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BI-MONTHLY INTERNATIONAL MAGAZINE FOR GLASS MANUFACTURING

YEAR 34 • ISSUE NO. 2/2021

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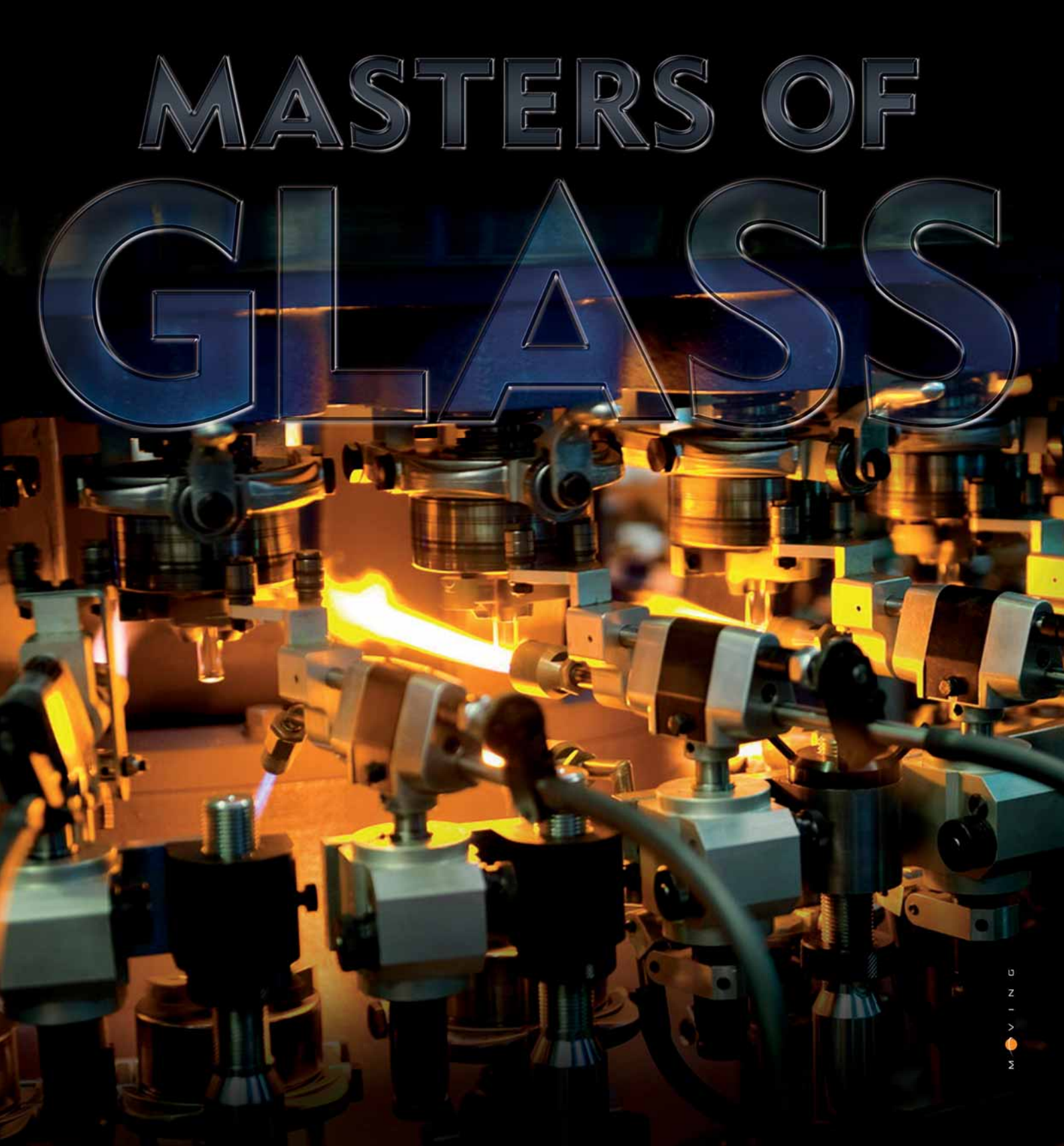
MASTERS OF GLASS



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BI-MONTHLY INTERNATIONAL MAGAZINE FOR GLASS MANUFACTURING

2021 FAIR CALENDAR

The magazine will be distributed at the following Trade Fairs

issue	exhibition/conference	date	venue	deadlines
2021 1	GLASSMAN ASIA	Postponed to 18-19 February 2022	SEOUL South Korea	Editorial files: 18-12-2020
	INTERPACK	Postponed	DÜSSELDORF Germany	Deadline Adv files: 20-01-2021
2021 2	COSMOPACK	Postponed to 27-31 May 2021	BOLOGNA Italy	Editorial files: 12-02-2021
	MIR STEKLA	22-25 March	MOSCOW Russia	Deadline Adv files: 19-02-2021
2021 3	CHINA GLASS	6-9 May	SHANGHAI China	Editorial files: 26-03-2021
	XXXIV INT'L ATIV CONFERENCE	12-14 May	PARMA Italy	Deadline Adv files: 02-04-2021
2021 4	GLASSTEC	15-18 June	DÜSSELDORF Germany	
	ALL GLASSTEC EXHIBITORS ADVERTISING IN THIS ISSUE ALSO RECEIVE A FREE GLASSTEC PREVIEW			Editorial files: 30-04-2021
	GLASSTECH MEXICO	4-6 August	GUADALAJARA Mexico	Deadline Adv files: 07-05-2021
2021	Glass Industry Directory NEW CONTENTS			Editorial files: 11-06-2021 Deadline Adv files: 25-06-2021
2021 5	GLASSMAN LATIN AMERICA	8-9 September	MONTERREY Mexico	
	GULF GLASS	12-15 September	DUBAI UAE	Editorial files: 23-07-2021
	GLASSPEX INDIA	23-25 September	MUMBAI India	Deadline Adv files: 30-07-2021
2021 6	CONFERENCE ON GLASS PROBLEMS	1-4 November	COLUMBUS (OH) USA	Editorial files: 01-10-2021
	GLASSTECH ASIA	16-18 November	BANGKOK Thailand	Deadline Adv files: 8-10-2021

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For an online presentation of the Tiama Xlab please contact us at **marketing@tiama.com.**

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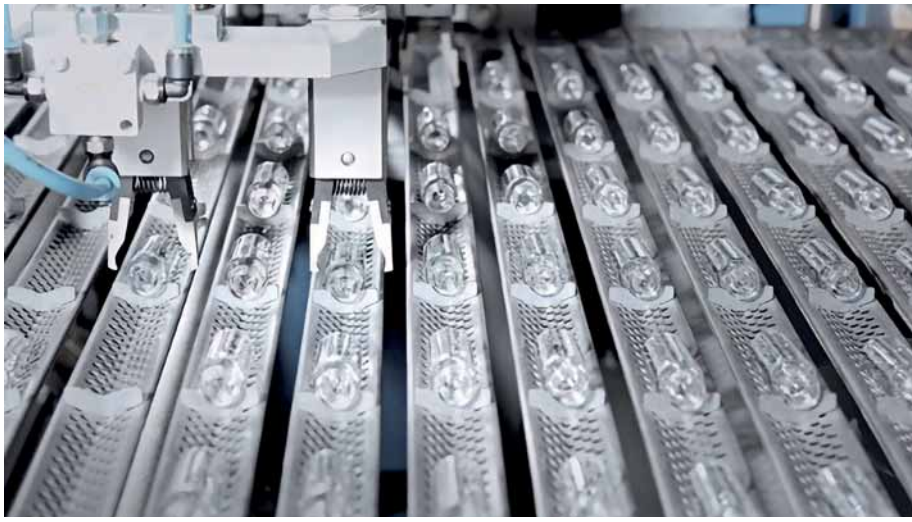
Xlab

Data – the deciding factor

SCHOTT

New record in production of glass vials for COVID-19 vaccine



SCHOTT continues to produce record-breaking numbers of pharmaceutical containers, including critical glass vials, as the US prepares for COVID-19 vaccine distribution.

The high-tech facility in Lebanon, PA, USA, is part of the international speciality glass maker, SCHOTT, whose pharmaceutical containers, including high-quality glass vials, are used in 75% of all COVID-19 vaccines projects that have been approved or are currently in the pipeline. These include projects funded by the US Operation Warp Speed programme.

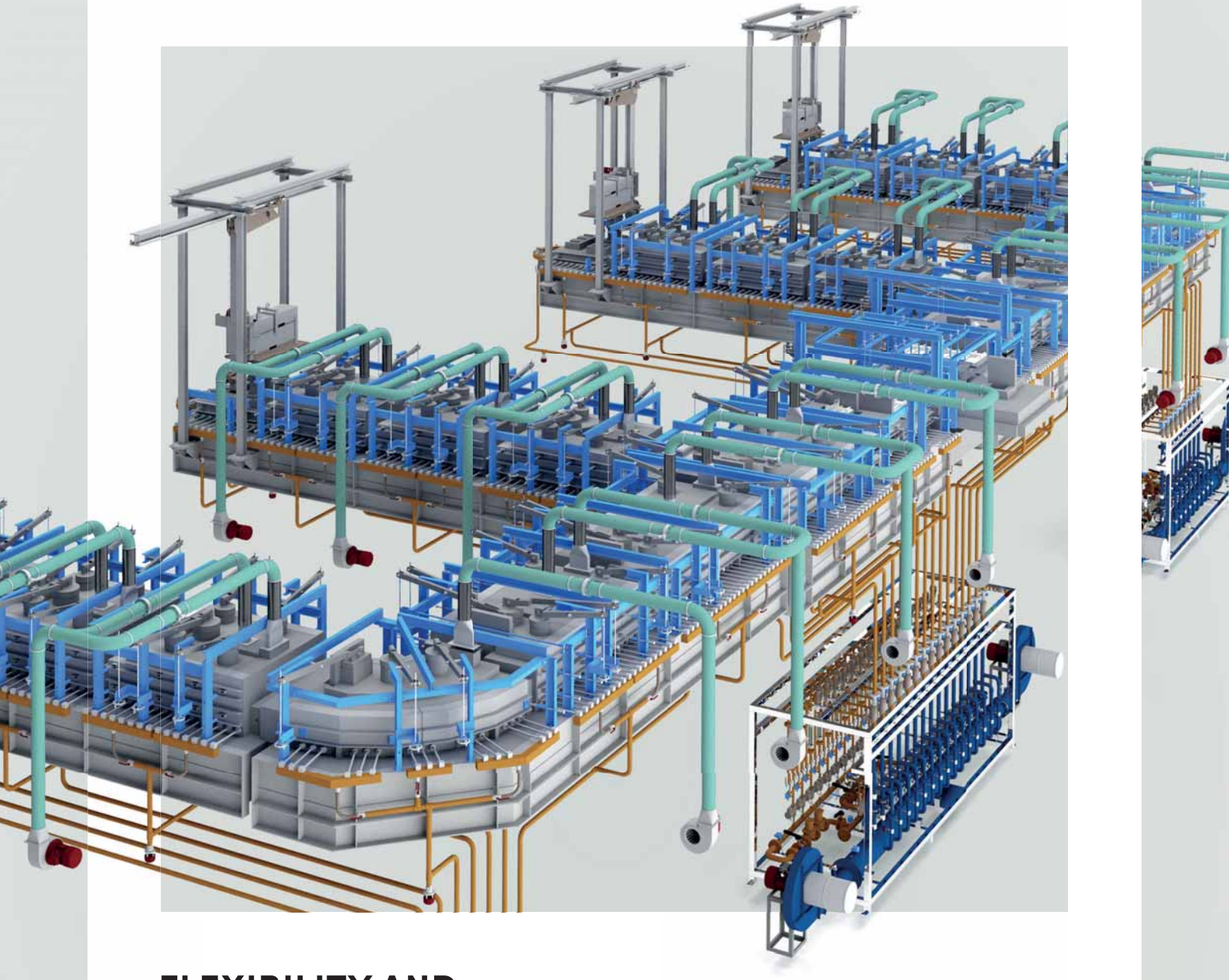
"The 285 employees at the Lebanon, Pennsylvania, facility are working around the clock as SCHOTT plays a vital role in the global effort to save lives," said Christopher Cassidy, Vice President at SCHOTT North America, Inc. "SCHOTT makes the most reliable glass pharmaceutical packaging in the world, and we know the world is watching. Each and every SCHOTT employee is giving 100% to make sure that safe, reliable drug containers are available to ensure the timely production and distribution of critical drugs."

The Lebanon plant converts high quality borosilicate glass tubing from SCHOTT global manufacturing sites into drug containers, including vials and other innovative glass containers. SCHOTT's proven glass formulation that is used in billions of vials each year keeps even highly sensitive drugs stable to ensure safe administration to patients. SCHOTT's innovative pre-washed/pre-sterilized vials, known as adaptiQ®, further help speed up the drug development process for COVID-19 R&D work and clinical trials.

The SCHOTT Lebanon site operates 24 hours per day, seven days a week, with just two week-long shutdowns each year for preventative maintenance. Every second, 20 people from around the world receive medicine from a container produced at the Pennsylvania facility.

"SCHOTT's borosilicate glass packaging, including vials intended for COVID-19 vaccines and therapies, are proven to minimize drug and container interactions," Mark Gilvey, plant manager at SCHOTT in Lebanon, said. "This makes SCHOTT glass the ideal material for vaccine primary packaging. Without these remarkable containers, and the decades of research into their properties, there is no way the world could safely distribute a vaccine within the timelines that this moment in history demands."

WWW.SCHOTT.COM/EN-GB



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QUANTUM ENGINEERED PRODUCTS

Alliance with Rondot Group

Quantum Engineered Products, a US-based and family-owned company, has been committed since its creation in 1976 to helping glassmakers keep glass as the best packaging choice. It is specialized in the critical process of blank side forming and is renowned throughout the industry for its innovation and ability to provide solutions to each of its customers. The brand, managed by Steven Kozora, son of founder Joe Kozora, primarily addresses customers in the pharmaceutical industry, a booming sector since the Covid-19 outbreak.

Rondot Group, founded in 1936 and headed by CEO Louis Rondot, is one of the top players on the niche market for the design and distribution of mechanical parts and electronic equipment for the glass container industry. The Group operates a dozen families of products aimed at improving the productivity of glass container production lines. These products are manufactured at five production sites in France and Great Britain and are commercialized worldwide through its subsidiaries on all continents. Rondot Group has undergone strong growth, actively led by CEO Louis Rondot and his management team, and with the support of its financial shareholders Siparex (main shareholder), Initiative & Finance and Bpi France. The group's turnover was over EUR 45 million in 2020.

The integration of Quantum's products into its portfolio will allow Rondot Group to offer a more complete product range to their common customers with particular focus on the pharmaceutical and cosmetic industries. In parallel, it will allow Quantum, which will still be led by its Managing Partner Steven Kozora, to significantly improve its commercialization through Rondot's renowned and well-established sales network. This partnership with Quantum highlights the pursuit of Rondot Group's strategic development, which is based on expanding its offering to its customers in order to capitalize on one of the most important commercial presence in the sector.

Louis Rondot, CEO of Rondot Group, said, "Quantum Engineered Products has been our business partner for more than 20 years, so we are very happy to welcome them among our team and to add their rare expertise to our product line. This alliance will allow us to complement our offer and maintain proximity to our customers, while opening our sales network to Quantum which has never ceased to provide specific solutions to glassmakers around the world."

Steven Kozora, CEO of Quantum Engineered Products, said, "I am very excited to be joining the Rondot Group. I truly believe that this partnership will enhance Quantum's ability to reach new customers while we continue to provide the highest level of service and support. We, at Quantum, pride ourselves on our ability to provide expedient resolutions to customers' questions and issues and are pleased to be able to continue this high standard."

WWW.QUANTUMFORMING.COM

SKLOSTROJ

12-section IS machines start production in Spain

The combined team of a global container glass group and **Sklostroj** managed a ramp-up of 2 new 12 section IS-machines, operating in TG and DG. Despite the current challenges, the joint team managed this large task in a very short time.

Sklostroj's machines, type ISS, are a flexible production basis for glass plants, able to produce wine bottles in TG or beer bottles in QG.

