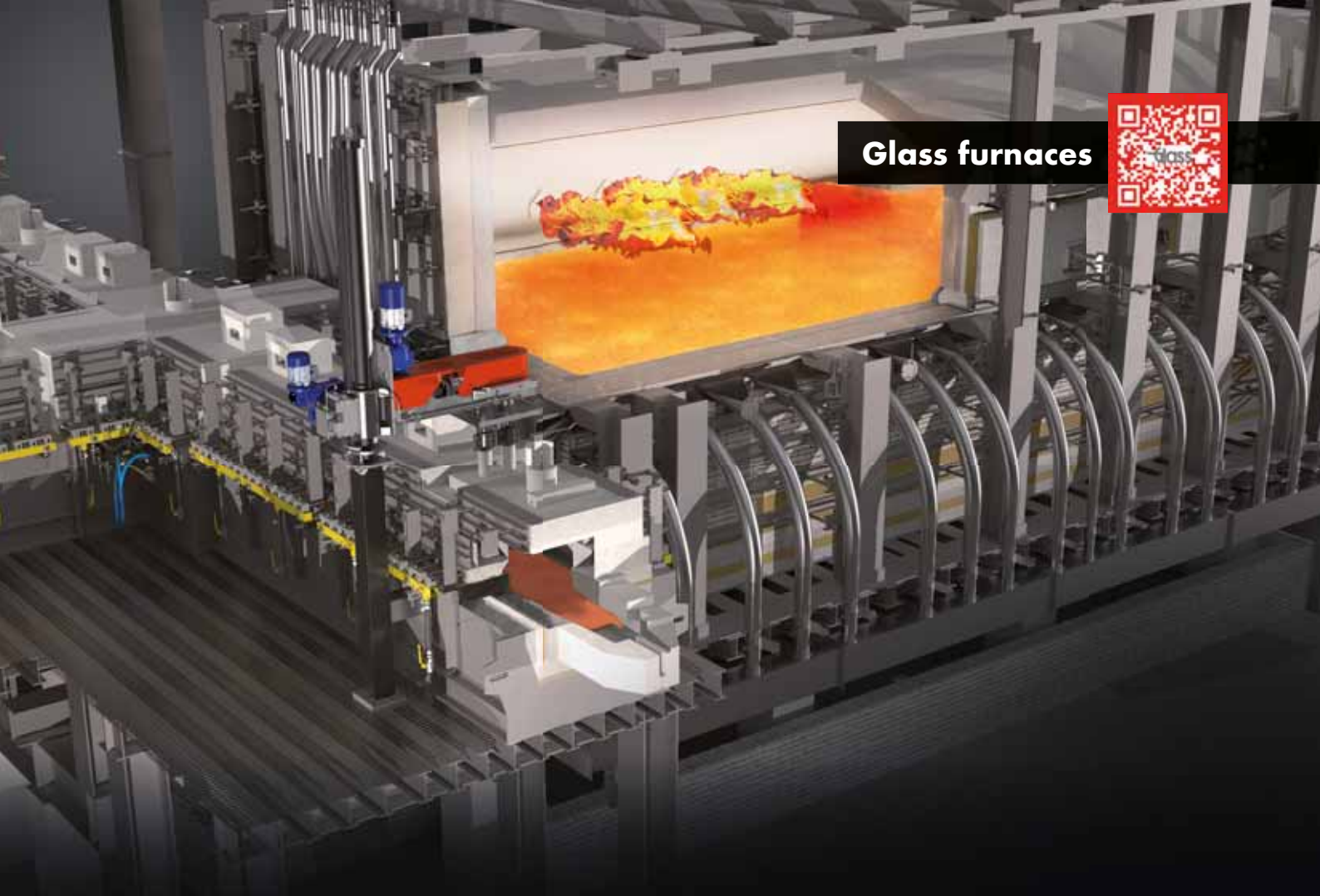
These measures will also include cutting around two thirds of the approximately 600 jobs at the site. At the beginning of the Russian attack, Vetropack had already released all employees from work with continued payment of their full salaries. "This measure is only suitable as a temporary solution – not for the duration of a war that may extend over many months," continued Johann Reiter. "Financing these jobs is directly related to the production and sale of glass packaging. Therefore, without production, we cannot sustain it."

In the coming weeks, Vetropack will be looking for possible solutions for the affected employees in close cooperation with the plant management. As the majority of the workforce are men of military age, they are currently not allowed to leave the country. Therefore, they cannot be deployed to other Vetropack plants. Nevertheless, 35 employees have already been able to relocate abroad. Some of them are already working at other Vetropack sites.

Vetropack Group is one of the leading manufacturers of glass packaging for the food and beverage industry in Europe. The Group has state-of-the-art production facilities as well as sales and distribution offices in Switzerland, Austria, the Czech Republic, Croatia, Slovakia, Romania, Ukraine, Italy and the Republic of Moldova.

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ORORA

Secure grant to support oxygen glass furnace construction

Orora has announced its successful grant application to support the planned construction of an oxygen fuelled furnace at the Orora Glass manufacturing plant in Gawler, South Australia.

The AUS 12.5M grant was awarded from the federal government under the Modern Manufacturing Initiative – Manufacturing Translation Stream, Recycling and Clean Energy programme, to accelerate development and commercialisation of low emissions technologies. Orora Beverage Group General Manager, Simon Bromell, said, “Orora is very appreciative of the government’s support for this significant project.

“Our plan to introduce oxygen fuelled furnace technology to our site in Gawler, which would be a first for Australia, supports Orora’s ongoing commitment to reducing greenhouse gas emissions. This grant is an important step in achieving that plan, which we intend to progress through to 2024.

“The project would also assist Orora to meet the growing demand from consumers for recycled and sustainable packaging and support our wine industry customers to be competitive in their export markets.”

Globally, Orora Group has committed to achieve net zero Scope 1 (direct) and Scope 2 (indirect emissions from purchased energy) greenhouse gas emissions across its operations by 2050. Orora also has an interim goal of a 40 percent reduction from 2019 levels by 2035, and a target of 60 percent recycled content for glass bottles by 2025.

The oxygen fuelled furnace, which would replace existing furnace technology, would contribute to this goal together with the construction of a AUS 25M glass beneficiation plant at Gawler, which is expected to be commissioned in Q4 FY22.

WWW.ORORABEVERAGE.COM

SCHOTT

Climate-friendly glass production under development



As a specialty glass manufacturer, **SCHOTT** belongs to an energy-intensive industry. The largest share of the company’s energy requirements and carbon emissions occur during the melting process. Glass melting requires temperatures of up to 1.700 degrees Celsius to produce specialty glass for vaccine vials, smartphone cover glass, or microchips. Until now, its melting tanks have been heated with natural gas and in some cases with electricity.

The company is working to change this as part of its initiative to become climate neutral by 2030. In order to develop climate-friendly glass melting processes, SCHOTT has started several research projects. The company is focusing primarily on electrification based on green electricity and on hydrogen combustion. In both approaches, electricity from renewable energies plays a decisive role. Now, the company plans to test hydrogen-natural gas-blends in large-scale melting trials at a furnace at its Mainz, Germany, headquarters for the first time.

In this trial, R and D experts at SCHOTT will gradually replace natural gas with hydrogen. Over the course of a month, the ratio of hydrogen in the natural gas/hydrogen mixture will be gradually increased to up to 35 percent by volume in three test phases lasting around 10 days each. This large-scale test is breaking new ground for the specialty glass industry. The company will use these experiments to learn more about the effects of hydrogen in glass melting processes. The long-term goal is to greatly reduce carbon emissions.

The research project's total cost amounts to more than EUR 714.000. SCHOTT and its partners received grant funding of around EUR 338.000 as part of the European Union's European Regional Development Fund (ERDF) from the Rhineland-Palatinate Ministry for Climate Protection, Environment, Energy and Mobility.

"Becoming climate neutral means that we have to come up with groundbreaking technological innovations," explained Dr Jens Schulte, member of the Board of Management and responsible for the Zero Carbon program at SCHOTT.

"Transforming our glass melting technology is a highly complex process with many technical hurdles. That's why we would like to thank our partners for awarding us these grants to support these innovative projects."

SCHOTT announced in 2020 that it planned to become climate neutral by 2030. So far, no other company in the specialty glass industry has set itself such an ambitious goal. Its plan to make its production carbon neutral includes four action fields: In addition to technology change, these include improving energy efficiency, switching to 100 percent green electricity, and compensating remaining emissions.

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HFT

Utah's Owens Corning facility upgraded



HFT, a leading EPC (engineering, procurement and construction) contractor to the global glass industry, has been contracted to upgrade Owens Corning's approximately 300,000 square foot fiberglass production plant in Nephi, UT, USA. The focus of the project is to expand the plant's capabilities to be able to produce a broader range of fiberglass building insulation in the future, and will include modernizations and upgrades throughout the production line. Work is to be completed in the first half of 2023. HFT's work on the Nephi facility will include furnace, forming, civil/foundations, buildings, offices and utilities, as well as relocation of production equipment from another Owens Corning facility to the Nephi site. In addition to equipment integration, the project will include structural, mechanical, electrical and building upgrades.

This project highlights HFT's capabilities to execute complex, multi-discipline projects as a single-source solution. Bringing expertise in not only the fiberglass process line, but also the site/civil, buildings and MEP, HFT will provide a single-source fully integrated project solution, reducing risk and increasing project efficiency.

"This partnership with a company of Owens Corning's stature highlights the quality of work HFT is known for throughout the industries we serve," said HFT President and CEO Mark Piedmonte. "The range of plant upgrades we're undertaking is broad. When we finish, Owens Corning's production capabilities at the site will be significantly expanded and modernized."

Owens Corning is a global building and industrial materials leader headquartered in Toledo, OH. With 20,000 employees in 33 countries, the company's three integrated businesses – Composites, Insulation, and Roofing – provide durable, sustainable, energy-efficient solutions.

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GROUPE POCHET

Plan announced for electric furnace at French plant

Groupe Pochet has announced the electrification of a furnace dedicated to luxury bottles and jars in 2024. Located in the Pochet du Courval – Guimerville plant, in France, this furnace is part of the Groupe Pochet's global Decarbonation plan, which aims to reduce CO2 emissions by 50 percent by 2033.



The project, supported by the Group's private family shareholders, represents a major investment and will be operational by the end of 2024.

"This electric furnace will be the very first French furnace dedicated to luxury bottles. It will enable us to drastically reduce our CO2 emissions by producing a largely carbon-free glass that will guarantee the Beauty of tomorrow," said Benoit Marszalek, Director of Operations at Pochet du Courval.

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GERRESHEIMER

Global production boosted with new facilities in India



Gerresheimer has significantly ramped up its glass and plastic production capacities in India - signaling its intention to ensure consistent supply for critical pharmaceutical and healthcare facilities supporting increased packaging demand and public health. The company already operates production facilities, including Triveni and Neutral Glass, acquired by the company in 2012. The four highly-specialized Indian plants belong to the Gerresheimer Group's worldwide production network. The plants are equipped with a high technology manufacturing process for the production of pharmaceutical primary packaging made of plastic, moulded and tubular glass.

"These new investments enable us to serve our customers now locally with combined product solutions across all Gerresheimer divisions. We have special expectations for revenue growth in India, with more capacity we are closer to reaching our goals," said Niels Düring, Global Executive Vice President, Plastic Packaging.

Gerresheimer has installed the latest Type I Borosilicate melting furnace for flint and amber glass production using cross-fired oxygen technology and an increased portion of electric heating to melt the new Barium free type I glass formulation. This new state of the art furnace is equipped with the newest production machines, also having most sensitive inspection equipment following Gerresheimer moulded glass production standards.

"With this technology, we will substantially enhance our product quality and address additional market segments," said Stefan Rieder, Global Senior Vice President Commercial Moulded Glass.

Gerresheimer ensures full conformity of its products and follows the European pharmacopoeia, the United States pharmacopoeia and meets YBB requirements for China and FDA registration with a Drug Master File as the standard. The production operations are carried out in sanitized rooms. Gerresheimer applies the rules of Good Manufacturing Practice (GMP) and is classified in accordance with ISO standards.

WWW.GERRESHEIMER.COM

AMETEK LAND

Cleaner and more efficient glass furnaces

As the world moves towards new fuels and technology aimed at reducing emissions and carbon footprints, new approaches to furnace design, monitoring and measurements are needed to meet these targets.

Glass manufacturers face many challenges in their daily operations, including the need for accurate temperature measurements in a variety of locations within the glass melting furnace.

A portable infrared thermometer, such as **AMETEK Land's** Cyclops C100 L pyrometer, provides accurate, calibrated and traceable temperature readings of molten glass from different positions around the melt tank.

This can be supplemented by AMETEK Land's NIR-B-2K-

Glass imaging camera, available for fixed installation or as a transportable version, which adds significant advantages compared with visual imaging and point-temperature measurements.

The NIR-B-2K-Glass imaging camera produces high-definition thermal images with three million pixels; it can also take measurements between 600 and 1800 degrees Celsius (1112 to 3272 degrees Fahrenheit) from any point in the image. In addition, a permanently installed thermal



imager actively records all necessary and useful data, allowing the video to be stopped at any frame. This means measurements can be taken of all ports at exactly the same point in the process, allowing reversals to be tuned more accurately.

