# glass machinery world plants&accessories

BI-MONTHLY INTERNATIONAL MAGAZINE FOR GLASS MANUFACTURING

YEAR 35 • ISSUE NO. 3/2022




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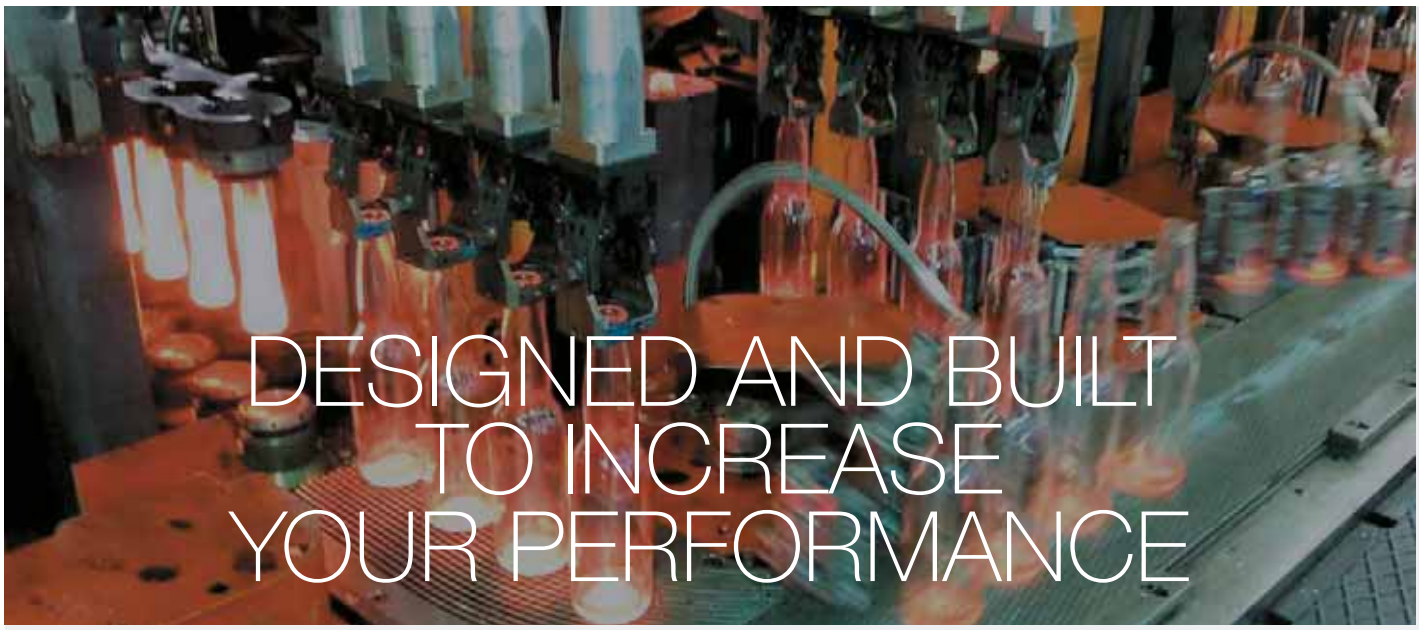

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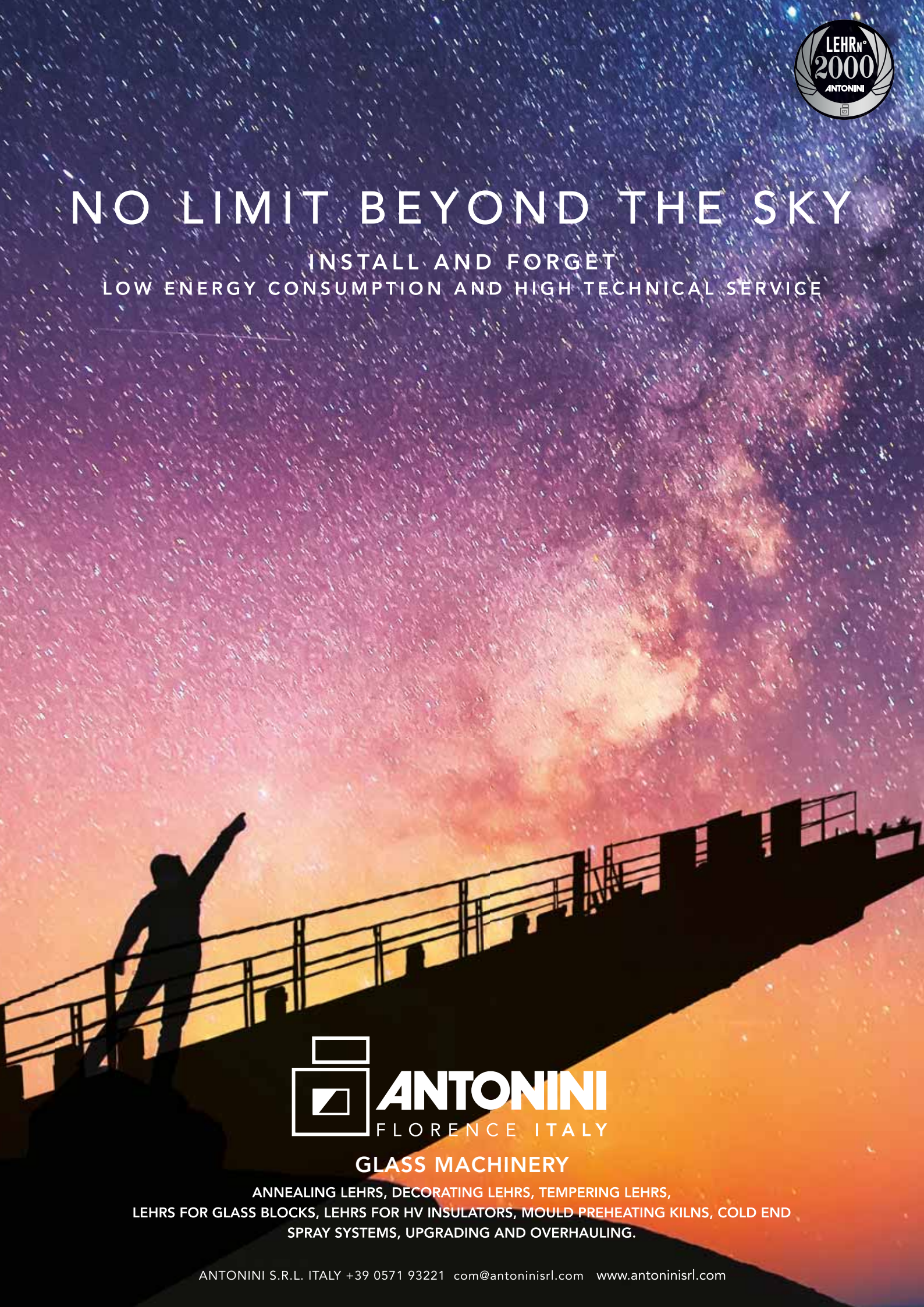
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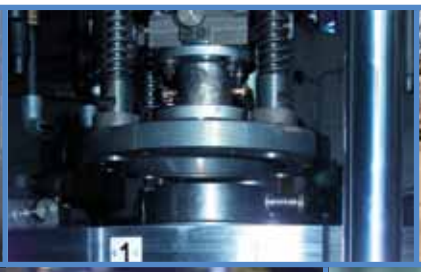




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# 2022 FAIR CALENDAR

The magazine will be distributed at the following Trade Fairs

| issue | exhibition/conference | date | venue | deadlines |
|---|---|---|---|---|
| 2022 **1** | GLASSMAN ASIA | postponed to 2023 | SEOUL South Korea | Editorial files: 14-01-2022 |
| | GLASSPEX INDIA | postponed to 2023 | MUMBAI India | Deadline Adv files: 21-01-2022 |
| | 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 |
| | XXXIV INT'L ATIV CONFERENCE | 16-17 June | PARMA Italy | |
| | ICG ANNUAL CONFERENCE | 3-8 June | BERLIN Germany | |
| 2022 | Glass Industry Directory — NEW CONTENTS | | | Editorial files: 06-06-2022 Deadline Adv files: 20-06-2022 |
| 2022 **5** | GLASSTEC | 20-23 September | DUSSELDORF Germany | Editorial files: 18-07-2022 Deadline Adv files: 25-07-2022 |
| | ALL GLASSTEC EXHIBITORS ADVERTISING IN THIS ISSUE ALSO RECEIVE A FREE GLASSTEC PREVIEW | | | |
| 2022 **6** | INTERNATIONAL YEAR OF GLASS 2022 | | SPECIAL ISSUE | Editorial files: 01-10-2022 Deadline Adv files: 8-10-2022 |
| | AFGM | date to be announced | Thailand | |
| | CONFERENCE ON GLASS PROBLEMS | 31 October - 3 November | COLUMBUS (OH) USA | |
| | ALL4PACK EMBALLAGE | 21-24 November | PARIS VILLEPINTE France | |

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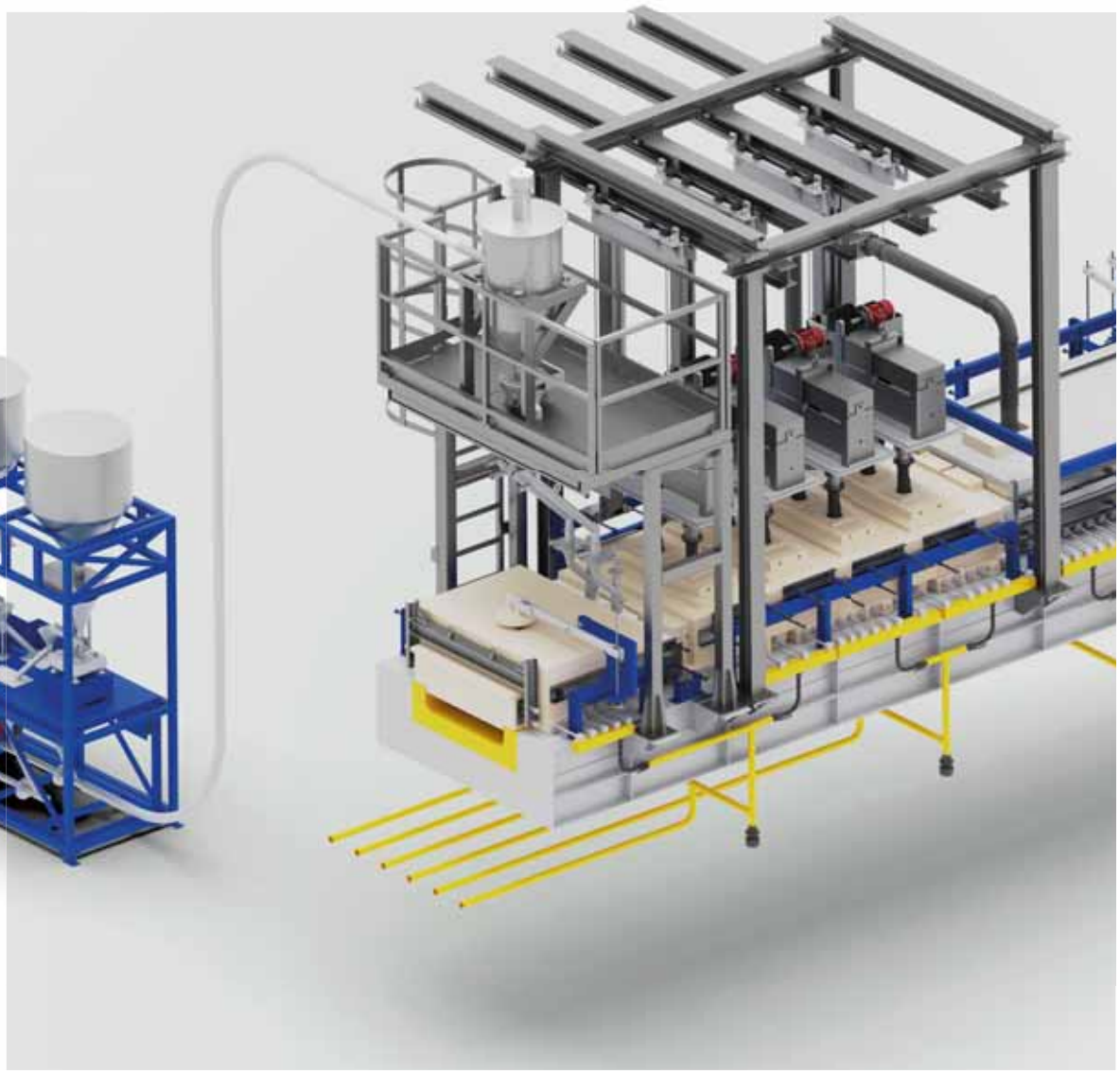

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VIDRALA

# A commitment to a future of glass with Glass Hallmark

Leading European glass producer **Vidrala** is one of the first glass packaging manufacturers to make use of FEVE's new Glass Hallmark on its bottles. The symbol has been created by the European Container Glass Federation to champion the benefits of glass while encouraging better recycling levels across the continent.

Through its Encirc plant in Derrylin Northern Ireland, Vidrala has been able to emboss its 75cl BD glass bottles with the seal. By communicating the infinitely recyclable and reusable nature of glass on the bottles themselves, the Glass Hallmark symbolises a commitment to create a sustainable future using glass. This aligns closely with Vidrala's Glass Made Good sustainability strategy.

FEVE has set its sights on Europe achieving a 90 percent glass recycling rate by 2030 – an increase of 14 percent from 2019. It is hoped the Glass Hallmark will play a key role in reaching this goal, with the symbol reminding people to recycle their containers.

Fiacre O'Donnell, Director of Sustainability at Vidrala, said, "Although it is one of the oldest materials, we believe, along with FEVE, that glass is the sustainable packaging choice of the future. With 2022 being the UN's International Year of Glass, now is the perfect time to champion its incredible benefits; from its recyclability capabilities, to its health advantages and its ability to keep produce fresher for longer.

"Increasing the amount of glass being recycled is a vital step towards creating a truly circular economy in packaging, and initiatives and the Glass Hallmark give us a unique opportunity to remind consumers to recycle their glass on the bottle itself."

WWW.VIDRALA.COM/EN

FEVE

# Articulating the risks of energy shortage

Security of energy supply (and in particular natural gas) has recently deteriorated in the EU. The causes here are known: the current Ukrainian crisis, low stocks of natural gas in the EU at the beginning of the winter period, the reduction of domestic production in some EU member states (e.g. the Netherlands) and booming Asian demand after the COVID pandemic. All these factors combined makes it not unimaginable to envisage supply shortages today - together with all deleterious associations in terms of effects upon the EU economy.

A recent paper published by **FEVE** (European Container Glass Federation) seeks to inform decision-makers about the consequences of an energy cut (in particular disrupted natural gas supply) within the container glass industry and its value chain. The Federation also calls for constructive dialogue with decision-makers in the event of a possible disruption of natural gas supply to industrial sectors.

HTTPS://FEVE.ORG/

SCHOTT

# Syringe production in Hungary expands

In light of the growing demand for drug delivery solutions, the international technology group **SCHOTT** is again investing in its pharma business: the company is planning to build an entirely new production for high-quality pre-fillable glass syringes (PFS) in Hungary.

"The added capacity will greatly benefit the global market and strengthen supply security for major pharmaceutical companies and contract manufacturing organizations," said Andreas Reisse, Executive Vice President of Schott's Pharma business unit. The double-digit million Euro amount has been supported by local government to circa EUR nine million (HUF 3,321 billion). The expansion is scheduled for completion in 2024 and is designed to create 120 new jobs.

The drug containment and delivery solution is an integral part of every medication. Typically, a new drug enters the market in a vial and a single-use syringe is used to extract and administer it. In the mid-to-long term, these drugs may be stored in syringes that are pre-filled with the medication. This simplifies the injection process for healthcare workers and increases dosing accuracy for the patient, as the syringe is already prepared.

"High-quality pre-fillable syringes are designed to ease the administration process, ultimately enhancing patient safety," explained Christian Helbig, Head of Glass Syringes at Schott's Pharma business unit. "Our borosilicate glass PFS are used to safely store a wide range of drugs, including vaccines and biologics."

Already today, Schott's Hungarian site in Lukácsháza plays an important role in supplying the global industry with drug containment systems and provides enough space for further capacity expansions to follow.

Building on a robust foundation and skill set that's already in place, the production will be equipped with state-of-the-art machinery. As part of Schott's global production network in 13 countries, manufacturing will follow high-end processes and advanced quality assurance.

WWW.SCHOTT.COM/EN-US


BERLIN PACKAGING

# Expansion of Canadian glass F&B packaging solutions

**Berlin Packaging,** the world's largest hybrid packaging supplier, recently announced the acquisition of United Bottles & Packaging, a Canadian-based distributor of high-quality glass bottles and closures for the food and beverage end markets.

Founded in 1994 and headquartered in Quebec, United Bottles & Packaging supplies bottles and closures for alcoholic beverages such as wine, spirits, beer, and cider, in addition to a wide selection of bottles and closures for food and non-alcoholic beverages.

Known for its fast-from-stock inventory, United Bottles & Packaging also offers customers a suite of value-added services such as custom shapes and moulds, warehousing and logistics, case-packed pallets, and customised boxes and caps. In addition, the company hosts a recycling programme that safely collects and disposes of expired beverages and facilitates recycling of the empty containers.

"United Bottles & Packaging is an excellent fit for Berlin Packaging," said Rick Brandt, CEO of Berlin Packaging Americas. "We share the same core values: high-quality products, prompt delivery, tailored solutions and a dedication to sustainability. I look forward to a bright future together."

"We are excited for the opportunities this partnership will bring to our organisation," said Jacques Dalpé, President of United Bottles & Packaging. "Access to Berlin Packaging's vast global resources and custom products will allow us to better serve our customers, grow our business with our existing suppliers and provide opportunities for our employees."

"Targeted acquisitions such as United Bottles & Packaging are a key component of our growth strategy," said Bill Hayes, Global CEO and President of Berlin Packaging. "This addition strengthens our position in Canada's food and beverage markets while expanding our glass offerings across all of North America."

United Bottles & Packaging is the third acquisition that Berlin Packaging has completed in Canada since 2020. All employees and locations for this acquisition will be retained.

WWW.BERLINPACKAGING.COM/

GILLINDER GLASS

# Capability expansion with additional CNC machine

In order to further expand its mould shop capabilities, **Gillinder Glass** will be acquiring an additional CNC milling machine this Spring. The CNC milling machine precisely cuts moulds from various design software in order to meet customer expectations in design and specification.

Gillinder Glass was established in 1865, when it opened a glass pressing factory in Pittsburgh, Pennsylvania. This was only forty years after John P. Bakewell had invented the first commercial glass-pressing machine. Blackwell's invention quickly led to the mass production of glassware while greatly reduced its cost - thus making glassware soon available for everyday use.

Gillinder Glass still hand-presses every glass piece it manufactures. Advances in technology and greater customer demand has allowed the company to start utilising automated equipment for glass pressing, thereby maximising efficiency. Glass pieces are generally made by pouring the molten glass into a mould, then having a 'plunger' pressed into the iron base. Almost all of Gillinder's moulds are made from ductile iron, though some could require an A-2 tool steel. Stainless steel may be used as well.

Gillinder also is further equipped to perform both prototyping and programming.

WWW.GILLINDERGLASS.COM/

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STEVANATO GROUP

# To create manufacturing hub in China

**Stevanato Group,** a global provider of drug containment, drug delivery and diagnostic solutions to the pharmaceutical, biotechnology and life sciences industries, announced the acquisition of a facility in Zhangjiagang, China, for a new plant. Here the company expects to begin renovations in spring 2022 as part of the latest phase of its expansion in China. Stevanato hosted a ribbon cutting event on 10 March 2022 to celebrate the new hub - all in the presence of local Jiangsu and Zhangjiagang Economic and Technological Development Zone (ZETDZ) authorities as well as Italian Consulate representatives in China.


The new facility is located near the company's drug containment solutions facility in ZETDZ, helping to cement the area as a major centre of biopharmaceutical innovation. The facility is expected to be up to 32.000 square metres, including engineering space. Stevanato is expected to employ approximately 270 people in the China hub. As a strategic hub for operations in the country, the company believes the plant will support the Chinese pharmaceutical industry by streamlining the drug development supply chain in the country from lab through commercialization and help meet the increased demand for biologics.

The state-of-the-art facility is expected to host

- production of high-value solutions, such as pre-sterilized EZ-fill® syringes and vials, to meet the growing demand in the biotech and vaccine market;
- a manufacturing area for visual inspection machines and glass forming lines, featuring cutting-edge production processes and technologies. Equipment production is expected to start in 2023, with the first EZ-fill® lines due to be operative in early 2024.

In addition, Stevanato expects to enlarge its current standard drug containment solution production in Zhangjiagang, increasing the size of the existing facility by approximately 7.000 square metres. The site is expected to almost see a doubling of current production capabilities by the end of 2024.

"We are excited to continue our expansion in China as part of our strategic priorities to optimise global footprint," said Franco Moro, Chief Executive Officer of the Stevanato Group. "Beginning construction on our new manufacturing hub is an important milestone for Stevanato Group in a key market and will allow us to better serve local customers with premium drug containment solutions and machinery supply."

WWW.STEVANATOGROUP.COM/EN/

GERRESHEIMER

# Small series production established in the US

**Pharma** and medical technology specialist **Gerresheimer** has established small series production in the Technical Competence Center at its Peachtree City, Georgia location, in the USA. Small quantities of products can now be manufactured under series conditions and in an

ISO class 8 clean-room. During the development and approval of pharmaceutical products and medical devices, this kind of small series is regularly needed for clinical samples or stability batches.

Prior to series production, pharmaceutical products and medical devices run through an exhaustive approval process for which small numbers of units need to be produced repeatedly, whether for examples, as clinical samples, development samples or stability batches. In 2013, Gerresheimer opened its own small series production at its Technical Competence Center in Wackersdorf, Germany, to accomplish this task. The company is now continuing this success story, starting small series production at its Peachtree City production location to be able to offer American customers small series production locally.

Besides providing small volumes of product, small series production also enables Gerresheimer to optimise the production process in the pilot phase. All the expertise required for series production can be established, while processes can be developed and streamlined. The experience gained during mould making and automation can be harnessed to design series moulds and series equipment.

