glassmachinery world plants&accessories

BI-MONTHLY INTERNATIONAL MAGAZINE FOR GLASS MANUFACTURING

YEAR 34 • ISSUE NO. 6/2021

ALL GLASS: Cold-end expertise thanks to technical analysis, efficiency and flexibility

OCMI-OTG: Flexibility, innovation and customer support

Cutting-edge artificial intelligence technology from **BUCHER EMHART GLASS**

NNPB process optimisation, regulation and digitalisation from **HEYE**

SAVERGLASS: Innovation, expertise, know-how and quality

Poste Italiane Spa - Spedizione in abbonamento postale - 70% - LO/MI • € 2,- Copia omaggio

POWERED BY

IRIS Inspection machines

heye international

The whole is greater than the sum of its parts.
Aristote

WENSPECT®
Together for complete lines
wenspect.glass

Glass furnaces

Glass SERVICE

Glass Service Italy is a 100% Italian company priding itself on **excellence and innovation.** Servicing the **global glass industry** for more than 40 years, GS designs and manufactures **highly-specialized furnaces, automations and systems** and also offers **tailor-made technological solutions.**
Our expert engineers work side by side with customers to **provide extensive training, dedicated customer support** and complete **after-sales assistance** for the entire life of the plant.

SOLUTIONS FOR THE GLASS INDUSTRY

BLOG

www.glassservice.it

ONE

stronger, streamlined, agile

EMMETI | MECTRA | SIPAC | LOGIK Technology | Zecchetti

EMS

The global leaders in product handling, palletizing and warehousing equipment have joined forces to create one powerful company. EMS Group - the automation efficiency you need to be competitive in today's marketplace.

www.emsgroup.com

tiama
INSPECTION WORLDWIDE

Don't just look at it, look into it.

Tiama Xlab – the revolutionary 3D sampling solution

Turn virtual reality into reality with the new Tiama Xlab.

This highly flexible laboratory module can be installed at the hot end, the cold end or in the laboratory. It loads the container automatically and makes a 3D scan, generating an image composed of millions of facets.

The 3D image can be rotated and "dissected" on all sides. Virtual volume, capacity, and vacuity can be measured as well as glass distribution fully mapped. You can also analyse engraving, embossing and much more. Practically all container types and shapes can be inspected and it's non-destructive because the image (and not the container itself) is "cut" virtually.

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

tiama

Xlab

Data – the deciding factor

KEEP SMILING
THE WORLD NEEDS
BEAUTIFUL THINGS

ANTONINI
FLORENCE ITALY

ANNEALING AND DECORATING LEHRS

SPECIAL THANKS TO THE STAFF MEMBERS
WHO HAVE NEVER STOPPED WORKING WITH THEIR
SMILING FACES BEHIND THE MASKS

ANTONINI S.R.L. ITALY Phone: +39057193221 com@antoninisrl.com
WWW.ANTONINISRL.COM

glassmachinery world plants&accessories
BI-MONTHLY INTERNATIONAL MAGAZINE FOR GLASS MANUFACTURING

PUBLISHING DIRECTOR: Arcangelo Altamura

EDITOR-IN-CHIEF: Marco Pinetti

ASSOCIATE EDITOR:
Valerie Anne Scott | valerie.scott@glassonline.com

CONTRIBUTING EDITORS:
Claire Houghton, Rajeev Jetley, Zoë Elaine Whitten, Julie Orsatti, Jennifer Pressman

ADVERTISING:
ITALY: Maurizio Lozza | maurizio.lozza@glassonline.com
WORLDWIDE: Luciano Molina | luciano.molina@glassonline.com

GRAPHIC DESIGN:
Sonia Previato | sonia.previato@glassonline.com
Cristiano Guenzi

PRINTED BY:
BICIDI ARTI GRAFICHE
Via San Felice n. 37d 16138 Genova - Italy

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

Publication registered at no. 4 of the Milan Court Records Office on 11.1.1988 - ROC no. 34927 - ISSN 0394-9893

GLASS MACHINERY PLANTS & ACCESSORIES,
N. 199, ANNO 34, 2021, PERIODICO BIMESTRALE.

www.glassOnline.com

WEB SERVICE

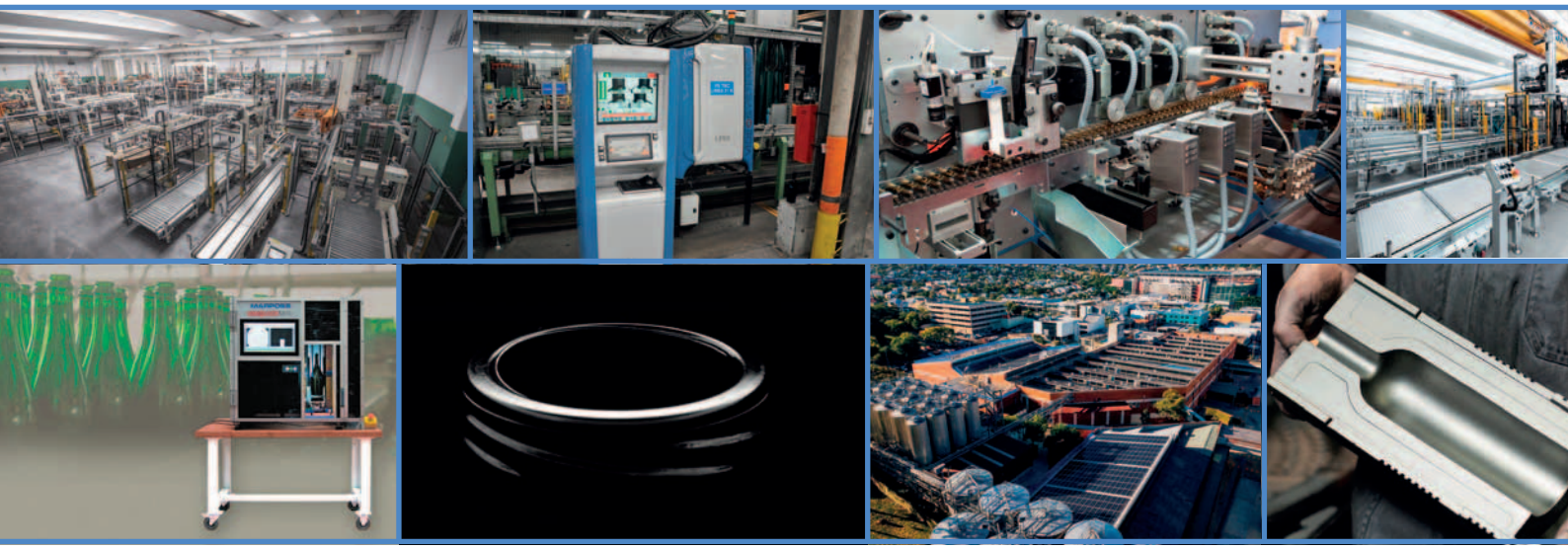
WEB PUBLICATIONS

REGULAR FEATURES

COVER ADVERTISER

ALL GLASS SRL

Via Cesare Sarti, 20 - 43029 Traversetolo (PR) - Italy
Tel.: +39 0521-340810 - Fax: +39 0521-340805
E-mail: sales@allglass.it - www.allglass.it



ARTICLES

BI-MONTHLY MAGAZINE
PUBLISHED BY

Via Antonio Gramsci, 57 - 20032 Cormano (Milano) - Italy
Tel.: +39 - 02 - 66306866 - E-mail: publications@glassonline.com
www.glassonline.com

Special cast irons & alloys for glass moulds

Fonderie Valdelsane S.p.A.