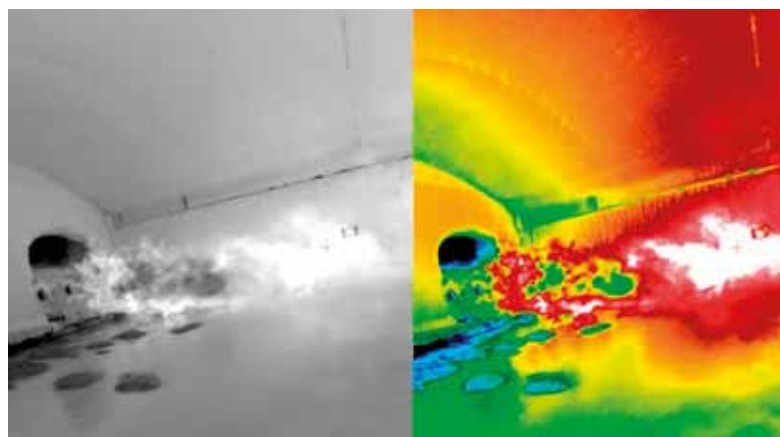
Structural damage caused by high temperatures can also rapidly be detected before it turns into a major problem. If a crack is developing in the refractory, it can show up as a cold area where the air is being pulled in. The NIR-B-2K-Glass imaging camera accurately profiles the temperature of the entire furnace through a small opening in the furnace wall.

Benefits include providing access to data that previously would have been either time consuming or impossible to collect. In addition, the operator is free to focus on specific areas of interest, measure live data points and store the data for future analysis.

Increased melt tank efficiency, improved product quality and reduced process costs are achieved through monitoring the live thermal video inside the melt tank, reinforcing the key measurements provided by the Cyclops C100L.

Philippe Kerbois, Global Industry Manager – Glass, said, “Using thermal imaging in glass operations results in many measurable benefits. Operators can – in a safe, timely way – collect valuable data that they can utilize and store while ensuring the quality of the glass and extending the life of the furnace. This all leads to reduced costs and an improved process, as well as working towards reduced emissions and carbon footprints.”

WWW.AMETEK-LAND.COM



TIAMA

Hot-end business unit created with new director

Tiama has been working on hot end sensors for several years now. The first system launched by Tiama was the I-Care in 2006. Then Tiama bought the Swedish company Gedevelop in 2012 and integrated the GIA (Gob Image Analyzer) in its hot end product range. In 2014, Tiama introduced the Tiama HOT systems at Glasstec, a full range of sensors dedicated to the hot end.

In order to develop even more this part of the business, and to reinforce its impact on the market, Tiama at the beginning of this year decided to structure itself and to create a Hot end Business Unit with a new director, Michel Carpentier, coming from the glass fields. Tiama will also double its dedicated hot end team and keep developing their skills in this area of expertise to focus even more on customers' needs and problems solving.

Michel, who is also part of the Tiama board, has many years of experience as production manager and plant manager. His global vision of the challenges and needs of the customers are a real strength for Tiama as he will be able to talk with them on their issues and understand them to find the right solutions.

“Glass quality has always been a hot end process consequence, that is the reason why we think it is so important to invest all our energy and competences in providing efficient hot end sensors, equipment and software, helping our customers in their daily production life,” he said.

The creation of this new BU is totally in line with Tiama general strategy. All the hot end systems are participating in the development of Industry 4.0 and will also provide data to the software developed in the Bottero-Tiama joint venture called GlassFORM.ai launched in March this year.

WWW.TIAMA.COM



SCHOTT

Investment in ready-to-use cartridge production announced



International technology group **SCHOTT** plans to significantly expand its production capacity of ready-to-use (RTU) cartridges.

This containment and delivery solution is used to store and administer drugs with the help of pen injectors or wearable devices. SCHOTT can deliver these cartridges washed, siliconized, crimped, and pre-sterilized in a nest/tub or tray configuration. This allows pharma companies to start the drug filling process immediately without having to take care of washing, siliconization, or sterilization themselves.

With this expansion, the company is providing a solution for drugs that are predominantly self-administered at home, which experts recognize as a growing market trend. "This investment is yet another step in adding manufacturing capacity for a product that simplifies self-medication and puts the patient's needs first," said Andreas Reisse, Executive Vice President of SCHOTT's Pharma business unit. "Together with our partners, we are creating completely new possibilities in this area with the aim to improve global health for everyone." The expansion at the company's site in St Gallen, Switzerland is designed to include state-of-the-art clean-room infrastructure, including washing line equipment supplied by machine vendor groninger, and is scheduled for completion in 2023.

Breakthroughs in the pharma industry have allowed patients to increasingly administer drugs themselves through the help of a wearable device, pen or auto-injector. These typically rely on a cartridge to store the drug. "At SCHOTT, we follow high standard processes to ensure that our ready-to-use cartridges protect the medication and work seamlessly with the respective device," said Dr Felix Brosi, Global Product Manager Cartridges at SCHOTT's Pharma unit.

The cartridges were specifically developed as a containment and delivery solution for insulin, growth hormones, or other sensitive biologics and are available for a large range of filling volumes. The 10 mL cartridge, for example, is suitable for self-injection of large volumes and is featured in the YpsuDose patch injector platform from Ypsomed.

As part of the SCHOTT iQ® platform, the RTU cartridges are designed to make the drug filling process as simple as possible for pharma companies. Compared to conventional cartridges, the RTU solution requires fewer process steps during filling and allows for more flexibility when changing over to other drug containment and delivery solutions such as RTU vials or pre-fillable syringes.

A new era of manufacturing

The capacity expansion is designed to break ground for a new era of manufacturing with a glass-to-glass contact-free process. This aims at eliminating possible scratches or other glass defects and contributes to a safe delivery of medications to patients. In addition, the new in-house steam sterilization will feature an ultra-clean sterilization technology, thereby paving the way for a more sustainable manufacturing process.



"With these new technologies, we are reaching yet another milestone in our advanced production journey," said Michael Feldhaus, Head of Technology of SCHOTT's Pharma unit.

The production technology also includes an online crimp inspection system, ensuring container closure integrity (CCI). This in return means that the cartridge system is effectively protecting the medication's sterility and subsequently drug stability.

SCHOTT has recently announced a number of expansion plans in its RTU business, including a new production facility for pre-fillable glass syringes in Hungary.

WWW.SCHOTT.COM

FAMOR

for the glass industry



we know how!

FAMOR

SIBELCO

New glass recycling facility opens in Italy

Sibelco has officially inaugurated its new glass recycling plant at San Cesario sul Panaro, Modena, Italy.

After acquiring the site in 2020, the company began a major clean-up of the existing facilities. This included removal of around 50.000 tonnes of waste glass which had accumulated over previous years of operation. The huge piles of glass had become an eyesore for the local community and were causing environmental concerns.

Restoration of the site was completed in July 2020, at which point construction work began on the brand-new

glass cullet processing plant.

The new plant, which employs 30 people, was officially opened on April 12 with a special ceremony attended by officials from local and regional authorities and representatives from Sibelco.



"Excellence in production quality and cutting-edge technology, coupled with a total focus on safety and environmental protection - these priorities have underpinned the renovation process completed over the last 18 months in full collaboration with local and regional authorities," said Nicola Dalmaso, Sibelco Director Commercial Green Solutions Italy.

Corrado Baccani, Sibelco Country Manager for Italy, said, "Italy is one of Europe's leading nations in glass recycling with 78.6 percent of glass packaging recovered through recycling. Sibelco is proud to be supporting the country's recycling drive with our technologically advanced systems and focus on continuous improvement."

Founded in 1872, Sibelco today operates over 100 production sites in 31 countries with a team of over 5.000 people. With an extensive multi-mineral portfolio (focused strongly on silica, feldspar, clays and olivine) Sibelco serves customers across a wide range of sectors including glass, ceramics, construction, coatings, polymers and water filtration. The company is also a market leader in glass recycling. Sibelco operates within a solid framework of sustainability, which aims to balance economic performance with environmental management and social responsibility.

WWW.SIBELCO.COM

VISY

New glass recycling facility for Brisbane, Australia

Another step closer to 70% recycled content in glass packaging.
We're for better glass.

VISY
FOR A BETTER WORLD



A new Visy Glass recycling and re-manufacturing facility in Brisbane, Australia will create hundreds of construction and re-manufacturing jobs.

Expected to be operational in 2025, the state-of-the-art factory will help towards increasing the recycled content in Visy's glass packaging to 70 percent while reducing landfills and the use of natural resources.

The new facility will produce approximately 1 billion glass containers a year.

WWW.VISY.COM.AU

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Monitoring

Smart Factory is approaching and, thanks to the **YOU niverse**, it has become far easier to prepare for. It's also cost effective because the Tiama Hot-End Monitoring System is modular: you choose what you need and when you need it, building the **YOU niverse** that suits you.



TIAMA HOT MASS

For gob weight control, gob shape and temperature monitoring



TIAMA HOT MOVE

Article positioning management with early warning to avoid jam



TIAMA HOT EYE

For critical defects detection and recognition, dimensional measurements



TIAMA HOT FORM

For infrared radiation monitoring and real time statistics

... and they can take action autonomously – now that's Smart! So, whatever your choice, it will improve your knowledge of the process and it is backed by our service, support and training, along with constant research. For more information visit youniverse.tiama.com.

Data – the deciding factor

BORMIOLI PHARMA

“EcoPositive” launched

Bormioli Pharma recently announced the launch of EcoPositive, a brand new label gathering all the sustainable packaging solutions manufactured by the company, in-

cluding recycled glass and plastics, bio-based, biodegradable or compostable plastic solutions and advanced polymer products.

The new label was presented at the leading industry fair Pharmapack Europe, held in Paris, France, on May 18-19 (booth A62).

With more than 15 years of research into more responsible packaging solutions for the pharma industry, Bormioli Pharma has introduced to the market – as industrial products – 3 different ranges of low-impact packaging solutions, consistently with 3 different sustainability strategies.

- Regenerate: glass and plastic packaging recycled from first-choice waste collection
- Renew: bioplastic packaging derived from renewable sources
- Reloop: glass and advanced polymer products made from infinitely reusable materials

These approaches were explained – through a data-driven method – by Roberto Valenti, Head of Materials Development, during the Learning Lab held at Pharmapack on May 19 at 12h50.

“We truly believe sustainability will be the next big thing for the pharmaceutical industry, and we are striving to manufacture pharma-grade quality products that are more responsible towards the environment,” said Andrea Lodetti, CEO of Bormioli Pharma. “This tangible commitment well reflects our company’s purpose to make health a positive practice, accessible to everyone and kind to the planet.”

Sustainability is more and more a key goal for Bormioli Pharma, which has already pledged to use 50 percent sustainable raw materials in production by 2025, a goal to which the company is closer every year, e.g. in 2021, this share amounted to 32 percent compared to 16 percent in 2020.

WWW.BORMIOLIPHARMA.COM

ARDAGH GROUP

Acquisition of Consol Glass completed

Ardagh Group recently announced that its acquisition of Consol Holdings Proprietary Limited (“Consol”), the leading producer of glass packaging on the African continent, is now completed. The acquisition, for USD 1 billion including net debt assumed in Consol, represents a significant inward investment into the South African and other markets in which Consol operates, with a further ZAR 3 billion (USD 200M) investment programme in two new furnaces.

Consol, head-quartered in Johannesburg and founded in

1944, is the market leader in South Africa, where it operates four well-invested glass production facilities. It also operates smaller production facilities in Kenya, Nigeria and Ethiopia. Consol serves a broad range of leading international, regional and domestic customers, principally in the beer, wine, spirits, food and non-alcoholic beverage sectors. Following the acquisition of Consol, Ardagh will operate 65 production facilities in 16 countries, on four continents, employ approximately 20.000 people and have annual sales approaching USD 10 billion.

Paul Coulson, Chairman and CEO of Ardagh, said, “We are delighted to have completed this strategic acquisition. By combining Ardagh’s global reach with Consol’s know-how on the African continent, we are very well-positioned to partner with our customers to meet the



growing consumer demand in Africa for premium, sustainable glass packaging."

Ardagh Group's acquisition of Consol will enable further opportunities for future investment in glass manufacturing in Africa. To this end, Ardagh is committed to a third furnace investment at its Nigel facility in Gauteng, which will add to the existing N2 expansion project started-up last month. These combined investments will total ZAR 3 billion (USD 200M) and create more than 250 direct jobs, with significant ancillary supply-chain expenditure resulting from these projects.

On completion of the acquisition, Mike Arnold stepped down as CEO of the business following a very successful 20-year tenure in that role. Mike will become a director of Ardagh Glass Packaging Holdings Africa (Pty) Limited and will be part of the Ardagh executive team responsible for growing Ardagh's presence in Africa. Paul Curnow, previously CEO Designate, has succeeded Mike Arnold as CEO. He will also become a director of Ardagh Glass Packaging Holdings Africa (Pty) Limited.

Bruce MacRobert, former Chairman of Consol, has become Chairman of Ardagh Glass Packaging Holdings Africa (Pty) Limited.