Setup of small series production began at the Technical Competence Center at the Peachtree City location in 2020 with the conversion of an existing building as well as the setup of an ISO class 8 clean-room in accordance with DIN EN ISO 14644-1 standards. Small series production then took up operation in 2021. “The equipment in small series production adapts to the project. We are currently producing an innovative product for ophthalmology, an innovative point-of-care test system and a combination product in accordance with the FDA definition,” said Manfred Baumann, Global Executive VP Sales & Marketing, Administration & TCC at Gerresheimer Regensburg GmbH.

For quality assurance, small series production has its own fully-equipped measurement laboratory, which includes product-specific testing equipment with optical and tactile measuring machines as well as other testing equipment.

WWW.GERRESHEIMER.COM/EN/HOME

VIDRO FORMAS and IRIS INSPECTION MACHINES

# Cutting-edge inspection machine arises from winning partnership

Mexican glass manufacturer **Vidro Formas,** is currently reaping the benefits of its nine-year partnership with **IRIS Inspection Machines** through a major upgrade and expansion of its inspection facilities in 2022.

IRIS is retrofitting the customer's first machine, installed in 2013, with new hardware and the latest NEO intelligent software systems - the first step in a scheduled programme of upgrades across all Vidrio Formas machines.

IRIS CEO Jen-Luc Logel said, "We named our machines EVOLUTION because, unlike others, they evolve over time and never go obsolete. Each inspection module can be upgraded as we develop new technology, so every one of the customer's machines remains as efficient, fast and intelligent as our latest model."

Retrofitting an EVOLUTION machine brings significant cost and environmental savings to IRIS's customers, including the following benefits:

- It reduces investment by up to 55 percent over a new machine when a whole inspection line (sidewall, geometry, base, finish and mould reader) is upgraded;
- It slashes the cost of false rejects by incorporating the latest inspection features;
- It cuts the customer's carbon footprint by eliminating the production and transportation emissions associated with an entirely new machine;
- It retains the embedded carbon within the existing infrastructure for a further 10 years or more.

Vidrio Formas recently installed four new machines at its greenfield production plant in Lerma, Mexico, and it has four more on order for the next two production lines. By the end of 2022, the company will be operating 22 IRIS inspection machines across all its production facilities.

Vidrio Formas COO Alex Schneeweiss said, "IRIS is our trusted partner. They develop all their innovations in close co-operation with customers like us, so they always deliver what we need. We have total confidence in them and their excellent local technical support team as we expand our production for customers in Mexico and beyond. Just like our original EVOLUTION machines, the new ones will never go out of date."

Vidrio Formas itself is in the front line of that joint innovation and mutual trust. The company is one of the first IRIS customers to send defect images taken by EVOLUTION machines, directly to the cold end through its own information system.

With over 50 job changes a month in its main glass plant, Vidrio Formas requires accurate and flexible inspection machinery which can easily be adapted to the parameters of a rapidly-changing production run. In Mexico's expanding glass market, the company's partnership with IRIS inspection machines is one of the foundation stones of its service.

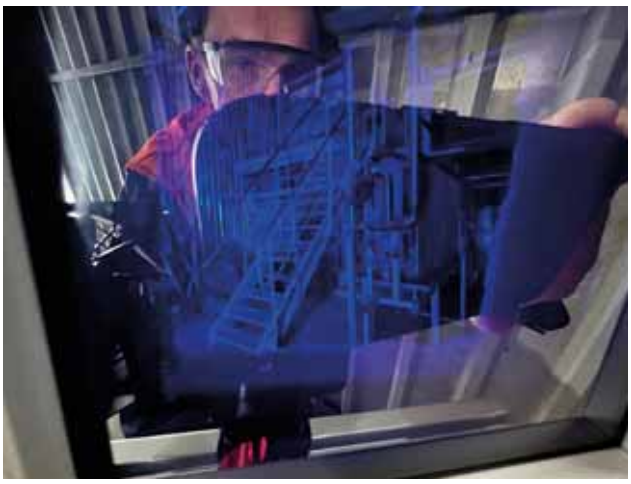
WWW.IRIS-IM.COM/

FORGLASS

# Experimental furnace tests continue

As a company known for its creative approach toward advancing glass production technology, **Forglass** recently returned an experimental furnace to working temperature in order to begin its second phase of tests - all to ensure the company's innovative solutions are safe for full implementation.

It's also critical within the glass industry that new inventions get extensively tested and are safe, such that even the best calculations and mathematical modelling have to be assessed in practice. Here's why Forglass invested in the construction of an experimental furnace about two years ago, thereby allowing the company to test innovative technologies that are aimed at improving energy efficiency and reducing harmful emissions. Following the initial phase of tests the experimental furnace



was cooled and a number of parameters were assessed.

Now the furnace has been brought up to working temperature again and the second phase of tests have begun. Albeit too costly for many technology providers, the experiment was deemed necessary by Forglass management in serving the company's purpose to ensure that all the performance and safety parameters of its inventions are met.

HTTPS://FORGLASS.EU/

VIDRALA GROUP

# Accompanying the Portuguese industry towards de-carbonization


**Vidrala Group** recently joined the Nazaré Green Hydrogen Valley (NGHV) consortium in Portugal, a project led by Portuguese renewable gas producer Rega Energy. The NGHV includes the country's three main glass producers, as well as other leaders in the ceramics and cement industries - all active in the central region of Marinha Grande, Leiria and Coimbra.

The NGHV consortium aims to drive change in the Portuguese industrial sector and its strategy towards de-carbonization through mature and scalable technology. It also seeks to lead the transition to cleaner energy produced from renewable sources and using circular economy practices through the use of waste water.

The Nazaré Green Hydrogen Valley (NHGV) project represents 10 percent of the CO2 emissions of the industrial sector in Portugal, with a strong impact on the sustainability of the sector, exports, and communities. NGHV has an initial investment of more than EUR 100 M and is expected to increase over time, as well as employ more than 1.700 people by 2025.

In the words of Carlos Barranha, technical director at Vidrala Group, "It is of great importance that glass containers are de-carbonized to achieve our future of zero emissions as well as a circular economy. While it is true that glass has many environmental and health benefits, we still have work to do in terms of the carbon intensity of our furnaces, a key challenge that we need to address and for which we are working from our different facilities. This objective has led us to join the consortium to work towards a positive impact on Portugal's glass industry."

Vidrala's commitment to the Portuguese market is key, something the company already demonstrated after installing a solar plant at its logistics facilities in the country in 2018. By joining NGHV, the company is further boosting its penetration in Portugal as a leading company committed to the transformation of the economy towards a green future.

HTTPS://WWW.VIDRALA.COM/EN/

HORN GLASS

# Batch charger HVR 600F performs in test of conveyor capacity

A new 560 t/d end fired furnace with a melting surface of 185.4 square metres is to be built by **Horn Glass** for Bastürk Camat. Designed with six forehearths for the production of container glass, the construction will take place at the customer's Malatya plant in Turkey. HORN's scope of supply for this project includes two new HORN batch chargers HVR® 600F. The HVR® is still the most popular and reliable batch charger for glass plants and, as a true classic, the most successful batch charging machine of HORN Glass Industries AG on the market.

The two HORN batch chargers HVR® 600F were recently subjected to a test with regard to conveyor capacity. Each batch charger must have a conveyor capacity of 700 tonnes per day to ensure that each machine can handle the entire furnace capacity. With the test on an original batch consisting of 25 percent cullet and 75 percent raw materials, HORN was able to prove this performance under real conditions without any problems - thereby meeting the elevated requirements of the batch chargers.

WWW.HORNGLASS.COM/

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TIAMA and SOMEX

# Strategic, exclusive partnership announced

Both **Tiama** and **Somex** are pleased to announce their strategic and exclusive partnership, which was effective from 01 March 2022. Tiama is a trusted expert and global provider of real-time data and quality controls for the glass packaging industry. Somex is an Irish company created in 2000, which has developed a strong portfolio of testing instruments for manufacturers of glass containers that complement the Tiama range of products.

As the industry moves towards increased automation, both Tiama and Somex are well positioned to deliver a comprehensive solution. While continuing to operate independently, Somex will incorporate the full benefits of Tiama's sales force and technical service at a worldwide level.

Tiama and Somex greatly value the business of each of their customers and are fully committed, together with their management teams, toward ensuring a robust business continuity moving forward as they jointly develop new projects for the future.

WWW.TIAMA.COM/

VIDRALA GROUP

# Construction of photovoltaic power generation plant announced

**Vidrala Group,** one of Europe's leading glass producers, recently announced the construction of a solar photovoltaic power generation plant which will be used for consumption in the industrial process - partially substituting fossil and electrical energy from the grid.

The facility will be located at the Crisnova plant in Caudete, Castilla La Mancha, Spain, and will have a capacity of 12 MW using cutting-edge ground-based technology. The project is part of Vidrala's sustainability and energy efficiency strategy and is a clear demonstration of its commitment to the environment and to the communities where the group operates.

Vidrala has already carried out the engineering, technical and economic viability work, urban planning, administrative and environmental procedures, as well as the engineering project under the advisory services of the company Norvento Enerxía. Construction work started during the first quarter of this year with Norvento as project manager and Grupotec installing and commissioning the project, which will avoid emissions of around 9.000 tonnes of CO2 into the atmosphere per year.

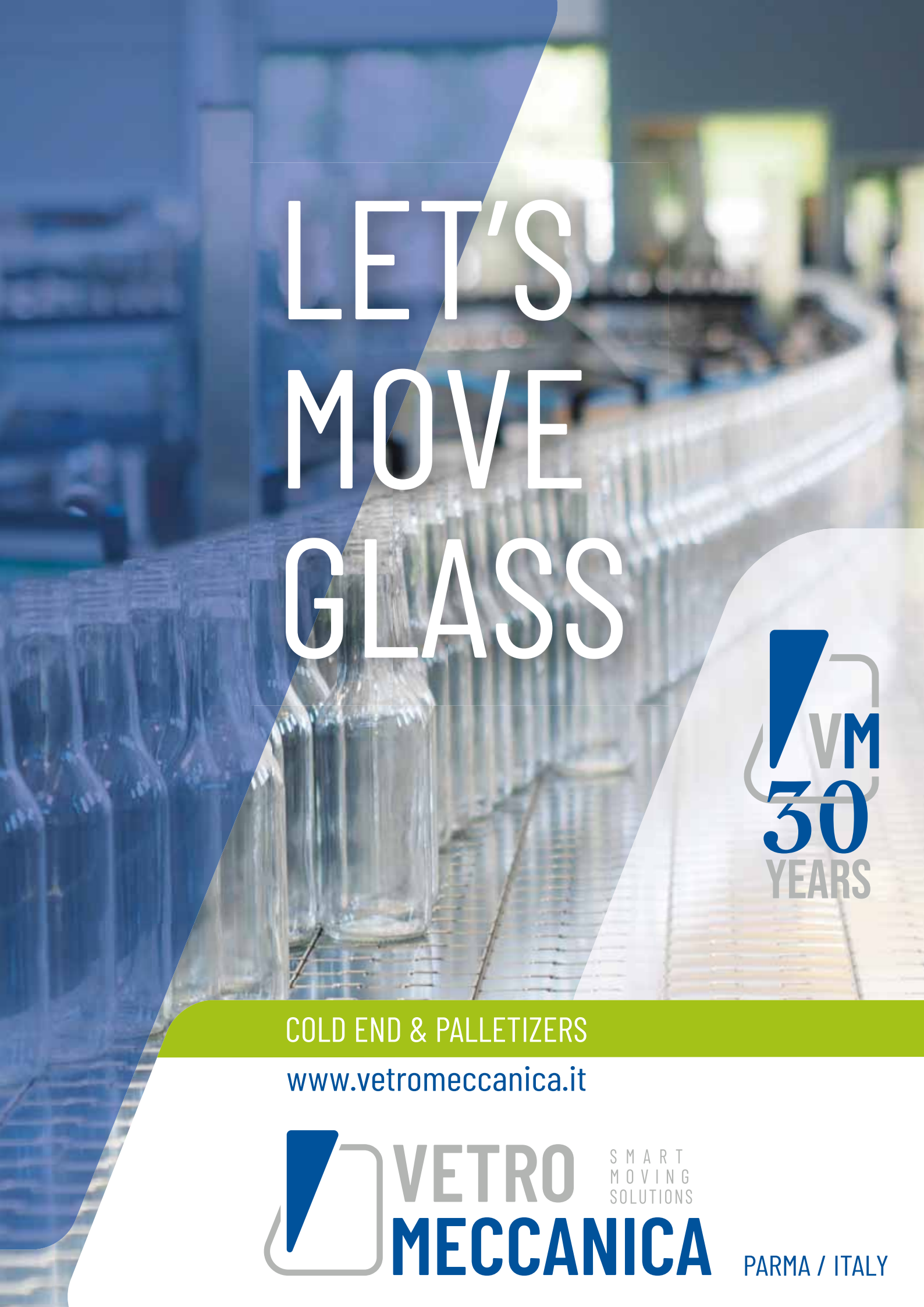
This initiative is part of the ambitious investment plan launched by the Vidrala Group and is part of the multi-year green agenda focused on improving the sustainability of the glass container production process. The project, which began to be analysed last year, is a reflection of the commitment to climate change and aims to reduce the company's environmental impact.

This action is part of the Vidrala Glass Made Good strategy, implemented through the 4 Ps that develop four fundamental pillars for the glass company: Prosperity, People, Place and Planet.

The Crisnova plant was built by Vidrala in Caudete in 1989 and is currently one of the most important glass plants in Spain with an annual production of almost 900 million glass containers.

This will not be the first time that the Vidrala Group has implemented this type of technology to supply its facilities with green energy; it already did so in 2018 in Portugal after installing a solar plant at its logistics facilities in Marinha Grande.

WWW.VIDRALA.COM/EN/



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LUBEN GLASS

# Special solutions for special productions

Thanks to **Luben Glass**' accumulated experience over years, as well as the expertise of its research and development department, the company has been able to develop special solutions to meet special needs. Its customers often have to reconcile production requirements -which demand ever greater flexibility- with available equipment and the technical means at hand. Machine manufacturers offer standard solutions which are often 'closed' and ill-prepared for variants allowing production flexibility.

***Using single gob moulds***

This is, for example, the case of a situation in which, owing to production requirements, a client wishes to use double-gob moulds on a single-gob IS machine.

Certain variants of this theme have been designed and marketed by Luben Glass, such that it can now offer:

- a solution to use double-gob moulds for single-gob production on the same machine;
- double-gob moulds in single gob machines with different centre distances.

Not only. Luben Glass has developed an innovative system to produce all single-gob diameters by using interchangeable inserts that are also designed to work with double-gob moulds.

***Luben Glass systems***

- Mould holder for working with double-gob moulds in single-gob on the same machine:
  Much like the double gob mould holder, the mould holder is specially-machined to allow the double-gob moulds to be correctly housed in a single-gob machine;
- Mould holder for working with double-gob moulds in single-gob machine with different centre distance:
  The mould holder is made on a single-gob base and is equipped with special steel inserts fixed solidly to the mould holder itself;
- Special mould-holder with quick-change single gob inserts:
  With its patented shape, this mould holder is supplied with special single-gob inserts (of which the same can be used on both the blank and blow sides) and quick-change pin assembly. With this system it is possible to realise all single-gob positions as well as all double-gob assemblies - even with unconventional diameters.

WWW.LUBENGLASS.EU

ALLIED GLASS

# Provision of Allied Glass with hydroelectricity

Drax Energy Solutions has signed an agreement with **Allied Glass** to provide 66 gigawatt hours (GWh) of electricity annually from a river hydroelectric scheme in Scotland. With a bespoke Corporate Power Purchase Agreement (CPPA), 100 percent of the electricity used by Allied Glass is certified with Renewable Energy Guarantees of Origin (REGOs) from the Drax Group Galloway

Hydro Scheme. This allows Allied Glass to match its energy use with the renewable electricity that's generated to support its carbon reduction goals.

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EME and BAŞTÜRK CAM

# The forging of an unbreakable bond

**EME**'s building works for the glass cullet return and batch transport systems of **Başturk Cam** glass cullet return and batch transport systems are entering a new phase. To discuss the progress and next steps of the project, Muhammed Yalçınkaya and Mesut Irmak from Baştürk Cam visited EME's HQ in Erkelenz, Germany.

Sebastian Woltz and Tim Hansen from EME were honoured to welcome the executives, thus strengthening their existing partnership even more.

WWW.EME.DE/


WIEGAND-GLAS

# New furnace operational at Schleusingen, Germany

Despite the uncertain energy supply and cost situation on the market today, **Wiegand-Glas** management decided to start up the second furnace at its new glass plant in Thuringia - signalling the company's conviction that it's only by working with customers, business partners and employees that the current difficuwlt situation can be jointly overcome.

Wiegand-Glas postponed the start of production at the Schleusingen plant in January, citing exploding energy and raw materials prices, as well as COVID-related illness rates within the workforce.

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VERALLIA

# Acting on glass re-use

To help render re-use viable as a solution, **Verallia** is putting a trio of major commitments into action, namely that of pushing for experimentation, partnering to stimulate innovation and sharing experiences and best practices.

To this end Verallia recently announced the publication of its white paper, Reimagining reuse for the circular economy of glass: Stakeholder Perspectives Series, which explores the challenges and opportunities around re-use through the testimonies of leading experts.

To deepen the debate, the group launched its first Reuse Lab event on 17 March, a forum to accelerate the development of local and sustainable glass packaging re-use solutions.

***Publication of a white paper on re-use***

Here Verallia seeks to be a true agent of change while using its glass-making expertise to help design new re-use systems as well as to improve existing ones. Throughout 2021, the company exchanged ideas and worked with various stakeholders to lend more traction to the conversation around glass packaging re-use. The white paper hones in on the current situation concerning re-use via a range of perspectives - the first of its kind to come from the glass industry itself. It proposes 7 action areas for scaling glass re-use, each of which offers fertile ground for collaborative action amongst re-use stakeholders.

***Launch of the Re-use Lab***

In 2020, Verallia made three major commitments to reimagine glass for a sustainable future, by fostering innovation in the glass value chain to reduce CO2 emissions, mobilising industry players to increase the rate of recycled glass and making re-use a viable solution - whether for the planet, for consumers or for glass packaging in general.

The Re-use Lab exemplifies Verallia's ambition to make the circular economy a reality for glass - being part of the Group's ESG roadmap, presented in 2021, which includes the following objectives:

- 46 percent reduction in Scope 1 and 2 emissions between 2019 and 2030;
- Achieving carbon neutrality in 2050 for Scope 1 and 2 emissions;
- Implementation of a pilot project for re-use in France by 2025.

The Re-use Lab event is designed as a forum for action-oriented exchange, bringing together within the circular economy such players as customers, food industry experts and Group partners and employees. The Re-use lab will help facilitate the implementation of the pilot project in France by 2025 and, more generally:

- Gather thoughts and compare points of view;
- Learn from experiences in the field around the world in order to identify what works best;
- Accelerate the implementation of local and sustainable re-use solutions and consider their replicability on a larger scale whenever possible.

Michel Giannuzzi, chairman and CEO of Verallia, said, "The biggest challenge for the glass packaging industry today is our CO2 emissions. On the journey towards carbon neutrality, we also need to be always more smart about glass

recycling and re-use. We must drive a dual-track approach; always looking for some means to reduce emissions whilst scouting the most effective ways to re-use and recycle our products.

"Because re-use is part of the answer for the future of the glass industry we need to understand its complex challenges: from changing consumer behaviours and relevant product design to the logistics of glass collection and cleaning and the development of new business models for re-use within different policy environments across our markets. Our core belief is that glass packaging re-use can only be a viable model once understood and treated as a systemic challenge - thus prompting us to work closely with all stakeholders in the entire ecosystem."

***The pledge to act***

To make re-use a viable solution for the planet, for consumers and for glass packaging, Verallia is making three strong commitments:

- To push for experimentation: Large-scale glass re-use requires new ideas, innovative practices and new business models. The "traditional" re-use model can still work in some situations, but innovations are needed to make re-use a sustainable and economically viable practice over the long term. That's why the company is setting up the first Re-use Lab to test and experiment with different solutions. Within Verallia, the Re-use Lab will be formalised into a dedicated team, comprised of a range of experts in re-use and reporting regularly to the Verallia Sustainability Committee.
- To partner towards stimulating innovation: Verallia cannot meet the operational and behavioural challenges of glass re-use on its own and or make it a replicable and scalable model. To address priority issues (consumer and business incentives, product design, process standardisation, etc.), Verallia is committed to developing relationships with potential partners within the circular economy, ecosystems and experts.
- To share experiences and best practices: Verallia will continue to share lessons learned, challenges encountered and new ideas. The group will ensure that it is constantly pushing the boundaries. For Verallia, sharing means looking to the future and contributing to change.

WWW.VERALLIA.COM/EN/

THE ITALIAN GLASS WEEKS

# Italy's most important event dedicated to glass

Representatives of Vision Milan Glass Week and Venice Glass Week recently announced the launch of a new joint festival: **The Italian Glass Weeks.** Both are important Italian festivals dedicated to the promotion and enhancement of glass at international level, whether from the industrial or artistic point of view. Here the two will unite with UN International Year of Glass to present the first festival dedicated to industrial and artistic glass in Italy, which will take place in Milan from 10 – 18 September and in Venice from 17 – 25 September 2022.

"In 2022 this event will be the largest in Italy, and probably Europewide, that's dedicated to glass: two weeks animated by initiatives designed for all audience types. Culture and technology will be the key words running throughout the programme: not as two separate dimensions but rather deeply and inextricably linked - the one functionally developing the other according to the peculiar characteristics that distinguish and make it unique," commented VITRUM President Dino Zandonella Necca. "With the Italian Glass Weeks we intend to give renewed strength to the positioning of the Italian glass supply chain at international level, thus underlining how the Italian proposal is unique and original. Indeed it's only in Italy that glass draws directly upon origins that have created and developed a unique history and culture - culture and history that have never stopped in a continuous flow that's brought them to us via centuries of tradition."