Strada di Gabbricce, 6 - P.O. BOX 30 - 53035 MONTERIGGIONI (Siena) - ITALY
Tel. +39.0577.304730 - Fax. +39.0577.304755 - com@fonderievaldelsane.com
www.fonderievaldelsane.com

... in this issue of **GMP&A**. Advertisers are indicated in **bold**

OGT
OLIVOTTO GLASS TECHNOLOGIES

MACHINERIES • SYSTEMS • SOLUTIONS

THINKING ROTARY
CONTAINER GLASS MACHINES

- **HIGH FLEXIBILITY AND PRODUCTIVITY**
  Perfectly fit to the needs of the producer who have an intense model mix in their production flow. Suitable to work with low-medium glass pull rate capacity giving a high flexibility.
- **SIMPLIFIED PRODUCTION LAYOUT**
  Simple and flexible installation layout easily adaptable to the existing available spaces. Significant reduction of the glass level required respect to the traditional machines.
- **DIRECT GOB LOADING**
  Contactless gob loading without delivery equipment.
- **TOP QUALITY PRODUCTS**
  Premium and high quality production.
- **PRODUCTION EQUIPMENT COSTS REDUCTION**

THE NEW APPROACH IN CONTAINER GLASS WITH THE **ARBV** PROCESS CONTINUOUS MOTION ROTARY MACHINES.

SINCE 1946

ENDLESS PERFORMANCE IN GLASS

Olivotto Glass Technologies S.p.A.
Viale Gandhi, 22 · 10051 Avigliana (TO) , Italy
info@olivotto.it - **www.olivotto.it**

glassmachinery world plants&accessories

BI-MONTHLY INTERNATIONAL MAGAZINE FOR GLASS MANUFACTURING

2022 FAIR CALENDAR

The magazine will be distributed at the following Trade Fairs

issue	exhibition/conference	date	venue	deadlines
2022 **1**	GLASSMAN ASIA	17-18 February	**SEOUL** South Korea	
	GLASSPEX INDIA	3-4 March	**MUMBAI** India	Editorial files: **17-12-2021**
	COSMOPACK	10-13 March	**BOLOGNA** Italy	Deadline Adv files: **10-01-2022**
2022 **2**	GLASS PRINT	5-6 April	**DUSSELDORF** Germany	Editorial files: **25-02-2022**
	CHINA GLASS	13-16 April	**SHANGHAI** Cina	Deadline Adv files: **04-03-2022**
2022 **3**	GLASSMAN LATIN AMERICA	11-12 May	**MONTERREY** Mexico	Editorial files: **04-04-2022** Deadline Adv files: **11-04-2022**
2022 **4**	MIR STEKLA	6-9 June	**MOSCOW** Russia	
	XXXIV INT'L ATIV CONFERENCE	16-17 June	**PARMA** Italy	Editorial files: **28-04-2022**
	ICG ANNUAL CONFERENCE	3-8 June	**BERLIN** Germany	Deadline Adv files: **06-05-2022**
2022	Glass Industry Directory NEW CONTENTS 			Editorial files: **06-06-2022** Deadline Adv files: **20-06-2022**
2022 **5**	GLASSTEC	20-23 September	**DUSSELDORF** Germany	Editorial files: **18-07-2022**
	ALL GLASSTEC EXHIBITORS ADVERTISING IN THIS ISSUE ALSO RECEIVE A FREE GLASSTEC PREVIEW			Deadline Adv files: **25-07-2022**
2022 **6**	INTERNATIONAL YEAR OF GLASS		**SPECIAL ISSUE**	
	AFGM	date to be announced	Thailand	
	CONFERENCE ON GLASS PROBLEMS	31 October - 3 November	**COLUMBUS** (OH) USA	Editorial files: **01-10-2022**
	ALL4PACK EMBALLAGE	21-24 November	**PARIS VILLEPINTE** France	Deadline Adv files: **8-10-2022**

A151 Srl - Via Antonio Gramsci 57, 20032 Cormano, Milan (Italy)
Tel.: +39-02-66306866 • E-mail: publications@glassonline.com • www.glassonline.com

BDF Industries (all season) Collection

Our best experience for your Glass Industry

More than 100 years of tradition and more than 60 years of experience in Glass Industry, always in continuous research in new technologies and innovations to improve your production performances. The enthusiasm makes us truly unique because it is a passion that never fails. BDF Industries has everything you need to "dress" your Glass Plant: from Furnaces to Forehearths, from IS Machines to Variable Equipment, from Automation to Controls, to Energy management and recovery.

BDF Industries. The perfect Partner who always knows how to put itself in your shoes.

BDF INDUSTRIES

Excellence. Your Industrial Partner **in Glass**

FURNACES | FOREHEARTHS | IS MACHINES

HFT

Changes to Sales Department

HFT announced the following changes to its Sales Department, in August this year.

Sam Leaper has been promoted to Director of Glass Business Development. Sam has been with HFT for 4.5 years and has contributed to the continued success and growth of the business.

Sam will be leading HFT's Sales and Marketing Department as it continues to grow and offer global glass makers with turnkey project support and EPC solutions from initial conception, through development, design and execution.

Matt Rodgers joins HFT as Glass Business Development Manager. Matt has over 20 years' experience in Power, Metals and Air Pollution Control. From project feasibility to budgeting to proposal and start-up, Matt has held positions that handle and support these functions. With a Bachelor of Science in Labor Industrial Relations and holding an MBA, his background offers solid, knowledge-based support to help navigate projects from conception to conclusion.

As leading speciality engineers and contractors, HFT provides engineering, procurement and construction services to support all the project needs of global glass manufacturers, including full turnkey solutions.

WWW.HFT.COM/

Sam Leaper

Matt Rodgers

HEYE INTERNATIONAL

New Managing Director

Hans-Peter Müller joined **Heye International** as Managing Director on 18 October 2021. In his role, Hans-Peter will be responsible for the development and implementation of the future strategic approach of the company, delivering new business projects through sales negotiations in different countries, worldwide.

He will be responsible for setting up a long-term sales and innovation strategy, aligned with the Heye vision and transformation into actionable operational plans, including clear goals for performance, cost competitiveness and growth. The role will also involve overseeing company operations and employee productivity, building a highly inclusive culture, ensuring team members thrive and organizational outcomes are met.

Most recently Hans-Peter worked as Managing Director and Director of Global Filtration/Drying & Powder Handling business for Dietrich Process Systems, where he was responsible for the development and adaptation of the existing organization to the future market challenges. His focus was to develop the company activities on the future path of profit and growth.

WWW.HEYE-INTERNATIONAL.COM/

CINER GROUP

Investment in Ankara plant

Ciner Glass Maden Kimya Sanayi Ticaret A.S. has invested TRY 1 billion, 905 million in a glass production facility in Sincan, Ankara, as reported by the July investment incentives list of the Ministry of Industry and Technology, published in the Official Gazette of the Republic of Turkey.

With this investment, the company will produce a total of 237,250 tonnes of glass bottles annually.

In January, 2021, TRY 1.2 billion was invested by Park Cam, one of the companies of Ciner Group, in the glass factory in Bozüyük, Bilecik, which was also included in the scope of investment incentives.

After getting the incentive investment to produce 2.8 billion glass bottles annually and employ an additional 100 people, the green light was given for construction.

Gürsel Usta, CEO of Ciner Group said, "We have two furnaces in Bozüyük for glass packaging, and now we are building the third one. Its investment has started, and it will start operating before the second half of next year. We have acquired all the necessary permissions for our two 650 tonnes furnaces in Ankara, the investment is about to start. This, also, is approximately EUR 260 million worth of investment."

HTTPS://CINERGLASS.COM/

BERLIN PACKAGING

Acquisition of Juvasa Group

Berlin Packaging, the world's largest hybrid packaging supplier, announced the acquisition of the **Juvasa Group,** a group of companies focused on the supply of glass, plastic, and metal packaging for the food and beverage industry.