Bruce commented, "Ardagh's investment in Consol and in the expansion of glass production in Africa is testament to Ardagh's faith in the Consol team and in Africa's potential."

WWW.CONSOL.CO.ZA



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HORN

New glass industry standards set



Wiegand-Glas is the solution provider for glass bottles, jars and PET bottles as well as integrated services and looks back on 450 years of glass-making tradition. With plenty of experience in development and production, Wiegand-Glas has become one of the most successful container glass manufacturers in Europe.

HORN's high level of expertise is based on more than 135 years of experience. Since the company was founded in 1884 as an artisan furnace construction company, it has developed over generations into an internationally leading company today for the planning and construction of most modern glass production plants.

As a leading world supplier of sustainable glass production technologies, HORN received its fourth consecutive order from Wiegand-Glas in spring 2021. Here the company was commissioned to significantly optimize the new end fired furnace with three forehearth lines and a melting capacity of 350 tonnes per day at the Großbreitenbach plant in Germany.

After the successful commissioning last year, it turned out that the specific energy values were only slightly higher than the theoretically required energy demand of 3 GJ/t glass and thus the guaranteed values were already exceeded. For this reason, Wiegand-Glas and HORN agreed to carry out further optimisation of the melting furnace. The aim was to reproducibly fall below the value of 3 GJ/t glass over a longer period of time.

The melting furnace is characterized by the use of HORN e-Fusion Boosting with an input of 15 percent electrical energy and the technological know-how from the HORN R&D activities. During the production of olive green, the value was permanently below 3 GJ/t over a period of one week with a cullet content greater than 85 percent - signaling a furnace set to be another flagship of HORN potentially en route to technological leadership.

WWW.HORNGLOSS.COM/

RASKO

Glass factory declared bankrupt



On April 19, arbitration recognized the insolvency of Rasko. The organization is the owner of the plant in the village of Anopino, which was the largest glass making enterprise in the Gus-Khrustalny district of the Vladimir region in Russia.

Bankruptcy proceedings are planned to be finished within six months. During this period, the bankruptcy trustee will have to prepare a report on the results of the next stage of bankruptcy of the organization.

FEVE and GPI

New interactive toolkit launched to support IYOG 2022

A new, comprehensive toolkit has been produced in collaboration between the European Container Glass Federation (FEVE) and the Glass Packaging Institute (GPI) to tell the ongoing story of glass. Available to everyone as part of the UN International Year of Glass, the toolkit can be used, shared and freely adapted by any brand, organisation, company or 'friend of glass' who wants to join the two organizations' shared love of glass and promote the many reasons to choose, love and recycle glass.

Glass is more important than ever for modern life: it is versatile and easy to renew and has the potential to achieve the Sustainable Development Goals UN. In a circular economy, the benefits of recycling, reusing and re-purposing glass are countless. The more recycled content is used in production, the less raw materials are needed, the less energy is consumed, and the less CO2 is emitted. And each year, the industry continues to invest in decarbonisation, energy efficiency and plant upgrades to achieve carbon neutrality.

The toolkit consists of 5 chapters, each covering a different topic and highlighting the reasons why glass is the best packaging material – now and for generations to come.

It can be downloaded online as PDF or PowerPoint or upon request to: info@friendsofglass.com.

WWW.FEVE.ORG

AMBEV

Investment in new sustainable glass plant in Brazil

InBev's Brazilian brewer, **Ambev**, is currently investing BRL 870M (approximately USD 154M) in a new sustainable glass plant in Paraná. It will have the capacity to produce bottles from recycled or broken glass, collected in partnership with local companies and organizations specializing in reverse logistics. The facility will help ensure further progress toward the company's Circular Packaging Goal of having 100 percent of its products in either returnable packaging or made from a majority of recycled content by 2025.

The glass plant will operate with 100 percent renewable electricity or renewable purchased electricity, have the capacity to run on biofuels and use cutting-edge technology to ensure high water and energy efficiency. Expected to start operating in 2025, the new plant will produce bottles for brands such as Stella Artois, Beck's and Spaten, and will supply Ambev breweries across several states, including Paraná.

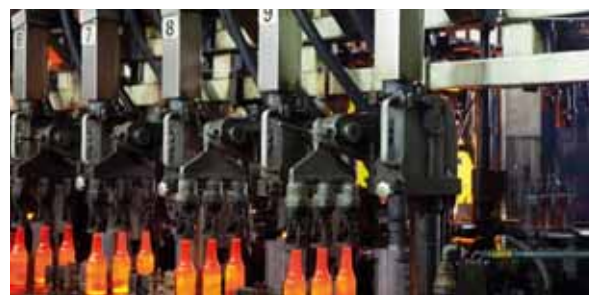
"This new glass plant is another important step in our sustain-

ability journey," says Rodrigo Figueiredo, Vice President of Sustainability and Procurement at Ambev. "It will make a positive impact on several aspects of our brewing operations ecosystem. In addition to working toward our Circular Packaging Goal, the plant will play an important role in helping us meet other sustainability goals, including having 100 percent purchased electricity coming from renewable sources. We are investing deeply in the recovery to create a future with more cheers."

Ambev's first glass plant opened in 2008 in Rio de Janeiro. Today, it operates with the highest percentage of recycled material in Brazil and it is the country's first facility with a 100 percent recycled glass bottle produced on an industrial scale. In addition, Ambev operates one of the first and largest carbon-neutral breweries and malting sites in the country.

The new plant in Paraná is expected to generate more income and jobs for the state. The investment announcement was celebrated during a ceremony with the governor of Paraná, Ratinho Júnior together with other government representatives and Ambev leaders.

WWW.AB-INBEV.COM



ARDAGH GROUP

Location of glass production facility in Brazil announced



Ardagh Group recently revealed that the location of its previously-announced first glass packaging production facility in Brazil will be at Juiz de Fora, Minas Gerais. Production is expected to commence in the first half of 2024 and, when operational, the facility will provide approximately 300 high-quality jobs.

The new glass packaging plant will be co-located in Juiz de Fora with a new multi-line beverage can manufacturing facility being built by Ardagh Metal Packaging S.A. (AMP), Ardagh's 75 percent-owned subsidiary. This facility will supply sustainable aluminium beverage cans to leading customers in Brazil, complementing AMP's existing three plants in Jacareí (SP), Alagoinhas (BA) and Manaus (AM).

Ardagh's strong focus on sustainability and the advancement of its ambitious ESG goals will underpin both new investments, which will be among the Group's most environmentally efficient facilities. Following the completion of both investments, the group's presence in Brazil will consist of five production facilities employing more than 1.650 people.

Paul Coulson, Chairman and CEO of Ardagh, said, "These important investments form part of Ardagh's multi-year business growth investment program and support the growth plans of leading brand-owners. Since the Group's entry into the Brazilian beverage can market in 2016, we have consistently invested to grow our business.

"Following completion of these two investments in Minas Gerais, Ardagh will provide sustainable metal and glass packaging under long-term contracts to our customers in each of Europe, North America and Brazil, as well as sustainable glass packaging in Africa."

WWW.ARDAGHGROUP.COM

BDF INDUSTRIES

IWS plunger mechanism

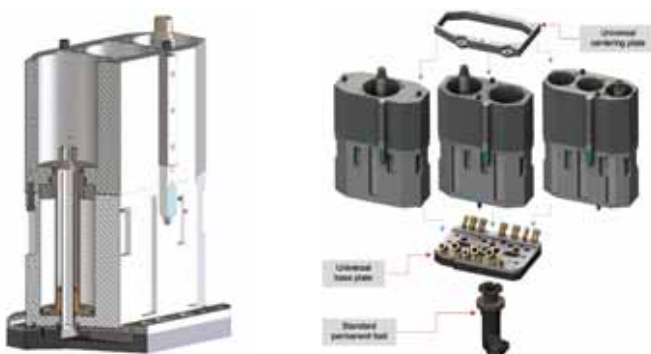
The IWS plunger mechanism offered by **BDF Industries** is available on all IS machines sections (4"1/4 - 5" - 5"1/2 - 6"1/4) - boasting a total compatibility and standard cartridges as well as the same limit range as that of standard plunger mechanisms.

In technical terms, SG-DG-TG mechanisms all share the same base and centering plates and have an enhanced air duct for counterblow and plunger cooling, as well as high temperature polymer seals and sensors with electronic components that

are positioned exterior to the mechanism so as not to interfere with the mechanical components.

The benefits of the IWS plunger mechanism include an enhanced counterblow during the press-blow process due to smoother seals. There is also better performance thanks to the increase in air ducts and better performing seals. But that's not all. Job change is faster and easier because neither the base plate nor the centering plate need replacement. The IWS sensors are also faster and can be easily removed without disassembling the mechanism, and sensors can be added at a later time.

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SORG

- still determined in its mission to slash emissions

A versatile and affordable material in everything from containers and windows to data transfer and automotive, glass is essential now for practically all development. Here's why SORG has innovated its glass production processes to reduce both energy consumption and emissions whilst boosting efficiency.

EMISSION
BY
SORG

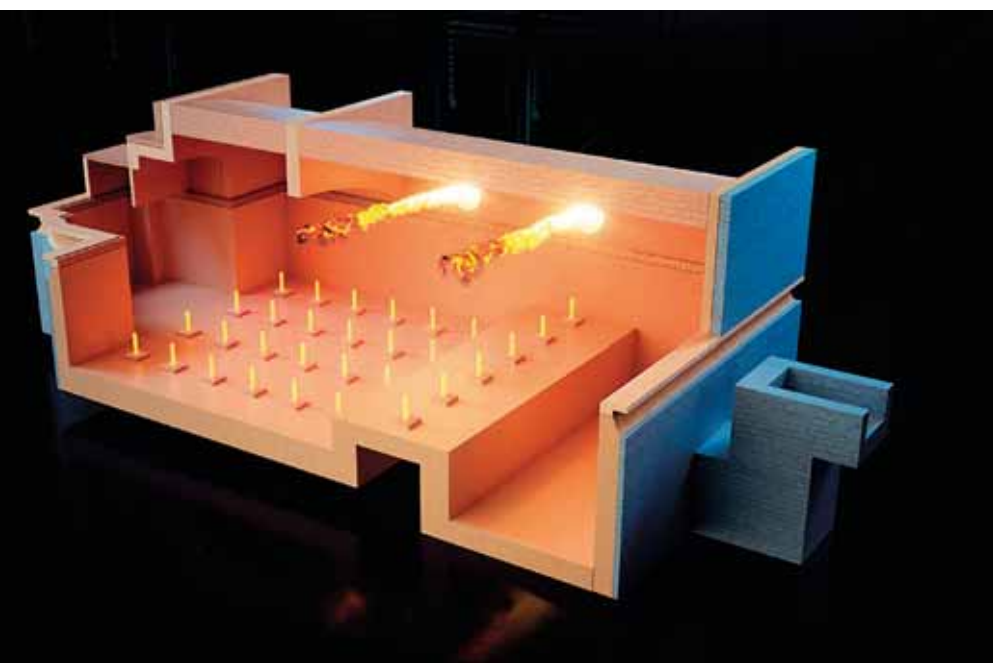
As growing global concerns over climate change continue to put unprecedented pressure upon countries, companies, and consumers, new ways of thinking are fast being adopted to confront the elephant in the room that none can ignore - namely the glass industry's ongoing need for high energy.

And while brand owners seek substitutive materials, glassmakers too are testing alternative fuels, just as several bodies within the industry have combined forces to build trial plants together.

SUSTAINABLE MELTING: MAKING A POSITIVE DIFFERENCE

Also, forward-thinking companies have introduced various innovations over the past few decades - SORG Group included. Here, with the support of -among others- the private sector and International Finance Corporation (IFC), the industry is afforded opportunities to continue improving its energy efficiency as it meets the rising demand for sustainable glass products.





A global pioneer in both glass melting and conditioning, SORG has been a longstanding, vocal supporter of electric melting technology - still paving the way for sustainable melting today. Indeed only recently the company launched its hybrid furnace - the CLEAN Melter® - which can reduce energy consumption and carbon emissions by as much as 80 percent.

CELEBRATING WITH SUSTAINABILITY

To mark its 150th anniversary, the Group is presenting a clear and powerful message of intent to the glass industry at large - one from which glassmakers and brand owners alike can gain reassurance. Here, by getting behind it in their strategy for the future, such businesses would enjoy the backing of a world-leading part-

ner that has proven resilience and longevity.

NET ZERO: AN OVER-AMBITIOUS MISSION?

SORG's mission includes a commitment towards developing the next generation of sustainable melting technologies so that emissions can be slashed in the near future as companies are helped to produce net-zero glass at volume.

Over the coming decades the Group will be investing heavily in research and development to support this journey - its sole objective being to work alongside glass plants to jointly achieve large-scale sustainable melting.

More than just another sustainability campaign, this one carries SORG's solid promise to empower the entire glass supply chain till it ultimately halts climate change and reverses it. An ambitious target, admittedly. However, with innovators like SORG making such great strides, nothing seems impossible. ■



SORG
GROUP

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GMBH & CO. KG**

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Introducing **EMHART**'s Sidewall Smart Filter

Making a splash on the market, EMHART's Smart Filter maximizes inspection performance in its offer of sidewall setup automation, using both static and production learning functions as it establishes optimal greyscale thresholds to fully inspect containers at the very highest levels of sensitivity.