Any candidate who wishes to propose an event or project in the field of glass will be able to apply to participate in the festival from 11 March 2022. Applications for the Venetian week will be welcomed until 3 May 2022, and applications for the Milanese week will be welcomed until 30 May 2022. The contribution of companies, associations, sponsors and partners who would like to propose their own initiatives for inclusion in The Italian Glass Weeks will be fundamental to the festival programme, which is already under development with an exciting calendar of scheduled events.

For information on how to apply and to read the Conditions for Participation, see www.theitalianglassweeks.com.

Designed specifically for the 2022 "UN International Year of Glass", the event will feature exhibitions, workshops, art installations, shows, activities for children and families as well as guided tours, cultural seminars, workshops and much more – all taking place in Milan and Venice over the course of a fortnight. The Milanese week will run from 10 – 18 September with a programme that will be primarily dedicated to industrial glass and design, while the Venetian week will run from 17 - 25 September 2022 and will be dedicated to artistic glass.

"We are particularly satisfied with this new project," said the Organising Committee of The Venice Glass Week, "which could help to provide great momentum for the artistic glass sector, both this year and in the future. The five-year experience of The Venice Glass Week has paved the way for the creation of something bigger and more ambitious, thanks to the great work of those who have always believed in the project. For Murano, which represents the homeland of international artistic glass and which -unfortunately- is suffering considerably in this economically-difficult period, it has the potential to become a moment of rebirth and great international visibility. The collaboration with VITRUM and Vision Milan Glass Week for The Italian Glass Weeks is therefore strategic, especially in this year which the UN has designated as the International Year of Glass. It's a great sign, and above all it's an important synergy that we hope will last for a long time."

For the international public, the cities of Venice and Milan are synonymous with Italian tradition and style. Venice, thanks to its 1000-year-old tradition of glass making that has been handed down from generation to generation on the island of Murano, is the city of artistic glass par excellence, as well as a capital of culture and one of the world's most popular tourist destinations. In Venice, The Venice Glass Week festival has been organised since 2017, taking place across the city centre as well as in Murano, the surrounding islands and the mainland. Each year the festival has featured over 250 events, involving furnaces and glass companies as well as museums, public and private foundations, universities, art galleries, hotels, restaurants, shops and more.

Milan, which hosted the first edition of Vision Milan Glass Week, is a contemporary city which continues to represent Italy's technological progress and which is the true capital of the country's economy, design industry and production sector. The city is home to GIMAV, the Trade Association belonging to CONFINDUSTRIA, which represents the manufacturers and suppliers of machines, accessories, equipment and special products for glass processing. It is also where, for over forty years, glass industrialists have organized VITRUM, the International Exhibition of machinery and technologies for glass processing.

HTTPS://THEITALIANGLASSWEEKS.COM/

PNEUMOFORE

# New Vacuum System for Cristaleria Peldar in Colombia

With an elevated location of 2.800 m, the **Cristaleria Peldar** glasswork is probably one of the highest in the world. Here, all living beings must adapt to keep up the oxygen level in their bodies, with the reduced atmospheric pressure, which drops from the standard 1.013 mbar to 737 mbar, a difference of about 30%. Clearly, local people are comfortable with thin air, it's the foreigners who face this ground changing circumstance. Also, the thermodynamic machines, which are frequently based on oxygen for combustion or simply air for cooling, as well as for compression, must cope with this 30% reduction of atmospheric pressure. It happens that several analogue pressure-measuring tools display the wrong information, if the elevation-related, minor atmospheric-pressure is not considered.

Within the process of glass moulding, the vacuum pumps represent an auxiliary equipment. Vacuum comes usually after furnace-heating energy, electrical energy, water, low-pressure air for moulding 3 bar(g), high pression 7 bar(g) for pneumatic drives along the production line. Yet, vacuum becomes important with the intricate shapes of moulded glass and when the moulding speed potential of the IS machines must be matched, with the lowest possible defect rate.

The target was to have vacuum available, like all the other energy forms, and to have an efficient yet stable manufacturing situation. **Pneumofore** was contacted in 2019, and the first vacuum pump UV30 was installed. This unit was equipped with VSD, in the hot climate (tropicalised) version and Alt. for the altitude version, as well as special power of 460 Volt, 60 Hz, 3-phase. This pump UV30 with 55 kW nominal power was added to the line with the existing 3 pumps of 55 kW each, based on screw technology.

When it was time to commission the unit, the global pandemic made it impossible to travel and to perform in person the verification of correct installation and the start-up of the machine, including set-up of controls. The UV30 is a solid vacuum pump, built for heavy applications as found in glassworks, with a user-friendly interface. The remote video assistance given to the customer for commissioning the pump went well, with the promise of a visit as early as possible to perform all the fine-tuning settings of the VSD.

After 2 years of waiting for normalised world travel, finally in 2022 Pneumofore could send an engineer to Zipaquira in Colombia to verify the installation. Initially, the customer was concerned about the perceived absence of savings from the investment in the UV30, the proposed promising solution to his vacuum trouble in production. The display of the UV30 showed 5.000 hours of operation, time to service the unit. The visit in early in 2022 was dedicated also to the maintenance instruction of the customer for his independency in service. This first ordinary maintenance refreshed the UV30 pump, so that the fine-tuning was finally possible. The cleaning of the demister filter, the replacing of the inlet filters, as well as lubricant, created the scenario for the proper running of the UV30. The result was impressive, as the previously installed 3 x 55 kW vacuum pumps could be switched off, once the VSD of UV30 was set correctly. The measurable difference impressed the customer, the UV30 was running with the absorbed power of 49 kW. Now, from way above 100 kW power, to less than half, the provided annual savings corresponded to the cost of the UV30 pump itself.


Following this good result, the customer ordered three additional UV30 vacuum pumps.

WWW.PNEUMOFORE.COM

ŞİŞECAM

# Ground-breaking ceremony for glass packaging plant in Hungary

By laying the foundation of its new plant in Kaposvar, Hungary, **Şişecam** recently marked its first European glass packaging facility in the country. The new investment is worth EUR 255 million. The ceremony was attended by Hungarian Minister of Foreign Affairs and Trade Péter Szijjártó, Kaposvar Deputy Attila Gelencsé, Kaposvar Mayor Károly Szita, Şişecam Chairman Dr Ahmet Kırman and Şişecam CEO Görkem Elverici.

With its Hungarian investment, Şişecam aims to bolster its presence in the European glass packaging market. With this in view, Kırman delivered a speech at the ceremony, stating that Şişecam aims to grow by creating value for its entire ecosystem while introducing its innovative products to customers in more than 150 countries worldwide.

He went on to emphasise that Şişecam is expanding in line with its sustainable growth strategy. "Şişecam operates in glass packaging with a total of 10 production facilities in four countries and an annual production capacity of 2.6 million tonnes. Most of our international sales are to Europe. The European market accounts for a quarter of the total global glass packaging market. This fact offers major opportunities for the rapid development of the industry and for the expansion of our company's current production footprint. Our Hungarian investment will further strengthen Şişecam's position in glass packaging. With this new facility, we aim to bolster both the development of the region and our presence in the European glass packaging market by continuously investing in Kaposvar."

***EUR 255 million investment***

Şişecam CEO Görkem Elverici also gave a speech, stating that the Hungarian investment is an output of Şişecam's vision of value-creating sustainable growth. He pointed out that Şişecam grows by supporting its entire ecosystem with long-term investments.

"Şişecam develops further by managing risks effectively while capitalising on attractive investment opportunities. We plan to commission our Hungarian glass packaging facility in 2023. It is scheduled to reach its full annual production capacity of 330.000 tons in 2025," said Elverici. "With a EUR 255 million investment, this major facility will bring our quality glass packaging products closer to the European market. The production site will respond to the glass packaging demands of both Hungary and other markets across a wide geography. It will also boost Hungary's exports."

Elverici underlined that Şişecam is a key stakeholder in the countries where it operates. Not only. It is widely known for its contributions to development and employment. He continued, "The new glass packaging production facility will create direct employment for over 330 employees. Once the facility is commissioned, Şişecam's total employment in Hungary will be approximately 650 people, with further employment of about 1.000 people supported via sub-producers. The volume of trade that our production operations will create in the region will also spur on the development of many industries along the glass packaging value chain.

"Our facility will make a difference not only in terms of the economic value it will create but also by its environmentally-friendly features and state-of-the-art technology. The new facility will host the most advanced applications of glass packaging melting technology. Our Hungarian site will use the most up-to-date technologies in line with Şişecam's smart factory vision, whether for system design or equipment selection. We will also benefit from electric melting technology along with natural gas. This special technology, developed by Şişecam thanks to its superior innovation capability, will serve our sustainability activities and carbon footprint reduction targets."

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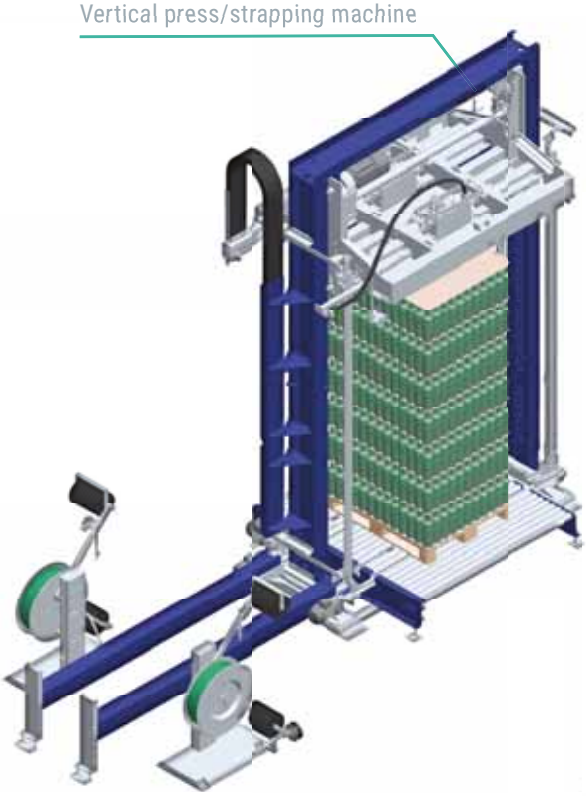
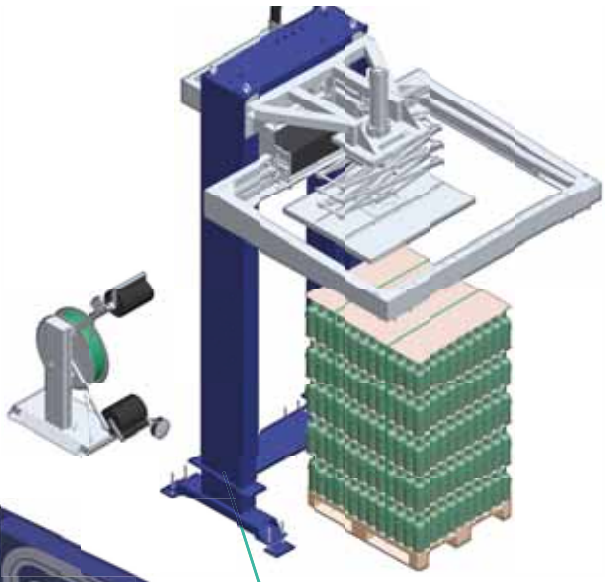
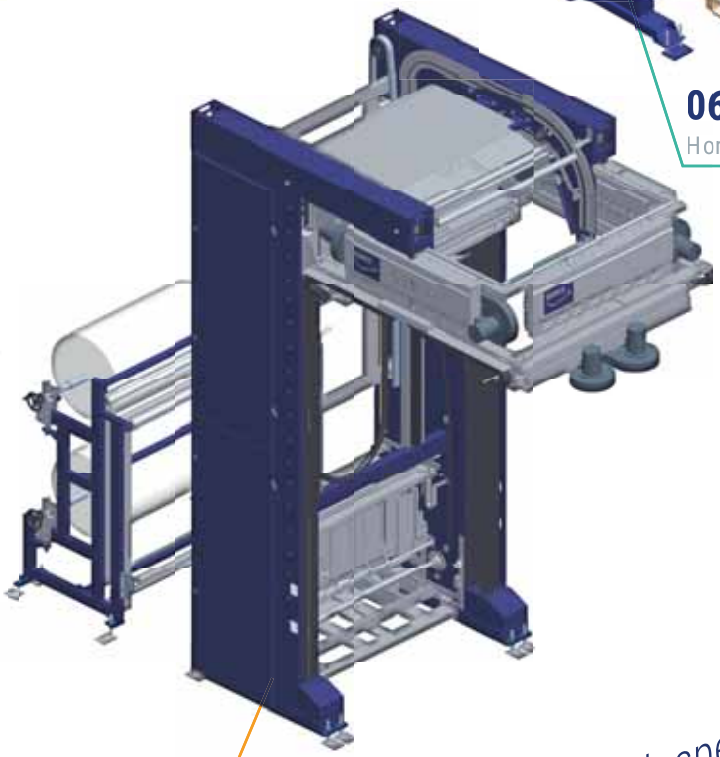




## 06CL

Horizontal strapping machine



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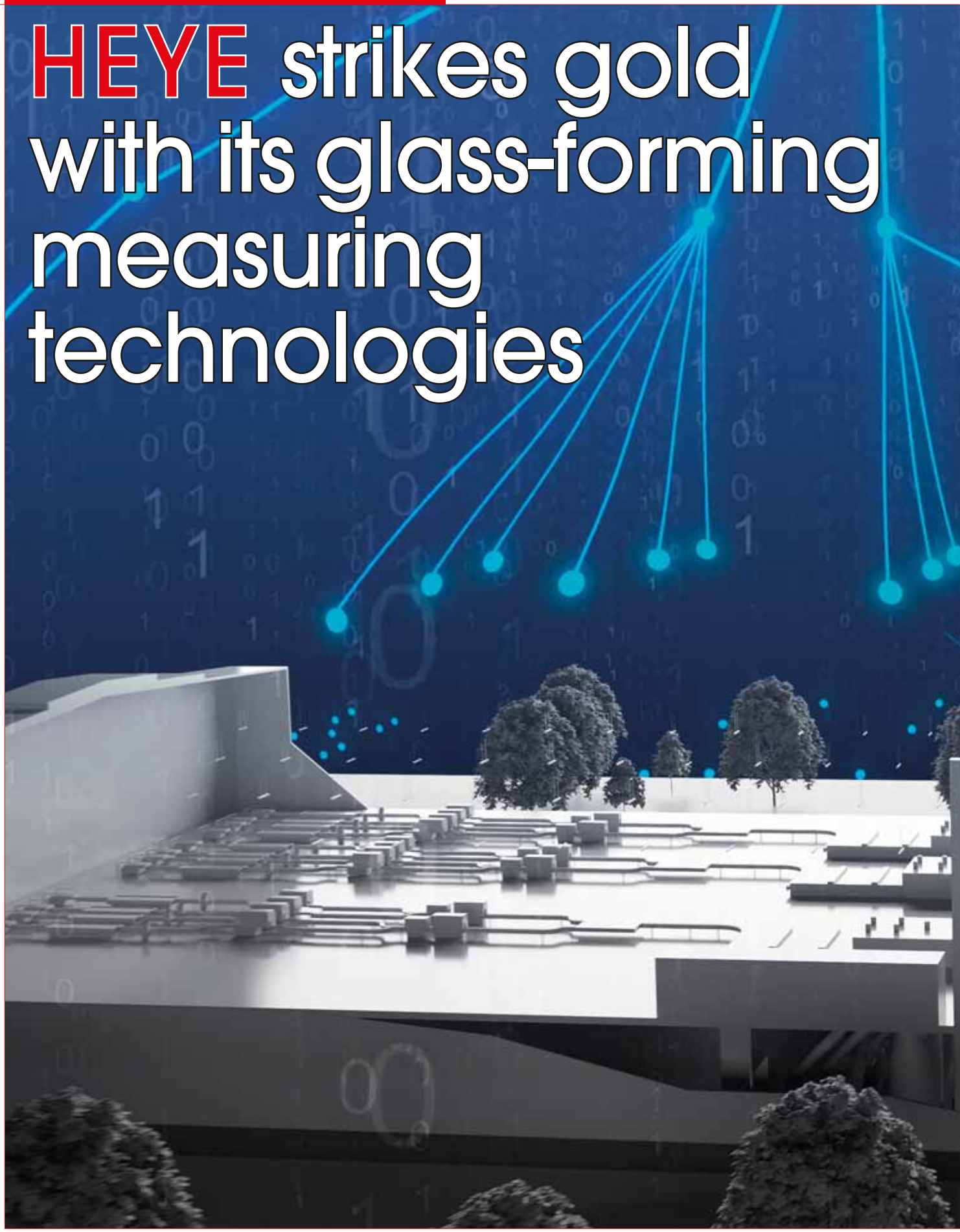
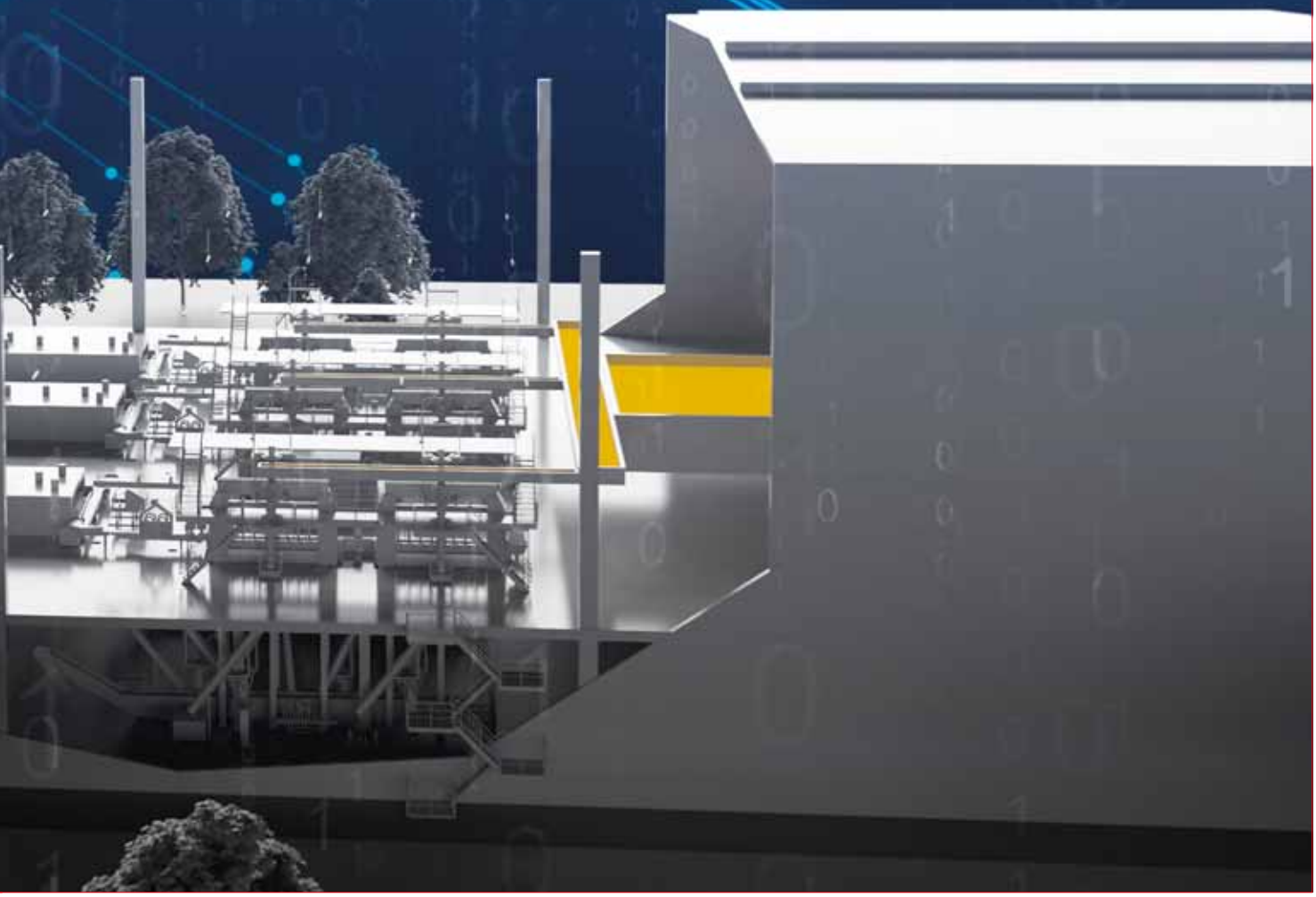
# HEYE strikes gold with its glass-forming measuring technologies



With digitisation, emissions and artificial intelligence all animating the conversation in the glass industry, GMP&A recently spoke to HEYE development engineer Dr Michael Kellner about where that trio of key issues ranks in his company's latest contributions to the glass forming process.

Born in Jena, Michael Kellner first came into contact with glass as an intern at Schott Glas. "Glass - that's exactly what it should be" says Kellner in retrospect, remembering his student years in Weimar where he became an expert in building materials and process engineering with a focus upon glass. As early as 1986, he was involved with the first image



processing cameras and their use for inspecting glass. "The theory was there," he recalls, "but the technology was still not powerful enough for the glass industry." While conducting his doctoral research on automation and image processing technology in glass production, Kellner began working at Schott Glas, following which he started as a trainee at erstwhile company Heye-Glas - a very innovative, medium-sized enterprise. Kellner was the initial link between production and development for introducing automation solutions in glass production. In 1992, he was responsible for testing the first image processing applications based on image processors at Heye, and he began developing PC-based image processing solutions shortly afterwards. "Experts at the time thought image processing could never work with a PC," notes Kellner. "A clamorous miscalculation." As a doctoral graduate the 'process engineer' left the company in 2000 only to return to Heye in 2006 as head of development. Since 2019, he has been responsible for the development of digital systems.


Michael Kellner

It's in light of current technological innovations advanced by his department that Glass Machinery Plants & Accessories recently caught up with Kellner in Obernkirchen, Germany, for an update on his company's contributions to measuring the glass-forming process.