Founded in 1987, this family-owned business began when the founder, Juan Valle Santos, needed to source glass jars to market his honey. Today, the Juvasa Group is led by Jesús Valle Sánchez, the founder's son, and is a leading supplier of bottles and jars for olive oil, wine, spirits, sauces, vegetable preserves, honey, and more.

Based in Sevilla, Spain, and with locations throughout Spain, Portugal, and the Canary Islands, the Juvasa Group has an extensive commercial presence and logistical capabilities. The Juvasa Group also offers custom packaging design services through Avanza Packaging, its in-house design studio, and has a robust online store at juvasa.com.

"With the addition of the Juvasa Group, Berlin Packaging is by far the largest packaging distributor in Iberia, a crucial market in Europe. More importantly, our combination with the Juvasa Group allows us to offer even more products and services to our customers, helps our suppliers continue to grow their businesses, and creates more career opportunities for our employees," said Paolo Recrosio, CEO of Berlin Packaging, EMEA.

"As a family business, it was of the utmost importance that we select the best partner for the future," said Jesús Valle Sánchez, CEO of the Juvasa Group. "We are confident that our relationship with Berlin Packaging will enable us to bring even more value to our customers and strengthen our position as a market leader in Iberia and beyond."

"The addition of the Juvasa Group continues our efforts to expand our presence in Europe, the Middle East, and Africa," said Bill Hayes, Berlin Packaging's Global CEO and President. "This partnership also enhances our already formidable design capabilities, with design studios located in the United States, Italy, the Netherlands, and now Spain."

This is the 16th acquisition that Berlin Packaging has completed in EMEA (Europe, Middle East, and Africa) since 2016 and its 6th acquisition in EMEA during 2021.

All employees and locations for the Juvasa Group will be retained.

WWW.BERLINPACKAGING.COM/

WH LIPEX

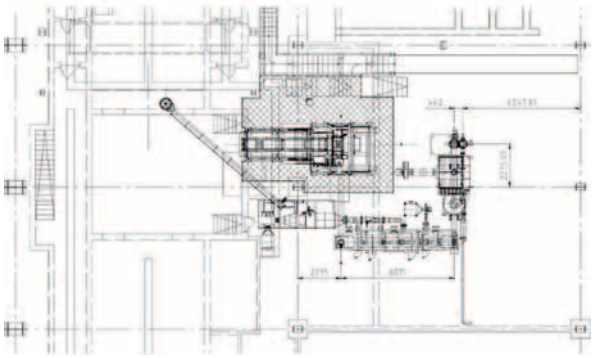
New recycling plant for fibre glass production waste

Due to the nature of glass fibre production, there is always some waste coming from fibre forming. **WH Lipex** recycling plant is designed to reduce the waste load from fibre glass plants and reduce overall cost by eliminating waste transport to outside of the plant. The waste can be recycled and fed back to the furnace as part of the raw material batch.

The main advantages of this improved recycling plant are:

- Improved drying efficiency
- Improved filter efficiency
- Improved energy efficiency
- Improved cost savings for end users

WWW.LIPEX.DE/



THE WORLD IS CHANGING.
GLASS QUALITY CONTROL TOO.

The new generation of vision technologies and artificial intelligence developed by Video Systems takes glass quality control to a new level:

- Hyper personalization
- Minimization of false positives
- Intelligent online self-learning
- Advanced control and traceability
- Reduction of energy consumption
- Predictive condition monitoring
- Servitization for quality

VIDEOSYSTEMS®
Technologies for a new world

www.videosystems.it

Imago
Glass Inspection Systems

ENCIRC

Plans to expand filling capability to meet growing demand

Based out of two sites in Cheshire, England, County Fermanagh, Northern Ireland, northern Italy, **Encirc** offers its customers the world's only complete beverage supply chain solution for glass products. The company's unique 360 model allows global brands to bulk ship their wine to its Cheshire site which is filled into bottles made at the same facility and then delivered directly to retailers.

The model is the most sustainable of its kind in the world, with brands cutting out several steps along a product's traditional route to market, as-well-as the carbon intensive method of shipping wine bottled at source into the UK.

Encirc experienced its most successful year to date in 2020, with its filling lines being at almost full capacity. During the year, more than 400 million bottles of wine and carbonates were filled and sent to UK and European retailers. Encirc's upcoming investment in its Beverages facilities will increase its filling capacity by up to 40 percent. The plans will mean the introduction of a new filling line at the Cheshire site among other new projects.

Adrian Curry, Managing Director of Encirc, said, "This will be one of the most significant increases in UK filling capacity in the industry for many years. Our model is the most sustainable way to fill wine in the UK and I am pleased to say that, with this significant investment, it is a model that is here to stay.

"Over the past three years, significant funding has gone into all operations across our three sites, with more than EUR 275 million of investment coming from our Spain-based owners, *Vidrala*. This recent investment comes as part of Vidrala's long-term strategy to invest in the UK market. Because of this, we are extremely well placed to continue our incredible growth in filling and further enhance our unrivalled, sustainable, 360 offering."

WWW.ENCIRC360.COM

SORG and HEINZ-GLAS

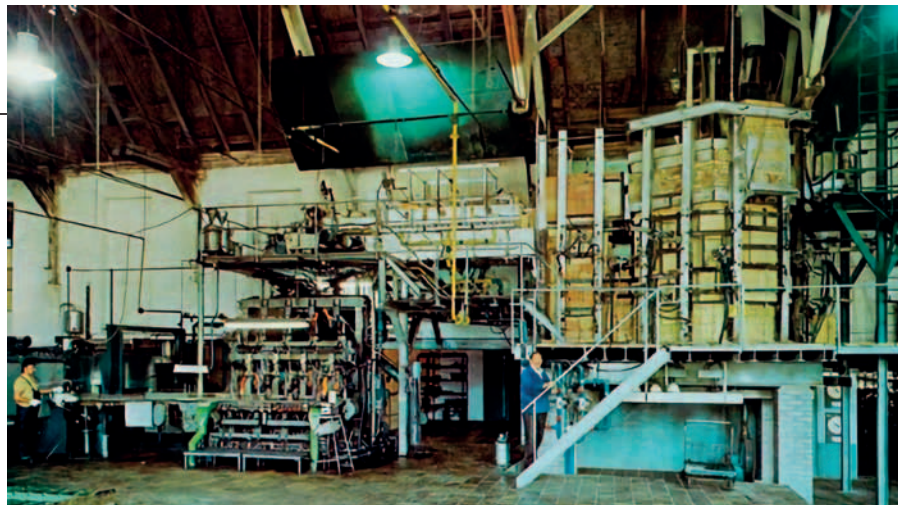
50 years of Electric Melting

The partnership between **SORG** and **HEINZ-GLAS** started half a century ago, with two local family businesses working closely together to gain global recognition for their pioneering approach to glass melting and manufacturing.

By the end of the 1960s and right up until the 1980s and 1990s, the fossil heated side-fired regenerative furnace was the standard furnace type for most glass makers. The convection patterns of the glass inside the tank and the combustion process could be easily controlled by adjusting the energy input from the multiple burner ports. These provided a good covering of the glass bath surface across the whole furnace.

End-port furnaces were only used for very small units, since sufficient and stable flame coverage was not yet possible for larger furnaces. It wasn't until a better understanding of the combustion process and heat transfer, together with improved equipment design, that end-port furnaces later made their way to become the most common furnace type in use today.

The glass industry was coming under mounting pressure to seek cleaner alternatives to fossil energy as plants on 'his- →



torical sites' were surrounded by growing towns. The SORG concept for this challenge was to create an all-electric furnace. Due to the direct energy input into the glass, it would also show a much higher efficiency.