An inspection option for the FleXinspect C Gen III sidewall machine, the “Smart Filter” is designed to minimize setup time with minimal user adjustments – all while maximizing inspection performance by using the latest SCOUT Ai.

THE CHALLENGES

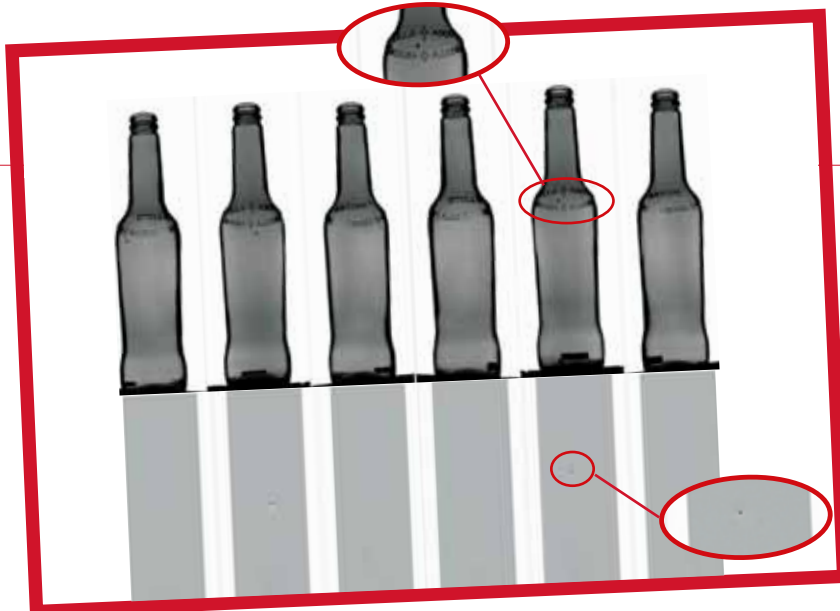
Inspecting the sidewall on a glass container has its challenges, given that setting the proper inspection coverage and sensitivities is often difficult and time-consuming owing to the characteristics of many glass containers. Here’s why ensuring the inspection coverage achieves a minimum of 360 degrees can be difficult. Indeed, the sensitivity of an inspection zone must often be compromised to compensate for features found in that specific zone which, as production process varies, necessitates frequent adjustments to maintain acceptable reject rates.

THE SOLUTION

The sidewall “Smart Filter” learns the expected variations from a trained set of container images in order to establish optimal sensitivity for fea-

tures common to a specific container. Consequently, inspections are performed at the highest sensitivity levels in areas with shadows, embossed features and uneven glass distribution.

Here it’s trained with an initial, static sample set before continuing to learn and update throughout the production run. Displaying a colour-coded, 360-degree visualization of the container, the machine alerts the operator to expected inspection sensitivities with displayed colours corresponding to the magnitude of detectable defects in each area of the container. As such, zones with individual inspection sensitivities do not need to be established.



SOME SPECS

The sidewall “Smart Filter” option can be added to any FleXinspect C Gen III inspection machine, which extends to any Chili G1, Chili G2 or eco (Symplex) machine configuration. For field upgrades on older equipment, and concerning installation requirements, the system must be updated to the latest 64-bit processing platform. Features include complete sidewall coverage with zone-less inspection, learned adaptive thresholding, continuous production learning and visualization of sensitivity. As to “Smart Filter” benefits, these include savings on setup time, elimination of blind spots and a guarantee of consistent setups, as well as the possibility of optimal inspection sensitivities in all areas of the container. It also updates the “learned adaptive threshold” automatically in order to compensate for changes within the production process and it will graphically display the expected level of sensitivity in all areas of the container. ■



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REVIMAC: a notable track record in glass conditioning technology

With a proud track record of over twenty years in manufacturing automation and control systems for Working End and forehearth, REVIMAC continues to innovate with its hollow glass production technologies.



Introduced to the glass market in 2011, Revimac's E-Forehearth has since evolved over the years - passing from supply of the sole control system to that of complete channels, which include refractories, instrumentation and steel structures. Besides the design and supply of "green field" solutions, tailor-made solutions for upgrading and/or retrofitting existing installations have also been realised.

A FOCUS UPON OPTIMIZATION

Special attention is given to customer requests respecting design, for which 'optimization' is the keyword, given that every choice results from calculations and simulations received from the dedicated working software Finite Elements Method (FEM analysis).



Here, optimization concerns the following:

- Dimensioning: choice of working end size and forehearth according to pull and residence time so as to ensure the correct refining and conditioning of the glass;
- Energy saving: choice of the most suitable materials to reduce thermal loss and gas consumption as much as possible;
- Refractory resistance and durability: thermo-structural analysis to minimise mechanical stresses and increase refractories life time;
- Glass conditioning: conduction of thermo-fluid dynamic analysis to render glass cooling more effective under such critical conditions as, for example, a job change.

The above-listed points are absolutely mandatory in the supply of colouring forehearth where the technology of the materials used/produced -as

well as their design- definitely combine in making a difference to glass quality. Here certainly, in terms of NNPB production requirements, the Revimac system demonstrates its capability.

CONTROL SYSTEM RELIABILITY

Revimac's state-of-the-art E-Forehearth is among the most efficient glass conditioning systems on the market. An important unit in the hot-end area of the glass factory, the forehearth's total reliability remains a primary requirement.

REDUNDANCY

Owing to its scope, the control system is designed to be redundant. At its heart is a watchdog-managed twin CPU. With one being the master and the other a hot back-up (as fault troubleshooter), the CPUs are both operational. The concept of redundancy is further extended to the data transmis-

sion channels and signal acquisition modules.

An automatic switch-over is guaranteed in the event of failure, so avoiding any interruption in the process control.

Such non-redundant instruments as pyrometers and thermocouples can be managed in case of failure - assigning a substitute detection instrument until replacement. Here it's even possible upon initial system configuration to pre-assign the virtual replacement of measuring instruments.

Coupled with the software designed and tuned over the year, the components installed within the control system afford it a high level of precision, equipping it to maintain the set temperature with a difference of $\pm 0,5^{\circ}\text{C}$.

COLOURED GLASS PRODUCTION

Colouring forehearth are equipped with a frit dosing system as well as a stirring unit that's

CONTROL SYSTEMS



To remove the zirconia cord problem in the glass conditioning zone, the stirring unit can also be installed in standard forehearth. Three versions of Stirrers are available, each equipped with 2, 3 or 4 blenders respectively. These are spaced according to superstructure configuration and also depend upon customer needs. Here the stirrer unit adopts a gear-driven blade - both to increase system longevity and reliability.

REFRACTORY DESIGN AND LIFETIME

Structural strength is afforded by the Revimac self-supporting roof blocks, with the combination of several applied forces that guarantee the refractory blocks remain in position - thereby ensuring there is no collapsing within the channel, even in the event of severe breakage.

Glass contact channel blocks are manufactured with a 99 per cent alumina content and have

installed to blend the glass, during the process, within the forehearth. Taking severe working conditions into account, here resulting from the high temperatures, special attention has been paid to materials selection, both for the steel supporting frame and for the moving parts subject to wear - thereby improving their reliability while reducing maintenance operations as much as possible.

proven greatly successful over the years.

EFFICIENT DUAL-COOLING

Direct or indirect cooling can be used - the former on the glass surface, the latter by conveying the air through the overhead longitudinal tunnel. Either method is possible, as is a simultaneous combination of the two applied, which further offers independent adjustment of the opening of the two separate cylindrical exhaust stacks.

A SYSTEM THAT'S USER-FRIENDLY

The touch-screen operator interface displays real-time operational data of the forehearth as it's being controlled. Moreover, memorized production recipes are stored to assist operators with reducing down time.

The supervisor System can control up to 3 independent measuring instruments within every zone. Not only. It features a built-in industrial PC touchscreen operator interface as well as a PLC-based hardware that's controlled by a proprietary Revimac FCS Software Package - all equipped with a serial connection for Internet-Linked Remote Monitoring. Finally, individual control remains possible within each LH & RH independent firing zone. ■



REVIMAC
BOTTERO GROUP

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STOELZLE expands decoration capacity and variety at all its sites

Packaging



As a glass manufacturer and one-stop-shop for the design, development, production and decoration of high-end packaging glass, STOELZLE strives for different product types in order to provide appealing solutions - each one well-suited to customer needs.

PACKAGING

The Stoelzle Glass Group manufactures a broad range of products, whether in standard designs or customised shapes - thus catering to a huge variety of branches and applications. Based in Europe, it seeks to prioritise both the emotions and ideas promised by its products - always with a keen attention to what's most sustainable and technically-feasible.

GROUP EXPANSION

With the demand for decorated glass containers constantly on the rise over the past few years, Stoelzle has been investing in all three of its decoration facilities in Poland, UK and France - all to offer enhanced capacities and modern processes and technologies for a broad range of applications destined to international markets.

In March 2022, a new high-speed spraying line was started up at the decoration site in Stoelzle Częstochowa, Poland. Being the fourth spray line at the Polish site, technically this one's state-of-the-art in every respect - including performance, efficiency, automation and sustainability. Here the company relies upon its CSR strategy, to which Stoelzle has been committed for a couple of years already after abandoning solvent-based colours at all three of its decoration sites as it

insists on using only eco-friendly, water-based inks.

Equipped with an automatic loading and unloading system, the new spraying line also takes advantage of fast-curing by infrared lamps, which enhances production capacity still further.

The high-speed line, set up with an investment of EUR 1M, is forecast to reach a daily output of more than 100,000 sprayed bottles whilst being technically adapted to process containers of up to 200 mm in size.

Stoelzle offers an array of traditional, trendy and innovative techniques that range from silk screen printing to spraying, frosting, hot foil stamping, digital printing, decals and accessory application for spirits bot-

ties, perfumes, cosmetic jars and pharmaceutical glass containers.

PUTTING SUSTAINABILITY FIRST

The group continues to be driven by a conviction that glass remains one of the most sustainable packaging materials, given that it's made from 100 percent natural raw materials and is inert - meaning that glass has no impact upon its contents. But that's not all. In rendering the final bottle as sustainable as possible it's always been just as clear to consider the ecological aspects of the decorating itself. Here Stoelzle's R&D team has leveraged its collective intelligence to arrive at both energy saving and CO₂ reduction solutions within every area of pro-





duction and decoration - including batch optimisation, melting process, and all the technologies used at the Hot and Cold End of glass production. Indeed ongoing investments in sustainable technologies and processes remains a solidly-integrated part of the group's CSR strategy - all with a view to reducing CO₂ emissions 50 percent by 2030 while becoming CO₂ neutral by 2050. As more than 370 million bottles are decorated by Stoelzle every

year, the importance of providing eco-friendly, sustainable decoration is equally important. Here's why an innovative Recycled Ink, namely the eco-friendly powder coating Quali Glass Coat 2.0, as well as Tigital, are among the latest developments in decoration.

RECYCLED INK

In partnership with a British supplier, Stoelzle's innovation team has developed a brand new eco-friendly black-screen printing ink. The Recovered Carbon Black — as basis of the company's new inks — is derived 100 percent from end-of-life tyres. This recycled ink is available in dark black (matt and shiny) as well as different shades of grey - and more colours besides (red & white) will shortly be developed from other waste materials. Given that decoration contributes circa 15 percent to a bottle's CO₂ footprint, screen printing decoration with recycled ink helps to significantly reduce it without

compromising on high decoration quality. Not only. The ink will contribute towards avoiding rubber waste as well.

QUALI GLASS COAT 2.0

Quali Glass Coat 2.0 is a special powder-coating technique which, at very high mechanical resistance, achieves an infinite variety of stunning effects. Moreover, the process is definitely more sustainable and eco-friendly than standard lacquering with liquid colours. Here the powder coating uses solvent-free colours while helping to save in raw material by producing zero-waste colour. To list the main advantages of this new technique: there's 77 percent less CO₂ emissions as compared with conventional spraying, zero VOC release (Volatile Organic Compounds) and lower costs in terms of decoration.

A new radiating glass type, NRG 4.0, is a phosphorescent glass decoration. This special





Quali Glass coat 2.0 will show off such changing Stoelzle-patented colours as night colour schemes.

Digital technology brings yet another powder-based decoration, allowing for the realisation of photo-realistic artworks while saving 85 percent in CO₂ emissions as compared with classic screen printing - a technique that's well-suited for very small lots and will allow for a high level of flexibility.

EFFECT LACQUERING

Other standard processes, such as lacquering, have been developed to achieve some stunning new effects. Here bottles can be sprayed, for example, to

resemble carbon, ice, concrete or velvet - thus gaining not only visually but also in terms of tactile appeal. To say more here: a metallic finish can be achieved, as well as gradient colours, cracked or glitter effects.