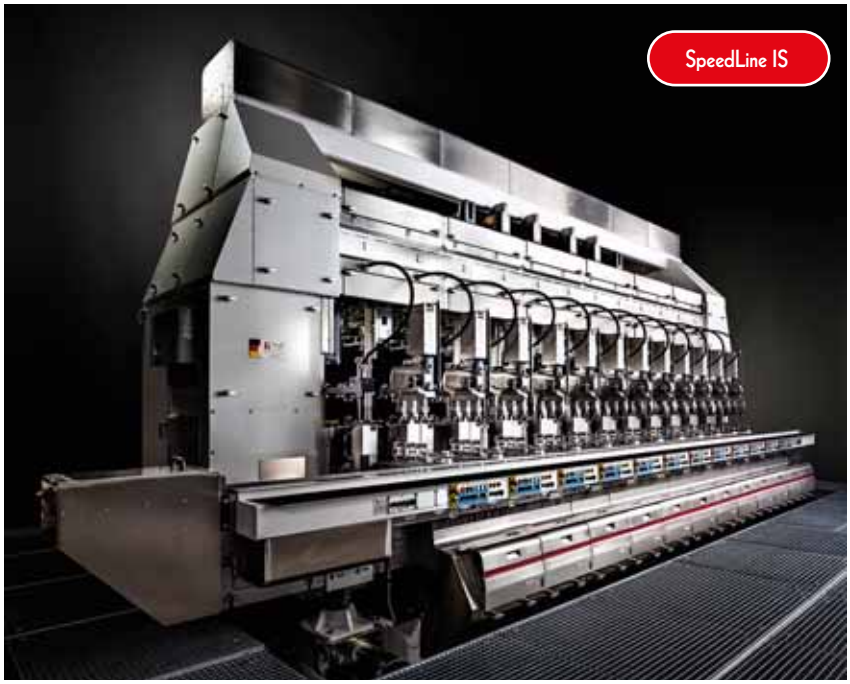
**GMP&A:** Digitisation and Industry 4.0 are both major topics at the moment. How long have you been working on these?

*MK:* Digitisation is not a new field at Heye. At the beginning of the 1990s, we introduced a PC-parameterizable, electronic timing system for controlling the IS-machines and the Hot End reject system - including the evaluation of pushing glass containers from the dead plate onto the machine conveyor by means of pushers. The complete Hot End process was converted to servo technology - that is, from gob forming to ware handling. This was a huge step into the future, as the motion sequences were now matched and followed by the feedback generators according to the given motion curves. Shortly afterwards, the first servo motors were also used in the IS-machine to make critical process sequences replicable and to avoid container defects. An important component in light glass production is certainly the introduction of the Heye Process Control, which digitally keeps track of the pressing process while also visualising it by recording plunger positions.

In 1998, Heye worked on a Hot End gob camera for recording the cut of gobs. But the resolution of the cameras and the performance of the PCs was not sufficient enough. Nevertheless, the experiences gained were extremely important in order to build up the skills for the following years. When the first grabber cards were available, the new Terra computers were bought and a camera-based mould number reader and a camera-based sealing surface tester were developed.

**GMP&A:** What's the state of affairs at Heye International?

*MK:* We've converted complete machine platforms because the market has tended to triple and quadruple gob operation. Consequently, we made all the Hot End equipment 'fit for the future'. Today we offer the complete technology platform for all applications. We are on the right track. The further development of sensors and actuators has created new opportunities. Since the introduction of industry 4.0, we're raising the bar higher and higher. For example, it's we who've developed the new IS-machine - hence the name 'Heye SpeedLine'. The SpeedLine IS-machine is the first machine that is fully bus capable.




The next development goal was to create areas in the IS-machine where sensors, actuators, the necessary cables and the processor technology could all be installed safely and reliably. Safety and reliability, within this context, means protection against heat, oils, oil vapours, water, water vapour, dirt and glass. We've succeeded very well with the SpeedLine because we had conceived the design differently. The cable routing was first designed and then tested where the sensors must be mounted, which includes their protection in technical terms to ensure long-term stability. Operating sensors without failure in a 1.000° C hot environment is not so easy. Thanks to the bus system, all systems in the machine are networked together and a large number of sensors can be managed. This naturally brings with it new possibilities and products, for example the intelligent lubrication interval control - the 'Heye Multi-Circuit Central Lubrication' - which saves oil significantly and increases the lifetime of the components. Also the inline measurement of pressures and temperatures of the equipment should only be mentioned here.

With this machine, we have taken a giant step into digitisation. There is now a 'Communication Tower' that combines all network components, computers and servers in one cabinet. The components are interconnected and communicate with each other. SpeedLine is a platform technology in which components such as robots or measuring and control systems can be integrated very easily. Via the Communication Tower there is also a gateway to the outside, that is to the customer. The Application Programmable Interface 'Heye SmartLink' provides the customer with the data of the manufacturing process for individual data analysis.

**GMP&A:** Do you do everything yourselves at Heye? For example, programming?

*MK:* We develop most of the software, especially in the key technical areas. The hollow glass industry is a relatively small and very special market segment. It's difficult to explain the processes to external companies. There are a few components that we purchase, such as sensors. However, the suppliers then work for the glass industry over the long-term and are therefore aware of the requirements.

**GMP&A:** CO2 emissions reduction will certainly dominate the coming years. What contribution can the container glass industry make?

*MK:* Indeed you mention what's probably the most topical issue at the moment: CO2 footprint or decarbonisation. If you look at the side of energy consumption and leave compensation models aside, then this is essentially about the sensible use of energy and the avoidance of energy waste.

For us as machine manufacturer, two different directions are relevant when it comes to emissions. On the one hand, it's a matter of minimising losses, which means producing as much as 100 percent of the glass bottles possibly without defects. Then you don't have to throw away glass bottles, you don't waste the energy needed to make them and you have a better CO2 footprint.

On the other hand, the focus is on equipment availability. It's best to operate the machine 24/7 and produce glass bottles without defects. This also includes minimised job change times.

To avoid emissions, it's important that errors be found and eliminated as soon as possible. This is why it's so important to reduce the gap between Cold End information gathering and Hot End information processing. To increase efficiency, we use the 'PlantPilot' information system, which records the efficiency situation and messages deviations to those points that necessitate correction. This results in a significant improvement of equipment availability as well as an increase in yield by reducing transport and quality losses. So efficiency increase and CO2 reduction are always closely related.

**GMP&A:** By this reasoning, then, the measurements would ideally have to take place at the Hot End?

*MK:* Precisely! That's not so easy, though, because many of these measurements are contacting measurements. And when I contact a hot bottle with a measuring tool, it gets deformed and becomes unusable. We still lack a solution to how it might work to turn a hot bottle and, for example, to measure wall thickness. That's unrealistic at the moment.

Today, we want to measure the parameters of the forming process directly - keeping them constant within narrow limits. We use infrared cameras at the Hot End to more swiftly identify deviations in the process and, above all, to neither exceed nor fall below the limits - all the while taking immediate countermeasures. This technology is called 'Hot End Closed Loop'. Ideally, non-contact sensors control and regulate the process.

**GMP&A:** Which control loops do you mean?

*MK:* Different sensors are also used at different locations for the different process sections. They are then used to influence parameters of the gob, the parison or the bottle. Starting with gob forming, you use a gob camera to adjust and control gob shape and gob weight. Gob temperatures, too, can be measured to influence the spout temperature within the feeder. On the blank side, gob delivery into the blank mould can be detected and adjusted. The tool temperatures on the blank side (blank mould, neck ring and plunger) can also be measured and controlled. Already today, infrared cameras on the machine conveyor are frequently used to measure wall thickness distribution and detect global errors. Optical cameras are planned on the machine conveyor for measuring and controlling the container geometry as well as detecting glass defects.

**GMP&A:** And at the Cold End?

*MK:* The manufacturing process is completed when the glass container passes the annealing lehr. The Cold End doesn't deal with controlling the process. Here I should mention the automatic check, using sample containers, to verify whether the inspection machines are correctly set. However such downstream processes as printing or surface treatments for increasing the strength can also be measured and controlled.

**GMP&A:** What role is played by glass bottle weight and shape?

*MK:* In the 1990s, a price war broke out for disposable packaging. In order to save on raw material, energy and transport costs -but also to reduce the charges to the dual system for disposable bulk items- projects have been launched to reduce the weight of glass containers. That means producing with thinner wall thickness. Heye has a very big advantage with its experience from H1-2 technology. As such it was


Smartline2 Cold end inspection machine

able to transfer this to IS-machine technology. A relic of these times is the famous Paderborner beer bottle. Here it was revealed that shape has an immense influence on container weight - all the while maintaining its strength. Today we seek a compromise between individual bottle shape, volume and weight with sufficient strength. If we wish to become more ecological then we'll have to compromise on individual bottle shape in favour of container weight.

Many machine components and HI products, which were already developed for light glass technology at the time, are now standard in industry. Starting with the 'Process Control', through axial cooling and hot end transport – all components that can be put to use with our lightweight container production know-how.

**GMP&A:** It seems lightweight glass production is a great challenge.

*MK:* A key characteristic of simple light glass is that it breaks very quickly - a problem you can address with thermal or chemical post-processing, only it will increase unit costs. No one is likely to pay a deposit of several Euros for a gorilla milk glass bottle. Here a technology needs to be developed going forward that's based on current hollow glass production while being efficient. Looking ahead, anyone in lightweight glass production who manages to increase and maintain glass surface strength will be at the forefront of history.

**GMP&A:** Where do you see further emission savings potential?

*MK:* I see big emission savings in the global glass industry in the area of recycling cullet from the market (waste glass collection and processing), because much less energy is needed for glass bottle production from cullet than for production from raw materials. Energy savings through heat recovery from the forming processes and in the annealing lehr have further potential. Here the ecological approach follows the economic approach: If you save energy, you also save money. That alone marks a strong incentive. The biggest cost factor in glass production is energy.

**GMP&A:** Heye machines are in use worldwide. Remote access and remote maintenance are becoming ever more important. What needs to be taken into account here?

*MK:* Security considerations are essential for remote access via the Internet. Cyber criminals are lurking everywhere, and so companies are sealing themselves off more and more. This means service providers get blocked from entering company networks to connect to the machine and provide support from there without considerable effort. Solutions must be found in consultation with customer IT departments.

**GMP&A:** How do you assess the potential of artificial intelligence for the glass industry?

*MK:* AI is currently high on the agenda. At the moment I'm in the third wave, the first having been in the 1980s and the second in the 1990s. You can certainly do a lot with artificial intelligence. But you must bear the boundaries in mind. Artificial intelligence is determined by information gleaned from the past. In order to learn a corresponding neural network a large number of objects are needed, both good and bad, as examples. Here we talk about 500 to 5.000 pieces of information. Gaining and learning these examples requires much effort. The neural network can't begin with new objects that keep appearing. There are AI applications, the decision is already working very well. In the glass industry, on the other hand, this only works for simple applications, such as reading mould numbers in the seven-segment code. Glass defects, on the other hand, become more difficult because they always look different. If new information is added that the trained system doesn't know, AI will not get any further. Basically, no two checks are exactly the same. Perhaps a combination of imaging processes and neural networks can help, but that's still a dream for the future. ■

## ABOUT HEYE INTERNATIONAL

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

heye international

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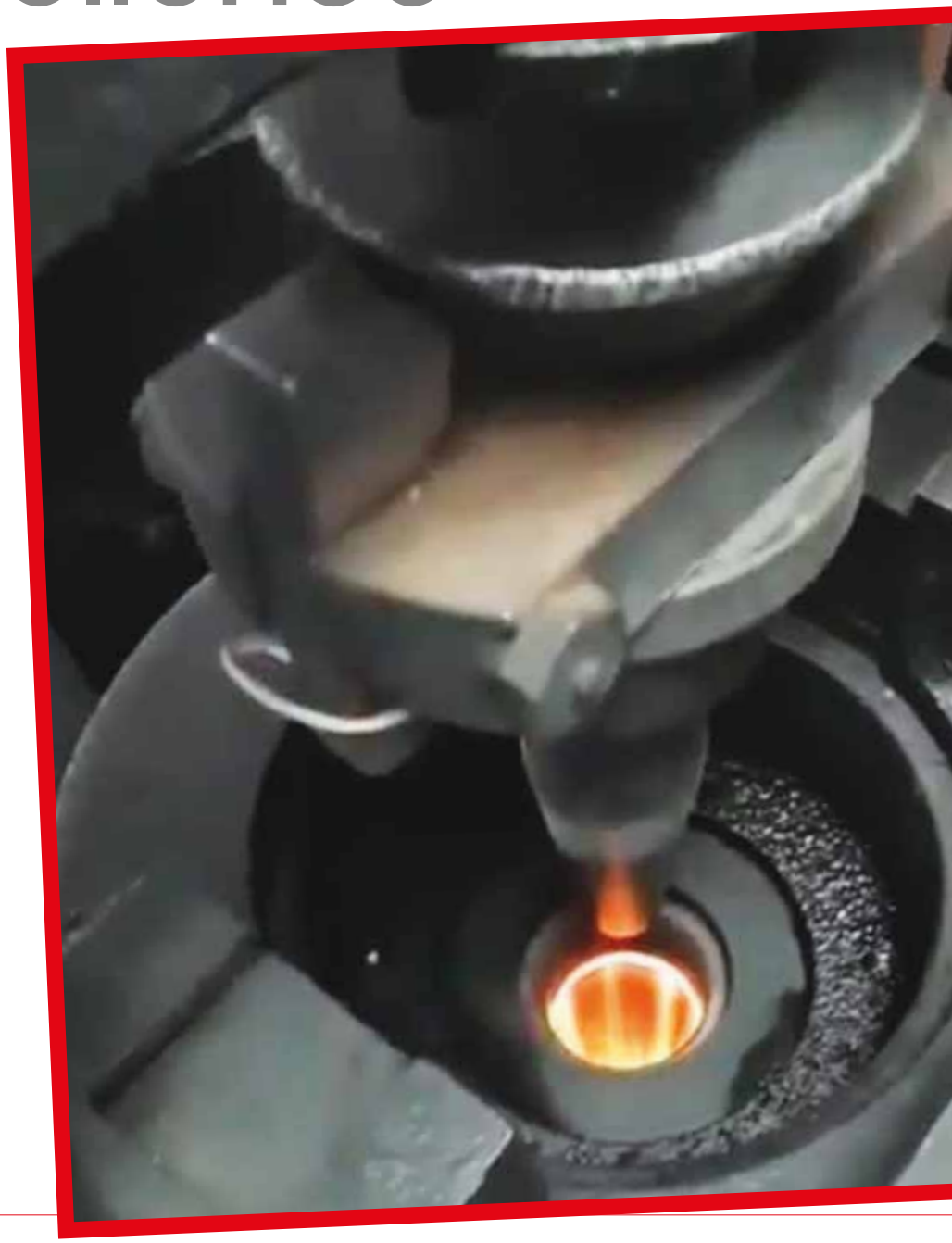
# FAMOR raises plunger cooling to newer heights of excellence

Today plungers in automatic high-capacity glass presses with twelve or more stations come as increasingly inadequate - whether the presses have just one station or whether they're automatic, with up to six. All get cooled from within by a flow of water. Yet despite the use of this method in both crystal manufacturing and technical glassware production in general, such excessive cooling is evidently unsatisfactory for fields of application that are so specific and usually have small production runs besides. Nowadays, indeed, externally-applied compressed air is the preferred cooling method for press plungers, both in single station presses and in those that are automatic and have up to six stations.



## CURRENT PAIN POINTS

The procedure has various notable disadvantages. Firstly, it necessitates a high energy consumption. And not only. The noise generated by both compressors and nozzles often reaches a level that's unbearable for operators. Secondly, productivity is hardly enhanced by the constant nozzle adjustments and required cooling air volume. Thirdly, this method involves an intricate system of ducts and pipework that obstructs both access to the machine and view of the work-

**With plunger cooling systems being a must for many automatic presses, GMP&A recently contacted FAMOR for some first-hand impressions on the advantages of the company's new automatic plunger cooling system.**

ing area itself. Other pain points come with air current adjustments, which are entirely left to the skill and experience of the operator. S/he will usually set the temperature to the lowest possible level, given that an overheated plunger will likely stick to the glass and even need dismantling – all to the detriment of glass quality, which comes best when temperature is at its highest. Here, too, quality is negatively affected yet further by unavoidable fluctuations in plunger temperature.

## NEW COOLING SYSTEM REQUIREMENTS

To best avoid the above-mentioned disadvantages, an improved plunger cooling system would need to offer the following features:

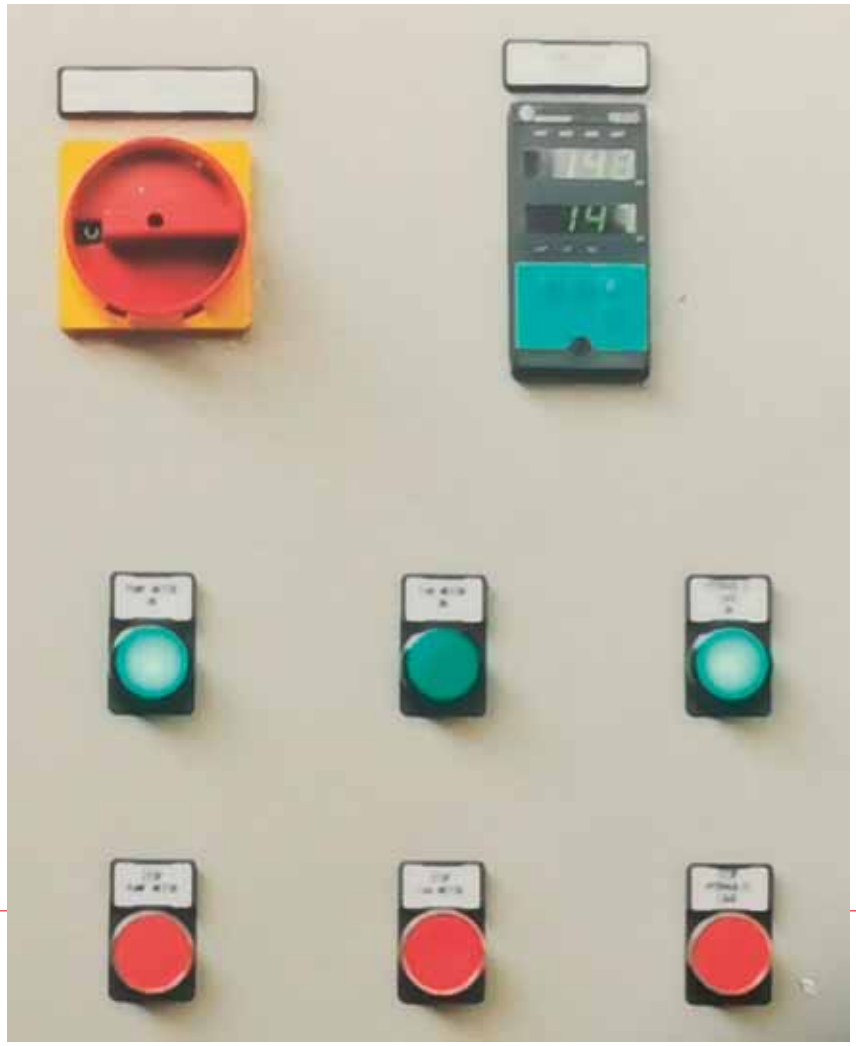
- Maintenance of a constant plunger temperature at a given level;
- Lowering of noise pitch to acceptable indices;
- Reduction of running costs using water as cooling medium;
- Plunger cooled from within;
- Reduction in technical measures to be taken, with necessary investments brought to a reasonable level;
- Guaranteed automatic monitoring of the plunger temperature.

For Famor Engineering, these mandatory requirements have resulted in development of the APCS (Automatic Plunger Cooling System) which, in practical applications, has proved itself exceptional.

## DESCRIPTION OF FUNCTIONALITY

A thermocouple element gets inserted into the plunger to measure temperature near its outer wall at a spot where contact is made between the plunger and the glass. The values recorded are then checked and processed by an electronic unit which regulates proportions. Should temperature exceed what's been preselected, the cooling medium is passed to the plunger, with supply interrupted only once the plunger has cooled again and the temperature has dropped below the rated value.

In practice, maximum temperature fluctuations from the rated value have been verified to never exceed 10°C. Here, even under such unfavourable conditions as those of borosilicate glass, the fluctuations -as read off the regulating unit- will just slightly exceed that tolerance level. Any short-term interruption of the working cycle has only a modest effect upon cooling, given that it will be instantly cut-off in the event of temperature dropping below the rated value. Soft water leaving the plunger is then evacuated by a hose. As for the two IN and



OUT hoses, both are equipped with quick-coupling fixtures which facilitate set-up and dismantling of the plunger.


## NECESSARY MODIFICATIONS

The plunger gets bored out (i.e. diameter increase) and fitted with an insert that very precisely controls all flow of the coolant while also being used to potentially exclude the upper plunger section from the cooling effect (the top drinking glass edge, which is almost invariably too low in temperature). For the interior layout of the modified plunger, the cooling medium is supplied through the centre pipe, leaving through the cavity. A recess is used for preventing a drop in temperature by the cooling medium in the upper section of the plunger. With considerable experience in the modification and conversion of plungers, Famor Engineering -as producer of this system- has already signalled that it remains at the disposition of customers in terms of making drawings available or undertaking plunger conversions for an appropriate charge.

## ADVANTAGES

- Maintenance of a constant and controlled temperature will greatly reduce the number of rejects attributable to over- or under-heated plungers;
- There's no need for constant cooling readjustment, thereby saving work time and relieving operators of a considerable burden;
- Intensive cooling allows for high working speeds (cycle times);
- The ingenious plunger modification (insert) ensures a uniform temperature over the entire exterior surface of the plunger;
- Precise temperature control allows for constant operation which yields optimum quality (improved surface finish, cracking prevention) and, to a certain extent, a reduction in wall thickness (thus saving in material) as well as improved appearance of drinking glasses, particularly at the rims.

## FIXING THE GUIDE RING

In automatic presses today, the guide ring is normally left on the spring cage – a method that's mostly unusable for single station presses, given that external plunger cooling will also cool the guide ring. As a result, this will cool to an unacceptable level, especially because so little heat is transferred from the pressed article. The guide ring is therefore left on the mould and only lifted from it once the pressed article has been removed. In some cases, the guide ring is given additional heating between press cycles - a somewhat unproductive procedure rendered obsolete by the plunger cooling described above. The guide ring now remains on the plunger, its temperature being constantly adjusted to that of the plunger. The free play between plunger and ring can thus be reduced to an unprecedented degree – a system which results not only in improved product quality as it also prevents seizing of the ring upon the plunger (due to the difference in temperature between the two parts). Here, a saving of the time previously required for setting-up and dismantling the rings remains of greatest importance.