Without the necessity to have heat transfer from a combustion space, the logical solution was to cover the entire surface area of the glass bath with raw materials, forming an insulating blanket.

At the time, this was a paradigm change of the complete melting process – as classic furnaces had the main glass current flowing in a horizontal direction, while the cold-top all-electric melter required a vertical process.

The first practical step in this development was the installation of a test furnace in the laboratory building on the SORG site in Lohr am Main. It had a melting area of 1.4 m² and was fully equipped for testing different glass types.

The new furnace concept was introduced as the VSM®– the Vertical Super Melter. There were misgivings and distrust toward using a completely new approach in a very conservative industry. However, SORG persevered in conducting test melts for customers to demonstrate the reliability of the new furnace technology, especially the glass quality, and in 1972, the patent was granted.

HEINZ-GLAS was the first company to realize the potential of this new melting technology. For its production of opaline and flint glass flacons and jars, the VSM® was the ideal choice. It provided perfect glass quality without emissions of NOx or CO2 from combustion, along with nearly zero evaporation of highly volatile components like boron and fluor.

In 1971, HEINZ-GLAS installed the first full-scale VSM® furnace from SORG for its facility in Kleintettau, Germany. Featuring a 2.85 sq.m. melting surface, the furnace had a target capacity of 14 tpd, mainly producing opal glass and flint glass for high quality flaconage.

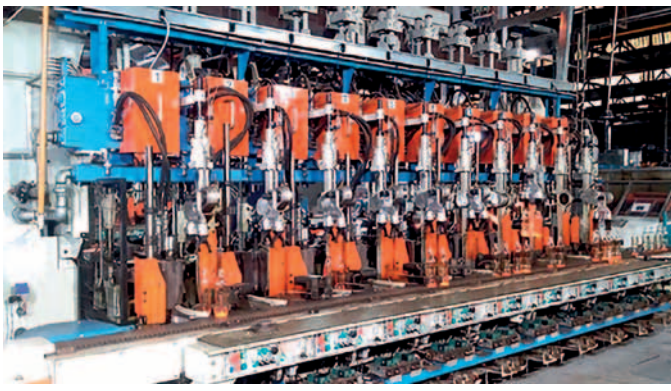
Glass quality was and still is a critical aspect for customers like HEINZ-GLAS. The VSM® furnace has helped the company become one of the leading manufacturers and finishers of opal glass and glass flacons for the perfume and cosmetics industry. For SORG, this was the start of a real success story, with 26 VSM® furnaces being delivered worldwide and going into full operation in the following decade.

Today, SORG is proud to continue supporting HEINZ-GLAS to strengthen its sustainable melting capabilities further. The latest project is to develop a new all-electric furnace, fuelled by renewable energy, with the flexibility to increase the tonnes per day of speciality glasses like opal and flint, as well as featuring the possibility to operate with high levels of post-consumer recycling glass (PCR).

WWW.SORG.DE

REVIMAC

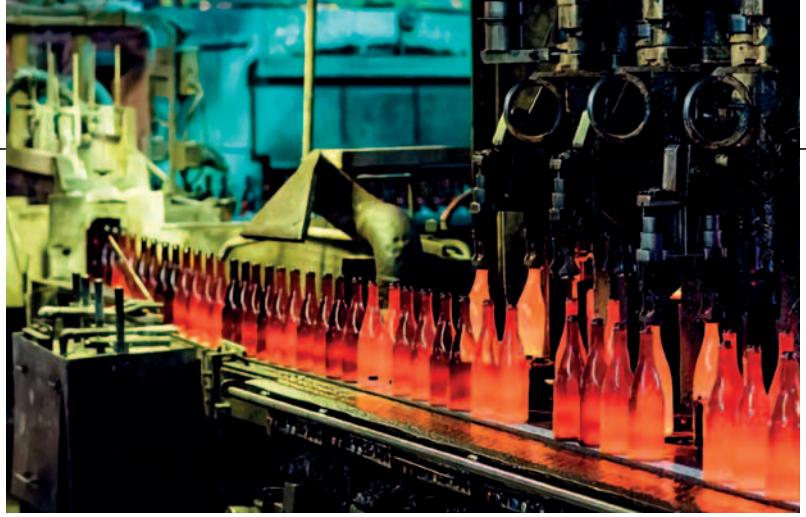
Installation and start-up of two I.S. machines at Beta Glass



Revimac has announced that two 10-section I.S. machines, including feeders, have been installed and started in production at **Beta Glass Plc.**, a member of the *Frigoglass Group*, at Agbara – Nigeria. The plant started producing bottles at the beginning of June 2021.

Despite all the problems and delays due to the COVID situation, technicians and specialists of the customer, together with Revimac supervisors, did a great job during the installation and start-up of the machines, respecting the project schedule.

WWW.REVIMAC.COM/EN/



O-I

Networking air compressor system saves energy

A plant's compressed air system serves vital functions, driving machine movements and other uses throughout the glass packaging manufacturing process. It's among a plant's more energy-intensive systems, but the new computer software helps the system work more efficiently and decreases that electricity demand. Decreasing that demand also saves on a plant's energy costs.

O-I's vision is to be the most innovative, sustainable and chosen supplier of brand-building packaging solutions.

Previously, a plant's six to ten compressors would operate independently. But the new software creates efficiencies by linking a plant's air compressors as a network, giving full visibility to the teams on one screen, allowing each plant to get an automatic selection of the best available combination to optimize energy efficiency while meeting the plant's compressed air needs.

"The system allows us to secure air production and ensure better service continuity while optimizing energy," says Jean-Paul Arquillière, ETN Manager – O-I Veauche. "In addition, we have increased the visibility of the network with all the necessary information on a single screen. A fantastic time-saver!"

The return on investment has been immediate, with a significant reduction in energy consumption and the realization of annual savings of EUR 245,000 for the four facilities, representing approximately 3,800 MWh, or 2.3% of the total electricity consumption these four sites.

The project itself was made possible by a EUR 416,000 grant from France's CEE program, an energy-saving program piloted by the Ministry of Ecological Transition. CEE pushes energy suppliers to promote energy-saving to their clients through financial grants.

The centralized systems are now installed in Veauche, Reims, Labégude, and Wingles. The centralized system is also being deployed in Vayres. The Gironcourt, Beziers and Puy-Guillaume facilities use similar systems.

O-I's vision is to be the most innovative, sustainable and chosen supplier of brand-building packaging solutions.

WWW.O-I.COM

FLUKE PROCESS INSTRUMENTS

Innovative thermal profiling solutions

Fluke Process Instruments, a global leader in infrared imaging and thermal profiling solutions for industrial applications, releases the latest Datapaq® Furnace Tracker System – complete with the TP6 data logger, thermal barriers and intuitive software.

The Datapaq® Furnace Tracker System is designed to be used repeatedly, in-process in the most hostile manufacturing environments, providing accurate and reliable through-process temperature surveys. Each system can help users improve process performance, decrease downtime, reduce temperature uniformity survey (TUS) reporting times and more.

The first component of the system is the Datapaq® TP6 Data Logger, which can withstand the longest, most-demanding operating conditions. The Datapaq TP6 features a 316-grade, stainless-steel case and a IP67 rating, making it water resistant. This data-logger is available with either 10 or 20 thermocouple inputs and can be specified for use with base or noble metal thermocouples.

The latest thermal barrier models are ideal for high-temperature heat treat processes and have been designed to provide maximum thermal protection – including applications such as →

vacuum and controlled atmosphere, slab reheat and solution ageing, among others. The new patented quenchable thermal barriers eliminate the need for fibre blankets. Fluke Process Instruments also offers bespoke design services to create a solution that specifically fits a customer's process.