WWW.SKLOSTROJ.CZ/EN

LIBBEY

Investments in Toledo, USA, operations

Libbey Glass recently announced a commitment to maintain its operations, along with its existing corporate headquarters, in Toledo.

Libbey Glass, one of the world's largest glass tableware manufacturers, will expand production in Toledo, OH, USA, with an additional stemware line, bringing security to the facility. With the assistance from JobsOhio, Libbey plans to invest nearly USD 30 million over the next four years to maintain the plant and move the production line to the Glass City.

"We are excited to maintain and build upon our presence here in Toledo through greater investment," said Jim Burmeister, COO, Libbey. "Over the course of more than 130 years, the Toledo region has supported our business and helped us flourish. This is a great opportunity for us to show our appreciation to the regional community by positioning our company for even more growth."

Libbey currently has 930 employees located between its north Toledo manufacturing facility and its downtown corporate headquarters. The company operates five plants across the world.

"Libbey glass tableware is respected and admired worldwide, and we are proud it will continue to call Ohio home after more than 130 years in Toledo," said J.P. Nauseef, JobsOhio president and CEO. "Along with our partners at the Regional Growth Partnership, we appreciate the collaboration with Libbey to bring an additional production line to Toledo while maintaining this iconic brand's presence here in Ohio."

HTTPS://LIBBEY.COM/

BDF

Natural gas continuous monitoring system

The **BDF** Gas Chromatography System allows a faster and more precise melting regulation thanks to an energy balance relationship between the energy that is needed to melt the glass and the energy provided by the supply fuel. A large number of processes relating to the use of gas, such as in the glass industry, are very sensitive to varying gas parameters and must be adjusted or regulated accordingly. These needs are met with a simple and low maintenance solution provided by a BDF Gas Chromatography System.

This small system allows a faster and more precise melting regulation thanks to an energy balance relationship between the energy that is needed to melt the glass and the energy provided by the supply fuel. This innovative mode of operation differs from the usual regulation based on the temperature of the crown.

In the glass industry, the melting process was usually controlled with a regulation based on a fixed temperature set-point of the crown furnace. Every variation of the temperature in the furnace implied a fuel flow regulation time of about one hour and in this transitory phase, the quality of the glass and the fuel consumption was compromised, resulting in wasted fuel and higher costs.

The BDF Gas Chromatography Regulating System considers the variation of the chemical and-physical characteristics continuously. This results in a faster and more accurate regulating system because it is dependent on the relationship, for a given quantity of the glass in the furnace, between the melting energy, and the fuel supply energy. From the flow-rate, density and calorific value, the system calculates the energy of the fuel flow and thanks to an algorithm; this defines how much energy the glass requires for melting.

If a variation of the characteristics happen during the operation, the system will modify the fuel flow-rate to deliver the required fuel supply energy.

Natural Gas Continuous Monitoring System Advantages:

- Finer, faster and automatic regulation of the melting process
- Fast response of the emission limit system to have a more accurate control
- Energy saving that means cost saving
- Data collection to optimize the process, the job change, etc.
- Continuous knowledge of gas quality
- Control method switch, from temperature based system to energy balance system

WWW.BDFINDUSTRIESGROUP.COM

EMERGE GLASS

Container glass production started

Emerge Glass is an Indian manufacturer of ultra thin clear glass, mirrors and frosted glass. The company decided to venture into container glass production for the premium end of food and liquor glass packaging.

Recently the light up ceremony of the furnace was held, container glass production will start soon.

WWW.EMERGEGLASS.IN

AIR LIQUIDE

40% stake acquisition in the capital of H2V Normandy

Air Liquide announces a 40% stake acquisition in the capital of the French company H2V Normandy, a subsidiary of H2V Product, planning to build a large-scale electrolyser complex of up to 200 MW for the production of renewable and low-carbon hydrogen in France.

This strategic investment demonstrates Air Liquide's long-term commitment to hydrogen energy and its ambition to be a major player in the supply of renewable and low-carbon hydrogen, in order to contribute to the decarbonization of the industry and mobility markets.

Located in the industrial zone of Port-Jérôme in Normandy, France, the large-scale electrolyser project of H2V Normandy aims to supply renewable and low-carbon hydrogen for industrial applications, as well as future heavy mobility applications. The project is part of an ambitious programme to develop new energies to de-carbonate industrial activities (refining and chemical) on the Seine Valley axis in Normandy, one of Air Liquide's historical industrial basins in France. This project will enable avoidance of 250,000 tonnes of CO2 emissions per year.

Air Liquide will bring its expertise of more than 50 years in the sector to this project which is part of an investment dynamic that supports the development of renewable and low-carbon hydrogen production in the world. In France, the Group has already deployed a unique solution for CO2 capture called Cryocap™ on its Port-Jérôme hydrogen production facility.

François Jackow, Executive Vice President and a member of the Air Liquide Group's Executive Committee, said, "As France has resolutely committed to energy transition with an ambitious hydrogen plan, Air Liquide, a major player in the industry, is investing locally to develop the activity. With this strategic project aimed at producing hydrogen by electrolysis, the Group is strengthening its presence in the Normandy industrial basin.

"This investment is in line with Air Liquide's commitment to supply hydrogen from renewable or low-carbon sources for mobility and to support the decarbonization of the industry and thus to promote the emergence of hydrogen as a key element in the energy transition."

The glass industry is under severe cost constraints and increasing environmental pressure to reduce emissions, Air Liquide provides glass manufacturers with solutions to improve their competitiveness and environmental footprint.

WWW.AIRLIQUIDE.COM

PUTSCH MENICONI and FAMOR ENGINEERING

Supply agreement announced

Putsch Meniconi Spa and **Famor Engineering Srl** have informed that, starting from January 2021, the supply service of tools, spare parts for machinery and other requests regarding the hollow glass sector of Putsch Meniconi, are now managed and followed by Famor Engineering Srl, Turin, Italy.

WWW.FAMORENG.COM

IRIS

Multiple article inspection solutions deliver customer benefits

In the increasingly competitive world of glass container manufacture, the ability to provide solutions for multi gob manufacturing on the same production line is an important benefit. Over the past 13 years, Lyon-based **IRIS Inspection machines** has developed an important leadership position in the field of multiple article inspection at the cold end.

Since completing its first multi equipment installation in 2008 for a leading German glass container factory, the non-contact inspection solutions specialist has delivered more than 30 projects to customers in such countries as the Czech Republic, Croatia, France, Germany, Italy, Mexico, Slovenia, Spain and Ukraine. Customers include such well-known glass packaging groups as *Verallia*, *O-I*, *Saverglass* and *Vetropack*.

IRIS' technology delivers complete turnkey mechanical and software cold end solutions, enabling customers to handle up to six different items at the same time. Precise ware recognition and inspection is provided using a single Evolution 12 NEO machine. This solution also benefits from NEO intelligence, an innovative defect approach that relates to defect identification and classification. Secured via stable and reliable conveying equipment, this compact and cost-efficient solution is widely adopted to validate quality requirements on different article shapes and colours.

This IRIS all-in-one solution responds to the industry's key player demands to deliver flexible, high quality glass packaging.

WWW.IRIS-IM.COM

O-I

Restart of glass furnace at Waco, Texas, plant

Bottle manufacturer **O-I Glass** fired up a formerly idled furnace at its Waco, Texas, USA, plant, restarting the furnace about a year after it was idled, company spokesman Jim Woods said. The plant, which opened in 1944 and is one of O-I's oldest, now has all three of its furnaces operating.

According to Woods, "Each of these furnaces produce glass containers within the specifications of their customers, including the use of recycled glass."

Restarting the furnace was driven by increased demand for beer and liquor bottles. It appears that the pandemic has slowed or halted business at restaurants and bars in the region resulting in more people drinking at home, increasing demand for bottles.

Woods also noted how, globally, O-I Glass' packaging contains an average of 38% recycled content.

In November 2019, O-I Glass took out a "Green Bond" worth about EUR 500 million to finance sustainability initiatives. One year later, the company provided an update on how the money was being spent. O-I noted that much of it went to purchasing recycled cullet, reducing the manufacturer's energy consumption.

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FORGLASS

Gas combustion systems boast the most advanced safety design

Forglass is known to many European glass producers as the designer and builder of glass furnaces and batch plants. What is less known is that Forglass is a multi-faceted engineering enterprise with experts in many areas of glass production, including the design, construction and delivery of much of the auxiliary equipment for glassworks, such as conveyors, crushers and gas combustion systems. In fact, one of the company's areas of expertise is the design and delivery of demanding combustion systems that meet and exceed the newest, most rigorous safety standards.

The Forglass Melting End Main Gas Station is fully compliant with the European Standard EN 746-2 for industrial thermo-processing equipment and all safety requirements for combustion and fuel handling systems. Equipped with control devices independent of the furnace control system, it is also designed with several redundancies, including features such as:

- Filtering, reducing and stabilizing gas pressure
- Measuring gas flow
- Regulating gas flow
- Cutting off the gas flow in case of an emergency

The Melting End Main Gas Station's autonomous control systems are based on the safety PLC controllers (independent for each of the two lines), which are connected to transmitters and sensors of the furnace (pressure, temperature, air flow) and used solely for the purpose of ensuring safety – i.e. immediately shutting off the gas supply in an emergency. The two redundant lines are fully independent, that is they do not share any measuring or executing devices.

The Melting End Main Gas Station is fabricated in Forglass' own manufacturing facility in Poland, then shipped, installed, tested and commissioned at the Client's site in a matter of days.

WWW.FORGLASS.EU/EN

LIBBEY

Closure of plant in Shreveport, USA

Libbey closed its Shreveport plant and outlet store on 31 December 2020. The Shreveport plant had been operated for 47 years by glass tableware manufacturer Libbey, which became involved in Chapter 11 bankruptcy proceedings in the summer of 2020. Libbey officials were looking to reduce costs and match manufacturing capacity with less demand. Thus the Libbey Glass plant and outlet store in Shreveport ceased, putting 450 employees out of work.

"Over the last few years, we have experienced declining demand in our core markets, which has contributed to overcapacity. This has been exacerbated by COVID-19," Mike Bauer, Libbey chief executive officer, said in the summer of 2020. "The recommendation to close our facility in Shreveport will better align our cost structure with current and expected customer demand and position Libbey for the future."

HTTPS://LIBBEY.COM

HORN

Takeover of EUROX® Sauerstoff Mess-Systeme

With effect from 1 January 2021, **HORN® Glass Industries AG,** has taken over all assets of **EUROX® Sauerstoff Mess-Systeme GmbH** due to an assets deal.

Rainer Gorris, the founder of EUROX®, had already gone into his well-deserved retirement in 2019.

As successor and technical engineer, Dr.-Ing. Lars Biennek with his team is responsible for the continuation and further development of the oxygen measurement systems, which will be carried under the name EUROX® Measurement-Systems in the future.

HORN is taking on the current orders including the rental and service contracts as well as the leasing contracts.

Nothing will change for customers at first. Please only note the new company address and email addresses for inquiries and orders as well as the changed bank account details for accounting.

WWW.HORNGLASS.COM

BDF

Forming Delivery

Historically speaking, **BDF Industries'** core business is, and has always been, the glass container forming product line. During 1956, BDF Industries produced the first 4-section IS Machine entirely manufactured in Europe and, thanks to this considerable knowledge, is able to provide a wide range of machines with a high level of production flexibility to meet customers' requirements.

BDF Industries can offer a complete range of IS machines including gob forming and delivery, ware handling, container and variable equipment. The glass forming machineries are fully designed and assembled in house in Italy at BDF Industries, a company with relevant knowledge of production process with the most important glass manufacturers in the world.

Parallel shear motion guarantees a simultaneous cut for each gob entry to a modular and independent gob guide system. The easy maintenance system allows a reduced spare parts inventory, improved job change downtime and a perfect constant cutting time at all machine speeds. Additionally, there is an easy cam customization.

Electronic independent position control for each scoop, with the possibility to independently align each scoop and trough position. Great improvement of gobs delivery for high production machines with multi-gob delivery equipment provided with high rigidity and low inertia for high performances.

The 30° constant trough angle with new deflector profile which is longer on the trough side to guarantee higher gob speeds and shorter contact time between gob and trough. This means a softer centrifugal force variation and less deformation of the gob with greatly decreased impact force between gob and trough.

WWW.BDFINDUSTRIESGROUP.COM

SORG

Rebuild of Gerresheimer furnace starts successfully

SORG was appointed to rebuild the **Gerresheimer** Furnace 2 at the plant in Lohr, Germany. Last reconstructed in 2009, the furnace had reached the end of its life cycle. The furnace building will be extended to fit new technology and extended production equipment. The furnace, regenerative chambers, feeders and the exhaust system are being renewed.

As well as meeting the highest requirements on flexibility, quality and sustainability in production, there is a great demand on time for the construction in general, all while managing mortar and refractory materials in a winter climate.

Gerresheimer's Lohr facility manufactures every year around 1 billion units of type III glass in different colours, designs and filling capacities. The portfolio includes tablet jars, syrup bottles, dropper bottles and acid-resistant chemicals bottles.

The moulded glass range includes some 600 different articles ranging from 3ml to 4l in size for the pharmaceutical, food and beverages segments, although the majority of products manufactured are pharmaceutical containers.

WWW.SORG.DE - WWW.GERRESHEIMER.COM

ENCIRC

Carlsberg to trial glass bottles with up to 90% lower carbon impact

The partnership with glass bottle supplier, **Encirc**, allows Carlsberg Marston's Brewing Company to take another step towards Carlsberg Group's ZERO carbon footprint ambition with a trial demonstrating the possibility to cut the carbon impact of glass bottles by up to 90%. One million beer bottles have been manufactured for the Carlsberg Danish Pilsner brand.

Glass bottles account for around 10% of the total beer-in-hand emissions (the full value chain) for CMBC. This trial has significant potential to support the brewer's target to cut emissions across its value chain as part of Carlsberg Group's Together Towards ZERO programme.

The carbon impact of each bottle is cut by up to 90%, with potential to transform the bottle from the highest-carbon-impact packaging type to the lowest.

This is the latest in a series of innovations to cut the carbon impact of packaging across CMBC. In 2019, on the relaunch of Carlsberg Danish Pilsner in the UK, the bottles were redesigned to make them 10 grams lighter than the ones they replaced, saving over 130 tonnes of glass in the first year alone.

Mark Comline, Senior Category Director Group Packaging Materials at Carlsberg Group, said, "We are delighted this ground-breaking trial has successfully proven and produced ultra-low carbon Carlsberg glass beer bottles. Across Carlsberg we are inspired to work together towards a zero-carbon future. Trials like this in partnership with Encirc are a massive leap towards making it a reality."

As part of the Glass Futures industry initiative, the trial will feed into UK Government policy through the Department for Business, Energy and Industrial Strategy (BEIS) Energy Innovation Programme.

Adrian Curry, Managing Director at Encirc, added, "This is a truly momentous occasion for glass. We have set the standard globally with this trial and now the glass industry needs to work towards realising what we've proved is possible. We now know that glass can be the most sustainable of all packaging types and must all work together to ensure that happens."

Carlsberg Group has also been recognised for its action on climate change with a place on the prestigious CDP A list, and for its work in engaging with suppliers to tackle climate change through the 2020 Supplier Engagement Leader board.

WWW.ENCIRC360.COM - WWW.CARLSBERGGROUP.COM

SCHOTT

Increases in sales and earnings – record investments planned

The international speciality glass company **SCHOTT** continued its positive development and reported sound results despite the COVID-19 crisis, while also setting the course for further growth by engaging in a bold investment programme.

Despite the generally weak economic environment due to the corona pandemic, SCHOTT managed to continue to develop its key financial figures positively in fiscal year 2020, or to maintain them at the good level of the previous year.

"We stayed on course even in these difficult economic times. Therefore, we are quite satisfied with the past fiscal year," said Chairman of the Board of Management, Dr. Frank Heinricht. "This is largely thanks to the groundwork we have done in recent years. We have invested consistently, introduced many innovations to the market and have demonstrated stringent portfolio management. At the same time, we initiated a cultural change towards more agility in our organization. This has made us stronger as a company and paid off in this very unique fiscal year."