## SUMMARY

The new system offers the following trio of key takeaways:

- The above-mentioned automatic plunger cooling system, for automatic glass presses with only a few stations, semi-automated presses and single-station presses, yields improved quality whilst offering a decreased wall thickness of the pressed glass article. This occurs at increased operational speed (cycle time).
- Noise is reduced to an acceptable level.
- The attention of the press operator is no longer consumed by constant checking of the plunger temperature and can instead be diverted to other, more important activities. ■

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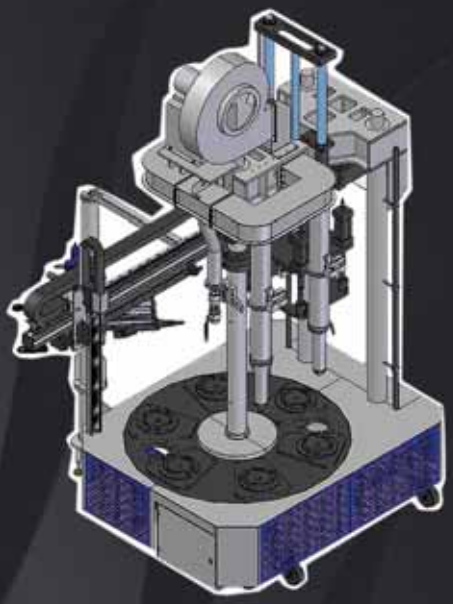

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# GBP 54 million destined for GLASS FUTURES at Saint Helens

With new financing integrated with current public and private investments, Research and Technology Organisation GLASS FUTURES continues to move ahead with its Global Centre of Excellence in glass project, which comprises R&D, innovation, training and the up-skilling of various industry players.

With Glass Futures due to release its final report from the last two years of project activity, here we look at its earlier report from 2019 to highlight the work that has been carried out in the past two years by Glass Futures into potential alternative fuel switching technologies for the glass industry. Glass Futures was founded for the precise purpose of developing a UK-based 'catapult-like' centre of excellence in glass focussed around a unique, multi-fuelled 'hot' glass pilot facility at St Helen's, Merseyside. The centre will seek to drive R&D, innovation, technology incubation and implementation, as well as training and up-skilling of industry technicians and professionals.

Bringing the global glass industry together thus with academia has Glass Futures leading some of the world's largest manufacturers and supply chain partners in the industry, as well as leading UK university research groups.

The centre is to be supported by a series of smaller research hubs across UK academic and industry research groups – all with the aim of strengthening and aligning existing industrial and academic expertise within the 'Northern Powerhouse' region. Here the ultimate ambition is to create a globally recognised UK-based glass technology and research hub that can capably drive significant improvements in productivity and sustainability within the global glass industry, thereby providing a platform that can propel the sector towards net-zero CO2 emissions by 2050.

## COLLABORATION WITH GLASS FUTURES

Glass Futures operates a membership subscription model for which any organisation from the global glass supply chain can join in membership for an annual fee to participate in collaborative research and gain access to technical information from some of the projects and work that is planned to be carried out on the new pilot line in St Helens, when it opens in January 2023, and enquiries for membership should be made to info@glass-futures.org.

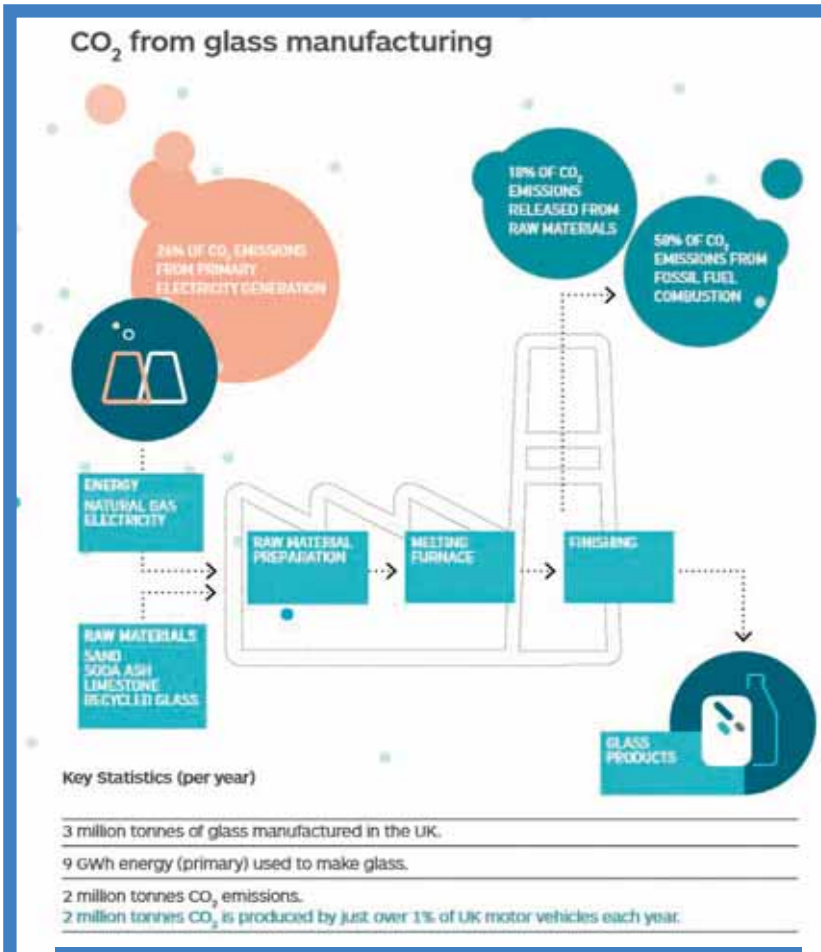
## THE GLASS INDUSTRY IN THE UK

The UK glass sector currently employs 23.200 people - generating GBP 3 Billion in revenues, which contributes GBP 1.6 Billion GVA to the UK economy (Ekosgen, 2019). The sector also makes a significant contribution to many other

sectors, further addressing existing social challenges. Innovations within the glass industry can potentially benefit everyone through enhanced energy efficiency in construction, improved ways of generating green energy, as well as by demonstrating the circular economy in action with the use of recycled materials and -across many sectors- developing novel applications that benefit medicine, agriculture, transport and advanced manufacturing. At its core, the glass manufacturing industry produces around three million tonnes (Mt) of glass per annum and generates more than two million tonnes of CO2. Of these emissions, 58 percent comes directly from fuel combustion and 24 percent from primary, on-site electricity generation, with 18 percent released from the decomposition of carbonate raw materials (British Glass 2014). Whilst the sector has indeed made progress by halving emissions over the past 50 years, the need remains to urgently accelerate existing efforts to increase energy efficiency while reducing CO2 emissions – all to meet the UK's 2050 carbon commitments. Given that many furnaces due for installation over the coming years will be expected to run for up to 20 years, it follows that new low carbon fuel technologies will need to prove themselves both technically and economically feasible within the next 10 years if the glass sector is to fully decarbonise by 2050.

To address this need, Glass Futures Ltd has successfully applied for, and secured, a GBP 7.1 million grant under BEIS Industrial Fuel Switching Competition Phase 3 following on from its GBP 300 thousand grant under BEIS Industrial Fuel Switching Competition Phase 2 - all to conduct its 'Alternative Fuel Switching Technologies for the Glass Sector' industrial demonstration. This ran from January 2020 to March 2022, yielding a significant amount of data and feedback, for which a final report is due to be published in June 2022, following on from an initial report in November 2019.

With further investments, project funding now totals GBP 54M, which includes a GBP 15M UKRI grant, secured to support the installation of the globally unique, experimental furnace and state-of-the-art infrastructure capable of melting 30 tonnes of glass per day - all within a safe experimental space. St Helens Borough Council, too, committed funds for pre-planning and planning costs, and the 'Build Back Better' fund of Combined Authorities of the Liverpool City Region has provided a GBP 10M grant to support construction. Network Space has secured private sector investment and glass sector companies are contributing a further GBP 20M in resources, time and equipment to support the project.




**Overview of glass process and original of CO2 emissions (British Glass, 2014)**

## THE OPTIONS CURRENTLY ON THE TABLE

In observing the plausibility that more than one solution is required, the report identifies significant infrastructural differences across the UK glass sector - all variously associated with furnace design, age and application typology among the factors influencing whichever route of decarbonisation proves most suitable at any given site. Here uncertainty over the availability and economics of fuels across the UK is also underscored as a variable factor, depending upon the region under examination. It follows, then, that no single fuel scenario is likely to comprehensively address the decarbonisation needs of the entire UK glass sector. Consequently, and to max-

imise the chances of swiftly and successfully decarbonizing the entire sector by 2050, the report privileges Biofuels, Hydrogen, 100 percent electric melting and Hybrid-fuel scenarios as the four fuel-scenarios it recommends for investigation and development.

## TECHNICAL OPPORTUNITIES

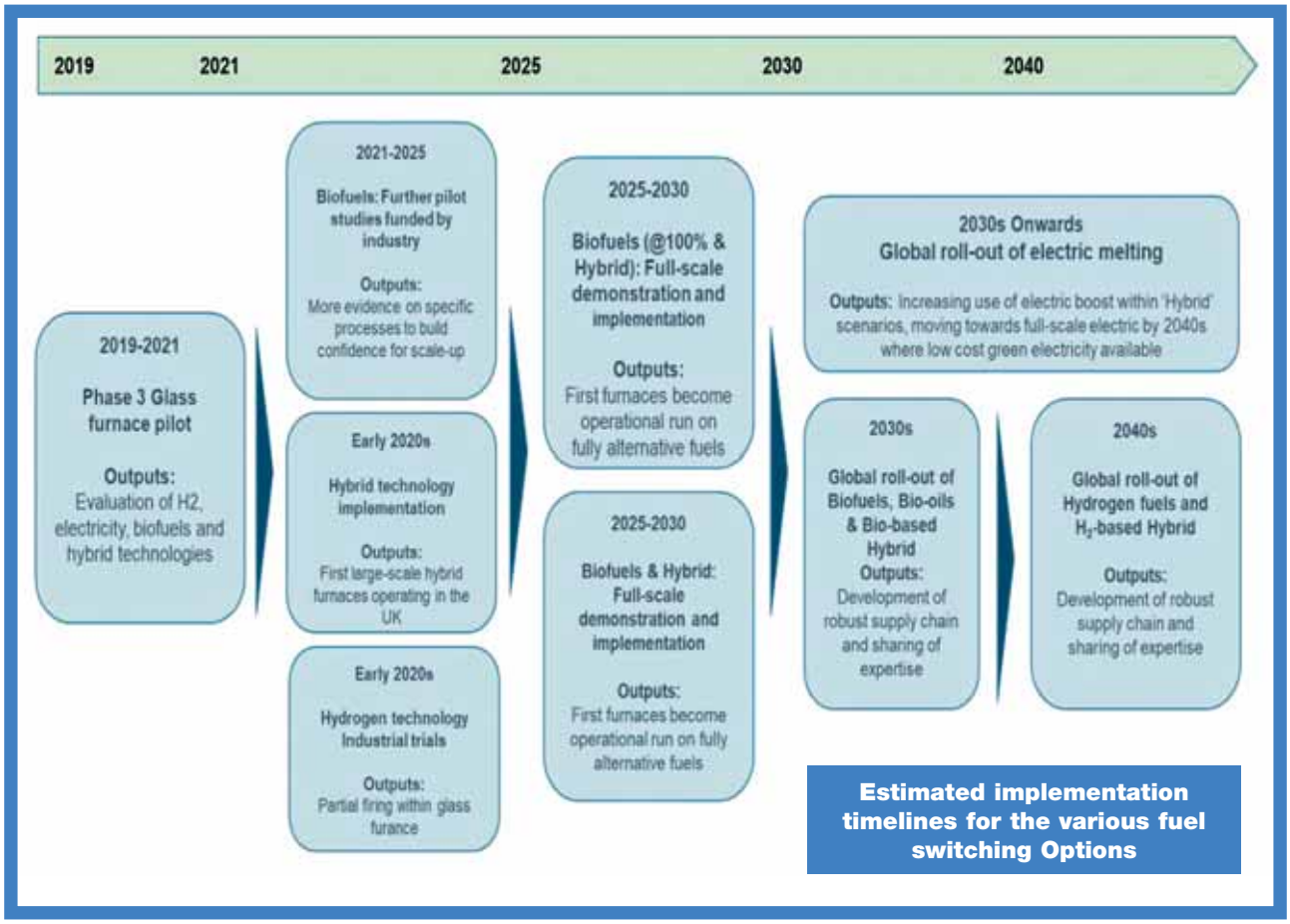
Given the glass sector's commitment to decarbonisation, the UK's industrial strategy to support this ambition and existing combustion technologies research expertise within the UK, there's a significant opportunity for the country's glass sector supply chain to bring new technical concepts to market, thus becoming a world leader in the decarbonisation of a heavy industry. These same new supply chains and processes could also provide knock-on benefits to such other sectors as Steel, Cement, Ceramics, Waste management and Energy generation.

Through industry engagement activities and literature reviews, the Phase 2 study identified much interest in fuel switching within the glass sector while also underscoring significant knowledge and technical barrier gaps that need to be addressed in order for this to be realised. The study further notes that the UK has the industrial appetite, the necessary research excellence and the government backing to address these challenges. As such, the technical developments and capabilities required to decarbonise the UK glass sector represent an important area of opportunity for UK-based businesses and research organisations to become global leaders in the field.

## TIMESCALES AND FINDINGS

The study highlighted the significant impact the economics of fuel switching will have upon uptake timescales. All four of the proposed solutions investigated are reported as having the potential to enable a full decarbonisation of the heat required for glass melting across the UK glass industry before 2050. However, it's considered that to fulfil this timescale, large scale demonstrations would need to occur within a relatively short time frame (<10 years) to allow industry to make the business cases and engage new supply chains that can bring these decarbonised solutions online within 10-20 years. Here just the 15-20-year life expectancy for glass furnaces makes these timescales essential if the industry is to decarbonise by 2050.

Although an economic study was undertaken, the high level of uncertainty in fuel costs resulted in a conclusion that any of the options could represent the most economically feasible option in the future. It's stressed that this is important and is reflected in the decarbonisation roadmap for




**Estimated implementation timelines for the various fuel switching Options**

the glass sector, which currently shows heavy reliance upon electrification.

There is great concern across the industry that, without significant investment now, the country's ability to carry out the required research will become difficult. This is due to the capital-intensive nature of the glass sector, coupled with the requirement to run uninterrupted 24 hours a day, 365 days a year - which, as a process, hardly lends itself well to demonstrations of disruption. The glass industry has limited available R&D funding, much of which is already committed to product development rather than to process development. Moreover, the magnitude of the required research and investment warrants a united approach across all glass industry sectors, together with full government backing.

## SOME BACKGROUND

The UK Government has committed to reducing net carbon dioxide emissions to zero by 2050. National efforts to meet these emissions reduction targets could potentially result in conversion to a hydrogen gas grid. Alternatively, it could see localised decommissioning of the gas grid and a move towards electrification and decentralised energy supply.

It's estimated that 90 percent of UK industry relies on energy supplied from the gas grid either directly for industrial processes or indirectly in day-to-day business. Whilst the glass sector has made progress by halving emissions in the last 50 years and its products contribute to energy savings in other sectors (including glazing and insulation, wind turbines and aerospace), the need remains to urgently accelerate efforts to increase energy efficiency whilst reducing CO2 emissions to meet the UK's 2050 carbon commitments.

The BEIS Glass Industry Decarbonisation and Energy Efficiency Roadmap to 2050 has identified 100 percent electric melting as the preferred route to decarbonisation of the industry. However, findings from subsequent industrial engagement activities have identified other technologies that can be considered now as genuine alternative routes to decarbonisation, such as biofuels and hydrogen - none of which were highlighted on the original industry roadmap. The Phase 2 study sought therefore to build upon the original findings to increase understanding of those different options while exploring how best to facilitate a wide-scale adoption of all low-carbon fuel scenarios across the glass sector.

## BEIS INDUSTRIAL FUEL SWITCHING COMPETITION REMIT

BEIS has stated that the aim of the Industrial Fuel Switching Competition is to identify and demonstrate solutions which will enable industry fuel-switching from fossil fuels to those that are less carbon-intensive. These include electrification, hydrogen and biomass (while biomethane is a lower carbon fuel it's not within the scope of this competition). Here the Competition was split into three phases:

Phase 1 - a market engagement and assessment study into fuel switching in the UK;

Phase 2 - a feasibility study into fuel switching solutions;

Phase 3 – a demonstration of funding for these solutions.

In Phase 1, the market engagement and assessment study conducted by Element Energy considered the viable energy sources for industrial fuel switching, the industrial processes compatible with fuel switching and potential solutions for the achievement of such switches. As for Phases 2 and 3, BEIS' stated aim was to identify and test the requisite processes and technologies for UK industries to switch to low carbon fuels while examining funding options for the consortium to demonstrate the feasibility of their proposed technology or approach.

## STUDY SCOPE

In preparation for the Phase 3 bid, Glass Futures undertook a detailed review of the original glass industry decarbonisation roadmap alongside discussions with a number of industrial and academic partners.

These highlighted that, due to differences between manufacturing requirements of subsectors (including float, container and glass fibre), capital refurbishment timetables and predicted future variations in availability and affordability of different fuels across the UK (e.g. localizable hydrogen supply; limited local grid capacity for electricity supply) no single low-carbon fuel scenario is likely to be suitable for all glass manufacturing processes. It was therefore agreed that the scope of the Phase 2 study should cover the following four low-carbon fuel scenarios:

- Biofuels (with the potential for a subsequent addition of carbon capture utilisation and storage (CCUS);
- Hydrogen;
- 100 percent large-scale electric melting;
- Hybrid fuel scenarios (i.e. combinations of the above, with or without natural gas)

Despite a strong argument to add biomethane to this list, the fuel was considered beyond scope, thus remaining uninvestigated in the study.

## THE RESEARCH APPROACH

Led by Glass Futures and project managed by Glass Technology Services Ltd. (GTS), the Phase 2 study consisted of five work pack-

ages and was supported by project partners representing glass manufacturers (Encirc, NSG Pilkington), furnace designers (F.I.C, Tecoglas), control systems supplier (Siemens), research groups (Sheffield Hallam University, University of Leeds) and The Society for Glass Technology. Further support was provided by Element Energy, and the University of Sheffield.

Here the Phase 3 study aimed to determine technical and economic feasibility for each of the above four fuel scenarios, along with the potential to decarbonise the glass furnace heating process while meeting regulatory requirements.

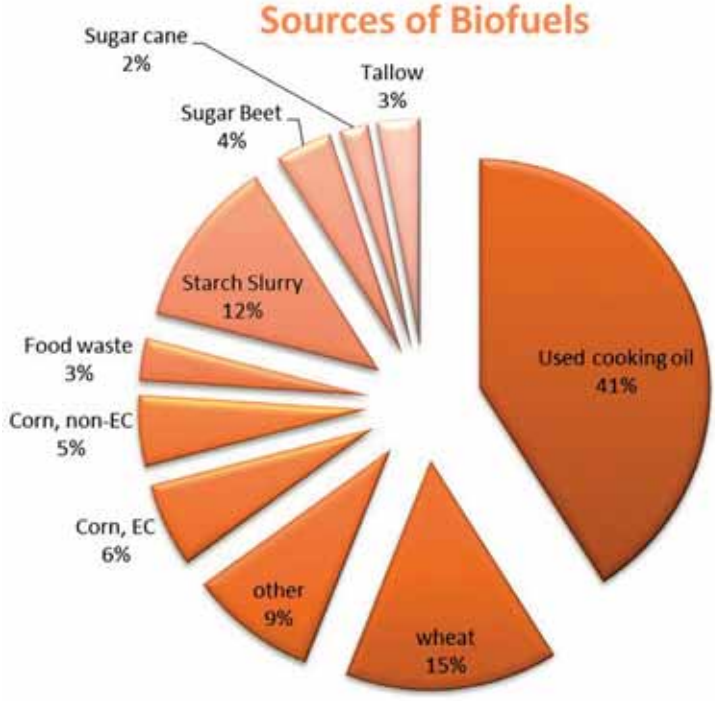
## A POSSIBLE IMPLEMENTATION TIMEFRAME

The study indicates that, given suitable R&D investment, biodiesel could enable the glass industry to eliminate up to 90 percent of the CO2 emissions associated with heating glass furnaces by 2030. Not only. If combined with CCUS, this could provide a route to negative net-carbon emissions.

However, it's likely the industry would instead be after a hydrogen-electric hybrid over the long-term (when such fuel sources are available), possibly with a small amount of bio-oils (either to optimise the hydrogen flame or as a back-up when electricity is in high demand), such that fuels could be delivered to sites without any need for a road-based haulage network. This also reduces the reliance upon the biofuel network - freeing it up for other sectors.

## CONCLUSIONS AND RECOMMENDATIONS

Due to uncertainties and differences between subsectors as well as predicted variations respecting future availability and the affordability of various fuels across the UK (e.g. potentially localised hydrogen supply, limited local grid capacity for electricity supply), no single low-carbon fuel scenario is likely to suit all 17 of the largest glass manufacturing sites - which jointly accounts for the greater portion of UK glass manufacturing output (as well as associated CO2 emissions from glass melting). Of the four possible fuel scenarios investigated (biofuels, hydrogen, large-scale electricity and flexible-hybrid), the study found that each can offer technical feasibility, thus affording the glass furnace heating process a possibility to fully decarbonize while meeting regulatory requirements - provided that the fuel be supplied economically.




sources of Biofuels used in the UK

## BIOFUELS

Fuels directly derived from wastes or from 100 percent renewable bio-sources (blends with standard diesel being thus excluded) are known as biofuels. These are presented as a worthy fuel-switching possibility, given the similarities of certain biofuels to gas oil - a fuel the industry prefers over natural gas and considering the added potential to use lower cost bio-fuels. The UK already has biofuel upgrade capacity to supply the entire glass sector - a viable solution that could be strengthened in the event of subsequent CCUS application to mitigate process emissions and provide the sector with negative emissions. Here, however, a lack of understanding was noted as to how biofuels will perform within a glass furnace as compared to natural gas and standard diesel - especially respecting their effects upon glass melting behaviour and on emissions, since no global cases of firing a glass furnace with bio-oils have been recorded hitherto. All this necessitates further R&D in these areas.