To complete the system, Fluke Process Instruments offers the Datapaq Insight™ Software which transforms raw data into actionable analytics, clear user interface, context sensitive help screens and assistance options for infrequent users.

Three software options are available and the complimentary Datapaq Insight for mobile is offered for free. This mobile application allows users to reset, download and analyze right on the factory floor and check thermocouple operation before a thermal profile run. The advanced TUS software also provides full temperature profiles and traceable reports for industry regulations such as AMS2750 and CQi-9.

"The latest Datapaq Furnace Tracker System offers customers a robust solution that is designed for harsh environments like quenching and high temperatures," said Rob Hornsblow, Product Manager at Fluke Process Instruments. "Whether users are working with raw materials or finished products, measuring product and atmosphere temperatures throughout the furnace is critical in ensuring both product quality and process efficiency. Datapaq continues to provide real-time, repeatable temperature data that can help improve performance and system accuracy, decrease downtime and much more.

"We've really focused on what customers wanted in when engineering this new system and we are excited to introduce the patented quenchable thermal barriers, an IP67 rated data logger and the Insight for Mobile application that will allows users to check thermocouple operation before each run."

WWW.FLUKEPROCESSINSTRUMENTS.COM

FENZI

Launch of innovative range of paints for hollow glass

Fenzi's range of paints developed for the hollow glass industry is expanding with a new line of organic, water-based paints designed for glass packaging. Perfect for producing surfaces with transparent, opaque and metallic colours with extremely high resistance, based on industry tests and customer specifications.

AquaglassXpack benefits from the Fenzi Group's vast experience in formulating decorative paints for the glass industry that are specifically designed for bottles, tableware and glass containers. It demonstrates an extraordinary combination of high performance and ease of application, offering hollow glass manufacturers unique advantages in high-speed production with quality results.

Organic, one-part and water-based for decorative use, the AquaglassXpack paints are a combination of resins and select pigments that not only lend the paint exceptional hardness, durability and elasticity, but also unique colours. While maintaining intact all the features that have made Fenzi paints a very sought-after product in the marketplace, the new AquaglassXpack range guarantees excellent adhesion to the glass, exceptional mechanical properties of the painted film, superlative coverage, exemplary stability and durability of the colour over time, outstanding UV resistance and the utmost in colour brilliance.

Easily spray-applied cold, these paints make it possible to satisfy the most diverse production requirements, even on high-speed, automated systems with high throughput. The special formulation epitomizes excellent functionality and easy paint drying, in the furnace or simply air-dried (24 hours at 35/40°C in a controlled temperature setting). After proper crosslinking, the glass can be further processed without any problem, thanks to the extraordinary stability of the paint over time.

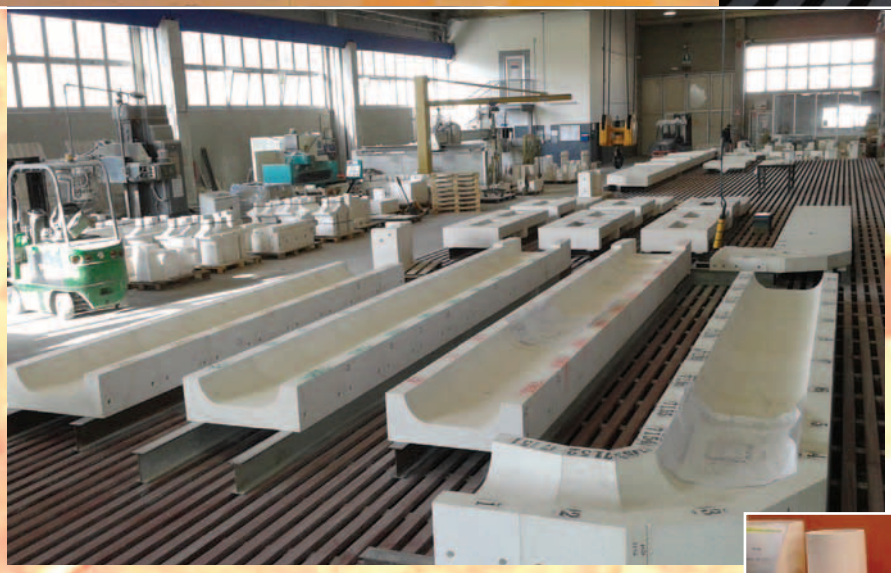
The AquaglassXpack line includes transparent, coloured, opaque and metallic water-based paints. With an unlimited and flexible colour palette, Fenzi delivers countless customization options, even with special effects. Thanks to the Fenzi lab solutions, it is possible to achieve a series of virtually infinite shades and colours from among the international colour scales, all faithfully reproducible. In addition, custom colour samples requested by customers are ready in no time at all. Moreover, the RAL, RAL DESIGN, RAL EFFECT E2, NCS, Pantone, Dulux, Sherwin William, Sikkens, Benjamin Moore, British Standard, Taubmans and Guittet formulas are always available on the website for fast independent production of the desired shade of colour.

By choosing AquaglassXpack, customers are opting for the utmost freedom of expression in reduced environmental impact, thanks to the special water-based formulation and minimal VOC (volatile organic compounds) content. This line of products was developed without the use of dangerous, carcinogenic or toxic substances and is designed to provide products that are safe to use.

The hollow glass decoration system is formulated to comply with the guidelines of the international standards in effect, industry tests and specific customer specifications for the household goods, fragrances and food and beverage markets.

WWW.FENZIGROUP.COM/EN/HOME

A WIDE RANGE OF REFRACTORIES



ALUMINA, SILLIMANITE MULLITE, ZIRCON, INSULATING BRICKS & SHAPES FOR FURNACE

ITEMIZED BLOCKS FOR WORKING END & FOREHEARTHS

EXPANDABLES FOR FEEDERS & STIRRERS

since 1949

3 STATE OF THE ART FACTORIES TO SUPPLY A WORLDWIDE CUSTOMERS BASE

5 INTERNATIONAL BRANDS

linco baxo

refractories expertise, together

LINCO BAXO INDUSTRIE REFRATTARI SPA

Corporate Headquarters

Via C. Boncompagni 51/8 / I, 20139 Milan, Italy | Tel. +39-02-5520041 | Fax +39-02-5694834

E-mail: international@lincobaxo.com | **www.lincobaxo.com**

Maref

TEC REF

TEC REF RANGE OF PRODUCTS

SIALON CERAMICS

Ultrasonic degassing of molten glass using glycerine

Sialon Ceramics Ltd and Aktive Arc Sarl have announced the development of a physical model of ultrasonic degassing of molten glass using glycerine. The model demonstrates proof of concept and provides a test bed for further study.

Glycerine has a similar viscosity to molten glass. By carrying out the experiments at room temperature, it was possible to easily monitor the ultrasonic cavitation effects and bubble removal process. Two experimental setups were used to observe and record the degassing process visually. Physically modelling ultrasonic degassing of glass using glycerine means that further process optimisation can be carried out readily.

Ultrasonic Cavitation involves applying ultrasonic waves to liquids resulting in the production, growth, pulsation and collapse or coalescing of micro-bubbles. Cavitation is initiated once a threshold energy level is reached, which is approximately 0.15 MPa for glycerine. As a result, many thousands of bubbles are formed. These expand and rapidly collapse, creating high-velocity shock waves and high pressures of several GPa. Localised high temperatures also occur.

Gas bubbles form on the cavitation nuclei and grow by diffusion from the glycerine into the bubble. If the liquid already contains bubbles, then these undergo diffusion growth. Individual bubbles coalesce due to attractive forces between them (Bjerknes and Bernoulli forces). As they grow, their buoyancies increase, and they float to the surface and release the gas to the atmosphere.