Sales rose by 2.2% to EUR 2.24 billion. Operating profit (EBIT) also improved, and now stands at EUR 288 million. The foreign share of sales increased to 87%. SCHOTT was particularly successful in Asia, where the company increased its sales by nearly 6%. The number of employees rose to around 16,500, 5,900 of whom are based in Germany.

The effects of the COVID-19 pandemic were clearly felt in parts of the portfolio. Business with speciality glass for the household appliance industry recovered toward the end of the year after demand initially declined significantly at the beginning of the pandemic. In contrast, business in products for the pharmaceutical industry developed very dynamically.

The fact that SCHOTT realized the record investment it had announced last year as planned, even despite the corona crisis – a total of around EUR 320 million or an increase of around 24% – is particularly worth noting. Roughly half of this sum was invested in German-speaking sites, such as a new building for pharmaceutical packaging in Müllheim in the German state of Baden, as well as in optics production in Mainz.

On an international level, SCHOTT invested in a new plant in China and new melting units in India, both for pharmaceutical tubing production. Other main investment focuses included Hungary, Switzerland, Brazil and the United States.

The equity ratio remained at a healthy level of 32%. "We are in a rock-solid position in these challenging times," explained CFO Dr. Jens Schulte. "This gives us sufficient scope for organic growth. We are also interested in making further acquisitions. We have successfully integrated the acquisitions of recent years into our product portfolio. As a result, we have expanded our materials and digitalization expertise."

SCHOTT currently produces more than 11 billion pharmaceutical packages for vaccines and liquid medications every year. Therefore, the company has special system relevance during the pandemic. Three out of four projects worldwide that either already manufacture or are still researching a COVID-19 vaccine use glass vials from SCHOTT. The company will have delivered enough vials for two billion vaccine doses by the end of 2021.

SCHOTT has already been investing in its production capacity since the spring of 2019 and was therefore able to ramp up capacities quickly during the pandemic. Investments in the pharmaceutical business will amount to roughly USD one

←

billion in total by 2025. SCHOTT will have spent half of this amount by the end of 2021.

Other speciality glass products are also making an active contribution to combating the pandemic:

- Coated glass substrates for COVID-19 tests
- Light guides in endoscopes that help doctors see better during intubation

SCHOTT intends to enter a new growth phase this fiscal year. Despite the challenging economic situation, the company plans to increase its sales by up to 5%. "Of course, we are also anticipating a decline in demand in some industries. At the same time, our balanced portfolio is helping us. We feel well prepared to master these economic challenges," said Chairman of the Board of Management Heinricht.

To achieve a further boost, SCHOTT will once again increase last year's record investments by spending EUR 350 million. The investment strategy is consistently aligned with market expectations. The technology Group continues to expect positive impulses in pharmaceutical packaging, in the field of diagnostics, as well as in cover and thin glasses for smartphones and consumer electronics.

New plans include a new melting unit for pharmaceutical glass and the expansion of thin glass production. International focal points include expansion of capacities in China, Switzerland, Hungary and the United States.

SCHOTT is also intensifying its efforts in the area of climate protection. In its new Group Strategy, the Group has set itself the ambitious goal of becoming climate-neutral by 2030. "We have already reached an important initial milestone here," CFO Dr. Jens Schulte explained.

Worldwide, the Group already covers 75% of its global electricity needs with green power via relevant certificates of origin. At the same time, a whole series of projects have been launched to develop the use of hydrogen and other energy sources for heating the melting units.

WWW.SCHOTT.COM/ENGLISH/INDEX.HTML

GTS

Equipment upgrades boost testing capability

Investment in a transport tester and new vertical load machine enables **Glass Technology Services** to add to their large range of glass performance tests.

The transport tester, an Ohaus Orbital Shaker, simulates the transportation process to assess performance during distribution and highlight any potential issues before they arise. New tests in the machine will assist customers to evaluate the robustness of printed and decorated glass packaging components by placing filled bottles or finished packs into a fully assembled case.

Testing is carried out using a continuous vibration motion – producing speeds of up to 500 revolutions per minute mimicking random vibration caused by the transporting of glass containers. This is used to assess the performance of a glass container with its interior packing material in terms of its ruggedness and the protection that it provides the contents when subjected to transportation.

To test smaller and more delicate glasses and glass containers the vertical load machine has been upgraded to an Inston 34TM30 which has the capability of testing up to 30kN forces and with the addition of a calibrated 500N load cell. This provides Glass Technology Services the opportunity to testing much smaller samples like those from cosmetic and pharmaceutical markets along with an increased potential for bespoke testing such as ring on ring and three-point bend. Three-point bend testing helps evaluate the reaction of the glass in realistic loading conditions by applying a flexural force. For ring on ring testing a disk or plate shaped sample is loaded by concentric rings to produce homogeneous biaxial stress – this testing is typically used for flat glass applications.

Graham Morris, Product Performance Manager for Glass Technology Services, said, "We are really excited about the testing possibilities this new equipment brings us.

"The increased capability of the new vertical load machine will allow us to provide our UKAS accredited testing for a wider range of our customers assisting them from due diligence to identifying strength capabilities for new product design as well as with bespoke requirements.

"The team also sees the huge potential to further support brand owners and glass packaging designers with the transport tester – we look forward to linking the results with our established Tec7 and Tec9 packages to indicate any glass performance losses due to the transportation of filled bottles."

WWW.GLASS-TS.COM

EME

New single-chain 1200 scraper conveyors for O-I Vayres

EME has delivered two new 1200 scrapers with single fork link chain to **O-I** for their production site in Vayres, France, each having a capacity of 450 tons per day.

The first scraper is successfully commissioned and is fully operational wile the second one is being assembled. The scope also includes a steam suction system to remove steam to outside the building.

WWW.EME.DE/GB

ARDAGH GROUP

Acquisition of Longhorn Glass

Anheuser-Busch (A-B) announced an agreement to sell **Longhorn Glass,** a manufacturing facility in Houston, Texas, USA to **Ardagh Group,** a global glass manufacturer and a long-time partner. The agreement is meant to ensure the long-term health and viability of the facility, which supplies bottles to A-B's Houston brewery.

Anheuser-Busch owns and operates more than 120 facilities, including breweries, wholesaler distribution centres, agricultural facilities and packaging plants across the United States. Ardagh Group operates 56 metal and glass production facilities in 12 countries, employing over 16,000 people, with global sales of approximately USD 7 billion.

"As we consistently work to structure our organization and network for long-term success, we are excited to further strengthen our long-standing partnership with Ardagh by transitioning our Longhorn facility," said Dave Taylor, US Chief Supply Officer at Anheuser-Busch. "It was important for us to find a partner with a clear vision for this facility and its workforce. That, coupled with Ardagh's expertise in the glass manufacturing space, makes them the perfect collaborator on this agreement."

"This agreement with Anheuser-Busch further strengthens the long-standing and highly collaborative relationship between our companies, across both glass and metal packaging," said Paul Coulson, Chairman and CEO, Ardagh Group. "Ardagh is committed to the long-term future of Longhorn and looks forward to welcoming Anheuser-Busch employees in Houston to the Ardagh team to continue to serve demand for sustainable glass packaging."

Once the transaction has closed, Anheuser-Busch will enter into a long-term agreement with Ardagh for Longhorn to continue supplying A-B's breweries with bottles.

WWW.ANHEUSER-BUSCH.COM - WWW.ARDAGHGROUP.COM

FRANKLIN BRONZE

Laser SLA 3D Printer for rapid prototyping

Franklin Bronze Precision Components has purchased a Laser SLA 3D Printer to produce rapid prototype parts and short runs of investment castings.

"The addition of this 3D printer to our facility allows us to quickly prove out design changes without needing to alter the tooling each time. For instance, making a gating change can be proved before cutting into the tool," said Neil Kruse, Senior IC Process Engineer at Franklin Bronze. "We are looking forward to working on trials and iterations for new and existing parts with our customers in a more efficient manner. Additionally, working with customers that have an intricately designed part."

Franklin Bronze Precision Components manufactures investment castings for glass container, pumps & valves, steel, automotive and food processing. The company provides high-quality, consistent products supported by technical expertise, in-house tooling & machining and automated processing.

WWW.FRANKLINBRONZE.COM

ŞIŞECAM

Antimicrobial glass technology makes its debut at Paşabahçe

Developed by **Şişecam Group,** revolutionary V-Block Technology, which prevents the growth of microorganisms on glass surfaces, is put on the market by **Paşabahçe**, Şişecam's leading glassware brand.

The ultra-hygienic Paşabahçe product range treated with V-Block Technology stands out for being the world's first and only antimicrobial glassware.

Paşabahçe's initial V-Block product range includes various tumblers, tea glasses and saucers, mugs and bowls. Keeping Paşabahçe's signature for durability and elegance, Paşabahçe V- Block products additionally offer 24/7 hygiene.

These features make the V-Block range ideal for household, hotel, cafe and restaurant uses during the pandemic and the new normal.

The revolution of the V-Block Technology comes not only from its special formula but also from its unique application technique. The special formula is applied during the production under high temperatures therefore stays active during the full life cycle of the glassware.

Paşabahçe V-Block products claim to contribute in the fight against the pandemic by providing protection for places with especially high contamination risk, such as hotels, restaurants, cafes, hospitals, and cafeterias.

Paşabahçe products featuring V-Block Technology were tested by accredited laboratories and confirmed to be effective on microorganisms by The Ministry of Health of Turkey.

Paşabahçe V-Block products are also scratch-resistant, food contact and dishwasher safe. Consumers and businesses with the need for ultra hygiene in their spaces will find Paşabahçe V- Block products to be very effective and helpful.

WWW.PASABAHCE.COM

HEYE INTERNATIONAL

Coloured CO retrofit

Heye International's cold end specialists offer several retrofit packages to match customer needs. Glassmakers select from the packages according to their specific requirements and budget, with the following advantages:

- Implementation of reliable and state-of-the-art SmartLine machine control
- Increased safety
- HACCP conformity
- Mechanical refurbishments
- Installation of servo components
- Supply of spare parts and toolings
- Dedicated services according to needs

All inspection modules are prepared according to glassmakers' needs (e.g. wall thickness measurement). After a start-up check, the retrofitted machine can easily be commissioned in the cold end area by plug-and-play installation. As an additional benefit, the customer can choose the machine in a RAL colour according to individual requirements.

WWW.HEYE-INTERNATIONAL.COM

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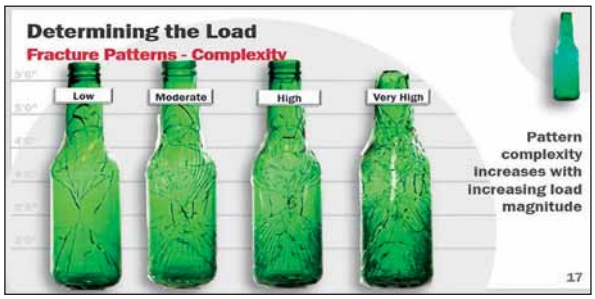
TEC REF

TEC REF RANGE OF PRODUCTS

AGR

Fracture pattern complexity seminar



The complexity of the fracture pattern is an indicator of the magnitude of the load at failure. A shorter initial split and greater amount of forking along with the number of fractures created all indicate load level was relatively high. Likewise, it usually indicates that the flaw at the fracture origin was relatively mild.

American Glass Research (**AGR**) offers a wide range of seminars from introductory to advanced level instruction, and includes topics on fracture diagnosis.

Fracture 1: testing and breakage diagnosis of glass containers. The objective of this seminar is to teach students appropriate fracture diagnosis techniques that are needed to solve glass breakage and other performance related problems.

Topics to be covered are:

- General Principles of Fracture Diagnosis
- Interpretation of Fracture Surface Markings
- Factors Affecting the Strength of Glass
- Identifying Stress Concentrator Types
- Understanding Fracture Patterns
- Several hands-on workshop sessions to provide experience in solving field breakage problems

A brief review of Surface Treatments, Cord and Annealing concepts will be also covered. This seminar is beneficial for personnel in all aspects of the glass manufacturing and container filling industries.

The seminar will last three and a half days, with the following available dates:

- 20-23 April 2021, Butler, PA, USA
- 13-15 September 2021 Lake Ammersee, Munich, Germany
- 28 September – 1 October 2021, Butler, PA, USA
- 11-13 October 2021, Kraków, Poland

HTTPS://AMERICANGLASSRESEARCH.COM

CRISTALERIAS TORO

Lighting of new furnace at Maipú plant

February 9, 2021, at 3.30 p.m., **Cristalerías Toro** started the lighting of a new furnace at its plant in Maipú, Chile at the beginning of February.

Francisco Ruiz, general manager at Cristalerías Toro Spa, said, "This entire start-up process has been and will be supported by the technicians of the different suppliers that come from Germany, the United States, Colombia and Mexico. It has been a tremendous challenge for us to meet the dates we set for ourselves, since the travel restrictions imposed by the pandemic have demanded our ability to coordinate the different specialities and have everything ready to start operation of the furnace.

"The new furnace has a capacity of 300 tons per day, uses electrical energy from 100% renewable sources and will produce bottles with more than 60% recycled glass.

"With the commissioning of the Maipú furnace, we began a new stage at Cristalerías Toro and we invite you to be part of our future."

WWW.CRISTORO.CL

BERLIN PACKAGING

Acquisition of Sodis-Uhart and Audoubert

Berlin Packaging, the world's largest hybrid packaging supplier, announced the acquisition of **Sodis-Uhart** and **Audoubert,** two historic companies offering glass and metal packaging in France.

Sodis-Uhart was founded in 1979 in Biarritz as a family-run business and expanded in 2015 with the acquisition of Audoubert, based in Toulouse, creating a hub for glass and metal packaging in southern France. The two companies offer a wide range of glass and metal containers and packaging components and have more than 9,000 square meters of strategically located warehouse space to support their customers.

"Sodis-Uhart, together with Audoubert, will significantly expand Berlin Packaging's product portfolio, especially in the food sector," said Paolo Recrosio, CEO of Berlin Packaging Europe. "Moreover, both companies have strong customer and supplier relationships that will help us continue to expand, particularly in France and the neighbouring areas of Spain."

"Our combination with Berlin Packaging represents the culmination of a family adventure that began in 1979 with just one employee. We're proud of our accomplishments, and we believe strongly that this transaction is not an end but a new beginning, enabling us to bring our experience in southern France to the rest of Berlin Packaging, and to allow our customers and employees to benefit from the opportunities offered by a global company," said Dominique Uhart, Director of Sodis-Uhart, and Michel Uhart, Director of Audoubert.

The acquisition of Sodis-Uhart and Audobert is Berlin Packaging's eleventh acquisition in Europe since 2016, confirming the company's strong commitment to offering packaging solutions in all segments of the European market.

"Expanding our presence in Europe remains a critical objective for us in 2021," said Bill Hayes, CEO and President of Berlin Packaging. "Targeted acquisitions, like the acquisition of Sodis-Uhart and its subsidiary, Audoubert, continue to be an important way for us to execute on our strategic growth plans for Europe."

WWW.BERLINPACKAGING.COM

EME

Batch plant for pharmaceutical glass tubing in China commissioned

In the 4th quarter of 2020, German based *SCHOTT AG*, started up a greenfield production plant for pharmaceutical glass tubing in Zhejiang Province, People's Republic of China. The new plant will produce high-quality borosilicate glass tubing – the base material for pharmaceutical packaging such as vials, ampoules, syringes and cartridges, which the vast majority of COVID-19 vaccine projects rely upon.

EME, with the support of its daughter company Shanghai Precision, supplied the batch plant including batch transport and cullet return system on a turnkey basis, including building, process equipment and the control system. The batch plant is designed for several furnaces and different glass types.

For the process technology EME adhered to the strict SCHOTT requirements in the dosing, weighing and mixing areas in order to obtain SCHOTT's highest quality pharmaceutical glass.

WWW.EME.DE

ZIPPE

Insights into daily work under Corona conditions

In times of the COVID-19 crisis, **Zippe** is breaking new ground with the installation and commissioning of plants. All processes are still accompanied by experienced supervisors who are on site in countries without travel restrictions, in unsafe areas or are in countries with travel restrictions. The company also offers corresponding online support and accompanies its customers via video.