## HYDROGEN

Citing our poor understanding of how hydrogen will perform within a glass furnace, the report articulates key concerns which include heat transfer mechanism, airflow volumes through the furnace,

H&S implications like ATEX-rated equipment, effects upon glass-melting and furnace refractories as well as the suitability of furnace geometry and, finally, the effect on emissions, e.g. higher NOx due to hotter flame. Here an ambitious R&D programme that can build a competent understanding of these and other technical challenges is flagged as necessary – a requirement that's further extended both to investment in training programmes and to building an informed understanding of the site requirements for hydrogen fuel implementation. Referring to conversations with BOC the report advises that, as things stand, it would only be possible to commercially source suitable volumes of hydrogen to provide three-to-five percent fuel for a typical glass furnace. The report continues that for the present this would render any meaningful large-scale trial challenging, though suitable volumes may indeed be available in the future. Larger supplies of hydrogen would nonetheless be required to enable the glass sector to undertake meaningful large-scale trials.

## LARGE-SCALE, 100 PERCENT ELECTRIC MELTING

The study identified that furnace designers are reasonably confident they can design larger-scale (>300 t/day) electric furnaces, despite such technical unknowns as how efficient a semi-hot top furnace might be. Owing to a lack of industry interest, little modelling -if any- of such designs has been undertaken – all of which should be the focus of short-term R&D efforts. Here the greatest barrier to implementation is centred upon electric melting economics (i.e. the higher cost of electricity as compared to that of natural gas). Uncertainties also remain around the scope/cost of supply upgrades to each UK site in order to facilitate full-electric melting, as well as the CAPEX investment required for new furnace designs or potential plant layout changes. Of course, for 100 percent electric melting to become viable across the UK, all suitable incentives and advance investment into national supply infrastructure will have necessitated significant prior engagement with government.

## FLEXIBLE HYBRID-FUEL SCENARIOS

Beyond the natural gas-electric furnaces so widely-used, hybrid scenario possibilities have received scant attention. Dynamic fuel-switching systems too have been inadequately examined, as has the impact such systems might have upon the environment in terms of emissions or CCUS.

Within this scope, the following scenarios have been identified as having the greatest potential: (1) biofuels + natural gas + electric, (2) hydrogen + natural gas + electric, (3) biofuels + hydrogen + electric. Further R&D studies and furnace modelling are thus recommended to identify the most suitable hybrid furnace designs, which should then be worked up into pilot furnaces for larger-scale trials. The longer-term impact of a UK industry equipped with specialist knowledge in advanced furnace control could prove highly advantageous to both the economics of UK-based glass manufacture and to specialist, UK-based knowledge that can be exported globally.

## BIO-METHANE

Although bio-methane was not covered within the study (owing to its being beyond the competition scope), it nonetheless represents a potential route towards decarbonising the glass manufacturing process, thus rendering it a worthy candidate for future studies.

## CO2 REDUCTION POTENTIAL

The report concludes that the low-carbon fuel technologies under study have the potential to remove up to 1.2 million tonnes of CO2 emissions per year by 2030, which totals at over 20 million tonnes by 2050. However, without continued funding in this area the industry is unlikely to explore such fuel scenarios until after 2030. Besides, these new technologies are unlikely to be implemented widely until after 2040. Also, the need was identified to develop a research infrastructure as well as expertise within the UK that can support and drive rapid implementation of these low-carbon fuel technologies. Respecting the UK economy this would have a knock-on benefit in terms of creating new, high-skilled, jobs whilst leveraging significant international R&D investment.

It was further underscored that the glass industry should review the 2014 British Glass decarbonisation roadmap in order to update plans in accordance with the research findings - all to ensure that the industry is not only aware of the most promising decarbonised fuel technologies but also signed up to implement them.

## NEW REPORT TIMELINE

Due to the successful funding of a GBP 7.1 million programme from 2020 to 2022, a report will be published with a major update on the above initial work carried out and this will be publicly available in summer of 2022, published by BEIS. This report will outline the success of some major industrial trials and a significant amount of laboratory work that has advance the knowledge and understanding of these low carbon fuels. ■

ADVANCED
CONTAINER
HANDLING

# #detailsmatter

achandling.it

HANDLING

# ADVANCED CONTAINER HANDLING raises the bar for cold-end lines

**With the new buzzword #detailsmatter being all the rage now at ADVANCED CONTAINER HANDLING, we learn from CEO Domenico Tarantolo how this connects to the need for new blood in his company.**


GMP&A spoke to Tarantolo about the beginnings of Advanced Container Handling, its collaborations and its characterizing vision – focusing upon perspectives, developments and the synergies put in place to face international markets, which is always a mammoth challenge. Of all the questions posed, his answer to that of current and future plans concerning expansion shed light upon growth growth in headquarters staff numbers all within a highly competitive climate which, as he underscored, "begins to need new blood for the pure benefit of the final customer." It also betokens an increase that extends beyond Italy thanks to an important agreement, still

under implementation, to create a commercial and service network within the United States - all based upon competence and an elevated quality of support.

Tarantolo explained how the name Advanced Container Handling (ACH) derives from terminology common to the business - which immediately identifies orientation. Here the story began from the company's active listening to customer needs, coupled with the kind of first-person interaction that can best ensure service provision and equipment design – all through various tailored solutions and the manufacture of customized systems.

This same orientation was proved recently when ACH took robotic palletization to a new level after presenting an innovative project for Stoelzle that saw it successfully creating and replacing various transport and automation lines after elevating and improving technology levels. That was achieved thanks to cutting-edge solutions – all adopted for the benefit of better, and easier, handling. Specifically, it impacts the processing of those products that require greater care and atten-

tion throughout every phase of production to guarantee efficiency, productivity and flexibility.

Working jointly in a winning synergy between ACH engineers and technicians at Stoelzle Group, based in Koflach -who coordinated the work of the various companies involved in the project- every line start-up proceeded according to plan, with the system finished on schedule thanks to the collaboration and efficiency of all the players involved. However, no less importantly for a start-up like ACH, each of the expectations was met, which is hardly a given for a company that entered the market only a year ago.

Says Tarantolo: "Here's how we stand out as a company: customers know they can count on a direct answer that comes from a genuine passion for the business. As a start-up in Italy, that passion was already part of our DNA at the outset - powered by strong emotions around food, architecture and technology, among other industries. In this area that's typical - so it could hardly have gone otherwise. It also follows through in the way the company regularly faces any challenge."

Other distinguishing features of ACH are its knowledge and creativity. Knowledge, in the form of a heightened understanding ranging from operational levels to investment – not just from titles or

personal qualifications but gained also first-hand within the field: years of experience, different projects, different countries. As for creativity, all this comes with the innovations we introduce while proposing simple solutions that can drive greater efficiency and an alternative approach to flexibility, together with new ideas for customized handling systems.

It's coupled with this simplicity that our reflections aim always to be realistic in putting the resources to their best use right from the start - thus resulting in short and long-term benefits all round. Here understanding the needs and having solutions that are both basic and innovative are all in the mix, irrespective of how ambitious the project or how big the deal – with everything executed just the way it should. Such is the key to best meeting customer expectations and arriving at project success.

Finally, Tarantolo was also proud to announce the construction of other plants in both Europe and further afield - two complete lines for the United States in particular. He observed that this would consolidate and concretize the company's presence within an important, sizeable market considering that, as first step upon American soil, this development was as significant as it was fundamental, given how difficult it is for a company to position and enlarge its footprint without earlier precedent. ■

REGIONAL STUDY

# LATIN AMERICA sees glass bottles market primed for growth

**Prompted by an expansion of the middle class in LATIN AMERICA, a recent report by 'Research and Markets' examines why current regional investments in pharmaceuticals will likely add more traction to the glass bottles market whilst further boosting economic growth.**

According to Latin America Glass Bottles and Containers Market - Growth, Trends, COVID-19 Impact, and Forecasts (2021 - 2026), the region's glass bottle and container industry was valued in 2020 at an estimated USD 5215.1M. Now it's expected to reach USD 6731.97M by 2026, signaling growth at a projected CAGR of 4.4 percent over the forecast period 2021 to 2026 - a market drive accounted for by an increasing demand from the beverage industry. As reported by Argentina's Secretary of Integral Policy on Drugs, the country consumes more alcohol per capita than any other in Latin America. Yet besides alcohol consumption being considerably high nowadays amongst Brazilians, rising consumption of such non-alcoholic beverages as milk and juices is also expected to create further scope for the glass bottle and container market in the region.


The market is being further driven by such innovations as lightweighting and effective recycling. Here newer production methods and the effects of recycling both facilitate quantitatively higher manufacturing - all with thin-walled, lightweight glass containers. Not only. The development in Latin America of the Narrow Neck Press and Blow process has allowed for a significant reduction in glass-bottle weight.

Moving to the downsides, high competition from substitute products is presently restraining the market. This sees changes in existing con-

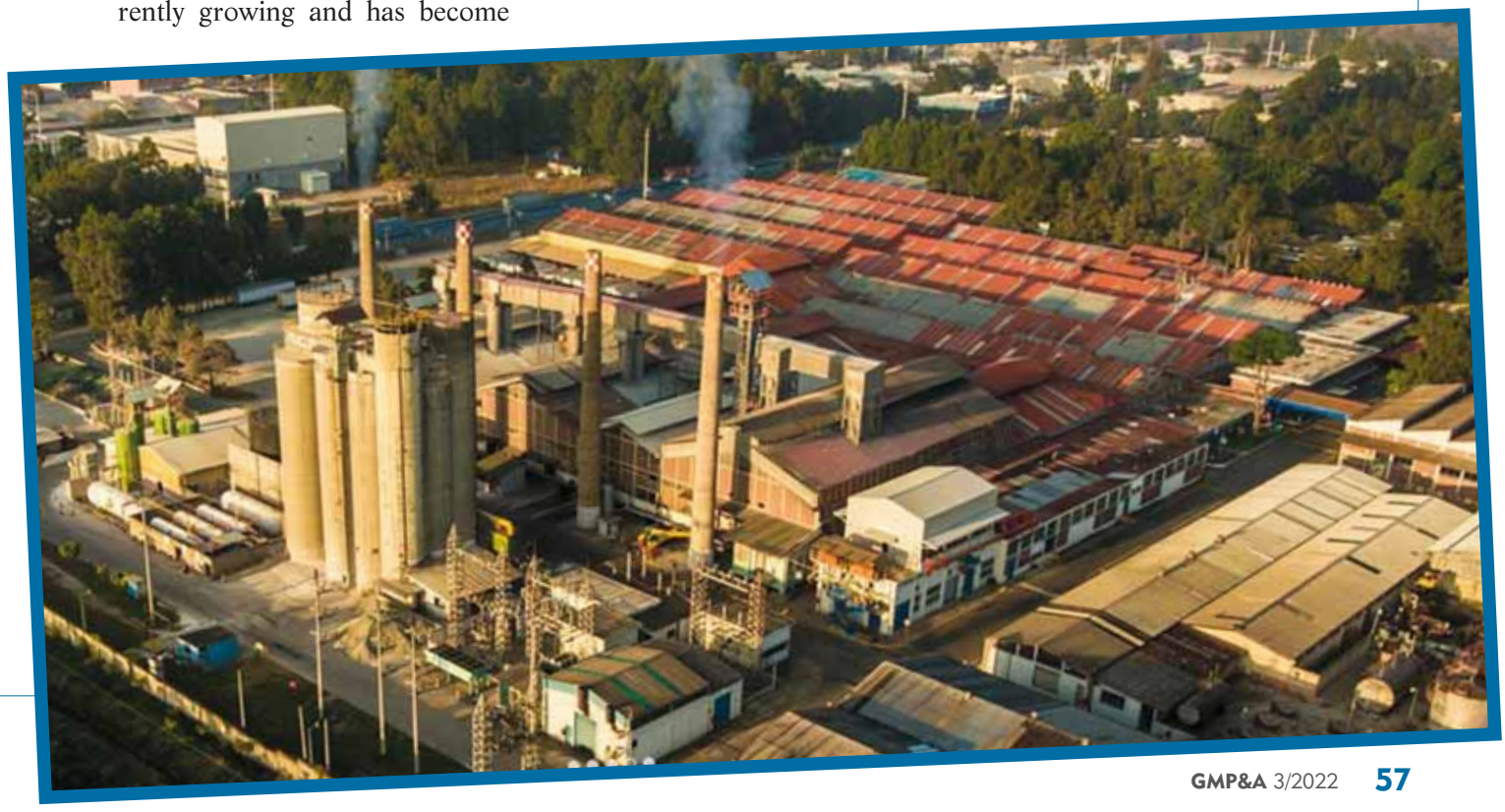
sumer trends toward convenient and comfortable handling solutions anticipating a drive in demand for flexible solutions, with incremental enhancements in plastic packaging solutions posing a threat to the glass packaging market.

## REPORT SCOPE

The Latin America glass bottle and container market is currently growing and has become attractive to both foreign glass bottle makers and other companies owing to such factors as rich natural resources, low-cost labour and increasing consumer expenditure. Apart from cosmetics and carbonated drinks, the region has also registered an upsurge in alcoholic beverages. As an alcoholic beverage, beer is in especially high demand in such regions as Columbia, Mexico (including Caribbean) and Argentina.

## MILK AND OTHER DAIRY PRODUCTS TO HOLD SIGNIFICANT SHARE

Latin America's dairy market is among the fastest-growing in the world. While wider prosperity has helped shift demand from glass to rigid plastic and metal, that of value-added packaging



-like reusable glass- remains nonetheless high. For a long time now, refillable glass bottles have made beverages like milk more affordable for consumers in the region.

Amcor has developed 'glass-look-alike' clear polyethylene terephthalate (PET) bottles to address the growing demand for transparent dairy packaging in Latin America. Here, to protect its contents, the container includes a 38-mm finish as well as an ultraviolet (UV) blocker.

According to the US Department of Agriculture, the production of fluid milk in Mexico increased by 12 percent from 2010 to 2019. Given that they preserve the flavour of dairy products -much longer than other packaging types- glass bottles are mainly used for milk packaging. This is because glass is less likely to allow contents to mix - either with air or with chemicals.

Many companies in Mexico have increased the shelf-life of pasteurized fresh milk from 7 to 15 days, which is achieved by incorporating silver-based microparticles that include antimicrobial, bactericidal and self-sterilizing properties into the plastic bottles used in milk packaging.

## COSMETICS SECTOR SET TO DRIVE MARKET GROWTH

Shifting our attention to cosmetics packaging, this segment includes skincare products, hair care products and perfumes. Here, Latin America is currently seeing an increase in the incorporation of high-end luxury products, which continues to gain traction as glass endows fresh elegance to the appearance of products - imparting premium status besides.

It doesn't end there. A rise in disposable income within countries like Brazil adds still further to the global demand for premium cosmetics products. Here the cosmetics industry is expanding continuously, placing itself among the fastest-growing and most vibrant of its kind the world over.

With cosmetic product sales increasing from eight to ten percent over the last decade alone, Brazilians are also expressing new interest in self-grooming and personalization. Indeed growing sales has made Brazil the largest consumer of cosmetic products in Latin America, with men's products continuing to be popular especially among young people, who are now ever more conscious about their appearance. All this boosts the demand for glass packaging in cosmetics today.

Especially relevant in this area, and just hot-off-the-press, is the purchase of Verescence do Brasil by Wheaton Brasil Vidros. Already a leading producer of high-end glass packaging for the cosmetics, perfume and pharmacy markets, Wheaton Brasil Vidros here buys the Brazilian subsidiary of Verescence (formerly SGD), thus consolidating its position within the country's market while ranking itself among the world's leading glass manufacturers for the luxury sector.

## A COMPETITIVE LANDSCAPE

The Latin American glass bottles and containers market is a fragmented one, with both regional players and international vendors all jockeying for their share in the market. Key players here include (among others) Vitro, Cattorini Hnos SA, Wheaton Brasil Group, all of which attract customers by way of moderate market competition that arises from pricing, as well as other powerful competitive strategies.

Finally, recent developments in the market include the announcement by Vitro of a USD 60M investment in new technologies over February 2019. These investments will focus upon North America - all to strengthen its market leadership in automotive glass while supplying original equipment manufacturers and aftermarket customers. ■

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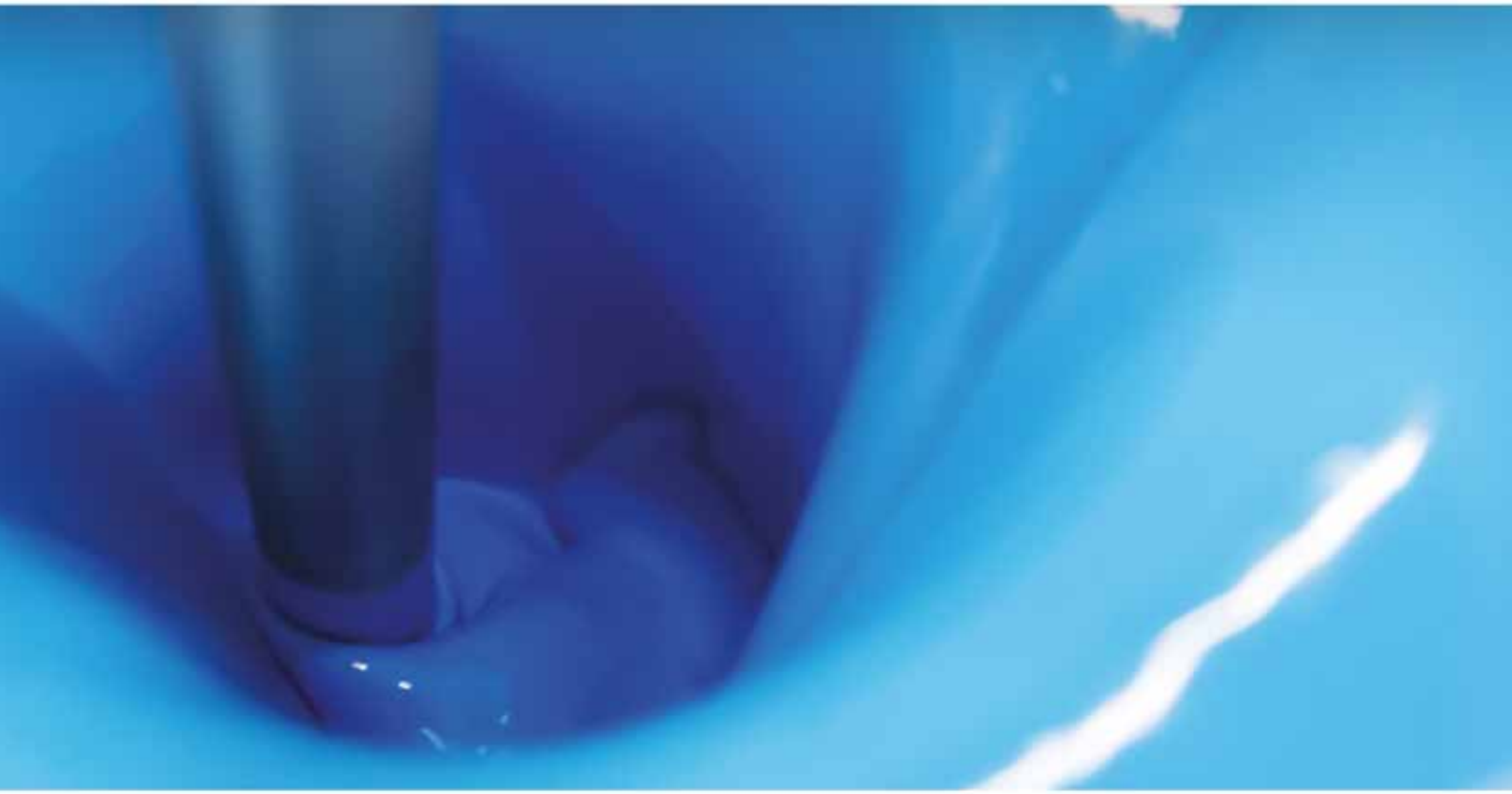

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# GLASS SERVICE ITALY at Glassman Latin America

**With all eyes upon the glass industry in Latin America, GLASS SERVICE ITALY was always quick to see how mushrooming production sites in the region have shown telltale signs of a flourishing expansion.**

Photo credit: Rick González, CC BY 2.0 <https://creativecommons.org/licenses/by/2.0>, via Wikimedia Commons

The global glass industry is currently estimated to be worth more than $120 billion, with 44% of this made up from the container glass segment (Grand View Research), meaning huge opportunities for those who can service hollow glass markets. Driven by increasing demand for both beverage and pharmaceutical glass, the glass bottle and container market in Latin America alone is estimated to reach $ 6.7 billion by 2026. This predicted expansion is already in evidence as we move into the middle of 2022 and multiple new production sites and developments are rumoured or underway in the region.

The huge global popularity of Mexican beers and tequilas have provided a welcome boost to the requirement for regional glass manufacturing facilities. Moreover, with Brazilian manufacturer Nadir Figueiredo flexing its muscles to purchase Cristar Tabletop, the glass manufacturing firm, from global player O-I, the region is on the up. Nadir and Cristar have the largest production capacity in Latin America and one of the most comprehensive glass tableware portfolios in the world. It is an exciting time to be in the region and this industry.

## GLASSMAN EXHIBITION AND CONFERENCE

Taking place on May 11 and 12 in Monterrey Mexico, the Glassman Latin America event is returning once again to provide the platform for a constructive gathering focused on the region's glass industry. It brings together peers and experts to discuss technological and commercial developments and opportunities and is the first B2B event for the region's industry in several years.