Nico van Dongen, Director of Sialon Ceramics, described the experimental setup. "We developed two setups. The first used a 4.5-litre bowl of glycerine in which we placed a ceramic sonotrode. In the second, we used a glycerine filled quartz glass cell that we subjected to external ultrasonic energy."

The sonotrode and a new series of NIMA generators are part of an ultrasonic system that has been specially developed to eliminate standing waves at 20 kHz. This new system avoids any potential danger of sonotrode cracking, a problem previously encountered.

The results of the experiment were stunning. In both setups, bubble growth and bubble transport by acoustic streaming were clearly visible. Furthermore, the intensity of acoustic streaming can be regulated by the ultrasonic power output. With sufficient energy thick bubble clouds will be formed and eventually these reached the surface of the liquid and dispersed.

At the start of the experiment, both glycerine samples contained many tiny bubbles making them semi-opaque. Over time, the bubbles were removed, and the glycerine samples were clarified. It took about ten minutes to clear 4.5 litres of glycerine.

Ultrasonic degassing of molten glass has many benefits compared to conventional degassing methods. For example, it is faster, uses considerably less energy, and uses no toxic additives. In addition, physically modelling the process using glycerine provides an ideal way to study further and optimise the process.

WWW.ULTRASONICDEGASSING.COM/

GERRESHEIMER

Latest technology for greater sustainability

With the use of hybrid technology, the **Gerresheimer** plant in Lohr, Germany, plans to build a glass melting furnace for white glass in 2022 which will save significantly more CO2 than conventional technology. The company has submitted a funding application to the German Federal Ministry for the Environment for this pioneering innovative project.

"This pioneering technology project serves to strengthen Germany as an industrial and glass location. With this innovative technology we will set new standards in terms of sustainability and avoidance of emissions," said Andreas Kohl, who as Global Senior Vice President Operations is responsible for worldwide container glass production and its technical development in →

← the Gerresheimer Group.

At the Lohr plant, Gerresheimer produces more than one billion glass containers annually for the pharma and food industries with two melting furnaces for clear and amber glass.

"By using this sustainable furnace technology in conjunction with green energy for the glass melting process, we will significantly reduce CO2 emissions in production by around 25,000 tons per year," said Jörg Buchmayer, Head of Production and Technology, who is responsible for the project. We are using hybrid technology, which makes it possible to cover half of the required melting energy in the furnace with green electricity and the other half with natural gas.

Glass can be recycled an infinite number of times. However, high temperatures are required for glass melting. This costs energy and generates corresponding CO2 emissions. For more than a decade, the Gerresheimer Group has been working on using no more energy than absolutely necessary for the sustainable production of its glass containers for the pharma, cosmetics and food industries.

Gerresheimer also produces glass containers for numerous well-known branded products in the pharma and cosmetics world at its German sites in Essen and Tettau. As part of its global sustainability strategy, Gerresheimer has set itself the goal of reducing its CO2 emissions by 50% by 2030 compared with 2019. The resource-saving production of glass plays a decisive role in this. The innovative technology planned for the plant in Lohr is pioneering in this respect.

WWW.GERRESHEIMER.COM/EN/HOME

AMETEK LAND

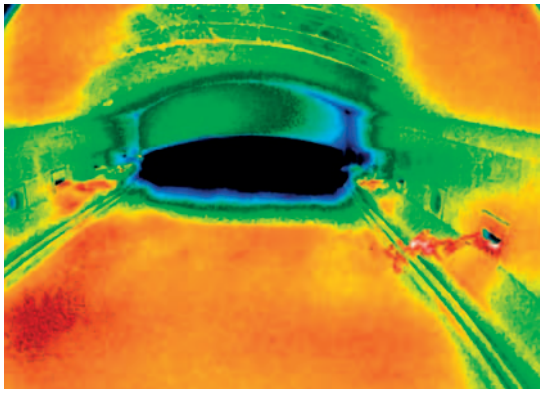
Improved production and quality at SGD Pharma

SGD Pharma, a global leader in glass pharmaceutical packaging, chose **AMETEK Land**'s Near Infrared Borescope (NIR-B-656- Glass) in-furnace thermal imaging system to optimise the production and quality of borosilicate glass from its newly rebuilt 50tpd oxy-gas furnace at its plant in St Quentin Lamotte, France. The new system replaces the company's existing CCTV system.

Obtaining clear images from the furnace using the CCTV system proved challenging due to the highly aggressive furnace atmosphere, which often resulted in blurry images and inconsistent, inaccurate measurements.

The NIR-B-656-Glass solution provides SGD Pharma with a true-temperature radiometric image, so live continuous temperature values can be obtained. The high quality of the purge applied on the lens delivers a clear image, providing the same views as the previous CCTV system managed at its best.

The most important benefit is the capability to obtain a furnace thermal profile continuously in the oxy-gas furnace, confirming the hot spot locations are well aligned with the furnace design and batch line. This supports the optimisation of the production and quality of the borescope glass while also helping extend the furnace's campaign life.



Francois Deblock, Glass Melting Director at SGD Pharma, said, "We are very pleased with the results we have achieved so far from AMETEK Land's Near Infrared Borescope, as it has allowed us to improve response times, identify and troubleshoot furnace operations to achieve improved yield and higher pull, as well as lower specific energy usage. We expect this will mean high cost and efficiency savings over the lifetime of the furnace."

WWW.AMETEK-LAND.COM

IRIS INSPECTION MACHINES

Expansion of international sales team

Leader in intelligent inspection solutions for glass industry, **IRIS Inspection machines** has announced the appointment of Altay Capanoglu, as Area sales manager. This is part of IRIS strategy to strengthen a global coverage and IRIS presence in some regions of the world.

Altay has a strong technical and industrial expertise, having spent 11 years within various functions in industrial leading companies. He speaks fluent Turkish, French and English. Altay brings extensive experience he has gained, among others, over five years spent in Turkey developing strong relationships with customers in his various missions.

Commenting on his new mission, Altay Capanoglu said, "IRIS Inspection machines is a leading company and a pioneer within the intelligent technologies. I'm excited to be part of the team and use my experience to providing proactive service to customers. I've been immersed in the industry for many years and look forward to working with my customers to understand their inspection needs and come up with a solution that best fits those needs."

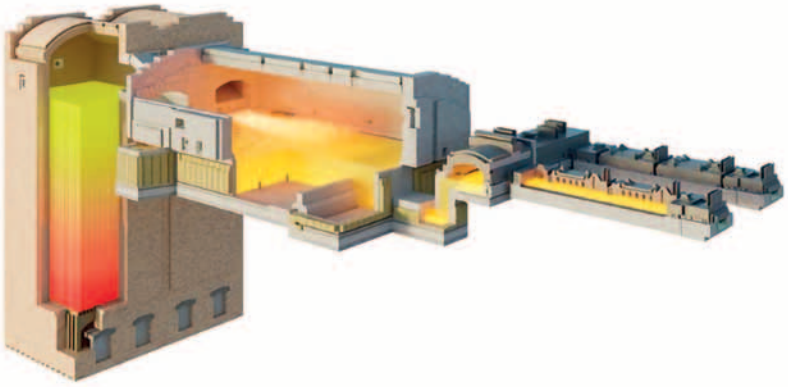
At IRIS inspection machines, Altay will be in charge of developing and maintaining important relationships with hollow glass customers throughout the world, as well as participating in and managing training and demonstrations.

WWW.IRIS-IM.COM

HORN

Rebuild of Russian container glass furnace

Steklotech LLC is the only glass container manufacturer in the Ural federal District in Russia. The manufacturing capacity of the factory is 300 million glassware products per year, the company manufactures many different types of glass bottles and jars for alcohol, non-alcoholic drinks, jam, etc.