The online team consists of a mechanical supervisor, an electrician and a software engineer. The customer is guided and instructed along every step of the installation and commissioning. Taking into account the time shift, online appointments are arranged in order to instruct the workers on site step by step and to support them actively. Also the training of the machine operators at the end is realised via video chat.

For its customer *Schott Glass India*, Zippe has now successfully commissioned a batch plant extension with two additional sand silos, already supplied last year, via remote access.

Here, the sand feeding was integrated in terms of mechanics and technical control via a conveying screw, elevator, conveyor chute and belt conveyor. In the batch plant, a new sand scale with two components and a conveyor belt with filtering equipment was installed in a very confined space, tested step by step and put into operation successfully.

Zippe has now put several plants into operation via remote access.

WWW.ZIPPE.DE/EN

XPAR VISION

New IR-D system at commissioned Stoelzle Czestochowa

A few days before Christmas **XPAR Vision** concluded the year 2020 with the successful commissioning of the a new Infrared Dual Camera system (IR-D) at the **Stoelzle** plant in Czestochowa, Poland. While committing to all protective regulations related to COVID-19 pandemic the technical teams of both companies performed and excellent job.

For Stoelzle Czestochowa the new IR-D system is added to multiple XPAR Vision systems already in place at the majority of their production lines.

XPAR Vision consultants supported via remote training and assistance Stoelzle Czestochowa's employees.

The successful partnership with Stoelzle Czestochowa represents the high standard XPAR Vision is aiming for with all customers and partners in the global container glass industry.

WWW.XPARVISION.COM

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BUCHER EMHART GLASS

Third generation of FleXinspect vision inspection machines

Bucher Emhart Glass, the leading global supplier of machinery and parts to the glass-container industry, has revealed the latest iteration of its advanced FleXinspect vision inspection range.

TEN YEARS OF FLEXINSPECT

Bucher Emhart Glass launched the FleXinspect range a decade ago with the introduction of the FleXinspect B, C and BC inline vision inspection machines. FleXinspect B offers inspections for sealing surface, base, vision plug gauging, wire edge, vision dip/saddle and mould reading, while FleXinspect C inspects for sidewall defects and stress, shoulder, shoulder stress and dimensional inspections.

Since that original launch, the FleXinspect range has continuously evolved through a succession of incremental improvements and innovative leaps, with each major

design change marked as a new 'generation'.

Bucher Emhart Glass' own advanced SCOUT control system appeared with the launch of Generation II, and was included with all machines in the range from then on.

LAUNCH OF THE THIRD GENERATION

Now, Bucher Emhart Glass is launching the third generation of FleXinspect. Generation III now also incorporates the newly acquired Symplex technology. The range is also End to End ready; all machines can provide data in the correct format for closed-loop control.

The latest generation offers higher-resolution optics and features a higher level of automation, including motorized optics and handler. The new machines also incorporate dust-free optical designs that require less maintenance. Job changes and setups are faster and more repeatable, with less need for human intervention and fine-tuning.

FLEXINSPECT B AND C CONFIGURATIONS

Generation III includes the established FleXinspect B and C configurations with a more flexible format where B and C units can be coupled in the order that the customer prefers. Coupled B and C units share the same electronics and tracking, so they still effectively function as a single machine. Generation III reflects Emhart's desire to standardize its technologies and strengthen its product range.

"The third generation of FleXinspect represents the finest vision inspection technology you can buy," says Mike Rentschler, Head of Product Management, Inspection at Bucher Emhart Glass. "By combining Symplex vision technology with SCOUT, plus the potential for End to End, we believe we've created the most advanced, future-proof vision inspection machines on the market. Add in our FleXinspect T and M mechanical stop-rotate machines and you have the world's leading inspection range." ■

BUCHER
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OGT

At the service of its customers – always

Massimo Pucci - Sales Area Manager
OLIVOTTO GLASS TECHNOLOGIES

Quality, availability, professionality, effectiveness and speed of the service offered have always been the milestones of Olivotto Glass Technologies After Sales Department. The achievement of the targets requested by customers, by means of compliance with contractual specifications, as well as the efficient resolution of technical problems, are the goals to be achieved with end customers' unconditional satisfaction.

OGT's After Sales team is made up of highly specialized engineers and technicians with proven professionality and experience who are extremely attentive to customers' requests and needs, with prompt and high quality technical assistance service. Thanks to these unique features, OGT is able to establish a solid partnership with its customers, based on mutual collaboration, trust and unconditional professionalism of its after-sales department.

THE MISSION OF OGT'S AFTER SALES DEPARTMENT

Technical assistance and, more generally, after-sales service, has taken on an increasingly important role for OGT, a real added value offered to its customers. The demands of a globally competitive market force the glass manufacturers to perform faster and more effective production campaigns. In this context, the number and duration of production line stop-

After-sales are as important as the actual sales of products and machinery, and this is why it is essential to have specialized personnel handling customer satisfaction. In this article, Olivotto Glass Technologies takes us through how it guarantees this part of its work, also remotely, and – more important in this period – during a pandemic.

pages become a primary and critical factor in a production plant. For these reasons, the available time for maintenance and for technical service operations need to be reduced.

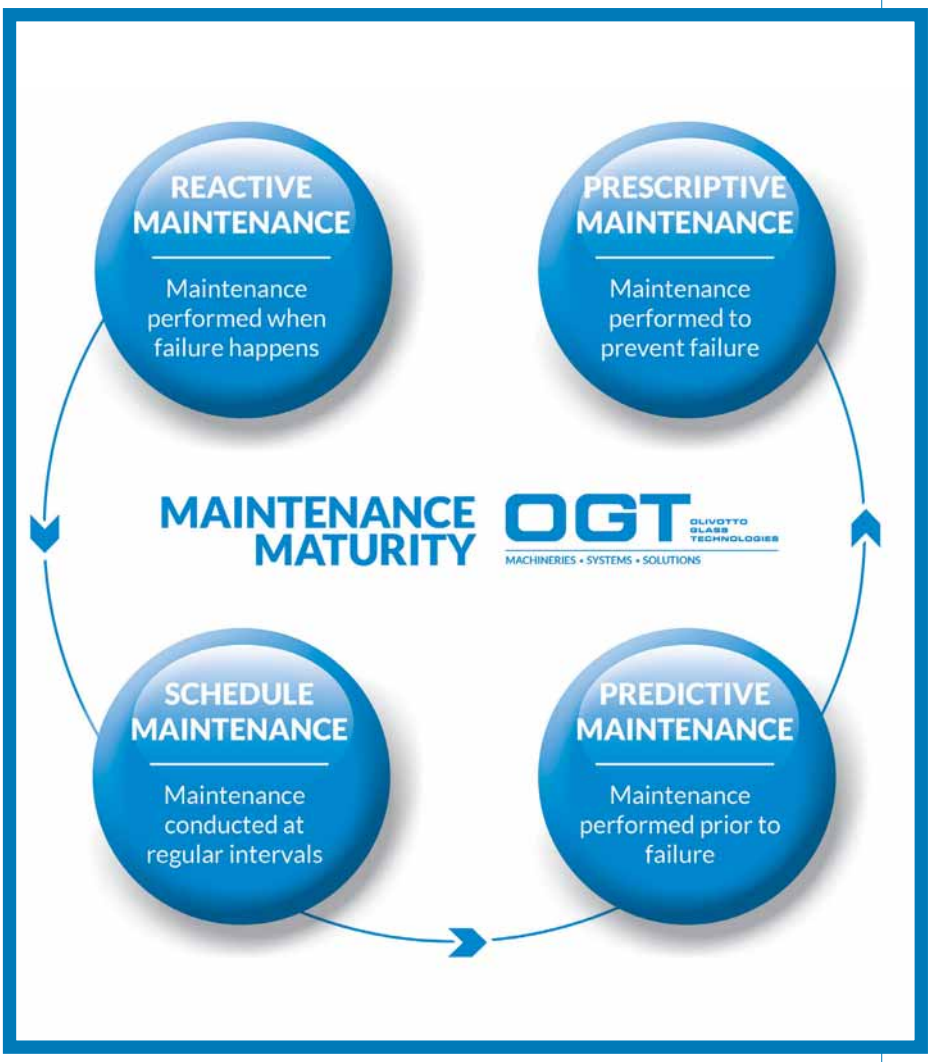
To meet this demand, OGT is constantly looking for cutting-edge technical solutions in order to update its products to the utmost, but also make them more reliable and user-friendly with direct improvements in production performance.

The ongoing technological evolution has not only made it directly possible to reduce the number of scheduled and special maintenance operations, but has also indirectly decreased the number of unexpected malfunctions.

New technologies applied to OGT's machines have allowed to use special software for predictive and prescriptive diagnosis aimed at avoiding and reducing unexpected production line downtime and ensuring improved support for end users.

OGT's After Sales Department is also able to respond to customer needs by means of targeted and effective real time response, guaranteeing non-stop service 24/7 in any situation at any time.

OGT's GDS Gearless Direct Driving Technology, applied to automatic press machines, along with OGT's 4.0 approach applied to Press and Blow machines (O90 machines), are just an example of OGT Maintenance Maturity machines.



REMOTE ASSISTANCE SERVICE AT OGT

OGT has, since the development of new electronic control systems in the early 2000s, started using software and devices dedicated to assist its customers remotely.

From the very first remote assistance systems based on slow speed modem communication, up to the high speed and modern systems based on VPN connection via WEB, OGT has always been able to remotely assist its customers and support them for any need.

Thanks to web connected machines and to the use of software for remote assistance, OGT created a technical assistance global network which is always connected to its customers (OGT's machines become 'IoT equipment').

OGT'S TECHNICAL SERVICE DURING THE ONGOING GLOBAL PANDEMIC ...

The 20 years of experience achieved in remote assistance solutions and the attention to the technical service avoided OGT being unprepared to face the contingent needs of the moment created by the well-known and sudden global pandemic emergency. Olivotto has been giving continuity to a way of service that was already perfectly integrated into the 'standard' performance offered to its customers.

During the health emergency, despite the well-known travel restrictions caused by the global pandemic, OGT has always been able to support its customers, with its presence on site, in all important services such as installation and commissioning of new machines. In this regard, OGT's After Sales Department has completed numerous installations and commissioning activities in different countries of the world, also those involving additional economic and personal efforts for OGT's after-sales staff.

Following national country regulations OGT's staff were subject to preventive quarantine periods of 14 days in total isolation and in vital conditions not certainly easy before starting their regular installation activities.

FOCUS ON 2020

Already in 2020, in total pandemic emergency, more than 16 installations were successfully completed along with the related commissioning of new machines in presence in more than 14 different countries all around the world.

The global pandemic crisis and health restrictions, in many cases different and variable from country to country, have certainly made the logistics of business trips very difficult and, in many cases, uncertain. Trips which, due to contingent needs, have been much more expensive despite time and objective problems, OGT was able to fulfil its duties by ensuring continuity of service, in presence, to its customers.

The professionalism and the spirit of sacrifice of OGT's after sales staff has allowed the completion of the set objectives with timely technical interventions in total compliance with the health regulations imposed by customer host countries.

Starting from March 2020, in compliance with the safety of its customers, all OGT's after sales team are subject to restrictive health regulations: periods of voluntary isolation following each technical intervention, timely monitoring of their health status (by means of molecular tests) before and after technical service. Regulations and instructions that, in many situations, go beyond the regulations imposed by the Italian State rules.

Thanks to this additional effort OGT is able to guarantee a 'Covid free' technical assistance service.

OGT'S SPARE PARTS SERVICE

During the health emergency, OGT continued to guarantee its spare parts supply service with quality and promptness by means of an innovative organization of the resources of component processing flow. OGT's spare parts warehouse has proved to be a resource of fundamental importance.

OGT has, in fact, continued to invest in a spare parts warehouse not only for the most widely consumed components, but also for all the most important components. This ensures that OGT's customers can purchase spare parts with faster delivery times.

2021

While aware of the difficulties and uncertainty imposed by the ongoing global pandemic, 2021 is, for OGT, an interesting and challenging year. The 2020/2021 orders, in one of the most commercially complicated and difficult periods of the last ten years, has exceeded forecasts: an objective and undoubted demonstration of trust of the market towards OGT. Thanks to this trust, OGT and its staff are preparing to face this still not easy year full of new goals and exciting new challenges. ■

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STOELZLE PHARMA

New production method for Type 2 pharma glass

A recent interview with Alexander Stern, Head of the Pharma Business Unit at Stoelzle Glass, gave us an insight on how the company is continuing to develop its production, also introducing a new production method for Type 2 pharma glass.

Glass Machinery Plants & Accessories (GMP&A): Your company has had a lot of experience in glass production for different applications, how important is the further development and evolution of production methods for you?

Stoelzle Glass - Headquarters

Alexander Stern, Head of the Pharma Business Unit at Stoelzle Glass: As you said, we have quite a long experience in glass manufacturing – Stoezle has, in fact, been active in glass manufacturing for more than 200 years. We are not only active in the pharmaceutical area, but also across spirits, food and perfumery, and I think that what makes Stoezle so unique is the fact that we also interact between our business groups. We have decoration facilities for our perfumery and spirit segments, so we can also decorate our pharma bottles.

GMP&A: Can you tell me, what was the goal, the motivation for producing Type 2 pharma glass?

Stoelzle Glass: The Type 2 pharma glass on the market is not as stable as it should be - we saw that there was a lot of fluctuation regarding the stability of the small items. In some of the processes, the handling of raw materials is quite dangerous. We wanted to replace variable factors on the existing process with repeatable and fixed parameters to guarantee stability on all sizes.

GMP&A: What are the differences in glass types?

Stoelzle Glass: There are basically two types of glass, Type 3 and Type 1. From bottom up, Type 3 is the basic glass in the shops that everyone knows, such as bottles etc. Type 2 is basically the same as Type 3, but the internal part of the bottle is treated, which then reacts with the hot glass, and creates a protection inside the bottle. This is Type 2 glass.

Type 1 glass is special, so-called natural or borosilicate glass. This is used for parenteral and very sensitive medications.

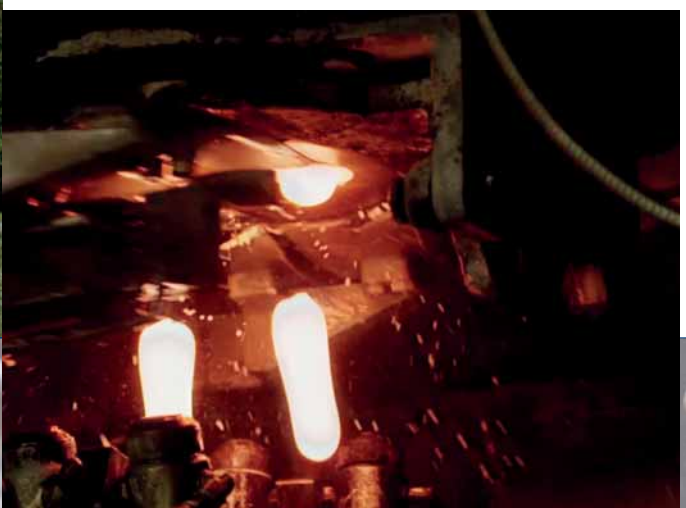
GMP&A: Are there other types of inner surface treatments that are used?

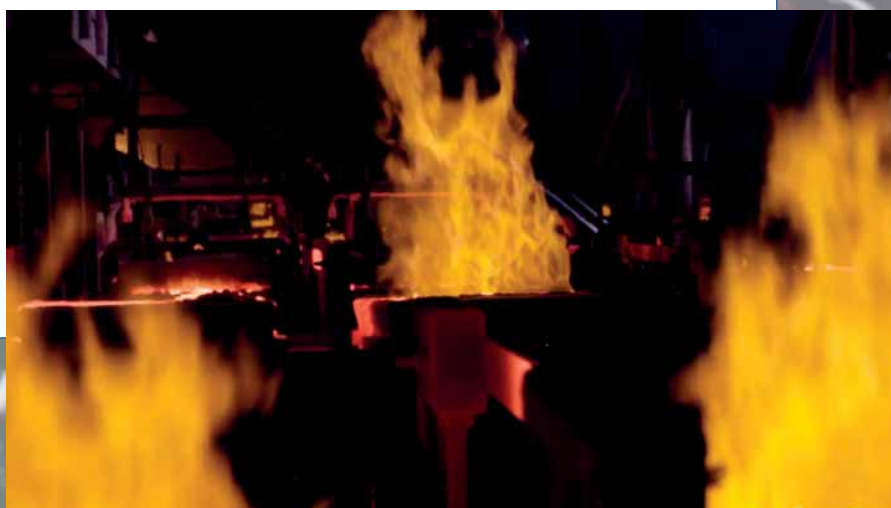
Stoelzle Glass: If you use one existing process, which is gas, you are using S02, which is quite dangerous to use and to store. The second possibility is the solid treatment which is ammonium sulphide, with the granulate that you have to put inside the bottle, so dosing is quite difficult. With a limited time to dose, you therefore try to get in as much granulate as possible.