## GLASS SERVICE ITALY AT GLASSMAN LATIN AMERICA

Glass Service Italy is truly excited to be taking part in this event for the Latin American sector. The company is poised to work with regional partners on delivering the most innovative, economical and environmentally-minded glass manufacturing equipment and services,

### GLASS SERVICE'S KEY OFFERINGS:

- Glass furnace design and installation capabilities for making electrical, glass tile, sodium silicate, artistic, container, neutral and borosilicate and tableware products.
- Cutting edge design and supply of these furnaces and other bespoke or turnkey equipment, including their production and installation.
- An equipment catalogue that incorporates all glass manufacturing needs from forehearths and furnaces, to radar glass level machines, heat recuperators, batch charges, control boards, distributors, forehearths and much more - and in many cases solutions can be turnkey or bespoke.
- The latest in heating technology including Oxy Gas and Air-Gas burners.
- Advanced innovation including robotics and automatic/ semi automatic batch plant technology.

***GLASS SERVICE BY NAME...***

The company prides itself on putting customer service at the heart of the business and as such, customers will benefit from consultation on their needs and specifications throughout the process of working with Glass Service Italy. Whether it is raw materials analysis, furnace preheating, startup and servicing, glass defects analysis and troubleshooting, batch studies or the primary installation phase. Glass Services works hard to ensure that customers are kept appraised and supported throughout the process and to deliver both products and services that result in happy and long lasting relationships with our clients.

building on relationships already established with local businesses.

You can find Glass Service at stand A14 where our knowledgeable representative for Latin America, Anne D'Orazio will be ready to help you with any questions, update you on our latest and most popular technologies and to show you how Glass Service can help you to begin, or to scale up your glass manufacturing operations, efficiently, economically and reliably.

## WHAT YOU CAN EXPECT FROM GLASS SERVICE ITALY

Glass Service Italy has substantial experience in delivering glass manufacturing equipment around the world. In Latin America, Glass Service Italy has regularly provided and installed combustion systems and control boards to glass manufacturers - and now that customers are demanding ever more environmentally focused solutions - Glass Service Italy has proven time and again that it is ready to work together with clients on improving their carbon footprint, including the growing usage of oxy-gas combustion which can enable reductions in $CO_2$ emissions of -15%.

Glass Service Italy works with clients all over the world from its headquarters in the Pisa province of Italy. The Glass Service Italy team is highly skilled and the company revolves around sector-leading engineering and innovative solutions for several types of glasses such as: container, tableware, mineral-wools, neutral-borosilicate and sodium silicate amongst others. They can deliver turn-key solutions for single ancillaries like slitting or batch chargers or bespoke, comprehensive manufacturing services and products to fit the precise needs of clients. As a preferred distributor for Honeywell and Comau in Italy its credibility and reputation as a sector-leading company is deserved. Glass Service Italy's key differentiators are agility, a good balance of quality and economy and its broad expertise and experience in combustion systems, borosilicate glass, colouring feeders and stirring machinery. ■

**Anne D'Orazio - Area Manager**


**Glass Service at Glass Latin America: Stand A14**

# ZeroCO2Glas sees STOELZLE and IPGR join forces for sustainability

It's almost two years now that R&D experts at STOELZLE have teamed up with International Partners in Glass Research (IPGR) in a joint commitment to advance the competitiveness of glass within the packaging industry.

# EMISSIONS REDUCTION

With sustainability being a core value of the company for many years already, it's hardly surprising that significant investments have been made in both technologies and processes which span the whole of production – all to drive eco-friendly solutions that can reach important targets in the field of energy reduction.

## ZEROCO2GLAS

Numbered among these achievements is Stoelzle's participation in ZeroCO2Glas with German research association IPGR, which aims by an all-encompassing approach to develop a revolutionary glass melting process that includes the development and set up of a new, CO2-neutral energy-saving furnace through a project funded by the German Ministry for Economy and Climate BMWK to a maximum of EUR 8.38M, for a total project volume of circa EUR 14.94M. Here, besides the role of IPGR as technology partner, other consortium partners include Aachen University for research and development as well as Horn Glass Industries and Wiegand-Glas as industry partners.

## CURRENT SUSTAINABILITY CHALLENGES

With around 4.1 million tonnes of glass per annum, the hollow glass sector produces 53 percent of its glass in Germany -the largest share- of which 98 percent is represented by container glass. It's against this backdrop, and always within a very energy-intensive industry, that up to 85 percent of the requisite energy during manufacture is directly attributable to melting (depending upon glass type and production process). That alone makes the project a noteworthy contributor towards increasing energy efficiency whilst expanding renewable energies and significantly reducing greenhouse

**R&D-partner**

- High research expertise in the field of glass and melting technology
- Close connection between basic research and industrial application
- High research and industry expertise in furnace construction and heat transfer
- simulation and modelling

**Technology-partner**

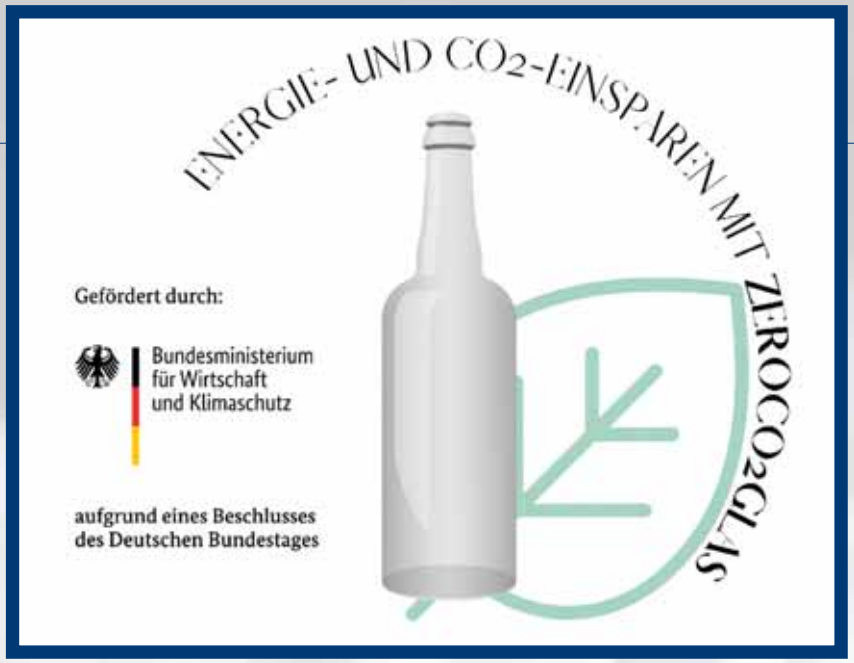
- Official affiliated institute of the RWTH since 2019, Chair for Glass and Glass Ceramics
- Research institute in the field of packaging glass, est. 1984
- Project consortium coordinator
- Worldwide connection

**Industry-partner**

- One of the world's leading large-scale furnace manufacturers in all areas of the glass industry
- Technology carrier in the project
- FRG-wide one of the largest glass packaging manufacturers >2.9 billion p.a.
- End Users of the Technology

gases - all very relevant at this historic moment given that, by 2050, primary energy consumption should fall by 50 percent compared to 2008. To this we add the share of renewable energies in final energy consumption, which should increase to 60 percent, while greenhouse gas emissions should fall by at least 80 percent compared to 1990.

As things currently stand, batch mixtures brought into furnaces must be heated to a temperature ranging from 1.450°C to 1.650°C before being converted into glass, which is mainly done within large furnaces by natural, gas-fired burners. This shows that glass, glassware, ceramics, processed stone and earth all account for around seven percent of primary energy consumption in the industry.




## PROJECT AIMS

Returning to ZeroCO2Glas, it's at the second stage of project upscaling -and once all approaches have been tested on a laboratory scale- that set up will go ahead in Aachen, Germany, of the hybrid furnace with hydrogen-oxy and natural gas-oxy firing as well as electrical heating - representing, together with the corresponding peripherals, a fully-fledged container glass site.

This will focus upon the melting process, opening up potential savings of a particularly large amount of energy and greenhouse gases. Indeed, its innovative melting technology aims to reduce energy consumption by 15 percent as compared to conventional furnaces by using alternative, CO2-free raw materials with lower reaction enthalpy that hinders any CO2 release. This avoids unnecessary humidification of the batch and reduces glass dwell time within the furnace - all thanks to this special melting process and improved new furnace design.

Finally, new glass compositions are being tested in the project, which allow advantages in terms of both emissions and finished glass properties. ■

## THE STOELZLE GLASS GROUP

Is a family-run company with six plants in Europe and one US production plant which joined IPGR in 2020. The group has been producing high-quality glass packaging for the pharmaceutical, perfumery & cosmetics, spirits, food & beverage sectors for over 200 years. Stoelzle covers all areas from product development to production to decoration and the delivery of closures.

STOELZLE GLASS GROUP

**STOELZLE**

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E-mail: office@stoelzle.com
www.stoelzle.com

# REVIMAC stays in lockstep with industry developments

The motivation to succeed has always typified Revimac's people in their achievement of the company's primary target - which is to support the container production process from hot glass conditioning to gob forming, right up to the lehr loading stage.

In view of a continuing transformation of the market, industry players have consistently seen significant changes, spanning different global glass groups and organisations from independent glass plants to big investment funds. These have brought new, multi-operational challenges - all of which have stimulated Revimac's vision to evolve tirelessly in terms of engineering, technical support, quality and cost-effective solutions.

Being the first to engineer the Re-Manufactured IS-Machine concept (the strength today, as never before, behind any solid-forming process), Revimac has perfected the range of its High Performance Ware Handling equipment with its so-called Ensemble Evo.

**As new solutions from REVIMAC signal the handling machinery producer's robust response to rising demands from a competitive market, both the company's know-how and its drive towards improvement are also full-speed ahead as ever.**

## REVIMAC ENSEMBLE EVO

Especially designed to answer the increasing demand for large scale production of glass containers, where quantity and speed are crucial to the global standard ware market for which the pack-to-melt index needs always to perform at its best,

Revimac Ensemble EVO

XHS900 ware transfer

Revimac Ensemble Evo offers a stable system that's both synchronised and harmonious - combining the ware transfer triple belt XHS900, the cross conveyors RC900 (without cooling system) and the RSS100 lehr loader (stacker). Already chosen by some of today's largest groups and glass plants, the consolidated technology is often preferred when fulfilling a need for very stable container handling.

As for the XHS900 High Performance Ware Transfer, its performance extends well beyond ware transfer alone, given that this integrated transfer system is also capable of transferring articles from primary conveyor to cross conveyor at a very high production speed - variable according to container dimensions.

## DESIGN EXCELLENCE

The new design is based upon a triple belt conveyor drive with a short auxiliary belt which, during transfer, keeps containers in firm and steady contact with a set of fingers thanks to advanced engineering associated with such key elements as auxiliary belt system, wheel adjustments, transfer plate and adjustable conveyor head - all jointly ensuring a correct transfer of the articles. Further improvement has been made by way of a hinged, tilting head that's mounted upon a cross conveyor so that height can be adjusted and set equal to the annealing lehr, independent of transfer height. Finally, new safety standards, a quality of regulations, as well as greater ease of use and maintenance all make this integrated transfer system especially reliable for high performance lines.

## THE RC900

As mentioned before, connected to a ware transfer and equipped with its hinged head the RC900 cross conveyor has been developed for installation without a cooling system - thus rendering it more flexible for adaptation to any layout, as well as free of added installation devices.

Thermal distortion caused by heat radiation from the annealing lehr is mechanically compensated. Depending upon length, the structure is made of modular, individually-supported beams which can be independently adjusted either in planarity or height - all thanks to plumbing screws positioned on the upper beam supports at the cross-conveyor cold side. Not only. The adapting plates can be adjusted upon all axes for a perfect planarity fit with the lehr belt. Also, the special design of floor supports -each positioned on the structure- enables easy height adjustment. Here, too, modularity ensures reduction to a bare minimum of any stocking of spare parts, which includes a design that will facilitate ample access for easy maintenance whilst saving both in time and costs.

## THE RSS100

Last but not least: Revimac's Ensemble Evo system includes the RSS100 high performance, 3-axis servo lehr loader (stacker), which is fast becoming the staple of many production handling operations today.

Besides the robust mechanical structure, now well-known, which is free of wearing parts -thus extending the life of the RSS100 stacker- a new and compatible, AI-based software release has been developed to minimise operator use and intervention at every phase - especially during start up and job changes. With its Self-Learning algorithm, this software enables the stacker to manage the loading profile automatically with only modest input while phasing the loading curve by detecting IS machine speed. During each stacker cycle the RSS100 software acquires all the necessary parameters to adjust itself for an optimum, stable push of the containers on the lehr belt - even in the event of a speed variation and without operator intervention.

Following its rich global track record of worldwide installations, Revimac's Ensemble Evo system already testifies to the company's industry-savvy in discerning how bigger market players would have privileged large scale container production over that of lighter glass weighting.

Besides its winning offers in Re-Manufactured IS Machines and Glass Conditioning Forehearth systems, Revimac has served the development of the hollow glass industry for over 30 years now with its vertical solutions for different container production types as it continues to stand prominently out as Ware Handling Equipment manufacturer. ■

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GS - Glass Service

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## AIR COMPRESSORS

Pneumofore

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Fima-Olimpia Fonderie
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## AMPOULE AFTER-FORMING MACHINES/ LINES

KYP Accesories
Moderne Mecanique
OCMI OTG
Spami-Optrel-Stevanato Group

## AMPOULE FORMING MACHINES/LINES

Euromatic
KYP Accesories
Moderne Mecanique
OCMI OTG
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## AMPOULE PACKAGING MACHINES

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KYP Accesories
Moderne Mecanique
OCMI OTG
Spami-Optrel-Stevanato Group

## ARTICLE PRODUCTION

Olimerk

## ARTIFICIAL INTELLIGENCE

Video Systems

## AUTOMATIC TUBE LOADERS

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KYP Accesories
Moderne Mecanique
OCMI OTG
Spami-Optrel-Stevanato Group

## AUTOMATIC WAREHOUSES

EMS Group

## AUTOMATION

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Forglass
GS - Glass Service
Luben Glass
Mimsan Conveyor Systems
**Vetromeccanica**
Video Systems
ZIPPE

## BAG FILTERING PLANTS

**BDF Industries**
Stara Glass

## BATCH CHARGERS

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**Glass Service**
Horn
MT Forni Industriali
**Sorg Nikolaus**
Stara Glass
TECO Group
ZIPPE

## BATCH AND CULLET HANDLING SYSTEMS

**EME**
**Falorni Tech**
Forglass
Stara Glass
ZIPPE

## BATCH/CULLET PREHEATERS

**EME**
GCG - Glass Consulting Group
**Sorg Nikolaus**
ZIPPE

## BATCH PLANTS

Colorobbia
**EME**
**Falorni Tech**
Forglass
GCG - Glass Consulting Group
**Glass Service**
**HFT**
TECO Group
**Vidromecanica**
ZIPPE

## BENDING FURNACES

Forglass

## BLOWING MACHINES

**Bucher Emhart Glass**
**Famor Engineering**
Forma Glas
**Olivotto Glass Technologies**
Waltec Maschinen

## BURN-OFF MACHINES

**Famor Engineering**
Forma Glas
**Olivotto Glass Technologies**
Waltec Maschinen

## BURNERS & ACCESSORIES

**BDF Industries**
Car-Met
**Falorni Tech**
**Famor Engineering**
Forglass
GCG - Glass Consulting Group
KYP Accesories
**Glass Service**
Horn
Luben Glass
Moderne Mecanique

# suppliers guide

YELLOW PAGES



MT Forni Industriali
OCMI OTG
**Olivotto Glass Technologies**
**Sorg Nikolaus**
Stara Glass
Waltec Maschinen

## BURNERS/ LOW NOx

**BDF Industries**
**Falorni Tech**
**Famor Engineering**
GCG - Glass Consulting Group
**Glass Service**
Horn
KYP Accesories
**Sorg Nikolaus**
Stara Glass

## BURNERS/ OXY-FUEL

**BDF Industries**
**Falorni Tech**
**Glass Service**
KYP Accesories
MT Forni Industriali
**Olivotto Glass Technologies**
**Sorg Nikolaus**
Stara Glass

## CARPOULE AFTER-FORMING MACHINES/LINES

Moderne Mecanique
OCMI OTG

## CARPOULE FORMING MACHINES/LINES

Moderne Mecanique
OCMI OTG

## CAST IRON FOR MOULDS

Fima-Olimpia Fonderie
**Fonderie Valdelsane**

## COATING OF GLASS - SYSTEMS & MATERIALS (HOT- / COLD-END)

Bohemi Chemicals
**Fluorital**
Forglass
Graphoidal Developments
Luben Glass
**Vidromecanica**

## COGENERATION AND TRIGENERATION THROUGH HEAT RECOVERY SYSTEMS

**BDF Industries**
Stara Glass

## COLD-END LINES

**ACH - Advanced Container Handling**
All Glass
**Bucher Emhart Glass**
EMS Group
Forglas
Forma Glas
**Heye International**
Iris Inspection Machines
KYP Accesories
Mimsan Conveyor Systems
MSK Covertech
Regina Catene Calibrate
Stara Glass
**Vetromeccanica**

## COLOURS & ENAMELS

Bohemi Chemicals
GCG - Glass Consulting Group
**Fluorital**
Forglass

## CONSULTING SERVICES

**BDF Industries**
**Bucher Emhart Glass**
**Falorni Tech**
Forglass
futronic
GCG - Glass Consulting Group
GS - Glass Service
**HFT**
Horn
Luben Glass
**Olivotto Glass Technologies**
Stara Glass
TECO Group
Video System

## CONTROL & AUTOMATION SYSTEMS

**BDF Industries**
Bottero
**Bucher Emhart Glass**
**Falorni Tech**
Forglass
futronic
GCG - Glass Consulting Group
**Glass Service**
GS - Glass Service
Luben Glass
Horn
Iris Inspection Machines
MSK Covertech
**Olivotto Glass Technologies**
Stara Glass
TECO Group (EAE Tech)
VMA
Video Systems
Waltec Maschinen
ZIPPE

## CONVEYING & STOCKING SYSTEMS

All Glass
Forglass
MSK Covertech
Olimerk
**OMS**
Ramsey Products
Regina Catene Calibrate
**Vetromeccanica**
EMS Group

## CONVEYOR BELTS

Car-Met
**Famor Engineering**
Forglass
Forma Glas
Luben Glass
**Olivotto Glass Technologies**
Pennine
Ramsey Products
Regina Catene Calibrate
**Revimac-Bottero**
**Vetromeccanica**
**Vidromecanica**
WBT
ZIPPE

## CONVEYOR CHAINS & SPROCKETS (HOT-END)

Luben Glass
Pennine
Renold
**Revimac-Bottero**
Ramsey Products
WBT
ZIPPE

## CRACK-OFF MACHINES

Forma Glas
**Olivotto Glass Technologies**
Waltec Maschinen

## CROSS- CONVEYORS

**BDF Industries**
**Bucher Emhart Glass**
Car-Met
**Famor Engineering**
Forma Glas
**Heye International**
Luben Glass
MT Forni Industriali
Olimerk
Ramsey Products
**Revimac-Bottero**
**Vidromecanica**
Waltec Maschinen
WBT

## CULLET SEPARATION & TREATMENT SYSTEMS

**EME**
**Falorni Tech**
Forglass
GCG - Glass Consulting Group
**Vidromecanica**
ZIPPE

## DATAMATRIX READING DEVICES

**TIAMA**

## DECORATING MACHINES

**Fermac**

Forma Glas
**Koenig & Bauer Kammann**

## DECORATION CUTTING MACHINES

Waltec Maschinen

## DECORATIVE ENAMELS

**Fluorital**
GCG - Glass Consulting Group

## DEDUSTING & FILTERING SYSTEMS

**BDF Industries**
Forglass
Stara Glass

## DOSING SYSTEMS: COLD-END EMULSIONS

GCG - Glass Consulting Group
Graphoidal Developments
Luben Glass
**Revimac-Bottero**
**Vidromecanica**

## DOSING SYSTEMS: GOB CUTTING LUBRICATION

Graphoidal Developments
Luben Glass
**Revimac-Bottero**

## DRIVE SYSTEMS / VARIABLE SPEED

**BDF Industries**
Bottero
Forglass
futronic
**Heye International**
**Olivotto Glass Technologies**
**Revimac-Bottero**

## DROPPER AFTER-FORMING MACHINES/LINES

Moderne Mecanique
OCMI OTG

## DROPPER FORMING MACHINES/ LINES

Moderne Mecanique
OCMI OTG

## ELECTRIC BOOSTING SYSTEMS

**BDF Industries**
Bock Energietechnik
**Falorni Tech**
Forglass
GCG - Glass Consulting Group
**Glass Service**
Horn
**Sorg Nikolaus**
Stara Glass
TECO Group

## ELECTRONIC CONTROL SYSTEMS AND IT

**BDF Industries**
Bock Energietechnik
Forglass
futronic
**Glass Service**
Horn
**Olivotto Glass Technologies**
**Sorg Nikolaus**
TECO Group
Waltec Maschinen
ZIPPE

## ELECTRODE HOLDERS

Bock Energietechnik
GCG - Glass Consulting Group
**Glass Service**
Horn
**Sorg Nikolaus**
Stara Glass
TECO Group

## ELECTRODE HOLDERS HOT AND COLD FURNACE INSTALLATION

Horn
Stara Glass
TECO Group

## EMISSION MONITORING SYSTEMS

**BDF Industries**
GS - Glass Service
Stara Glass

## EMULSION DOSING SYSTEMS

Graphoidal Developments
Luben Glass
**Revimac-Bottero**

## ENERGY RECOVERING SYSTEMS

**BDF Industries**
**Falorni Tech**
Luben Glass
Stara Glass
ZIPPE

## ENGINEERING SERVICES

Stara Glass
TECO Group

## ENGINEERING AND MODELLING FOR BOOSTING SYSTEMS

Bock Energietechnik
Horn

## ENGRAVING MACHINES

**TIAMA**

## FEEDERS & MECHANISMS

**BDF Industries**
Bottero
**Bucher Emhart Glass**
**Famor Engineering**
Forglass
Forma Glas
**Glass Service**
**Heye International**
**Olivotto Glass Technologies**
**Revimac-Bottero**
Waltec Maschinen