ENHANCED PRINTING

Printing on square containers is no longer limited to one side of bottles alone. Now it can also be done across sharp edges - thereby creating a 360° all-round visual. Here there's Quadrichromie, a CMYK print performed on a screen-printing basis, which achieves fine, detailed artworks with photorealistic looks. Digital printing is a super option for

single and individually-customised small lots. It's very fast and unlimited in colour, design and/or 3D-effects. A very trendy and cost-effective decoration process is the so-called 'relief lettering' which will give bottles a relief effect via application of a transparent material. In sum, there's a high infinite variety of decoration options, all of which can be chosen to enhance the beauty of bottles and so rendering them unique.

SOME FACTS

- 3 in-house decoration facilities in France, Poland and UK
- 370 mio decorated bottles per year
- ~500 employees (working in decoration) ■



ABOUT STOELZLE GLASS GROUP

The Stoelzle Glass Group is a family-run company with six European production plants, another in the US, and three decoration sites. The group has been producing high-quality glass packaging for the spirits, pharmaceutical, perfumery & cosmetics, food & beverage sectors for over 200 years now. Here Stoelzle covers all areas from product development, production, decoration to the delivery of closures.



STOELZLE GLASS GROUP

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VACUUM PUMPS

Mexican beer producer chooses PNEUMOFORE – again!



A leader in the manufacturing, distribution and sale of beer in Mexico and part of A.B. InBev, the world's largest beer brewer, Grupo Modelo recently installed its third PNEUMOFORÉ UV100 Rotary Vane vacuum pump at the company's Tierra Blanca plant.

Founded in 1925, Grupo Modelo has 11 breweries and produces 17 national beer brands, of which eight are exported to 180 countries worldwide - including the renowned Corona Extra.

A PROUD LEGACY

The group boasts nearly 100 years of experience in producing hollow glass containers. Indeed customers have a clear preference for its beers, which account for almost 60 percent

of the market share in Mexico. Here's why, in order to stay abreast of such extraordinary results, Modelo took valuable decisions to further improve upon that production outcome by deploying reliable and efficient equipment.

TESTING

Prompted by the latest moulding trends with IS machines -which achieve more elevated precision, minimal waste and high-speed produc-

tivity- Grupo Modelo decided to invest in vacuum. However, with the added value of vacuum in the hollow glass-moulding process being sometimes difficult to define, Pneumofore was called in to another Mexican plant to conduct a "vacuum-only" test on the IS machine- all to evaluate the effective contribution of vacuum capacity to the process of glass moulding.

The test was performed with a Pneumofore UV16 VS30 vacuum pump - enough to supply



VACUUM PUMPS

vacuum to one IS machine with ten double sections for wide-neck glass containers. Then, following the success of the demonstration by expert glass moulding engineers, the vacuum was combined with low pressure for the purposes of attaining still better results - both in reduced rejection rate at the cold-end quality inspection and in terms of quantity of bottles-per-minute upon each IS line.

A HISTORY OF CHOOSING INNOVATION

Modelo had already installed a Pneumofore UV100 vacuum pump equipped with Variable Speed drive at its Tierra Blanca plant back in 2020. The air-cooled machine, which has nominal installed power of 220 kW and can reach up to 6.610 m³/h in capacity, was set up alongside the existing vacuum systems. The vacuum setpoint is at 280 mbar(a), connected to

the IS machine at Furnace N° 2.

Since then an additional furnace has been prepared, with all IS lines connected to the vacuum system - upgraded with a total of three Pneumofore UV100s. Here Pneumofore engineers checked the entire system during commissioning of the two additional vacuum pumps, ensuring proper installation according to current recommendations for long-term efficiency.

BIG WINS FOR ENERGY SAVING

Based upon Pneumofore's Rotary Vane technology, the three vacuum pumps are capable of supplying up to 20.000 m³/h as total capacity within the vacuum level range of 50 to 450 mbar(a). Not only. Guaranteeing a constant vacuum level, the machine's Variable Speed drives can adapt its rotation velocity to pro-

duction requirements, thereby ensuring significant power savings - a practice which increases glasswork productivity by leveraging all the high-performance potential that's available on today's latest generation IS moulding lines. ■



Pneumofore

PNEUMOFORE

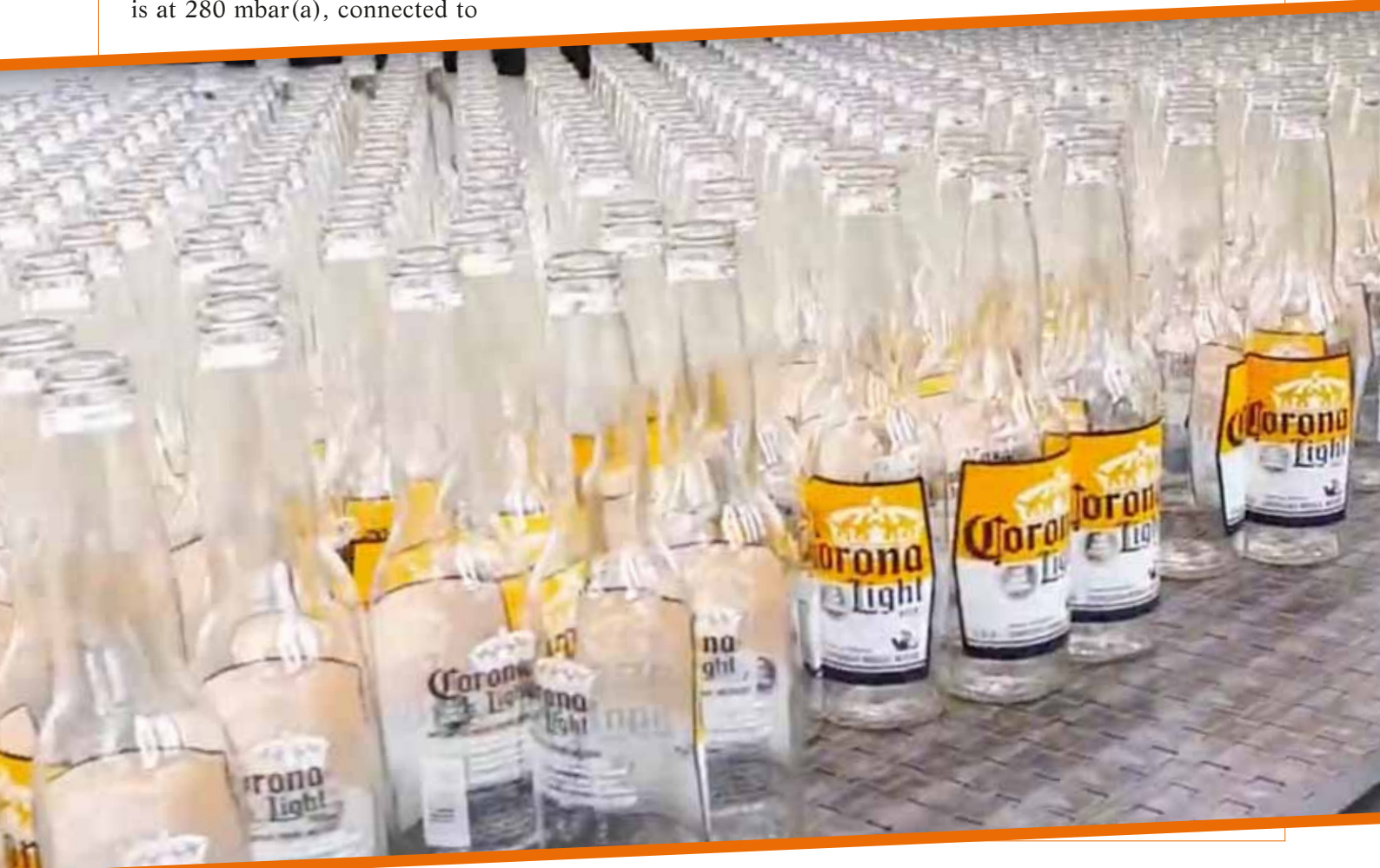
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INKCUPS' Helix[®] - leaving a lasting impression on Glassware

In an innovative departure from traditional glassware printing methods, still widely-used, global industry leader INKCUPS just took glassware printing to the next level with its full-colour, seamless graphics.



GLASS PRINTING

The great added value of Inkcup's recent glass decorating solutions is clear: new stunning graphics and eye-catching design elements are now possible where earlier options only offered a one-colour image, or etching.

Today the company's flagship Helix® digital cylinder printing machine, as well as its corresponding auxiliary machines, make multi-coloured glassware printing possible - from small diameter vessels such as shot glasses and shooters to larger items such as growlers and spirit bottles. Indeed, it's thanks to the latest updates to Inkcup's popular Helix® printer that the techniques offered by the Helix® line now come as notable trendsetters for the glass decorating market.

NEW HELIX® MACHINE UPGRADES

Helix® printers offer printing upgrades with the extended range kit modification, which increases the diameter capabilities of the printer. Previous models of this machine were limited to printing on straight-walled and tapered cylinders with the diameter range of 2 to 5 inches. However, recent modifications and the addition of the Extended Range Kit now allow a minimum diameter of 1.5 inches - a refreshing tooling feature that helps companies diversify glass production with ease.

TRANSPARENT PIN-CURING SYSTEM

Another recent highlight is the transparent pin-curing system, or TPC, which was designed to enable UV inkjet printing on clear or 'see-through' products, from plastic bottles and glassware to spirit and wine bottles. Compared to previous methods, this novel printing machine system streamlines the printing process for clear vessels. This is a departure from the past, which saw UV inkjet

printing on clear vessels via a stuffing agent, or 'foxtail', which blocked UV light from penetrating transparent vessels and left print-head life compromised. Instead the TPC system allows glass vessels to remain uncontaminated and sterile while reducing print-head wear and significantly decreasing production times. The TPC feature revolutionizes clear vessel printing production as well, both on the Helix® and in the printing industry - thereby simplifying the process and improving efficiency. Not only. The TPC system can also be retrofitted to any existing Helix® printer.

PROGRAMMABLE TILT UPGRADE

A further feature, which saves each product's specifications within the system software, is the programmable tilt upgrade by which the angle of a fixture can be adjusted for tapers. This allows for a simple, quick changeover during the printing process, such that the vessel angle can be saved for a subsequent return to the measurements saved. It's as easy as setting a number to a product type, then arranging the corresponding angles. Lastly, the fixture auto-adjusts - all of reducing changeover time by as much as a third of the amount of time it takes without the feature.



DL INK UPGRADE

The DL Series ink is a UV ink that's an ideal solution for excellent adhesion on glass. It can either be utilized in a UV flatbed inkjet printer or in a rotary inkjet printer like the Helix®. The DL Series is cured using UV LED light and it can be paired with primers for longer-lasting adhesion. The ink works perfectly with MagiCoat® Glass Primer, making glassware pieces more durable and resistant to wash cycles. The DL ink is available in a full colour range: Cyan, Light cyan, Magenta, Light magenta, Yellow, Black, White and Varnish, and it's FDA 21CFR compliant too, which makes it a safe and reliable ink to use on glass.

MAGICOAT® PRE-TREATMENT SYSTEM UPGRADE

Brand new for treating glass, the MagiCoat® Pre-Treatment System utilizes a flame treatment technique as well as a spraying system for the water-based MagiCoat® Primer. Boasting eight individually-rotating systems, each item is flame-treated to eliminate debris and coatings - thus achieving a smoother, sleeker adhesion result. It also offers a variable mist system to uniformly spray each glassware piece with MagiCoat® Primer, so enabling up to 200 residential washes and up to 600 industrial washes.

INNOVATIVE PRINT TECHNIQUES

The Helix® cylindrical printers line is well-known for its offer of numerous innovative print techniques for glass applications. In primis, full coverage printing is the ability to print on the entire length of a straight or tapered piece of drinkware - from tip to bottom as well as 360° all around. Moreover, the Helix® offers mirror print - a technique resulting in a 'mirror image' from both the inside and the outside. Especially important for glassware and other clear vessels, this feature affords consumers the possibility to see white behind the artwork rather than the same amazing multi-coloured graphic on the front. Here, just mirroring print on its own greatly enhances the quality of the piece.

Tone-on-tone, contour print

and photorealistic printing are three other revolutionary printing techniques available to Helix® operators. Tone-on-tone mimics an embossed look by utilizing varnish without any colour to enhance the glassware piece. Contour print creates a 3D look and feel by layering ink. Finally, all Helix® cylindrical printers offer photorealistic print capabilities by using an additional two colours of ink, namely light cyan and light magenta, which will jointly achieve beautiful prints that can capture both true skin tones and smooth gradients.