Then there is of course the best possibility, which is to use a liquid, which is our solution. We have developed a dosing system measured exactly to the bottle size. This is also based on ammonium sulphide, but it's a very safe product to process. There's no explosive or dangerous gas in the atmosphere, it's a liquid, and so of course adjustable to the bottle size. This also reduces the amount of chemicals used for the process.

GMP&A: How do you ensure that the inner surface treatment works for all bottles produced?

Stoelzle Glass: Firstly we have





two spraying nozzles in use, to ensure that one is redundant, similar to the system in a plane, where you have two systems doing the same thing.

We also have inspection systems on the cold end with cameras checking the visibility of the gas, and if the gas is not visible the bottle is automatically rejected.

GMP&A: What impact does this new solution have on the environment?

Stoelzle Glass: The main components are air, water and ammonium sulphide. The treatment agent is SO3, which is formed in minimal quantities directly inside the bottle. This reacts with the surface, creating minimal fuming. Usually there is a lot of fume, and the cooling conveyor needs to be replaced after two or three years, so our treatment also cuts down on this. And HO2 finally supports the treatment process.

GMP&A: 2020 of course has been a very strange year for every-one. What do you see as the next step?

Stoelzle Glass: 2020 was a very special year, for all of us. We saw that the pharmaceutical industry was also in the process of change. The industry is very strict, requiring on time delivery, highest quality and everything needs to be checked and to be 100 per cent safe. This of course has not changed, but the way in which we do business has changed.

Usually there are audits, travel, visits to plants, and this has now all become part of the virtual world. This is the main change during this period, and looking into the future at the Covid-19 vaccine will probably be packed in tubular glass, but you also need to pack other medications.

We see that there is a lot of potential if you are able to find and present alternatives for tubular glass. This is what Stoelzle is looking at right now, together with the Type 2 developments especially for smaller sizes. ■

Stoelzle Union, Czech Republic

HEYE INTERNATIONAL

Benefits of structured Project Management

Keeping the overview is essential for every project. Many tasks are complex and need specialist knowledge and expertise. Sophisticated project management leads to specified and structured procedures during entire project period, which finally helps to achieve the stipulated objectives in shortest time. Heye International has implemented a modern project management concept to fulfil customers requirements and bring the project to a success.

Petra Heumann - Marketing
HEYE INTERNATIONAL GMBH

With a new investment, certain targets have to be kept, and the bottom line is all about budget, quality and time. The fixed budget must not be exceeded, the quality of products and practices must be satisfactory and the time schedule has to be kept. There is often an overwhelming amount of information when it comes to a new investment in a glass production facility.

PM@HEYE

When Heye receives a machine order, the company handles all commercial and technical processes with a structured and permanently reviewed project management system, called 'PM@Heye'. According to the project's type and scope the basic structure can be adapted and customised. In the first phase Heye's Sales Managers finally clarify all technical and commercial points with the customer before they hand over the project to the project manager, who then is the permanently responsible contact person during the entire project ('one-face-to-the-customer'). The project management processes at Heye are well-organized and transparent to customers. In each stage of the project the customer is informed on the latest status, kept in the loop, with a comfortable 'one-face-to-the-customer' approach.

SPEEDLINE – IMPROVEMENTS IN PROJECT TIME-SCHEDULES

With the invention of the SpeedLine IS-Machine, Heye's flagship product in its Hot End portfolio, tremendous improvements in project time-schedules have been generated based on standardised parts logistics, modular assembly and the integration of many sub-systems into the factory-assembled and factory-tested machine. This also allows the machine to be installed and put into operation in shortest time due to standardised processes, less interfaces and its modular and pre-mounted design.

Under the best conditions, a skilled Heye installation team can move and install a Speedline machine within a period of 15-20 days from unloading from a truck until start of the cold-run. Start-up and performance-run is an important part of the project and the experienced Heye service team is able to achieve full machine performance already two days after hot production start. During all these project stages the project manager is the link between all acting groups and the customer.

TYPICAL PROJECT PHASES – HOT-END PROJECT REGARDING IS-MACHINES

Phase 1 – Opening

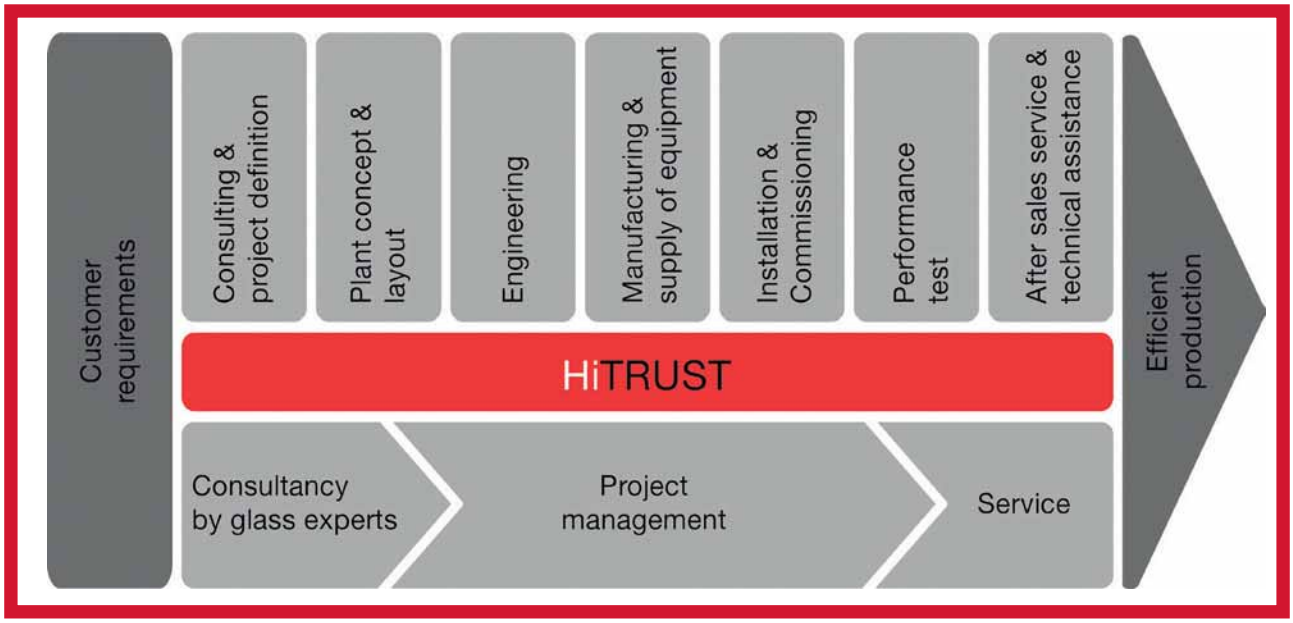
- Final customer meeting
- Commercial and technical clarification
- Placement of purchase order/contract signing

Phase 2 – Planning

- Heye internal project handover from Sales to Project Management department
- Customer kick-off
- Introduction of the Project Manager
- Verification of the scope of supply
- Project planning, including milestones for delivery, start-up and training
- Determination of start-up containers
- Continuous customer communication

Phase 3 – Production

- Production phase
- Testing and verifica-



tion of machinery and equipment
- Preparing of readiness for shipment

Phase 4a – Transport
- Transport and shipping in accordance to agreed Incoterms

Phase 4b – Installation and commissioning
- Arrival of machinery and equipment on site
- Installation
- Training
- Cold run and approval for first glass
- Commissioning
- Approval of readiness for packing bottles by customer
- Acceptance

Phase 5 – Completion and lessons learned
- Final project meeting of customer and Heye Project Management
- Lessons learned
- Special support until end of warranty period

ACHIEVING THE OVERALL GOAL IN THE BEST WAY POSSIBLE

These single phases have proved a useful tool to structure and manage the complexity of many projects. By stipulating and maintaining these project goals and sub-goals in their single phases, the overall goal is usually better achieved and customers are satisfied, as Ralph Versluis, Production Technology Manager at Ardagh Glass Europe, confirms: "Since my cooperation with Heye I have been involved in many projects and I have also met several project managers. The PM@Heye process is certainly a main driver for an effective flow through the different phases of a project and finally for a successful start of a machine. I am a strong believer that good processes drive good results. The main focus for the cooperation with Heye has always been on the process and the transparency. A mutual understanding of what the needs are and how those can best be translated into the project process is what has driven the good results over the latest projects." ■

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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OCMI GROUP

Renovation at all levels – technology, service and human resources

INCREASED GLOBAL DEMAND FOR PHARMA CONTAINERS

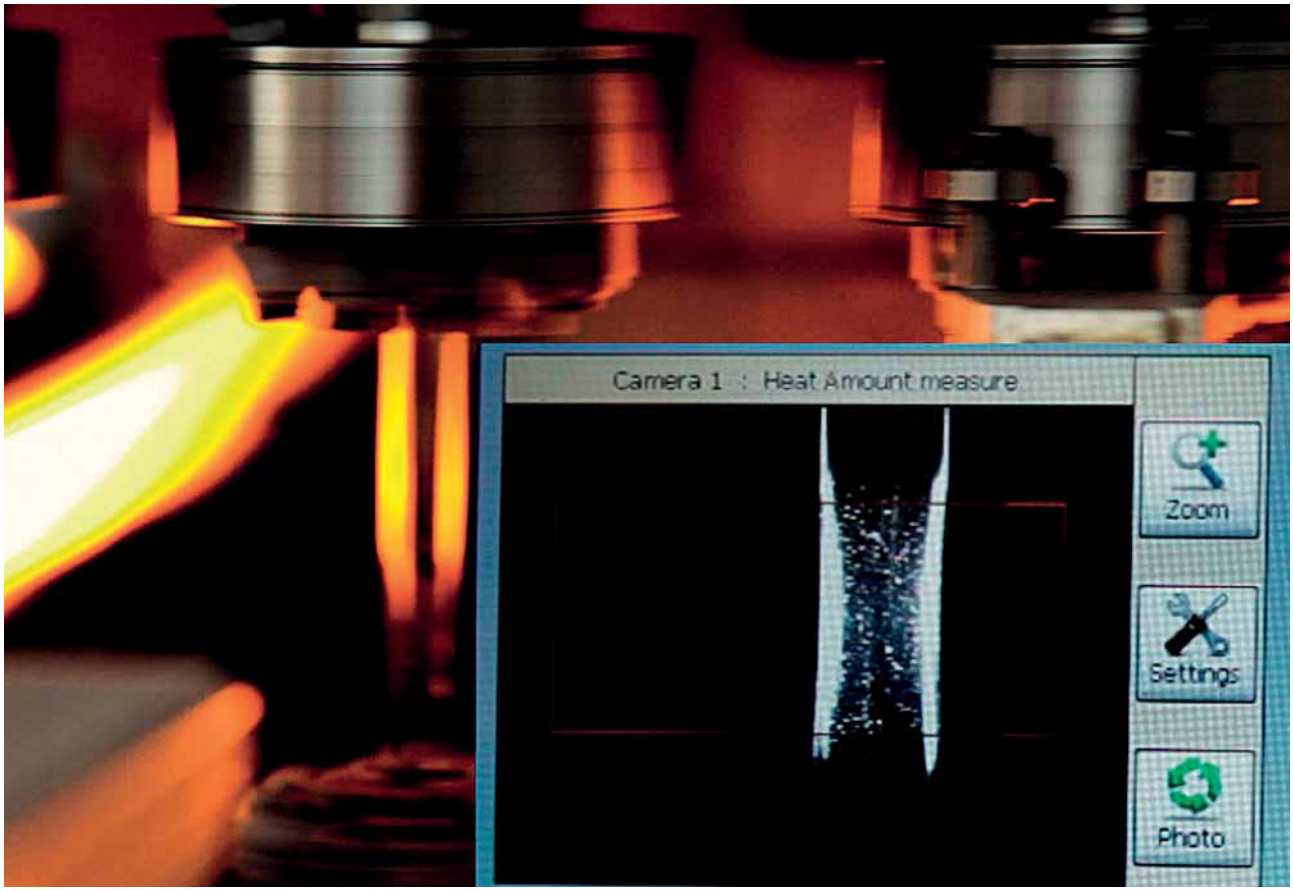
Especially in some geographic areas, such as the Far East and Eastern Europe, the request of pharmaceutical containers has increased relevantly, also due to the development of Covid-19 vaccines.

In China, traditionally the most important market for OCMI Group, many historical customers made important investment in new production lines for both vials and ampoules and many new actors opened the business, pushed by the growing need of glass pharmaceutical containers.

OCMI Group, thanks to its new integrated structure and renovation after the acquisition of Kyp Accesorios, manufacturer of ampoule processing machines with almost 30 years of experience in the worldwide market, is now able to accept this new challenge and, at the same time, offer new developments aimed to increase efficiency and reduce glass wastage during production workflow.

COMPLETE QUALITY CONTROL

The ampoule and vial lines by OCMI Group allows to perform a full quality control of product from beginning to end of the production process thanks to the hot-



OCMI Group, greatly renovated after the acquisition of Kyp Accesorios, manufacturer of ampoule processing machines with almost 30 years of experience in the worldwide market, is now strengthening its position as a supplier of borosilicate glass tube processing lines for medical containers, with particular focus on ampoules and vials, even more.

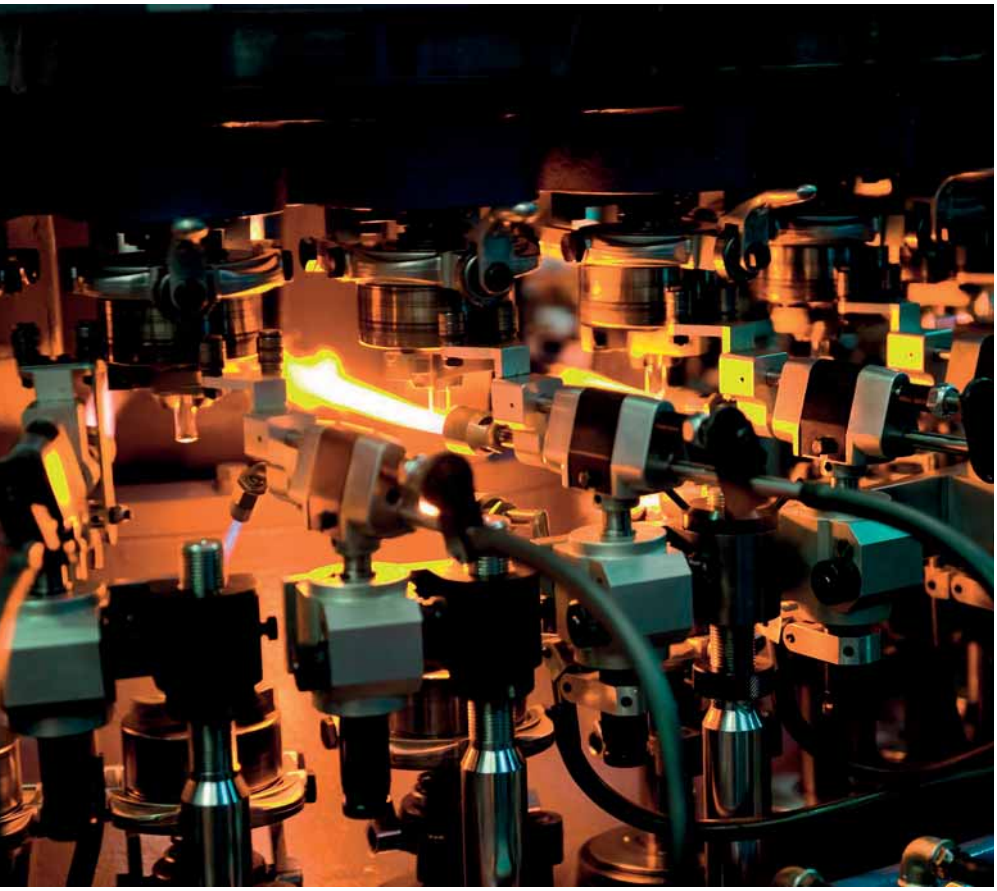
end and cold-end camera inspection systems, both developed by OCMI Group engineering.