HORN received the order for a rebuild of Steklotech's Furnace 1 at the beginning of August 2021. This project in the Tyumen region, Russia, includes the repair of a 200 t/d end fired furnace with two production lines for container glass with a melting area of 100.8 sq.m. The furnace is designed in appliance with the most advanced technology to produce amber and green glass. Heating of the furnace will be effected by means of Natural Gas burners.

HORN's scope of supply includes the combustion system, electric measuring and control system and several engineering services. The furnace will be equipped with the new Forehearth GCS Series 301-Advanced. This system is characterised by the most advanced technology in forehearth design for high-pull forehearths and the highest temperature homogeneity requirements (K-factor).

WWW.HORNGLASS.COM/

ADVANCED
CONTAINER
HANDLING

FROM A PROMISE...

your choice

...TO DELIVERY

Thank you!

New simple direct

Plant Site: Strada Pedemontana per Vignale, 2 - 43029 Traversetolo (PR) - Italy
Tel.: +39 - 0521 - 1745014 - Cell. +39 - 342 149 23 - E-mail: info.support@achandling.it
Registered Office: Via Licinio Manenti 16/A - 46029 Suzzara (MN) - Italy

SCHOTT

Investments in further melting capacities for pharma tubing

SCHOTT, a global leader in pharmaceutical glass manufacturing, is investing a total of EUR 70 million in the expansion of its Indian tubing site in Jambusar, Gujarat, following several million in investments over the last few years.

"Against the backdrop of the growth trend in the Indian pharmaceutical business and the pandemic, we want to commit to secure the supply of pharma glass," said Dr. Patrick Markschläger, Executive Vice President of SCHOTT's Business Unit Tubing.

"The increase of over 30% in the facility's overall Indian production capacity is at the same time a commitment to supporting the government's vision of India becoming a global pharmaceutical hub," added Pawan Shukla, Managing Director SCHOTT Glass India, during the groundbreaking event at the site.

The additional tank is scheduled to go into operation at the beginning of 2023, with the second one following a year later. The expansion in Jambusar will create new jobs for around 225 employees and is part of a more than USD 1 billion strategic investment program of SCHOTT through 2025, leveraging the global pharma tubing and packaging business.

SCHOTT has been a frontrunner in the fight against COVID-19 and provided pharmaceutical glass for primary packaging to fill billions of COVID-19 vaccines worldwide. In India, almost all approved vaccines are packed in FIOLAX® glass made by SCHOTT. With additional melting tanks and production lines, SCHOTT intends to ensure that this Asian manufacturing hub can adequately supply high-quality pharma glass for the Indian pharma industry and neighbouring countries.

The increase of melting capacities in India – supplemented by a batch house, a driveway, and a canteen for the employees – is part of SCHOTT's commitment to invest over EUR 100 million in its Indian tubing facilities and triple production capacity to produce FIOLAX® glass tubing for domestic and export demands. FIOLAX® is a registered trademark from SCHOTT.

SCHOTT's glass tubing (FIOLAX®) has been the gold standard for pharmaceutical packaging for more than a century. The material is best suited for vaccines and life-saving medications, as it avoids the interactions between containers and the drug formulation that can limit its effectiveness.

WWW.SCHOTT.COM

STEVANATO GROUP

Construction on new U.S. facility begins

Stevanato Group, a global provider of drug containment, drug delivery and diagnostic solutions to the pharmaceutical, biotechnology and life sciences industries, announced that it will begin construction on its new U.S. facility in Fishers, Indiana, this month. The site, expected to be operational in 2023, will enable Stevanato Group to be in closer proximity to its North America pharmaceutical customers and to provide an additional supply source for its mission critical products to serve customers better.

The Group expects to invest approximatively USD 145 million to build and equip the manufacturing facility. The plant should be up to 370,000 square feet and will house state-of-the-art production lines equipped with advanced process technologies to produce EZ-Fill® syringes and vials.

In addition, Stevanato Group plans to use the new facility as a centre for after-sales support dedicated to serving its North America engineering customers, offering technical support as well as maintenance for visual inspection, assembly and packaging equipment.

The new Fishers plant is will enhance Stevanato Group's North America footprint by allowing it to serve customers with an integrated approach, from design and development through commercialization. Stevanato Group plans to do this through the combined capabilities of its Technology Excellence Center based in Boston, offering scientific analytical capabilities; the →

Indiana EZ-Fill® hub, delivering drug containment solutions that drive real value; and its device manufacturing facility in California.

Stevanato Group celebrated the new plant with a groundbreaking ceremony in Fishers on 23 September 2021, attended by Indiana Governor Eric J. Holcomb, Fishers Mayor Scott Fadness, and other local guests.

"We are thrilled to begin construction on our new U.S. hub, and expand our presence in one of the fastest growing markets where we see increasing demand. We believe this will allow us to further enhance our services to our valued North America customers and underscores our desire to ensure supply chain security, just in time delivery and reliable sourcing in terms of surge capacity," said Franco Moro, Stevanato Group Chief Executive Officer. "We are proud to join the Fishers community. This is an exciting achievement for our company, and we look forward to continuing to enable our customers – in the US and around the world – to deliver safe and effective treatments to patients."

Stevanato Group's facility is expected to be part of a new pharmaceutical and life sciences park in Fishers, and the company intends to hire more than 230 new local employees by the end of 2025 for roles in production, engineering and maintenance, as well as other corporate support positions.

WWW.STEVANATOGROUP.COM/EN/

SORG and AFICO

Furnace rebuild despite pandemic restrictions

Saudi-based C-Glass fibreglass manufacturer **AFICO** called upon their original furnace builder, **SORG** to carry out the necessary rebuild of their 38sq.m. S-Melter.

Despite the COVID-19 restrictions resulting in the original plans being changed, SORG was still able to deliver on time and in full. Thanks to a great working relationship and considerate collaboration between AFICO and SORG Group divisions, Nikolaus SORG and SKS, the rebuild was managed and recently completed despite the challenges.

A spokesperson for SORG said, "The quarantine was a huge challenge because travel restrictions changed daily but we managed to complete the project (glass-to-glass) ahead of time – one day before the initially planned commissioning date."

"In cooperation with AFICO and our specialists, the condition of the system was checked at regular intervals and steps were considered to keep the system alive until entry was possible again."

SORG managed the entire process alongside the AFICO team, including planning, equipment, demolition and assembly. Due to the pandemic situation SORG controlled the commissioning of the SCADA system via remote access from Lohr, successfully and on time.

A spokesperson for AFICO said, "We really appreciate the effort and professionalism by which SORG Group team has completed the project successfully, safely and on time. We appreciate their responsiveness, effective communication and coordination throughout the project."

WWW.SORG.DE/

ALL GLASS: Cold-end expertise thanks to technical analysis, efficiency and flexibility

Giosafatto Cuda
Area Sales Manager
ALL GLASS

"Innovation has, since the beginning, always been present in our vocabulary, constant research aimed at ongoing improvement of what has been achieved."

This is a prerogative which has always seen our company move with the times, because in an ever more demanding market, companies that do not innovate their products, inevitably end up looking at a death sentence!

In our opinion, glass container market demands from manufacturers of cold-end equipment, indicate a clear path with two fundamentals characteristics that equipment must have:

1. efficiency;
2. flexibility.

In the food and beverage glass container market, it is more and more frequent for manufacturers essentially to propose standard and customized solutions to their own customers in order to contribute to product placement in the premium market zone.

With a market presence of more than 20 years, All Glass speaks about how it has designed and installed almost 3,500 lines of transportation and product palletisation, becoming a trusted supplier for many major multinational hollow glass manufacturers the world over.