ENDLESS PRINTING APPLICATIONS

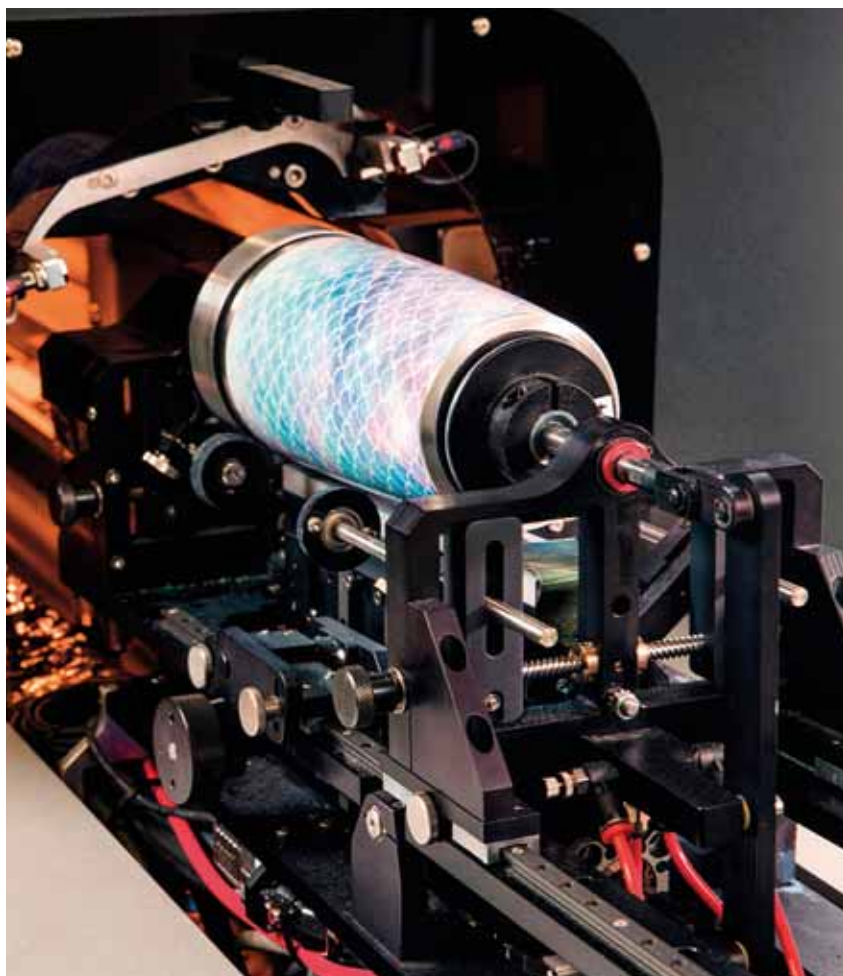
The Helix® machines allow for printing on a wide variety of products and vessels. For glass decorators, the ability to offer a wide selection of drinkware can

be a great differentiator. Thanks to recent upgrades, the Helix® line is able to accommodate glassware that ranges from assorted shot glasses to pint glasses to beer bottles to wine tumblers to wine bottles to growlers. For decorators printing on glassware and other substrates, adjustments to the Helix® machine will render it sufficiently flexible to switch from glass to stainless to coated metals.

UP AND COMING MARKET TRENDS

Among the more prominent emerging market trends is the demand for supply chain transparency. Today's consumer aims to be aware of the entire process- from sourcing to delivery. Environmentally-friendly alternatives are preferred and our planets' future is hugely important. For these businesses a quick and easy printing machine for ever evolving information is a necessity, which also explains why storytelling will become ever more necessary for future purchases.

In sum, Inkcups Helix® machines are not only high-performance, but they also create high quality images on a variety of product types and substrates. A fast and reliable print-on-demand solution for e-commerce companies and independent producers, Helix® machines permit everyone in the market to differentiate their brand while appealing to a wide range of purchase occasions as they increase profit margins with exceptionally-decorated glass products. ■



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INDUSTRY SUSTAINABILITY

GLASS FUTURES and EME partner for a greener planet

Thanks to innovative technology provided by EME, global centre of excellence GLASS FUTURES is about to start installing capital process equipment to build its brand-new industry hub for R&D, innovation and training - all with the aim of eliminating carbon emissions from mass glass production.



Installation work is due to begin for Glass Futures' capital process equipment - a brand-new Global Centre of Excellence in St Helens, England. To discuss their plans for the exciting initiative, key project representatives met recently with EME, its contractor of choice, which is already hard at work with UK subcontractors as plans go ahead to install four huge silos at the site - all set for completion within 18 months.

PROJECT BACKGROUND AND EME INVOLVEMENT

At the meeting, EME Sales Director Dr Sebastian Woltz, responsible for the tendering phase of the project, explained: "I met and exchanged ideas with Glass Futures General Manager Aston Fuller during the Furnace Solution conference. It was then that I realised how the vision of installing such an R&D facility was entirely feasible. Indeed we were very happy to be awarded the engineering tender and we've been in continuous contact ever since."

Peter Liggett, Capital Projects Manager for Glass Futures, added:

"We established a basic design specification that was used as part of a tendering process for the detailed design of the batch plant."

Liggett went on to describe how Glass Futures approached a number of well-known companies that are familiar with both materials handling technology and batch design and installation, specifically noting that EME was successful at completing the detailed design which was then used as the technical specification for the public procurement contract to supply and install the batch plant.

SEEKING THE RIGHT PARTNER

Liggett said that Glass Futures is essentially a collaborative effort that includes commercial glass making companies among its

members, as well as end users of glass products. For this reason it's funded by government money and, as such, follows public procurement regulations for assigning contracts. Describing the synergy between EME and Glass Futures, he explained how the two are working together to improve the running of the process - jointly ensuring that the cost of activities are being well-managed while keeping in mind the high level of flexibility they both seek to achieve.

ANTICIPATED CHALLENGES

Here Woltz identified the main challenge being a need for flexibility, so that potential new technologies during or after the project could be integrated into the batch plant. Said Woltz: "This is why



Grant Bailey



Peter Liggett



Sebastian Woltz



INDUSTRY SUSTAINABILITY

we created a very flexible design that's upgradable and can be modernised at any time." As Technical Director Grant Bailey, who is to lead the installation, explained further: "We've put a lot of focus on 3D technology, creating models, flows and process analysis. This is extremely important because the batch house is being integrated into a mixed-use warehouse facility." Bailey went on to recount how they needed to consider pre-existing designs from other suppliers that would have to integrate with the equipment while not compromising on the operational and functional requirements of the facility.

ALLOWANCES MADE FOR TACKLING CHALLENGES

Said Bailey: "We believe we were selected because we're able to adapt and accommodate the challenges along the way. We spent a lot of time focusing on the needs of the industry from a technical and safety standpoint - really focusing on where we would see batch plants in the future."

Here Woltz added: "During the tendering phase, we contacted a lot of British sub-suppliers and chose two companies. One is for the secondary steel - they will install our equipment together with our supervisors. We also have a British partner who will make the electric installation and connect cabling with our cabinets."

CHOOSING EME AS BATCH HOUSE SUPPLIER

Liggett explained that each tender was asked how they'd apply quality control to the process and manage the contract. Answers from the evaluation were given a scoring matrix, with EME's tallying the highest. He said Glass Futures had built a great relationship with EME - describing how, right from the beginning, the understanding from the engineering group had matched Glass Futures' own ambition to look at the best ways to provide facilities with what they needed. In Liggett's

own words: "They approached the project with an open mind, which is why we've been able to work together to identify the correct solutions." Said Bailey: "EME works globally. We have more than 20 projects at any one time anywhere in the world. Based on this we have vast experience in finding local partners and local resources to deliver projects in different countries."

EQUIPMENT SUPPLY FOR THE PROJECT

Bailey explained that EME will be supplying the batch house on a turnkey basis - supplying building infrastructure where equipment will be mounted and housed in access platforms, as well as installation services. It will also conduct control system training while supporting staff during start-up.

PROJECT TIMELINE

As to questions concerning the overall project timeline, Woltz clarifies that the furnace will be heated up in mid-2023 though the batch plant will be commissioned beforehand, with the installation of secondary steel in October of this year and equipment installation starting in early 2023.

THE IMPACT OF GLASS FUTURES UPON THE INDUSTRY

Concerning the importance of Glass Futures for the industry at large, Woltz observed that "the glass industry is very traditional and conservative," which led him to opine that "it's always hard to convince manufacturers to install new equipment and technologies." By that

reasoning he spoke of seeing the initiative as beneficial for the whole glass world, stressing how it marks a unique opportunity to test new ideas - also for the younger generation, which, said Woltz, can be educated and trained there.

As Liggett corroborated: "What Glass Futures is trying to provide is an extremely flexible platform where we can try new materials, different compositions, new forms of energy and new ways of operating the plant." He concluded by underscoring the shared target of Glass Futures and EME, which is to take the commercial glassmaking world towards a position where glass can be generated with a low carbon footprint as well as high levels of energy efficiency, flexibility and adaptability. ■



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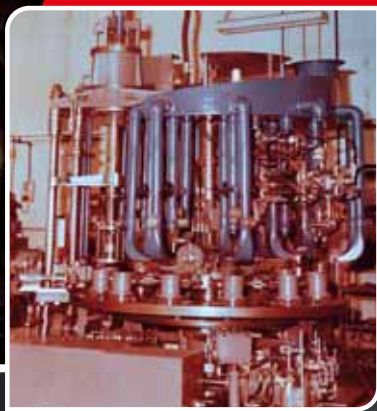
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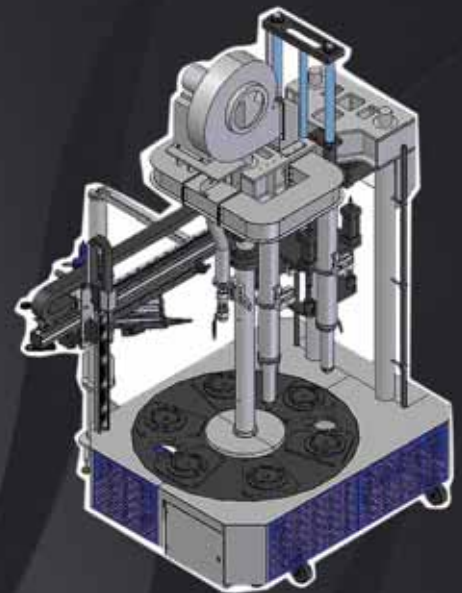
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Pharmaceuticals drive JAPAN's rising demand for container glass

Rajeev Jetley

Against the backdrop of a country enjoying its longest sustained period of growth in over a decade, the pharma industry in Japan is the world's third largest - driven by an aging population and broad access to healthcare. However, with over 100 domestic pharma companies, its pharmaceutical market is very fragmented.

THE DEMOGRAPHY OF DEMAND

According to the Annual Pharmaceutical Production Statistics of the Ministry of Health,

With JAPAN numbered among the largest pharmaceutical markets in Asian countries, Glass Machinery Plants & Accessories presents an overview here of the country's container glass market, which accounts for a large share of its pharmaceutical packaging industry.





Labour and Welfare (MHLW), the Japanese market for prescription and non-prescription pharmaceuticals was at USD 107 billion in 2020 - which, in yen terms, is down 0.7 percent from 2019.

With a population of more than 125 million -which makes it the tenth most populous country in the world- demographics too are shaping the Japanese pharma industry. Life expectancy is now at 85 years, and the population

has declined and aged over the last few decades due to low birth and migration rates.

Indeed it's mostly due to the aging population that pharmacy dispensing costs currently account for JPY 7.6 trillion in steadily increasing national healthcare costs. Here, pharmaceutical market reform is listed among the various government attempts to reduce consumer health care costs. It has seen reforms instituted over the past several years which involve new approaches to controlling drug prices and encouraging the development and use of generic and biosimilar drugs. In the realm of hematology treatment, where pharmaceuticals can be very expensive, this should be a positive development for patients - even if some lament that price-control efforts could stifle the innovation for which Japan is so well-known.

Among the biggest changes for pharmaceutical packaging in Japan was the 2014 revision of its keystone pharmaceutical legislation for pharmaceutical

and medical devices, renamed the PMD Act. Japanese authorities now claim that certain drug approvals in the country are faster today than in both Europe and USA - a marked change from the days when Japan was seen as a difficult market for foreign companies. In 2014, the government also introduced punitive pricing measures targeting long-listed drugs that continue to maintain market share despite the availability of generics. Under what's known as the "Z2" rule, pricing for long-listed products is reduced by up to 2 percent every two years, in addition to cuts made under the R-Zone rule in cases where generic replacement rates for that brand fail to reach 60 percent following five years of the first generic listing.

THE PHARMACEUTICAL PACKAGING CONTAINER GLASS INDUSTRY

Seven container glass producers account for the bulk of current Japanese pharmaceutical glass output - four of which are domestic while the remaining three are foreign.



COUNTRY STUDY

NIHON YAMAMURA

Nihon Yamamura Glass is one of the largest container glass producers in Japan. With three strategically-located production plants in Tokyo, Saitama and Harima, the company is a leading supplier of glass containers to the country's food, beverages and pharmaceutical industries. Nihon Yamamura's major focus is on container glass for the beverage industry, though the company is also among the country's leading pharmaceutical glass producers.

NIPRO PHARMA PACKAGING

Established in 1954, Nipro Pharma Packaging is part of Nipro Corporation Japan. As a leading global healthcare company with over 33,000 employees worldwide, it serves the Pharmaceutical, Medical Device, and Pharma Packaging Industries respectively.

The company operates a production plant at Biwako within the Shiga prefecture which was established in 2014 and produces prefillable syringes as well as glass vials for Japanese pharmaceutical companies.