The possibility to install control systems coming from the same supplier of the manufacturing lines consists in a big advantage for the end-user who can refer to only one subject to get a much better and punctual after-sales service.

The last ampoule processing line developed for one of the most important pharmaceutical laboratories of Turkey represents a perfect example of fully controlled production line.

FORMING AND CAMERA INSPECTION

The MM30 forming machine is equipped with OPTISTEM/2 camera inspection system to control all the dimensions of containers before unloading and make corrections in real time thanks to the oxygen self-regulation in the burners placed before the glass stretching section.



Regarding total ampoule length that can't be controlled by cameras during forming operation, also this size can be kept under control through OPTISTEM panel connected with new device for total length control installed on after-forming line LA502.

Factories equipped with MES centralized system have the possibility to connect OCMI hot-end camera inspection devices to their centralized memory in order to keep the complete production area under control in real time and from one integrated position, which is a more and more frequent request from many factories.

COLD-END INSPECTION

At the end of the line, the new cold-end inspection system Kypeyes with four cameras to be placed before the packing station, allows to check printing quality in full or just in special areas and, consequently, cosmetic defects into the same area.

The same cold-end inspection system allows to check the quality of all ampoule finishing elements like OPC point and cut, colour rings and any critical distance or dimension related to them.

The same line can be integrated, even in a second time, with optional equipment aimed to reduce the manual glass handling and optimize manpower costs, like automatic tube loader and automatic packing machine, both available in two alternative

versions to be selected according to available space and type of processed containers.

Regarding reduction of glass wastage FA36S machine is the alternative for forming operation offered by OCMI. Thanks to the six additional working sections dedicated to the bottom forming of each new glass tube, it allows to manufacture one more ampoule per each glass tube and save five per cent of glass per each working shift approximately.

EXPANSION OF VIAL MACHINES RANGE

OCMI Group will enlarge its range of solutions for vials production starting from the end of March 2021 with a completely new model of forming machine fulfilling the requests of the market, especially in terms of hydrolytic resistance levels.

On the other hand, the FLA20/S vial forming machine, also thanks to the last technological developments related with servo-controlled forming tools, is penetrating the fast growing Asian markets such as China and Pakistan.

Also in this case, OCMI Group provides completely automatic lines, from loading to packing, with camera controls installed in hot- and cold areas.

Servo-controlling systems for forming tools in the pre-finishing and main finishing station of forming machines have resulted in being a really helpful instrument for operators, who can reduce job change times and reduce manual operations previously required for tool adjustment.

The developments applied to FLA20/S machines are aimed at combining ease of operations with high productivity, thanks to the continuous rotation.

As previously mentioned, the main purpose of OCMI Group for 2021 is to complete its range of solutions for vial production with a new machine completely developed at its Italian headquarters in Milan.

As of the end of March 2021, OCMI will be fully available with any type of digital material for customers and future customers the world over, in order to introduce the technical features and advantages of this new equipment.

LOOKING TO THE FUTURE

The greatest hope of OCMI Group is that the health emergency caused by the Covid-19 pandemic will soon be over, allowing customers and visitors to visit OCMI facilities in Italy, Spain and France, and consequently to see for themselves how this new integrated group has enriched its offer in terms of technology, service and human resources. ■

ADVANCED CONTAINER HANDLING

Experience and know-how with historical Italian roots

A new company in the packaging sector, with a new concept for the construction of systems and solutions. In this article we take a look at one of Italy's most recent new-entries in the cold-end area of hollow glass manufacturing, founded thanks to 30 years of experience in container handling.

ADvanced Container Handling is the new start-up established thanks to its founder's passion for handling, in all its different forms and types, from containers to everything that needs to be handled. The founder and administrator of ADvanced Container Handling is Domenico Tarantolo, many

know this name, associated with 30 years history and experience in the handling field, raised and trained in the Emilian Packaging Valley. In fact, he entered the sector as a young man as a simple apprentice, then becoming a transfer installer, mechatronics, customer service, sales manager, Latin America sales director.

ITALIAN ROOTS, EXPERIENCE AND KNOW-HOW

Although the company name is English, its roots, experience and know-how are all Italian. The name of the company itself immediately conveys its mission, and is a direct reference to the type of product it deals with, and are fundamental and very important elements for a company that was born and has its roots in the cradle of packaging.

The company's mission is based on the introduction of a new concept for the construction of systems and solutions: the focal centre is the container, the real protagonist, which starts from this essential element and its shape, from the material of which it is made, its purpose, used by third parties, for the diffusion of a brand or for large distribution.

VERY SIMPLE PHILOSOPHY AND ANALOGY

At the base of everything there is a very simple philosophy and analogy: the most important thing for the customer is the most important thing for ADvanced Container Handling, and this is the guideline for the realization of each and every project.

This new company was set up in a period and in a global situation certainly not the simplest, but its founder is strongly

convinced that he can provide a new concept and a new vision of packaging. From glass containers to plastic, from cartons to tinplate, from packaging to handling, from the simplest to the most complex, ADvanced Container Handling will be able to provide customized solutions supporting its customers from the very first steps in the configuration of packaging lines and systems, paying particular attention to all the details – too often considered superfluous – but which on the contrary can make the difference in the aim to acquire new market positions in the increasingly competitive packaging sector.

HIGHLY MOTIVATED AND EXPERIENCED STAFF

ADvanced Container Handling has a staff of highly motivated

and experienced collaborators. Moreover, the area dedicated to the construction of systems boasts a unique structure, offering large spaces that allows to carry out various activities carried out simultaneously, aiming at reducing costs and production times, given the dynamic demand of a constantly evolving market.

During its first steps into the global market, ADvanced Container Handling will be able to count on strategic alliances, representation of brands, both in the sector and in others, sharing of markets, all with the aim of offering solutions of functionality and quality but, at the same time, guaranteeing a path of complete growth. The industrial plan envisages the development of these strategic alliances in order to provide a capillary network of agents and branches, able to guarantee its presence on the territory: representative sales, on-demand assistance and, in some cases, also assembly and realization of plants.

ADvanced Container Handling aims to offer its customers solutions of functionality and quality, enhancing the Handling of the 'product', the result of an entire process, hard work, constant commitment, with cutting-edge technical solutions.

ADVANCED CONTAINER HANDLING

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SORG

Solutions to new challenges and problems: capturing complete plant situations

In this article SORG explains why they work with a Class 1 laser scanning device and how they use several hundred scan positions across all floors to capture all objects and the complete plant situation in a short time. Thanks to large range vision, reliability and high accuracy, 3D laser scanning has already proven itself in many industrial sectors – including glass.

WHY 3D LASER SCANNING

The demand for ever larger glass melting plants and the reuse of existing structures and infrastructures make the handling of so-called Brown Field projects increasingly complex. The integration of new stages, entrances, plant components, etc. into the existing systems requires a higher degree of coordination and communication effort with the client and the technical departments than was necessary just a few years ago. This makes a detailed visualization of the existing plant complex crucial.

The planning and integration of new plant parts or infrastructures or those that need to be modified, rely on existing documentation. If these are still present, they are in paper format due to the age of buildings, etc., and might include deviations in dimension or insufficient angularity. This makes the data transfer to the new plans difficult or even impossible.

Very often, additions and adjustments have been made over the years so that the existing documents are no longer up to date. In these cases, it was – and is still common – for the planning company to be on site for a longer period of time and to record the situation with conventional means, paper drawing, folding rule and laser measuring

devices. Practice shows that these inventories contain inaccuracies and can also be incomplete.

With all these new challenges and problems, common measurement methods increasingly reach their limits. With its large range vision, reliability and high accuracy, 3D laser scanning is a more than reasonable alternative to classical inventory and documentation, which has already proven itself in many industrial sectors – not least in the glass industry.

THE SCANNING PROCESS

With FARO, SORG uses a Class 1 laser device, which does not create hazards for people. When scanning, the laser beam penetrates every small gap, so the scan area is often bigger than expected. Several hundred scan positions across all floors are used to capture all objects completely. In the end, the complete plant situation is captured in a short time.

The entire system can be aligned in a 3-dimensional space. Thus, not only distances but also the location and orientation of objects can be seen.

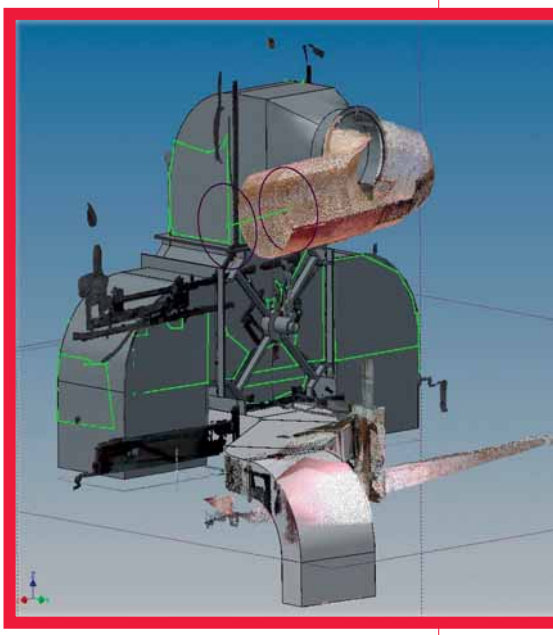
The FARO Scene program is used for processing, while Scene LT is used for viewing, measuring and editing scans.

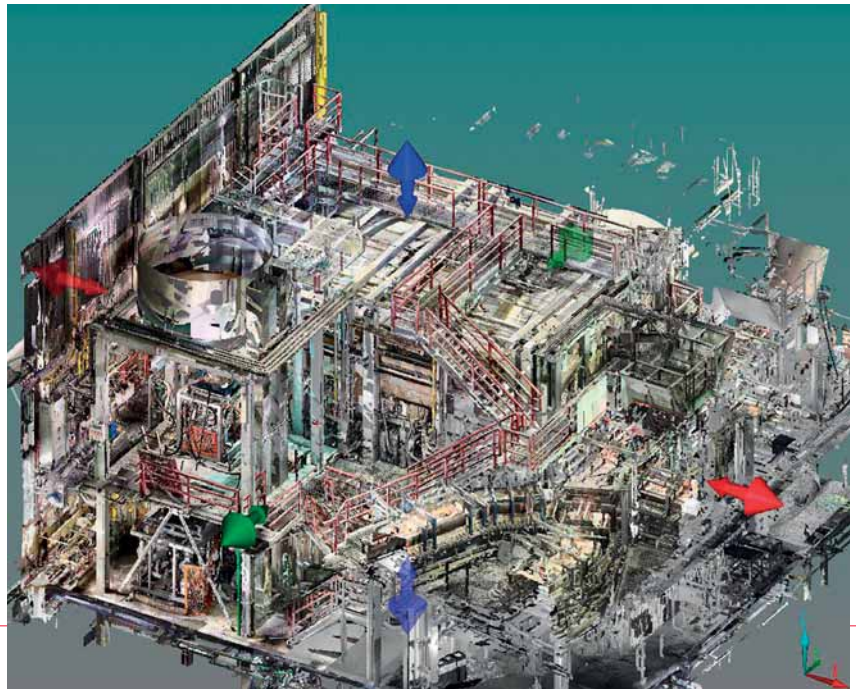
After some processes in the scan software, the single scans will be sorted and positioned to each other to show a realistic, true to scale depiction of the scanned object (point cloud). This highly detailed point cloud documents the current state.

The overlay of the recorded point cloud with existing 3D CAD models shows interference contours and deviations between reality and planning state.

Point clouds and ortho-photos can be uploaded into CAD in original scale. Thus, existing 3D models and 2D views can be compared directly with the real objects.

Besides traditional production layouts, visualization has virtually no limits. Different concepts can be easily illustrated and evaluated.





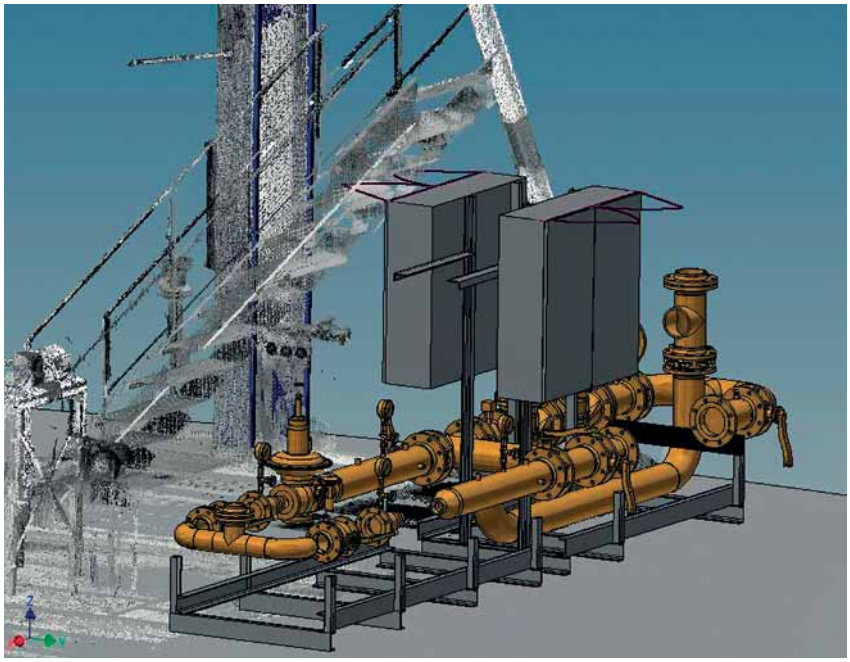
THE LATEST TECHNOLOGY WITH NUMEROUS ADVANTAGES

Cost-saving and efficient

- Saving costs due to high planning reliability
- Improved efficiency and reduced installation effort
- Evaluation processes in offices make expensive and time consuming re-measurement on site unnecessary

Fast, safe and detailed

- Data acquisition without interrupting running operation
- Shortest measurement times on site without compromise



- Largely independent of actual lighting conditions
- Contactless, accurate and highly detailed measurement
  - even hard-to-reach areas can be detected without entering the hazardous area
- Problematic areas can be detected and solved in the planning stage, collisions can be avoided during construction time

Easy, multi-variant and useful

- Scans can be useful in the calculation phase, serving for documentation, supporting discussions with panoramic views and giving the feeling of being on site
- A variety of evaluation methods, specially tailored to the customer's requirements
- Scan and CAD data can be put together quickly and uncomplicated in almost all formats in Navisworks
- 3D Laser Scanning can be used for the measurement of batch houses and also in many other industrial sectors

SORG RANGE OF SERVICES

- Availability of scan results shortly after measurement
- 2D layout comparison to identify deviations and make changes
- Export of sectional and project views
- Variance analysis
- Scene 2Go Web Share: free scan view, access to 3D documentation as well as analysis and exchange of project data ■

CHINA GLASS 2021

31st China International Glass Industrial Technical Exhibition

Shanghai New International Expo Centre

May 6-9, 2021

Organizer: The Chinese Ceramic Society
Supporter: Shanghai Ceramic Society
Contractor: Beijing Zhonggui Exhibition Co., Ltd.

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LUBEN GLASS

VR1 polishing machine for non-destructive polishing of moulds and plungers

Founded to respond to the needs of the glass industry with innovative solutions, Luben Glass has become a specialist in the consulting, development, manufacturing and marketing of plants, machines, mechanical parts and special equipment, among others, for the hollow glass industry. This article takes a look at one of its recent developments – the VR1 polishing machine.