## FIBERGLASS / GLASSWOOL PRODUCTION LINES, EQUIPMENT & PRODUCTS

**Falorni Tech**
**Glass Service**
**HFT**
**Olivotto Glass Technologies**
TECO Group

## FINISHING MACHINES

KYP Accesories

## FIRE POLISHERS & EQUIPMENT

**Famor Engineering**
futronic
Luben Glass
**Olivotto Glass Technologies**
**Vidromecanica**
Waltec Maschinen

## FOREHEARTHS & SYSTEMS

**BDF Industries**
Bock Energietechnik
Bottero
**Falorni Tech**
Forglass
GCG - Glass Consulting Group
**Glass Service**
**HFT**
Horn
MT Forni Industriali

# suppliers guide
YELLOW PAGES



**Revimac-Bottero**
**Sorg Nikolaus**
Stara Glass
TECO Group

## FORMING MACHINES

Amig
**BDF Industries**
Bottero
**Bucher Emhart Glass**
**Famor Engineering**
Forma Glas
**Heye International**
KYP Accesories
OCMI OTG
**Olivotto Glass Technologies**
**Revimac-Bottero**
Spami-Optrel-Stevanato Group
Waltec Maschinen

## FURNACES: BUBBLING SYSTEMS

**BDF Industries**
Bock Energietechnik
**Falorni Tech**
Forglass
GCG - Glass Consulting Group
**Glass Service**
Horn
**Sorg Nikolaus**
Stara Glass
TECO Group

## FURNACES: CLEANING SYSTEMS

**Glass Service**

## FURNACES: DRAINING SYSTEMS

Bock Energietechnik
**Falorni Tech**
Forglass
GCG - Glass Consulting Group
**Glass Service**
Horn
**Sorg Nikolaus**
Stara Glass

## FURNACES: ELECTRIC

Bock Energietechnik
**Falorni Tech**
Forglass
**Glass Service**
GS - Glass Service
Horn
KYP Accesories
**Sorg Nikolaus**
Stara Glass
TECO Group

## FURNACES: HEAT-UP

**BDF Industries**
**Falorni Tech**
Forglass
**Glass Service**
Horn
**Sorg Nikolaus**
Stara Glass

## FURNACES: HOT CULLET FILLING

**Falorni Tech**
Forglass
Stara Glass

## FURNACES: MELTING

**BDF Industries**
Bock Energietechnik
**Falorni Tech**
Forglass
**Glass Service**
Horn
MT Forni Industriali
**Sorg Nikolaus**
Stara Glass
TECO Group

## FURNACES: METAL STRUCTURES

**BDF Industries**
Car-Met
**Falorni Tech**
Forglass
**Glass Service**
**HFT**
Horn
Stara Glass

## FURNACES: OXY-FUEL OR RECUPERATIVE

**BDF Industries**
**Falorni Tech**
**Glass Service**
**HFT**
Horn
MT Forni Industriali
**Sorg Nikolaus**
Stara Glass
TECO Group

## FURNACES: PREHEATING SYSTEMS

**Commersald Impianti**
**Falorni Tech**
Forglass
**Glass Service**
Horn
**Olivotto Glass Technologies**
**Sorg Nikolaus**
Stara Glass

## FURNACES: REPAIR, MAINTENANCE & REVAMPING

**BDF Industries**
Bock Energietechnik
**Falorni Tech**
Forglass
**Glass Service**
**HFT**
Horn
**Sorg Nikolaus**
Stara Glass
TECO Group

## GASES

**Glass Service**

## GLASS BRICK PRODUCTION LINES

Amig
**Olivotto Glass Technologies**
Waltec Maschinen

## GLASS LEVEL CONTROL DEVICES

**BDF Industries**
Bock Energietechnik
**Falorni Tech**
GCG - Glass Consulting Group
**Glass Service**
Horn
MT Forni Industriali
**Olivotto Glass Technologies**
**Sorg Nikolaus**
Stara Glass
ZIPPE

## GLASS METALISATION PROCESS MATERIALS

**Fluorital**

## GLASS RECYCLING PLANTS

**EME**
**Falorni Tech**
GCG - Glass Consulting Group
**Vidromecanica**
ZIPPE

## GOB WEIGHT CONTROL SYSTEMS

**BDF Industries**
**Bucher Emhart Glass**
**Heye International**
**Olivotto Glass Technologies**
Waltec Maschinen

## HANDLING EQUIPMENT

All Glass
**BDF Industries**
Bottero
**Bucher Emhart Glass**
**Famor Engineering**
Luben Glass
MSK Covertech
**Olivotto Glass Technologies**
**OMS**
**Revimac-Bottero**
**Vetromeccanica**

## HEAT RECUPERATORS

**BDF Industries**
**Falorni Tech**
**Glass Service**
Horn
Luben Glass
MT Forni Industriali
**Sorg Nikolaus**
Stara Glass

## HEAT REGENERATION PLANTS

**Falorni Tech**
**Glass Service**
Horn
Stara Glass

## HEATING SYSTEMS

Bock Energietechnik
**Falorni Tech**
Forglass
**Glass Service**
Horn

## HIGH TEMPERATURE INSULATION PRODUCTS

Stara Glass

## HOT-END PROCESS MONITORING SOLUTIONS

**TIAMA**

## HOT GLASS CONTACT MATERIALS

**Bucher Emhart Glass**
**Olivotto Glass Technologies**

## HOT GLASS SCRAPERS

Car-Met
**Falorni Tech**
Forglass
GCG - Glass Consulting Group
**Vidromecanica**
ZIPPE

## INFRARED THERMOMETERS

GCG - Glass Consulting Group
GS - Glass Service
KYP Accesories

## INJECTION MACHINES

**Famor Engineering**
**Heye International**
**Olivotto Glass Technologies**

## INSPECTION MACHINES: COLD-END

**Bucher Emhart Glass**
Euromatic
Forma Glas
**Heye International**
KYP Accesories
Iris Inspection Machines
Luben Glass
Regina Catene Calibrate
**TIAMA**
Video Systems
VMA

## INSPECTION MACHINES: HOT-END

**BDF Industries**
**Bucher Emhart Glass**
Euromatic
**Heye International**
KYP Accesories
Moderne Mecanique
OCMI OTG
**Olivotto Glass Technologies**
**TIAMA**
Video Systems

## INSPECTION MACHINES: VIALS & AMPOULES

Euromatic
Iris Inspection Machines
KYP Accesories
Moderne Mecanique
OCMI OTG
Spami-Optrel-Stevanato Group
Video Systems

## I.S. MACHINES

**BDF Industries**
Bottero
**Bucher Emhart Glass**
**Heye International**

## I.S. MACHINE LUBRICATION SYSTEMS

**BDF Industries**
**Bucher Emhart Glass**
Graphoidal Developments
**Heye International**
Luben Glass
**Revimac-Bottero**

## I.S. MACHINE RECONDITIONING

**BDF Industries**
**Bucher Emhart Glass**
**Heye International**
Luben Glass
**Revimac-Bottero**

## LABORATORY FURNACES POLARISCOPES

MT Forni Industriali

## LASER CUTTING MACHINES

Forma Glas
**Olivotto Glass Technologies**
Waltec Maschinen

## LEHR DRIVES

**Heye International**

## LEHRS: ANNEALING

**Antonini**
Euromatic
**Falorni Tech**
**Heye International**
KYP Accesories
Moderne Mecanique
MT Forni Industriali
OCMI OTG
**Vidromecanica**

## LEHRS: DECORATING

**Antonini**
MT Forni Industriali
**Vidromecanica**

## MAINTENANCE AND REPAIR SERVICES

Bock Energietechnik
Forglass
Forma Glas
Luben Glass
Olimerk
**Revimac-Bottero**
**SKS - Sorg Karrena Service**
Stara Glass

## MARKING MACHINES

Luben Glass

# suppliers guide
YELLOW PAGES



**Sorg Nikolaus**

## MEASUREMENT & CONTROL SYSTEMS

**BDF Industries**
Bock Energietechnik
**Bucher Emhart Glass**
futronic
GS - Glass Service
Horn
KYP Accesories
Luben Glass
**Olivotto Glass Technologies**
Video Systems
VMA
Waltec Maschinen

## MIXERS

**EME**
Forglass
GCG - Glass Consulting Group
KYP Accesories
MT Forni Industriali
Teka
ZIPPE

## MOULDS

Lege Mould Technology
Officine
Perego Giancarlo
Strada

## MOULDS: CLEANING POLISHING MACHINES

**BDF Industries**
Luben Glass
Ecotecne

## MOULDS: COMPONENTS & ACCESSORIES

Officine
Olimerk
Perego Giancarlo
UniMould

## MOULDS: INSPECTOR SYSTEM

Luben Glass

## MOULDS: LUBRICANTS & SPRAY EQUIPMENT

Graphoidal Developments
Luben Glass

## MOULDS: MAINTENANCE EQUIPMENT

Ecotecne
Luben Glass

## MOULDS: POLISHING MACHINE

Luben Glass

## MOULDS: PREHEATING OVENS

**Antonini**
Car-Met
MT Forni Industriali
Luben Glass
**Olivotto Glass Technologies**
**Revimac-Bottero**
**Vidromecanica**

## MOULDS: WELDING LINES

**Commersald Impianti**

## MOULDS & PLUNGERS COATING SYSTEMS & MATERIALS

**Commersald Impianti**
UniMould

## NECK RINGS

Olimerk
Perego Giancarlo
Strada

## PALLETIZING/ DEPALLETIZING LINES

**ACH - Advanced Container Handling**
All Glass
EMS Group
Messersì Packaging
Mimsan Conveyor Systems
MSK Covertech
**Olivotto Glass Technologies**
**OMS**
Regina Catene Calibrate
**Vetromeccanica**

## PASTE MOULD MACHINES

**Olivotto Glass Technologies**

## PLANT UTILITIES

GCG - Glass Consulting Group
Pneumofore

## PLATINUM FEEDER SYSTEMS

**BDF Industries**
Forma Glas
**Glass Service**
**Olivotto Glass Technologies**

## PLUNGER HONING MACHINES

Bottero

## PLUNGERS & MECHANISMS

**BDF Industries**
**Bucher Emhart Glass**
Olimerk
**Olivotto Glass Technologies**
Perego Giancarlo
**Revimac-Bottero**
UniMould
Waltec Maschinen

## POLISHING/ GRINDING MACHINES

Forma Glas
Luben Glass
**Olivotto Glass Technologies**

## POWER REGULATION/ TRANSFORMERS

Bock Energietechnik

## PREDICTIVE SOLUTIONS

Video Systems

## PRESS MACHINES

Amig
**Bucher Emhart Glass**
**Famor Engineering**
Forma Glas
**Olivotto Glass Technologies**
Waltec Maschinen

## PRESS & BLOW MACHINES

Amig
**Bucher Emhart Glass**
**Famor Engineering**
**Heye International**
Messersì Packaging
**Olivotto Glass Technologies**
**OMS**
Waltec Maschinen

## PRESS RECONDITIONING

**Famor Engineering**
Luben Glass
**Olivotto Glass Technologies**

## PRODUCTION ASSISTANCE FOR HOLLOW GLASS

Olimerk

## PUSHERS

**BDF Industries**

Bottero
Car-Met
**EME**
**Famor Engineering**
Forma Glas
**Heye International**
Luben Glass
**Olivotto Glass Technologies**
Waltec Maschinen

## RAW MATERIALS

Bohemi Chemicals
GCG - Glass Consulting Group
Minerali Industriali

## RECYCLING PROCESSES

**EME**

## RECYCLING SYSTEMS

**EME**
**Falorni Tech**
GCG - Glass Consulting Group
ZIPPE

## REFRACTORIES

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

## REFRACTORIES INSTALLATION SERVICES

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

## REPLACEMENT PARTS

Olimerk
**Olivotto Glass Technologies**
TECO Group
Waltec Maschinen

## ROBOTS: BALL GATHERERS

**Falorni Tech**
**Glass Service**
**Olivotto Glass Technologies**
Waltec Maschinen

## ROBOTS: HANDLING & PACKAGING

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

## ROTATING TABLES

Messersì Packaging
**Olivotto Glass Technologies**
**OMS**
**Vetromeccanica**
Waltec Maschinen

## SANDBLASTING MACHINE

Luben Glass

## SAW MACHINES

**Olivotto Glass Technologies**

## SECOND-HAND EQUIPMENT

**BDF Industries**
**Falorni Tech**
Forma Glas
**Heye International**
KYP Accesories
**Olivotto Glass Technologies**
**Vidromecanica**

## SERVICES

Bock Energietechnik
**EME**
Forglass
Forma Glas
Olimerk
Stara Glass
TECO Group

## SERVICES IN HOT-DRILLING AND CHANGE OF ELECTRODE HOLDERS

Bock Energietechnik

## SHEAR BLADES

**BDF Industries**
**Heye International**
**Famor Engineering**
Luben Glass
WBT

## SHEAR BLADES LUBRICANTS

Graphoidal Developments
Luben Glass

## SHEAR SYSTEMS

**BDF Industries**
Bottero
**Falorni Tech**
**Famor Engineering**
Forma Glas
Graphoidal Developments
**Heye International**
Luben Glass
**Olivotto Glass Technologies**
**Revimac-Bottero**
Waltec Maschinen

## SHUTTLE CARS

EMS Group

## STRETCH & SHRINK FILM WRAP MACHINES

All Glass
EMS Group
Messersì Packaging
MSK Covertech
**OMS**
**Vetromeccanica**

## SHRINK OVENS

Messersì Packaging
**OMS**

## SILKSCREEN INKS

**Fluorital**

## SILKSCREEN PRINTING LINES: HOLLOWARE & TABLEWARE

Euromatic
**Fermac**

## SILKSCREEN PRINTING LINES: VIALS & AMPOULES

Moderne Mecanique
OCMI OTG

## SOFTWARE

**BDF Industries**
Bottero
**Bucher Emhart Glass**
futronic
GS - Glass Service
**Heye International**
**Olivotto Glass Technologies**
Stara Glass
**TIAMA**
Vertech"
**Vetromeccanica**
Video Systems
Waltec Maschinen

## SPINNING MACHINES

**Famor Engineering**
**Olivotto Glass Technologies**
Waltec Maschinen

# suppliers guide
YELLOW PAGES



## SPOUT ELECTRICAL HEATING ELEMENTS

Bock Energietechnik

## STACKERS

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

## STEMWARE PRODUCTION LINES

**Falorni Tech**
Forma Glas
**Olivotto Glass Technologies**
**Vidromecanica**
Waltec Maschinen

## STEMWARE SEALING MACHINES

**Falorni Tech**
Forma Glas
OCMI OTG
**Olivotto Glass Technologies**
Waltec Maschinen

## STIRRERS

**BDF Industries**
Bottero
**Falorni Tech**
Forglass
GCG - Glass Consulting Group
**Glass Service**
Horn
MT Forni Industriali
Olimerk
**Olivotto Glass Technologies**
**Revimac-Bottero**
Stara Glass
**Vidromecanica**

## SUCTION GATHERERS

**Falorni Tech**
**Olivotto Glass Technologies**

## SYRINGE AFTER-FORMING MACHINES/LINES

Euromatic

## SYRINGE FORMING MACHINES/LINES

Euromatic

## SYRINGE FILLING INTO TRAY MACHINES/ MODULES

Euromatic

## SUPERVISORS MODEL BASED PREDICTIVE CONTROL

GS - Glass Service

## TAKE-OUT DEVICES & EQUIPMENT

**BDF Industries**
Bottero
**Bucher Emhart Glass**
**Falorni Tech**
**Famor Engineering**
Forma Glas
Luben Glass
Olimerk
**Olivotto Glass Technologies**
Ramsey Products
**Vidromecanica**
Waltec Maschinen

## TEMPERATURE MEASUREMENT & CONTROL

**BDF Industries**
Bock Energietechnik
**Bucher Emhart Glass**
**Falorni Tech**
Forglass
Graphoidal Developments
GS - Glass Service
Horn
KYP Accesories

## TEMPERING LINES

**Vidromecanica**
Waltec Maschinen

## THERMAL SHOCK TEST MACHINES

**Vidromecanica**

## THERMOCOUPLES & ASSEMBLIES

Bock Energietechnik
**Falorni Tech**
GCG - Glass Consulting Group
Stara Glass

## THERMO SHOCK MACHINES

**BDF Industries**

## TIN OXIDE ELECTRODES & CONNECTORS

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
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# BEATSON CLARK looks to the future with confidence

As one of just six remaining glass packaging manufacturers in the UK and the only one still producing bottles and jars for the pharmaceutical sector, the company supplies about 80 percent of the UK pharmaceutical market.

Working with Gaviscon, Covonia and TCP among other big names, Beatson Clark supplies well-known brands within the food, beverage and pharmaceutical markets. The company has been in business on the same site in South Yorkshire since 1751, employing around 360 people.

Charlotte Pike

## COVID-19

Though many businesses were hit hard by the pandemic, Beatson Clark weathered the storm capably. If anything, it's in a stronger position now than it was before Covid-19 struck. Packaging for food and medicine was a necessity during lockdown and, as a result, the factory remained open throughout the pandemic - with strict Covid measures in place.

"At the start of the pandemic in 2020 the food market was very buoyant with people working and eating at home and dining out being restricted," noted Charlotte Pike, Marketing Manager at Beatson Clark.

Pike spoke of an upturn in demand, especially for essential ingredients such as spice jars. The brewing sector struggled at first but started to pick up again towards the summer as hospitality venues began to reopen. The pharmaceutical market remained a little slow as lockdowns and social distancing meant there were fewer colds and other viruses in circulation. "2021 got off to a flying start as local restrictions eased," she said. "As the weather improved and lockdowns eased, the beer and pharmaceutical sectors picked up while food fell back to around its normal pre-pandemic level."

## NEW PRODUCTS

With confidence returning to the market and the company exceeding its budgeted targets over the year, Beaton Clark saw an increase in NPD projects towards the end of 2021. The healthy drinks, no-alcohol and low-alcohol markets saw a significant boom following lockdown and it's noticeable that more consumers are choosing healthy adult soft drinks such as kombucha fermented tea. The company recently launched new products and formats across all its sectors: beverages, food and pharmaceuticals. Beaton Clark has launched new drinks bottles, including its 330 ml Alpha for beers and soft drinks and its new 330ml Champagne Style Beer and a new range of liqueur bottles will be coming soon. Said Pike: 'We've added some new Powders to our pharmaceutical range as well as a 500 ml Marasaca bottle and 370 ml Orcio Jar, both of which have been added to our food range."

## INVESTING FOR THE FUTURE

Successful businesses like Beatson Clark never stand still. Instead they invest for the future in their constant search for ways to improve.

The company has replaced one of its white flint IS machines with a new GBP 2.7M production machine that's capable of producing a wider range of sizes. In total, Beatson Clark will have recently installed six new IS machines -and refurbished another- providing greater flexibility in terms of the variety of possible containers that can be made.

The company is also investing in three new palletisers, one of which can pack multiple formats - thereby improving flexibility.

A new Europacker is to be installed, able to create smaller packs, which again improves flexibility. Furthermore, the installation of a new Messersì shrink wrapping machine has already improved the quality of the packaging.

Looking further ahead, both the white flint and amber furnace will be rebuilt in the next five to six years and there'll be a new batch plant besides.

The new furnaces will be fitted with furnace condition monitoring, which uses radar to monitor the thickness of the refractory. This helps Beatson Clark to judge more accurately when repairs or rebuilds are required. It will also allow for greater control, since the status of the furnace will be constantly monitored.

"All these investments are in addition to the GBP 1M we spent last year on our recycling plant," Pike clarified. "We installed additional optical sorters, vibratory feeder conveyors, new screening machines, a new JCB telehandler and a 300 m2 canopy to protect infeed material from the elements. As a result, throughput is expected to increase over the year by an average of 50 percent."

## ENERGY CHALLENGES

The price of energy, exacerbated by the crisis in Ukraine, is the biggest challenge facing Beatson Clark in 2022. "Energy price increases across the supply chain are our biggest challenge and we are continually lobbying the Government to find ways to remedy the situation," said Pike.

She added that the need for the glass industry to decarbonise is also high on the company's agenda. Indeed glass manufacturers are working together -as an industry- to develop new, improved and more sustainable technology, a move reflected by projects such as Glass Futures, which is the new global centre of excellence at St Helen's. Here Beatson Clark will require better infrastructure and an affordable energy supply to succeed in its ambition to significantly reduce the glass industry's carbon footprint.


## DEPOSIT RETURN SCHEME

Pike said Beatson Clark welcomes the Government's recent decision to exclude glass from the Deposit Return Scheme in England and Northern Ireland.

"There's already an excellent process in place in the UK with kerbside and bottle banks. With 76 percent of glass already collected in Europe, glass is the leading packaging material for recycling rates and the industry has a target to increase this to 90 percent by 2030."

She said that leaving glass out of the DRS will make it much easier for hospitality businesses and consumers to recycle their glass and, importantly, continue to choose glass over other less healthy and less environmentally-friendly packaging.


## BEATSON CLARK AT A GLANCE

Beatson Clark specialises in glass packaging for niche brands in the food, drink and pharmaceutical markets worldwide.
Part of the Newship Group, it has an annual turnover of GBP 65M and a production capacity of up to 540 M units / 145,000 tonnes.
The company employs around 360 people and has been based in Rotherham since it was founded 270 years ago in 1751.

"With customers increasingly buying British, it's clear they're also looking for ways to reduce their carbon footprint," said Pike.

Moreover, with the health and environmental benefits of glass packaging already well known, glass is 100 percent recyclable forever. On that score it's the only mainstream primary packaging material that doesn't require an extra layer to protect inner contents, which is one of the reasons brands are returning to glass.

The company is also finding that more customers are looking to source their glass locally and buy British, partly to support the national economy and reduce air miles and carbon emissions and partly to improve their continuity of supply.

Said Pike: "Beatson Clark is the perfect choice for customers looking to switch from plastic back to glass – we're already guiding them through the change and offering technical support when they switch their filling lines."

Noting how challenging the two years have been for the company, she considers it 'in good shape' and looking forward to the future with confidence.

"We'd like to thank all our staff for working so hard and being so adaptable during the pandemic," she concluded, "and we also want to thank our customers, who've supported us throughout.

We will continue to offer that flexibility and excellent customer service which is essential in an ever-changing and challenging market." ■

BEATSON CLARK
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