Nipro's pharmaceutical glass products are made of the borosilicate glass (hard glass) that's based on the Japanese Pharmacopoeia. Its limited amount of alkaline elution (with a PH level that's near-neutral) helps the chemical change of the contents, which is hard to attain. It has both superior heat and impact resistance. In addition, it gives high transparency and outer diameter uniformity as well as thickness - thereby ensuring a constantly-fillable volume.


Vials are available with a capacity ranging from 0.5mL to 240mL and can be produced in



small-scale production lots. The portfolio covers various vial types, i.e. standard, screw, straight and flare, etc. Ampoules, trusted for their excellent hermeticity, can be produced in a capacity ranging from 1 ml to 100 ml.

Nipro distributes glass tubes made by NEG (Nippon Electric Glass Co. Ltd). It enjoys a good reputation thanks to its reliable manufacturing technology accu-





mulated over many years as well as its state-of-the-art manufacturing equipment and complete quality control.

In May 2021, Nipro Pharma Packaging acquired Croatian company Piramida - a manufacturer of glass packaging for the pharmaceutical industry.

Established in 1950 and operating out of Sesvete near the Croatian capital Zagreb, Piramida produced more than half a billion ampoules and bottles for the pharmaceutical industry in 2020. The company is ranked among the top five largest ampoule manufacturers for the pharmaceutical industry in the European market.

With an outstanding market position in the Central European Territory, alongside an impeccable reputation coupled with sound and strong customer relationships, Piramida is a very

important asset to Nipro's future and ambitious growth plans. Pharmaceutical glass packaging plays a crucial role in today's challenging world, especially in the wake of the COVID-19 pandemic and the increased production of vaccines.

"We want to continue to build excellent customer relationships and become the preferred strategic partner to many pharmaceutical companies," said Stephan Arnold, CEO of Nipro PharmaPackaging International.

JAPAN GLASS INDUSTRY CO. LTD

Japan Glass Industry Co. Ltd has been offering exceptionally safe medical containers - contributing to people's health and happiness ever since its founding in 1920. In order to maintain the highest quality as a compa-

ny engaged in the medical field, DMF was filed with the FDA in 1991 and a ISO 9002 certificate of approval was obtained in 1996 -the first in Japan- for ampoule and vial manufacturers.

Abbott Diagnostics Medical Co. Ltd, Astellas Pharma Inc., Bristol-Myers Squibb Co. Ltd., Daiichi Sankyo Co. Ltd, KYOWA CritiCare Co. Ltd, Kaken Pharmaceutical Co. Ltd, Kyokuto Pharmaceutical Industrial Co. Ltd, Mochida Pharmaceutical Co. Ltd, Nihon Pharmaceutical Co. Ltd. Nipro Corporation, Sato Pharmaceutical Co. Ltd and Toa Pharmaceutical Co. Ltd are just some of the pharmaceutical glass containers consumers of Japan Glass Industry Company.

SHIATONI GLASS COMPANY LTD

Established in 1930 at Nakatsu in Osaka to supply pharmaceutical glass to Japan's pharmaceutical companies, Shiatoni Glass is one of the leading pharmaceutical glass producers in Japan.

NAGAI GLASS COMPANY

Osaka based Nagai Glass Company has been active in pharmaceutical glass production since 1952. According to Nagai Glass' Keisuke Muratsu, "We have built the foundation of today through the establishment and development of mass production of one-point-cut ampoules and vials since the company was set up in 1951. With rapid subsequent innovation of technology, we've developed a lot of our own original forming machine and testing equipment and built up our sales performance by providing high-quality products. In recent years we've been working on the globalization of procurement of raw material, together with borosilicate glass from the world's major manufacturers. This fulfilled a system which meets a wide variety of customer needs."



COUNTRY STUDY

DAIWA SPECIAL GLASS COMPANY

Niitaka Factory, which is adjacent to the company's head office, is one of the company's two production facilities. Since its operation, it has consistently produced ampoules and tube bottles for injections and its technological accumulation for more than half a century is still continuing. In addition, the company meets cleaning bottle and surface treatment needs, such as silicone coating and sulfur treatment. In 2009, the company obtained permission for the pharmaceutical manufacturing industry and the medical device manufacturing industry (packaging, labeling and storage), and in order to be contracted by a pharmaceutical company it refurbished the Niitaka factory.

Since 2008, the production line for tube bottles has been relocated to Ichishima and is

now company's main factory that produces most of the products. In February 2008, the company started operations and started production of tube bottles. Under a manufacturing environment that incorporates the idea of GMP, Daiwa Special Glass has built a production line that pursues thorough automation and efficiency while stably producing high-quality tube bottles.

STEVANATO GROUP

In 2018, Stevanato Group -through its specialist in glass primary packaging for the pharmaceutical industry Ompi- opened a commercial office in Nagoya, Japan. Ompi provides a wide range of glass primary packaging solutions ranging from bulk to EZ-fill® sterile solutions to analytical consultancy aimed at guaranteeing the integrity of parenteral medi-

cines. Here, expansion in Asia strengthens the unique market positioning that Ompi already enjoys within the sterile glass primary packaging market after the launch of its RTU product portfolio in 2007.

"Ompi's presence in Japan will be essential in responding to the highly-demanding requirements of the Japanese pharmaceutical industry that have always challenged glass primary packaging manufacturers to provide innovative and high-quality containers," says Andrea Zambon, President of Ompi Japan. "Ompi wants to be closer to its clients and to become the preferred partner for pharmaceutical companies - not only for generic drugs, which the Japanese government is looking to increase, but also for biologic drugs that are likely to experience some fast growth over the coming years." ■



Customized Package Decoration: art and science working beautifully together

In the United States alone, there are many glass packaging companies dedicated to designing and creating custom containers for food, drinks, cosmetics and perfumes. For this issue, Glass Machinery Plants & Accessories presents a showcase for some of those companies along with a brief overview of what each service can offer clients.



Glass packaging is experiencing something akin to a renewed renaissance period thanks to the industry-wide marketing effort that has firmly established the infinite recyclability of glass in the minds of consumers. But within the industries of food, beverages, wine, spirits, cosmetics and perfumes, there is another aspect that should be promoted just as strongly: the infinite creativity found within the mouldable nature of the material. Any shape a designer can imagine can be made, given the proper equipment and experience, and today's glass packaging manufacturers have both in abundance.

In the past, it was enough to simply form a bottle or jar, apply a label and send the package out to be filled. But today's market is more demanding, and clients are asking for more changes in the shapes of their packaging as well as requesting more complex decoration options. This makes sense, as in today's markets, the package shouldn't just deliver the product to consumers. A package should also convey ideas about the product within, and the company that produces it.

In the United States, there are many companies who have stepped up to offer custom services meeting the most demanding needs from clients, in some cases offering services that are unique to themselves. Each are collectives of shared technical expertise and artistic creativity, forging tomorrow's designs to capture the eyes of consumers (and perhaps in some cases, their hearts as well).

Before covering the companies and their specialized services, it might help to understand what are some of the more commonly available options from the majority of the package makers.

SCREEN PRINTING

Often considered more viable for flat surfaces, modern screen

printing techniques can allow for applying paints directly to round bottles or jars. Many services can even wrap the entire package in a single screen printing pass, and some can even apply several colours to create stunning full-wrap effects. The techniques can be as simple as a single pass to create a "clear label," or complex enough to become a veritable work of art.

SPRAY OR DIGITAL PRINTING

Using a variety of ceramic and acrylic paints, semi-transparent inks or even metallic paints, the range of printing directly on glass packaging is vast. Everything from a full colour label to a fully covered package are possible, and with a high degree of image accuracy from one package to the next. Whether spray painted or digitally printed, these techniques offer clients flexibility, fast prototyping, and superb final results.

PAD PRINTING

Pad printing technology features a stamping "cup" that first dips into an ink pool, and then moves to transfer the ink or paint onto the surface of the package. This differs from screen printing, where the paint is forced through a screen and injected onto the surface. Pad printing is more complex, but offers more accurate application on packages with unusual shapes. With the right machinery, packages can be stamped with many colours to create stunning effects, and with accurate placement every time.

GLUING AND ASSEMBLING

Medallions, plaques, or rubber or plastic label elements can add eye catching details to any package. A stylish family crest or a raised logo can also add a tactile appeal to the product, inviting consumers to reach out and touch the raised element. These kinds of glued elements can be affixed to an embossed flat or inset area of the

packaging, or glued directly to a rounded stock model, usually with pinpoint accuracy.

LABELLING

With all these flairs of style, sometimes all a package needs is a simple label. Even for products with more premium elements on the front, sometimes a back label can convey more information without the need for visual flourishes. In these cases, every service has the ability to fit and attach labels with perfect alignment and no bubbles or wrinkles.

STOCK BOTTLE CUSTOMIZATION

For clients looking for a package similar to a stock model but just slightly different, many services have an option to create a new mould. These modifications might include a longer or shorter neck, flared or concave sides, or a different opening to support a different cap or lid. The end result is a package that still bears some resemblance to a stock model, but with the client's own signature style added.

This is a basic list of services and techniques offered by the majority of the following manufacturers, though some offer more unique options, while others may not have all the services and are focused on their core competencies. With these definition explained, it is now time to present the manufacturers and take a closer look at what they can offer their clients.

BERGIN GLASS IMPRESSIONS



At first glance, Bergin seems to offer the fewest options for custom packaging, but that's not painting the full picture. The company does offer screen printing with stunning results, as well as



offering a full suite of product fulfilment options. All decorations begin with a consultation and design phase that helps clients get the package they've envisioned.

However, what really marks Bergin's productions as unique are their hand etched, hand painted and hand dressed bottles. This level of attention to detail ensures that every bottle is a genuine work of art, and according to Bergin's web site, their artisans can produce these amazing creation in a few as one bottle or ten thousand. This can be done on every size format from 375 millilitres up to 27 litres.



This exquisite bottle is an example of Bergin's high quality hand crafting

Further setting themselves apart from their competitors is the level of detail they offer in screen printing. The process can include up to seven colours, including precious metals like gold, platinum and copper, and designs can also be printed on the neck and shoulders. Designs can be printed all the way around the bottles, with the web site promoting the ability to bury the seams at the edges of the print within the design itself for a seamless appearance.



The next possible step to further enhance the product, whether screen printed or hand painted, is dressing the bottle. Why sully these works of art with a mere foil cap when they can be finished with an elegant wax seal? Or perhaps, the bottle can be blackened to appear full even after being emptied. This allows collectors to proudly display their empty bottles and further enhances their artistic value.

Finally, Bergin's fulfilment department can help design paper

label and capsule applications, supplying large format glass or anything else clients need to deliver the best experience possible. The company also offers custom packouts for each project, which may include assembling individual shippers, creating and applying warehouse or box code identification stickers, or shrink wrapping and palletizing cases for shipment to the warehouse.



For clients who are seeking a personalized artisanal touch, Bergin Glass Impressions is definitely worth more than a passing glance. Visit their web site to request a quote for custom projects.

Bergin Glass Impressions
451 Technology Way
Napa, CA 94558
<http://www.berginglass.com/>

VERESCENCE USA



CUSTOM GLASS PACKAGING

When it comes to Verescence's decoration abilities, instead of asking what can they do to customize a package, it might almost be easier to ask what they can't do. The company is known as a leader in the beauty industry and specializes in cosmetics and perfume bottles, but they also offer a selection of containers for wines and spirits. Looking at their selection of stock items is much like seeing the tip of an iceberg. It doesn't tell the full story of what they are capable of.



First is the variety of options to customize packages. Perhaps a client might ask for a special laser etched design to be added to the mould, creating raised embossing elements. Or perhaps they could elect to have the interior sculpted for an elegant presentation of the product. The glass might be treated before annealing to create an iridescent effect, or it could be coloured with frits to achieve many shades of red or orange. It can be made of premium flint glass, or with Verre Infini®, which the company calls "the first premium recycled glass incorporating 40 percent post consumer recycled glass."

Once the initial shape is set-

ted on, clients can choose how to decorate the package internally or externally, or both. Verescence offers interior colour coating compatible with fragrances and juices, which can be applied as translucent or opaque, pearlescent, bicolour or gradient, and this is just to cite a few examples. They can also coat the interior in metal, creating a mirror effect. They can apply lacquers to the interior or exterior with total or partial coverage, and in a wide variety of effects: iridescent, coloured, "soft touch," metallic, shiny, crackled and others.



Though known for their work with perfumes and cosmetics, Verescence is also working on lines of spirits bottles

Along with label application, Verescence offers screen printing and pad printing as well as hot stamping foils for metallic colours, hot transfers of multicoloured images on surfaces inaccessible to screen printing, acid etching, sand blasting and accessory fitting and gluing.

While the scope of this profile is highlighting Verescence USA, the company also operates in France, Spain and South Korea. Though their core competence

lies in perfumes and cosmetics, they can also be worth examining for makers of fine spirits.



Verescence USA
630 Third Avenue
16th Floor
New York, NY 10017
<https://www.verescence.com/>

DECOTECH



Dedicated to the perfumes and cosmetics industries, decotech's offered services are impressive. They include a graphic arts department, package design, turnkey glass procurement, in-house lab testing, quality certification and documentation, protective packaging design and sourcing and, obviously, package decoration.