STARTING WITH SIX AND REACHING 12 MOULDS WITH THE STANDARD MODEL

Luben Glass decided to focus on the development of a new, non-destructive polishing system for moulds and plungers some time ago, and was convinced that it would not be an easy task. However, in a short time, thanks to the tenacity and constancy of Luben Glass' research and development team, the first vibrating machine with automatic injection of the polishing liquid, capable of non-destructively polishing any type of mould for IS machines was engineered, built and patented. The first six-station machine was able to polish six moulds, regardless of the complexity of their

internal surface and their dimensions, in less than two hours without removing material and without the need for skilled labour.

VR1

Today, thanks to the constant commitment in the search for new solutions, giant steps have been made in the development of this non-destructive vibration polishing technology. In fact, the standard version of the brand new and performing VR1 can polish up to 12 moulds in less than an hour and up to 'N' number of moulds per hour with customized units.

Among the numerous problems strictly related to manual polishing, as well as polishing by means of brushing machines, there is the increase in the volume of the mould. This is a direct consequence of the mechanical action of brushing the surface and the difficulty of performing perfect polishing on surfaces characterized by drawings, engravings and an articulated or complex shape.

Equally important is the problem connected with the need to use skilled labour capable of polishing with a high degree of finish. Thanks to the VR1 system, these problems have been eliminated and have given way to extraordinary results in terms of time saved and quality of the polishing. Furthermore, the reduction in the volume of the mould is almost nil, thus allowing for a remarkable increase of its average life.

These winning features of the VR1 system have recently convinced two Eastern European glass factories to equip their mould maintenance workshops with the VR1 for polishing plungers and moulds, often characterized by very precise machining, depicting very complex drawings and engravings and, therefore, difficult to polish satisfactorily with conventional systems – but not with the VR1. ■

VERALLIA

ESG[1] roadmap and ambitions; Environmental, Social and Governance criteria

Verallia, the leading European and the third largest producer globally of glass containers for food and beverages, presents its ESG roadmap and ambitions up to 2025.

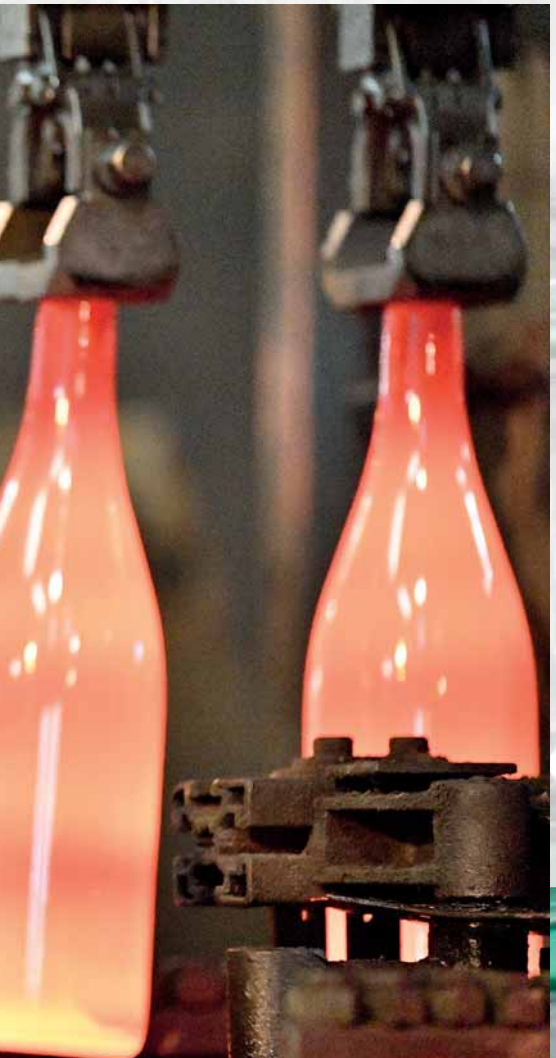
Responding to the environmental challenges facing the planet and changing consumption patterns, Verallia has unveiled its purpose to 're-imagine glass for a sustainable future'.

CSR ROADMAP BASED ON THREE PILLARS

In order to play a leading role in the transformation of the packaging sector, and to go even further and progress even faster, the Group presented its CSR roadmap, which focuses on three pillars:

- Enhancing the circularity of glass packaging by maximising the integration of cullet into its production processes. This will involve implementing actions aimed at increasing the amount of cullet collected in partnership with FEVE (Fédération Européenne du Verre d'Emballage – Federation of European manufacturers of glass containers), national associations such as the CSVMF[2] in France, or directly with local authorities in Russia or Chile, for instance. To improve recycling capacity and efficiency, Verallia will invest directly in its cullet treatment centres and make use of direct partnerships with external suppliers. Finally, the Group

would like to increase the use of cullet in its production process by continuing to improve its glass recipes and by introducing incentives for all Group employees.
  - Verallia is therefore aiming to increase the rate of use of external cullet in production to 59 per cent by 2025, compared to the 49 per cent used today.
- Finally, Verallia would like to promote the viable reuse of glass bottles and jars where it makes sense, as is already the case in Germany, for example.
  - Verallia will therefore launch an initial pilot study in France by 2025.
- Significantly reducing CO_2 emissions across all Group operations by 2030 through three main levers: changes in the mix of raw materials intended for glass production with an increased use of cullet and a shift away from carbonated raw materials; a reduction in the energy required for melting glass and other production processes; and an increase in the use of green energy. This will be achieved through investments of around EUR 220 million by 2030, specifically aimed at reducing CO_2 emissions.
  - By 2025, Verallia intends to reduce the average weight of its standard, non-returnable bottles and jars by 3 per cent and plant 100,000 trees per year, with the aim of planting 500,000 in total. This will be achieved through investments of around EUR 220 million by 2030, specifically aimed at reducing CO_2 emissions.
  - All of these actions, which are part of the Science Based Targets initiative, should enable Verallia to reduce its CO_2 emissions by 27.5 per cent by 2030.[3]
- Providing Verallia employees with a safe and inclusive place of work by implementing additional regulations in line with EHS (Environment, Health and Safety) standards.
  - The Group reaffirms its objective of achieving zero accident across its sites.
  - It aims to double the ratio of employees with disabilities working in the Group to 6 per cent by 2025.
  - Verallia also aims to increase the gender equality index by 15 points, so as to reach 75 points in all countries where the Group is present.
  - Finally, the Group is committed to continuing and further promoting its employee shareholding ownership policy, which began in 2016, so that Verallia employees will



hold 5 per cent of the capital by 2025. They currently hold 3.3 per cent.

Moreover, in addition to the measures implemented as a result of COVID-19, the Group intends to continue to support local communities by dedicating EUR 1.5 million to local projects every year from 2021 onwards, in line with its purpose.

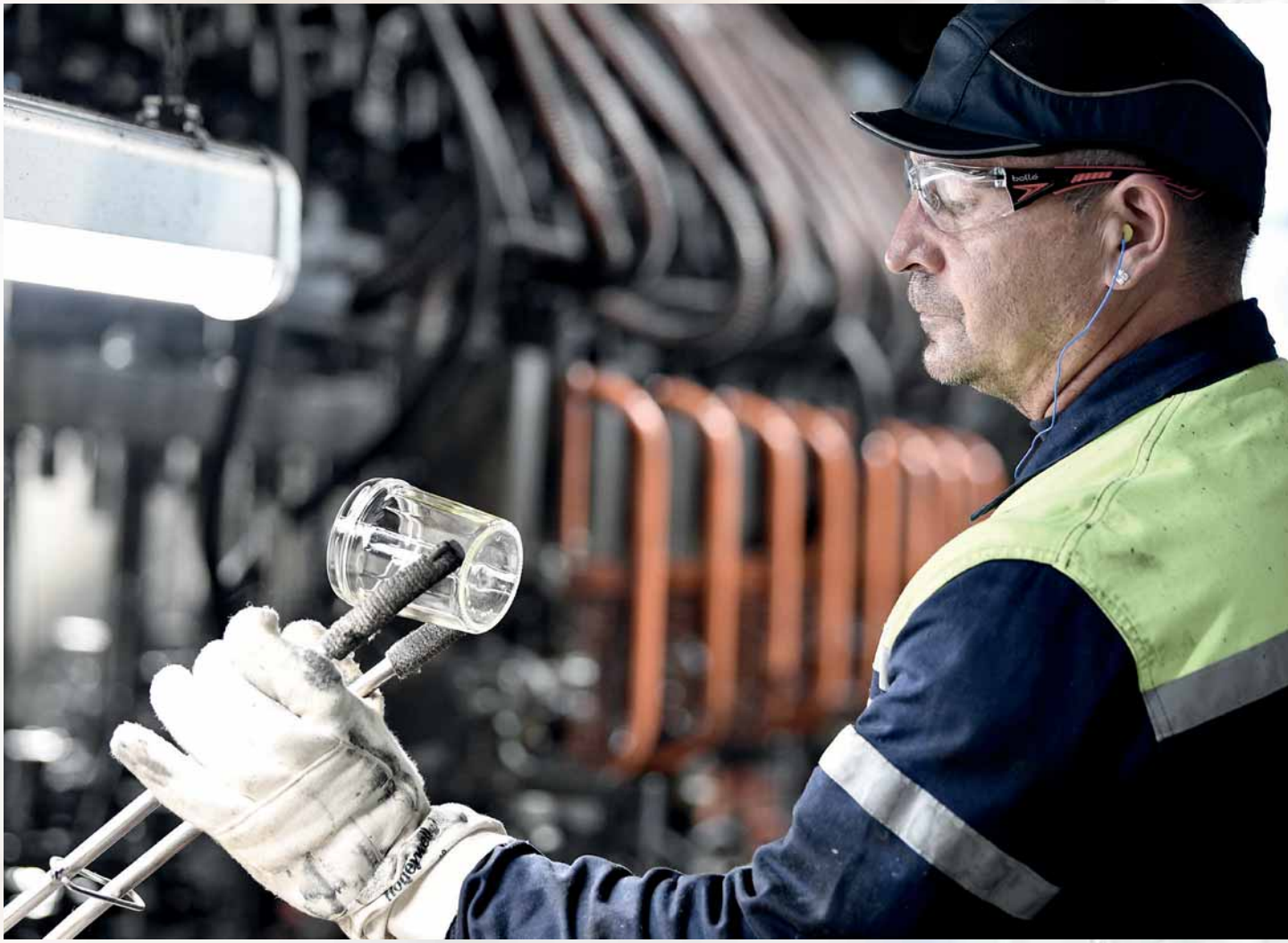
CONTINUOUSLY IMPROVED GOVERNANCE

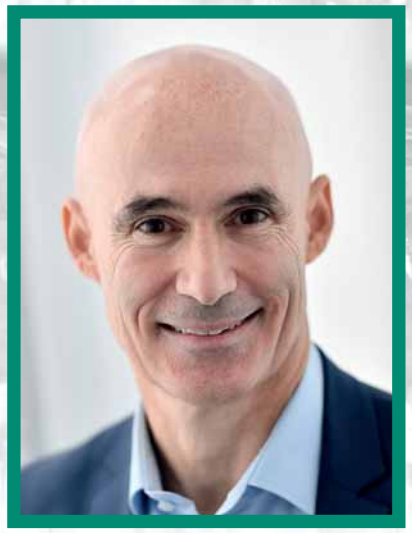
Verallia has been consistently improving its governance for several years and complies with all applicable recommendations, including those set out in the AFEP-MEDEF Code[4]. In terms of CSR, the Group has set up a Sustainable Development Committee, which includes two employee representatives. The main purpose of this Committee is to ensure that issues relating to social and environmental responsibility are considered in the Group's strategy and the implementation thereof.

STRENGTHENED 'RESPONSIBLE PURCHASING'

As part of the intensification of its CSR approach, the Verallia Group has also strengthened its 'responsible purchasing' method for all subsidiaries since 2019, based on the following three approaches:

1. Identification of CSR risk (AFNOR and ECOVADIS tools) in the suppliers' panel.
2. Mobilisation of suppliers around an ethical CSR dynamic.





VERALLIA

Verallia is the leading European and the third largest producer globally of glass containers for food and beverages, and offers innovative, customized and environmentally-friendly solutions. The Group posted EUR 2.6 billion in revenue and produced 16 billion bottles and jars in 2019. Verallia employs around 10,000 people and comprises 32 glass production facilities in 11 countries. Verallia is listed on compartment A of the regulated market of Euronext Paris (Ticker: VRLA – ISIN: FR0013447729) and is included in the following indices: SBF 120, CAC Mid 60, CAC Mid & Small et CAC All-Tradable.

3. Internal actions with Group purchasing departments.

Michel Giannuzzi, Chairman and CEO of Verallia, said, "Industry has a major role to play in meeting the challenges faced by the modern world, especially the challenge posed by climate change. This is why we have massively transformed our company over the last several years, positioning sustainable development at the very heart of our strategy. Nevertheless, in view of the growing challenges we face, accelerating our efforts to enable everyone to live in a safe and inclusive environment is essential. With the launch of our Purpose last year, and the implementation of these ambitious new commitments, we are entering a phase of unprecedented acceleration in our ESG strategy, which will form the framework for all our activities in the coming years."

REFERENCES

1 Environmental, Social and Governance criteria.
2 Chambre syndicale des Verreries Mécaniques de France – Trade union for automated glass manufacturing in France.
3 CO_2 emissions from Scopes 1 and 2.
4 Except for Directors' mandate terms related to Verallia's recent IPO. ■

Verallia

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VERALLIA ESG GOALS

Our Purpose	Our Commitments	Alignment with the UN SDGs	Our Goals	Performance indicators	2019	2025 Targets
Re-imagine glass for a sustainable future	Enhance the circularity of glass packaging		• Enable the increase cullet collection by 7 pts	• % of domestic used glass collected in Verallia's countries in Europe	76% (2018 figure)	83%
			• Increase the rate of use of external cullet by 10 pts	• Rate of external cullet usage in our glass production sites	49%	59%
			• Expand viable Reuse business models	• Test a pilot to validate the business model	N/A	At least 1 pilot in France
	Significantly reduce our CO_2 emissions across our operations		• Reduce our absolute CO_2 emissions (scopes 1 & 2) by 27.5% by 2030 vs 2019, in line with Science Based Targets	• Tons of CO_2 emitted (scopes 1 & 2)	3,090 k	2,626 k
			• Revert the trend by reducing average weight of our standard and non returnable bottles and jars by 3%	• Alpha index (= weight / volume^0.8 as per NF-H35077 norm)	16	15.5
			• Plant 100,000 trees per year • and offset all professional travels emissions every year	• 100,000 trees planted • Number of certified carbon credits	100,000 30,910	700,000 TBD • total CO_2 emissions linked to professional travels
	Provide a safe and inclusive place to work		• Aim for "zero accident" every year	• TF2 (= all accidents / million hours worked)	5.5	< 2
			• Increase gender equality in all Verallia countries by 15 pts	• Gender equality index (as defined by French law)	60	75
			• Favour insertion of disabled people by doubling the ratio of disabled employees	• % of disabled people (according to national definitions)	3%	6%
			• Encourage employees shareholding ownership	• % of Verallia share capital held by employees (directly or through FCPE)	2.6%	5%

FUTRONIC

Glass giant at the summit in Brazil

Verallia Brazil has relocated its glassworks from the Água Branca district of downtown São Paulo to the outskirts of Jacutinga – a small town in a landscape marked by mountains. The new plant's three production lines currently manufacture around one million bottles a day for the domestic beverage industry. futronic supplied the controls and drives and was involved from the outset. Even for a glass giant like Verallia, this was an unusually large and complex project.

What is probably Brazil's most modern glassworks now stands where a mountain crest once proudly dominated the hilly landscape surrounding Jacutinga

Verallia is one of the biggest container glass manufacturers in the world – a global player by any definition. The company employs around 10,000 people and is made up of 32 glass production facilities in 11 countries throughout Europe and Latin America. In 2019, the Group reportedly achieved turnover of EUR 2.6 billion. In short, it's a mammoth organisation, where things are constantly on the move. There's always something being extended, converted, replaced or modernised somewhere at one of the numerous manufacturing facilities. Verallia has specialists for this purpose – indeed whole departments with experienced project managers who accomplish even the most complex missions ably. Nevertheless, the Jacutinga project turned out to be a monumental task, even for Verallia.