Among the decorative techniques available, perhaps the most intriguing is their metallization option because decotech offers a new technology that allows for translucent finishes as well as gradient fades. The creative potential goes even further with options for multicolour gradients and opacity fades on the same package, as well as texturing such as crackling or water drops.

This level of detail in metallized packaging is visually mesmerizing, but the company also claims it is environmentally friendly thanks to a closed-loop waste management system. Waste generated by the system is returned to the material supplier and re-processed to create new raw materials.

Another unique option is masking, which can be used along with all the other available techniques to achieve phenomenal effects. For instance, a frosted and metallized bottle might have a portion of the front masked to create an area of pristine glass to grant a view of the contents, or the design can make both front and back to offer a see-through effect.



technique alone can create amazing results, but the company's artistic and technological expertise also grant clients the ability to mix and match these services for packaging that is guaranteed to stand out in a crowd of competitors.

Adding value to these services is decotech's offered reduction of a company's inventory and taking charge of vendor quality management. According to the company web site: "With our turnkey glass packaging services, our clients enjoy a customized, top-quality product with lower inventory costs, and reduced time-to-market. By working with Decotech, the only thing you will have to file under your inventory is the finished product."



An example of combining techniques, an organic gradient fade with a four colour silk screen print on the front

It's an impressive offer from an independent decorator that is also striving for eco-friendliness and adherence to higher quality standards for both their clients and employees. Companies looking for a new partner to work with on their perfume and cosmetics lines would be well advised to contact decotech for a consultation.

decotech
60 Cedar Lane
Englewood, NJ 07631
<https://decotech-inc.com/>

decotech can decorate packages with silk screen printing, pad printing, digital printing, hot stamping, spray coating, frosting, decalling, chromography, labelling and gluing added elements to the package. Each

PGP GLASS



With the broadest scope of packaging types, PGP Glass also has a wide range of decoration techniques to serve the specialty liquors, food, drink, cosmetic and pharmaceutical industries. As a part of Piramal Glass Private Limited, PGP Glass USA is one part of a vast network of glass experts who have a collective experience for all types of glass packaging. What's more, because PGP Glass operates both a glass factory and a decoration centre, they are capable of customizing stock moulds to tailor packaging solutions to every client's needs. This can include etching the moulds to add embossed effects, so even before proper decoration begins, clients can find a cost effective way to create packaging that is distinctly theirs.



CUSTOM GLASS PACKAGING

For clients in the pharmaceutical industry, PGP Glass can add PVC coating to packages for product safety applications. These can be applied to packages in a variety of shapes and sizes, and in a wide range of colours. They can be made translucent or opaque and can be decorated with pearlized or metallic fleck effects.



Across all industries, PGP Glass offers a complete suite of decoration options like screen printing, spray coating, ink transfers, decals, pressure sensitive labelling and assembly and gluing of added elements. As with other services in this showcase, clients can request combined techniques to further customize their decorations. An organic gradient spray paint combined with a metallic hot stamping? Sure, why not? Frosted spray with screen printing and a glued medallion? Let your imagination run wild.



These custom perfume bottles show how combined techniques can enhance any product

Once the perfect package for a client's product has been achieved, PGP Glass is ready to put in the extra work on custom shipping containers. They offer a range of packing options for six, twelve, twenty-four or more products, as well as a range of paper finishes, like glossy, mottled white, litho and others. Why send your gorgeously crafted product in a boring brown box when you can enhance the shipping container as well?



The focus of these profiles are on US facilities, but it bears pointing out that Piramal Glass has facilities in India and Sri Lanka as well, and each facility boasts a dazzling array of services and techniques. So whether you are an American producer of goods or an international corporation, PGP Glass is worth taking some time to research for new product packages.

PGP Glass
329 Herrod Blvd
Dayton, NJ 08810
<https://piramalglassusa.com/>

SRI CUSTOM GLASS DECORATOR



According to SRI's web site, "We craft eye-catching packaging décor in the food, beverage, cosmetic brands and candle ware." Should visitors expect to find samples of anything else on the site beside customized spirits and wine bottles, they'll be disappointed. But arranging a consultation should clear up questions that clients in any of the listed industries might have.

Like other companies in this showcase, SRI Custom Glass Decorator aims to be a full service solution to each client. They have a dedicated quality assurance department, a CNC shop for custom tooling, an art department for pre-press graphics work, and a group of craftsmen and craftswomen on board for product prototyping. The company boasts that it can trace every package they decorate from door to door, right down to the individual bottle.



Limited Edition bottles using a stunning screen-printed technique

With two locations in the United States (the HQ is in Ohio, with another facility in Georgia), they should also appeal to clients looking to lower the carbon footprints of their products by minimizing the distance between their packaging decorator and product filling facilities.



Obviously clients can expect to have their packaging modified with extra tooling or embossment, and from there, SRI has a full suite of techniques that can be mixed and matched to create the perfect packaging solution. They can use screen printing with partial coverage or full wraps, spray coating, spray frosting, labelling or shrink sleeving.

It cannot be overstated how the mixing of techniques can elevate a package from interesting to irresistible, so consider this project from Tenure England vodka, which combines frosting effects on the top and bottom of the bottle with a screen printed label on the front and a spray-coated image of a castle on the back that can be viewed through the vodka. Consumers poring over their many spirits options will immediately be drawn to this exquisite design, and as the maxim goes, “we taste first with our eyes.”



In a way, it’s unfair to just list what decorators can do based on a list from their site. Site A has more options, so site B must be lacking. In this manner, it’s hard to convey the dedication of the people behind that site, or the lengths they will go to make a client happy. SRI Custom Glass Decorator has a lot to offer, and should be contacted to show how far they can go for every client, big or small.

*SRI Custom Glass Decorator
SRI Ohio Inc.*

*1061 Mill Park Drive,
Lancaster, Ohio 43130
www.serigraphierichford.com/*

MONVERA



Though the main page of Monvera’s site claims the company specializes in decorating wine and spirits bottles, they also decorate food and cosmetics jars as well as pharmaceutical tubes and vials. Their real area of specialization is in screen printing, and their artists are capable of creating bold, attention grabbing designs for just about any product.

In addition to screen printing, they also offer UV and Pad printing. Designs can be printed on the

shoulders and necks of bottles, and the option for full wrap printing is available. Screen printing can be applied around the corners of square packages, and designs can have up to six colours.



Vivid colour combinations help these Almanac beers stand out on the shelves

According to the site: “Applied Ceramic Labels (ACL) are actually baked into the surface of the glass for a label as durable as the bottle itself – and a look that really stands out on store shelves.”

With emission reduction becoming a driving factor for more manufacturers, clients on the West Coast could be interested in buying locally to reduce carbon output in the delivery process, and Monvera’s Richmond, CA and Napa, CA locations make them convenient and fast.



CUSTOM GLASS PACKAGING

Clients interested in learning more about the company can visit the site to request more information, or to book a tour to see the printing process in person.

While it is true that Monvera doesn't have the diversity of techniques of other companies in this showcase, the client looking for specialized screen printing can find a knowledgeable staff with a track record of proven successes in two convenient locations. Their expertise might be just what your package design needs, so contact them for more information.



Monvera
2791 Napa Valley Corporate Drive
Napa, CA 94558
<http://www.monvera.com/>

MEPCO DECO

MEPCO
DECO

The Mepco web site boasts fast turnaround thanks to its 30,000 square foot, New Jersey-based facility hosting the latest technology for screen printing, hot stamping, banding, pad printing and labelling. They can work on a wide variety of packaging types and materials, and have over thirty years of experience in the business of customized containers.

Among their suite of decoration options, the company promotes the use of ultra-clear labels to achieve the look of screen printing with a lower investment cost. These decorations can be produced in smaller initial numbers, and ordered again should the need arise. This kind of solution is best for someone using the same package for multiple products, such as a small vineyard or a microbrewery.



Using just two colours, the screen print for Kanpeki vodka creates an elegant charm

The web site shares details of their history: "When the high-end cosmetics industry started to grow, it was no surprise that Mepco said 'yes' to new challenging projects from innovative brands, many of whom had been turned down by the competition. Seeing the

opportunity the cosmetics industry represented, Mepco recruited a luxury cosmetics packaging expert to lead a new division of the company focused on beauty products. Mepco also made a substantial investment in new equipment to provide specialty UV finishes and custom-designed in-house presses. With expanded capabilities, specialization in niche products became the driving force behind Mepco continued success."



This kind of commitment to investing in a new market also shows the company's confidence to tackle new projects or fields that other decorators might reject for being outside their range of services. They also maintain the ideal "no job too small or large," so they could be the



right choice for a small startup business or a large corporation.

Mepco Deco

510 Ryerson Road

Lincoln Park, NJ, 07035

www.mepcodeco.com/

O-I EXPRESSIONS

O-I: EXPRESSIONS



O-I Expressions was covered two years ago as a startup with an idea that was simple, yet game changing: Digital printing and custom embossing in small batch numbers, even as low as one bottle. To be sure, with the backing of industry giant O-I, larger businesses and corporations can also stand to benefit from the technology for larger batches, and with many locations to ensure a reduced carbon footprint during shipping.

O-I Expressions also has a large catalogue of available bottles and food packages to begin the design process

with, and they offer some truly unique services not found anywhere else. A client looking to prototype new designs could request six designs on the same bottle type, and receive just those six bottles. That's the whole job, done quickly, and at a far lower cost than most package makers would charge for the same task.



Something else that sets O-I Expressions apart is their embossing services. They can make full wrap patterns, use multiple embossing designs in the same package run

and do all this at industrial printing speeds. This level of detail and the speed of delivery would already seem incredible before considering that this service is also available for micro-batch or limited edition products.

The quality and artistry that goes into every package has to be seen to be fully understood, so be sure to visit the company's web site to browse a curated collection of their satisfied clients, download a PDF, or schedule a consultation.



Bacardi's limited edition designs feature full-colour digital prints and striking embossing on the shoulders, front and back of the bottle

O-I Expressions

One Michael Owens Way

Perrysburg, Ohio, 43551

<https://discoverexpressions.com/en/>



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1989

Glass-Technology
International

GLASS-TECHNOLOGY INTERNATIONAL is the leading international magazine for professionals involved in the flat and bent glass industry, from building to automotive, and from furniture to household appliances. **G-TI** is useful for those working in float glass plants as well as glass processors/fabricators, glazing contractors, automotive glass installers, window and door manufacturers, glass merchants, wholesalers, etc. With about 100 pages per issue, it is the bi-monthly tool for keeping abreast of new technology, new products, company life and all innovations in the world of flat and bent glass.

Annual Guides



1990

Glass Industry
Directory 2021

The **GLASS INDUSTRY DIRECTORY** is a unique international annual guide which gives a complete overview of international glassworks and suppliers involved in hollowware and special glass manufacturing. About 300 pages of complete company profiles: addresses, management, sister companies, plants, number of employees, turnover, banks, year of company foundation, capital, trademarks, areas of activity, innovations, product-by-product and country-by-country breakdowns. The **GLASS INDUSTRY DIRECTORY** is the annual reference point for the international glass manufacturing industry comprising bottles and containers, domestic glassware, tubing, vials and ampoules, lighting glassware, technical and industrial glassware, scientific, laboratory and medical glassware and much more.



2013

FLATGLASS
2022 world directory

The **FLAT GLASS WORLD DIRECTORY** is a unique international annual guide providing a complete overview of glassworks and suppliers for the flat glass sector. More than 150 pages of company profiles and information about worldwide glassmakers, glass processors and suppliers, including addresses, management, sister companies, plants, number of employees, turnover, banks, year of company foundation, capital, trademarks, areas of activity, innovations, sales network, exhibitions, and, of course, interactivity in digital format, make the **FLAT GLASS WORLD DIRECTORY** the annual reference point for the international flat glass industry.

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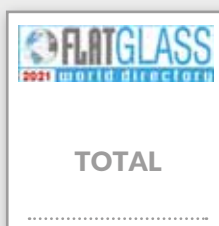
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Horn

TECO Group

TRAY FORMERS

EMS Group

TOOLS & EQUIPMENT

Bottero

Luben Glass

TUBING LINES

Falorni Tech

Olivotto Glass Technologies

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

VACUUM PUMPS

Pneumofore

VIAL AFTER - FORMING MACHINES/LINES

Euromatic

KYP Accesories

Moderne Mecanique

OCMI OTG

Spami-Optrel-Stevanato

Group

VIAL FORMING MACHINES/LINES

Euromatic

Moderne Mecanique

OCMI OTG

Spami-Optrel-Stevanato

Group

VIAL PACKAGING MACHINES

Euromatic

KYP Accesories

Moderne Mecanique

OCMI OTG

Spami-Optrel-Stevanato

Group

VIBRATING EQUIPMENT

EME

Forglass

Vetromeccanica

ZIPPE

WASTE GAS CLEANING SYSTEMS

BDF Industries

Stara Glass

WASTE GASES DUCT WORKS AND VALVES CLEANING SYSTEMS

BDF Industries

WATER CLEANING SYSTEMS

BDF Industries

Forglass

Graphoidal Developments

Luben Glass

Stara Glass

ZIPPE

WATER COOLING SYSTEMS

Bock Energietechnik



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