MOUNTAIN MAKES WAY FOR A NEW GLASS PLANT

Verallia Brazil has its headquarters in the São Paulo metropolitan area. For many years, one of this huge country's three Verallia glassworks was located just a stone's throw away in an industrial park in the city's Água Branca district. During the early tens of this century, it became clear that capacity for production and growth would soon be exhausted, with no more local reserves available. There appeared to be no other option but to build a new plant. The question was, where? It didn't take long to find the ideal spot – on the outskirts of the small town of Jacutinga in the state of Minas Gerais, some 200 kilometres north of São Paulo. The area surrounding Jacutinga is quite hilly, though, and graded land is a rarity. The management therefore decided to move half a mountain in order to make space for the new plant.

THE REGION'S PRIDE

This construction project of almost biblical proportions is documented in a video. The scenes it depicts are more than a little reminiscent of 'Fitzcarraldo', the Werner Herzog epic film from 1982, in which the protagonist of the same name – played by Klaus Kinski – dreams of building a lavish opera house in the middle of the virgin Amazon rain forest. Fitzcarraldo, obsessed by his grand vision, forces his indigenous crew to haul an old steamship over a mountain. Fortunately, there was none of this madness to be witnessed at the construction site in Jacutinga. On the contrary: Brazil's – if not the entire South American continent's – most modern glassworks was systematically charted out and completed in a mere 26 months and Carlos Messina, Verallia Jacutinga's Project Director, admits that: "we at Verallia – and literally the whole region – are very proud of it."

In May 2017, an army of excavators, bulldozers and trucks moved in to remove about 630 tons of earth and create a gigantic graded area for the new plant to stand on. All in all, around 30,000 tons of concrete and 1200 tons of steel were used. 164 kilometres of cables and almost five kilometres of pipelines were laid. The new Verallia works, which was inaugurated in July 2019, provides around 270 direct and 90 indirect jobs for the local population.

ADVANCED TECHNOLOGY MADE IN GERMANY

Verallia invested something like EUR 77 million in the new plant – and in state-of-the-art technology to match. "Our new factory complies with even the strictest safety and environmental regulations," Messina emphasises. Verallia sets itself high standards and the production shop is no exception. Two complete lines were transported from Água Branca to Jacutinga in connection with the move. A new, German-built IS machine from Heye International is also installed there. The two existing systems were modernised by futronic as part of an extensive retrofit.

The retrofit project was prepared by experts at Verallia and futronic well in advance. "I was invited to the first meeting with Verallia representatives in São Paulo in spring 2017," recalls sales engineer Marc Meersschaut, who is responsible at futronic for business with South America. Eduardo José M. da Fonseca, the project manager at Verallia who also oversees technologies and processes

at all Verallia Vidros plants, was similarly in on the negotiations from the start. The two of them spoke to each other regularly on the phone during the months that followed, discussing various details as well as specific safety features. Meersschaut eventually took a second trip to São Paulo to wrap up the contract. The controls and drives for the three production lines were shipped and put into operation at the end of June 2019. Only days later, the complete plant went productive.

BUILT FOR THE FUTURE

"A project on that kind of scale can only succeed if you bring in the best of the best to help you – competent partners who you can rely on absolutely from day one," da Fonseca stresses. "That's why we went straight to futronic, to get the specialists from Lake Constance on board." The two partners know each other and they hold one another in high regard – in fact, they have done for many years now. In spite of that, "The new plant in Jacutinga was an unusually large and complex project even by our standards," Meersschaut adds. "That's the reason we're particularly proud of the contribution we had the privilege of making."

Of course, he's also hoping to get a chunk of the pie whenever more refurbishments or expansions are planned in the future. The three production lines currently manufacture around one million bottles a day for beer, wine and spirits. Yet the market is growing – and in Brazil, too, there is a noticeable trend away from plastic packaging in favour of glass. It goes without saying that the new plant is geared to this growth potential. The present factory buildings have enough space for three more lines and preliminary talks are already under way with futronic, amongst others. Additional capacity exists as well in the outdoor areas. "The Verallia plant in Jacutinga", Meersschaut concludes, "is built for the future." ■

Marc Meersschaut, futronic Sales Manager

futronic automation

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EMS GROUP

Revolutionizing production capacities for businesses with 'pay per use'

The EMS Group has launched an absolute innovation for the industrial packaging world: the pay per use programme, turning capital investments (CAPEX) into manageable running costs (OPEX).

With the pay per use formula, the EMS Group, leader in its reference market, has introduced a tool to revolutionize production capacities for businesses, transforming classic structural costs (CAPEX) into running costs (OPEX).

A brand-new culture for managing plant life cycles which, through the services offered, helps the plant to run smoothly while ensuring that the customer can maximize production.

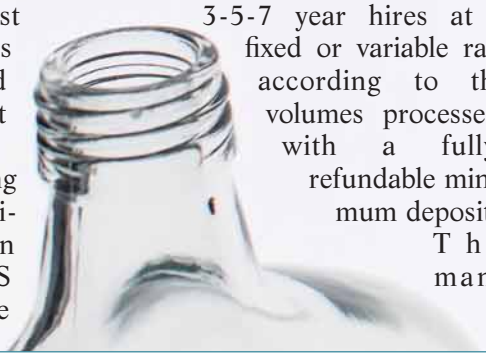
PAY X USE

we care, you run

WHY CHANGE TO PAY PER USE

To create added value in the secondary packaging field, focus had to be shifted from the machine to the service. In today's consumer and business world, pay per use is common practice: from photocopiers to coffee, from software (SaaS Software as a Service) to cars, the trend in every sector is to convert products into services. This success is thanks, above all, to the problem-free management offered by this new form of 'purchasing'. No assistance or spare parts to think of, no problems to solve; the service formula in place of the product best suits our needs, leaving us free to use our time and energy for more important things, in and out of work.

In the industrial packaging world, however, this business model had never been proposed before, and EMS Group is now paving the way for a product life cycle management system, where services are always aligned to needs.



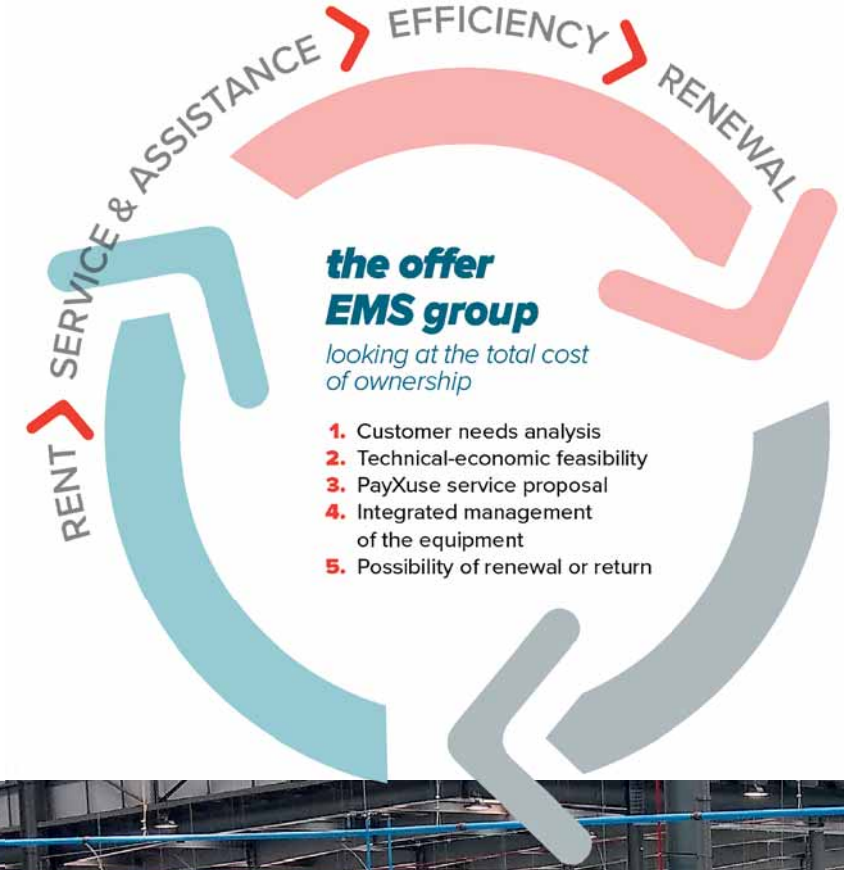
WHAT IS PAY PER USE

With pay per use, EMS offer 3-5-7 year hires at a fixed or variable rate according to the volumes processed, with a fully-refundable minimum deposit. The many

advantages include, first and foremost: large initial investments are no longer needed to start up a new industrial plant. This means that the business can be economically profitable from the first day of operation, an epoch-making innovation for the production industry.

It also means being able to focus entirely on your business, leaving a number of services to specialist professionals who not only design the production, transport, installation and start-up, but can also:

- run the plant;
- manage size changes;
- perform periodic inspections;
- perform predictive maintenance;
- repair failures;
- provide remote assistance;



- supply and replace spare parts;
- integrate an ERP into the plant;
- upgrade the software.

WHICH SOLUTIONS WAS IT DESIGNED FOR?

Palletizers, depalletizers, conveyors, packaging, automated logistics are all solutions which, from today, can be purchased on a pay per use basis. From individual equipment to complete systems, everything can acquire value with pay per use.

A SINGLE PARTNER "WE CARE, YOU RUN"

Pay per use is another step towards a broader innovation project that will make the EMS Group a global point of reference for handling, palletization and storage.

Constant attention to the customer, integrated solutions responding to different needs, continuous research and innovation, agility in anticipating and meeting market needs, a wealth of experience, know-how and diversified skills – the heritage of five large companies: these are the foundations on which EMS aim to build customer relations, turning needs into added value and helping them to increase their own competitive performance on the global market. ■

EMS

EMS Group

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STOELZLE GLASS GROUP

Commitment in terms of Flexibility, Agility, Reactivity

A new furnace, which came into service on 8 January 2021, and the addition of a fifth line – an important step for the Masnières factory and its 338 employees – will continue to reduce environmental impact while improving productivity.

Etienne Gruyez, CEO Stoelzle Masnières Parfumerie

"Despite the pandemic, Stoelzle Glass Group did not hesitate to invest EUR 20 million in the French Masnières factory, which is dedicated to the manufacturing of luxury perfumes and cosmetics. The new furnace will enable to have an increase in annual production capacity by more than 30 per cent, to more than 100 tonnes. A positive message for our teams and our customers, mostly European and American. With the support of Dr. Cornelius Grupp, owner of Stoelzle Glass Group, these investments will enable us to significantly improve our position in this prestigious market in the coming years," says Etienne Gruyez.

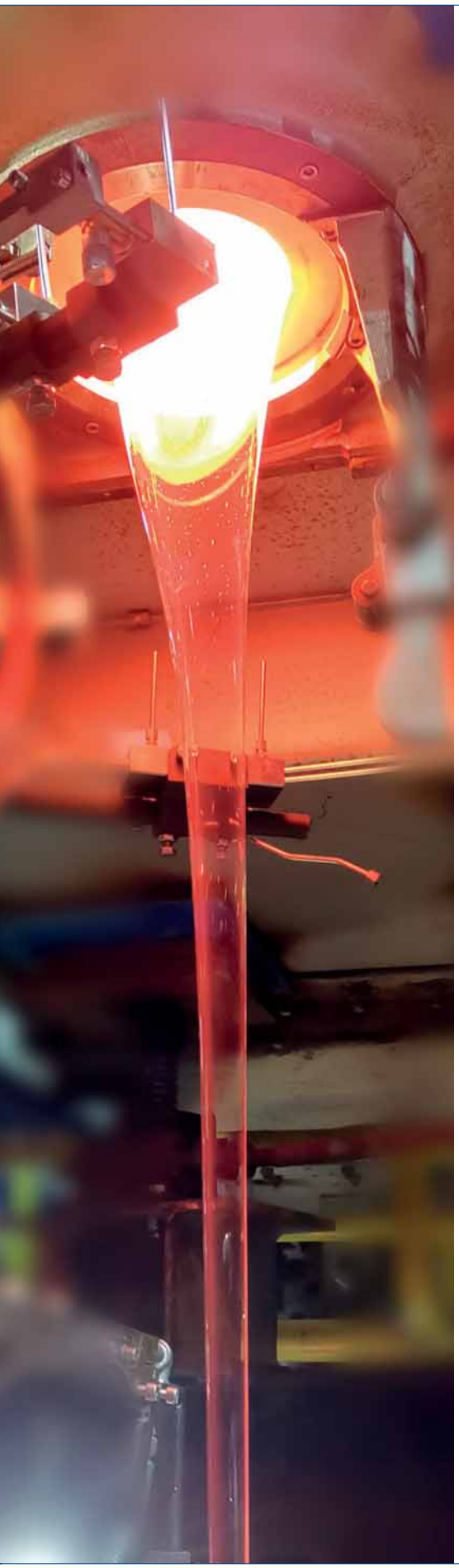
Etienne Gruyez joined the group in 2014 and was appointed Chief Executive Officer in May 2015, then Chairman and Chief Executive Officer in April 2018 of the two factories Stoelzle Masnières Parfumerie and Stoelzle Masnières Decoration. He is also in charge of the group's Perfumery and Cosmetics Business Unit. This position gives him a transversal view and action on all the group's factories.

The Perfumes and Cosmetics Business Unit currently represents 18 per cent of the group's turnover.

MAKING THE RIGHT DECISIONS DURING A DIFFICULT YEAR

"In 2020, an extremely difficult year for all industries, the right decisions were taken in Masnières by shutting down production during the two summer months and then scheduling the reconstruction of the furnace at the end of the year. The effects of the crisis were thus limited. We kept in touch with our customers, suppliers and employees through videoconferences…"

"At the beginning of 2021, we lacked visibility but with the teams, we are ready to take up the new challenges of our clients. Our commitment in terms of Flexibility, Agility, Reactivity, remains as relevant as ever. In fact, we have



made the three initials of these words our slogan 'F.A.R.' with them, we will always go further in our support! We must be able to continue to adapt and react ever more quickly to their needs. One example among others, we can produce prototypes in four weeks. Today, we must accept to work on a weekly basis. If the perfumery sector has been very affected, the cosmetics sector has held up rather well. Thanks to the addition of the fifth line, we will be able to strengthen our position in this segment," says Gruyez.

RECOGNITION OF THE GROUP'S EFFORTS AND MEASURES

Stoelzle Glass Group was awarded the ECOVADIS GOLD medal in 2020, an important recognition of the group's efforts and measures, which have been constantly evolving in the field of CSR for several years. In fact, the PCR (Post Consumer Recycled) offer, innovative decors such as Tigital and Quali Glass Coat already allow a 77 per cent reduction of CO2 compared to traditional lacquering. With a proposed tool such as Simapro and/or other measuring techniques, customers can take the right options. New innovation and sustainability projects are being studied, continuing to develop partnerships with other suppliers and joining professional bodies to meet and share with glass industry players. Stoelzle is one of the most advanced companies in this market in terms of CSR.

Stoelzle is also a member of FEVE, which aims to boost glass collection and recycling by increasing the recycling rate in the European Union to 90 per cent by 2030. This initiative is a proactive response to the new European ambitions and rules.

RECOGNIZED KNOW-HOW

Stoelzle Masnières Parfumerie SAS celebrated its 200th anniversary in 2018 and was awarded the Entreprise du Patrimoine Vivant label the same year. A know-how recognized at its true value by customers around the world and a great pride for the employees.

In 2021 Stoelzle Masnières Parfumerie is giving itself the means to achieve its ambitions by being well anchored in the values of French tradition while being at the forefront of the initiatives of the future. ■

STOELZLE GLASS GROUP

Fifth largest player in the world, Stoelzle Glass Group is one of the most dynamic in the glass industry. It operates in other sectors such as spirits, pharmaceuticals and consumer products. This is a definite advantage for all the group's factories, which can share the advances in research and development. From 2015 to 2019 the group invested more than EUR 15 million in CAPEX.

STOELZLE GLASS GROUP

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WHO HAVE NEVER STOPPED WORKING WITH THEIR
SMILING FACES BEHIND THE MASKS

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