And, in fact, the concept “the container as a real instrument of content valorisation”, is starting ever more to catch on.

Mutations which have led to the realization of real architectonic engineering masterpieces in shape, dimension and colours point of view.

Mutations in products which, obviously, have an impact on the whole productive process, but which represent, at the same time, a motivation to elevate even more the quantitative and qualitative performance level of the equipment.

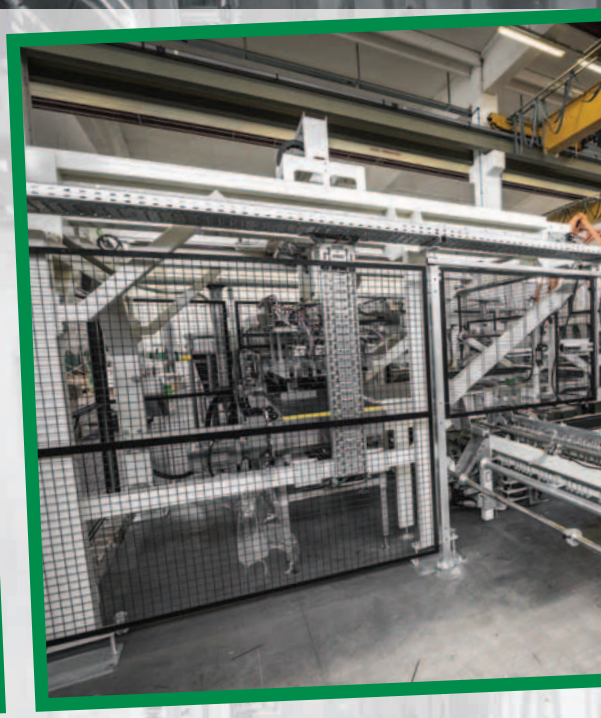
MARKET PRESENCE, EXPERIENCE AND SKILLS

All Glass has designed and installed almost 3,500 lines of transportation and product palletisation in the global glass container sector, thanks to company skills gained for each one of them and by acquiring their peculiarities.

In fact, All Glass has been present in the market for over 20 years and has become a trusted supplier for many major multinational hollow glass manufacturers the world over. This has allowed our company to hugely elevate its know-how by creating a wide product range going from the handling of small pharmaceutical items to perfumery items, also including the strangest ‘special’ shaped bottles.

For this reason, All Glass is, thanks to its experience gained in the cold-end sector, able to propose projects and studies to customers and partners, creating services that start with the technical analysis of each of the items, and which merge with the efficiency and flexibility requested by the market, in an unconditional and unique manner.

In addition to classical cold-end equipment, All Glass also offers accessories and equipment for the packing sector,



such as:
- carton erectors;
- partition inserters;
- case packers;
- case sealers and over-turners;
- shrink wrappers for tableware and pharmaceutics.

MARKET NEWS

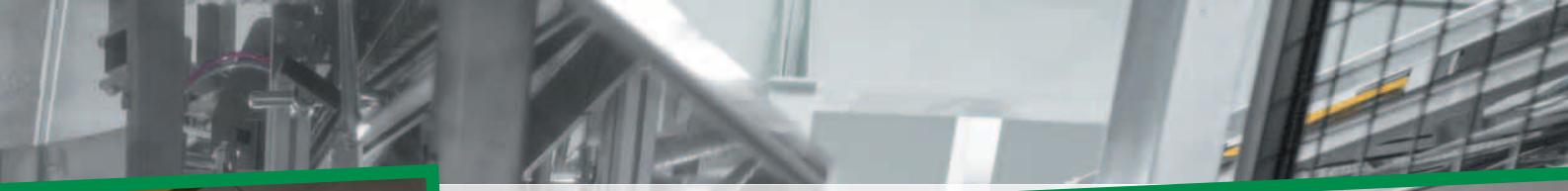
Very versatile equipment with truly reduced dimensions has been designed and installed in recent years to maximize the use of the customers' available spaces. The photos on this page show the new dressing system of pallets with shrink film using a retractable model. The device is placed under the layer formation table, a large space normally unused. A mobile trolley system allows the dressing device to be extracted with extreme ease and allows line operators to make adjustments and change the film reel entirely ergonomically.

RESORTING DEPARTMENT

All Glass also has its own company division that deals exclusively with the resorting of hollow glass products for the pharmaceutical field, food and tableware sectors, operating both nationally and at European level. This division, which can count on two production plants, has a potential of approximately 20,000,000 reselected and repacked items per month. This cutting-edge division is equipped with automatic lines and a Clean Room for the specific resorting of containers for the pharmaceutical sector, along with a product control and traceability system according to the highest standards imposed by current regulations and UNI EN ISO 9001: 2005, which guarantee our customers efficient service.

RESEARCH & DEVELOPMENT DEPARTMENT

Research and innovation are two milestones for our company, in fact each year huge investments are made in the Research and Development department in order to place important equip-



ment aimed at further improving efficiency and flexibility on the market.

ASSISTANCE, AFTER SALES SERVICE AND SPARE PARTS DEPARTMENT

The After Sales and Spare Parts Department is

made up of a team of about 15 people, with direct and numerous years' experience in the sector. Their know-how, always in constant and continuous development, has been strengthened thanks to the close and conspicuous collaboration established with many of our customers.

This technical team is constantly updated in order to be informed regarding and take charge of any type of work or request coming from the customer.

In addition, the entire team is kept constantly updated with international language lessons, in order to provide the best communication assistance to customers.

COMMERCIAL PARTNERSHIPS

Two strong commercial partnerships with leading companies in the logistic and storage fields (OCME and LCS), have allowed us to merge our own know-how, in order to offer complete service which starts from annealing lehr unloading, up to the preparation of finished products ready for shipping to the final customers.

MISSION

Fast response time, ability to interpret needs and to transform them in creatives ideas, these are the qualities which make All Glass an ideal partner in managing and handling hollow glass items. ■

ALL GLASS SRL

Via Cesare Sarti, 20
43029 Traversetolo (PR) - Italy
Tel.: +39 0521-340810
Fax: +39 0521-340805
E-mail: sales@allglass.it
www.allglass.it

VIDEO SYSTEMS: AI-based Glass Container optical colour inspection

Video Systems puts artificial vision and intelligence in quality and process control at the service of manufacturing. The experience and know-how gained, particularly in the steel and glass markets, have led to the setting up of dedicated, specialized divisions. Video Systems proposes an artificial intelligence approach for the optimization of standard glass container inspection methods.

QUALITY CONTROL SYSTEMS

Glass container inspection processes have been characterized for decades by human manpower and optical inspection technology. The ability to identify many types of defects has increased thanks to innovations on electronic and optical devices, but some types have no real solution.

Today, systems also give good performance with regards to the identification of small defects, but this ability is sometimes affected by the phenomena of increased false positives. Maximization of production and optimal defects identification is the desired condition of glass manufacturers and the desired goal for green production. Being able to optimize production will have the effect of reducing pollution per tons of products delivered to the market.

COLOUR IMAGE ANALYSIS

Video Systems has adapted colour image analysis to new studies, technologies, and market feedback, observing an important reduction of false positives phenomena and an increased ability of their Imago line systems which identifies specific defects difficult to detect otherwise.

Technology in quality control systems is growing very fast. Quality control in the hollow glass production market is a key point because the final products (bottles, tableware, containers) are made for high quality demand markets such as pharmaceutical, food and beverage markets.

Recycled glass

All non-conforming containers are removed from the production chain and used as recycled glass (cullet). At the end of the line, the products are finally packed and palletized for subsequent delivery to final customers.

AUTOMATED QUALITY CONTROL SYSTEMS

Automated quality control systems, introduced into production lines in the past years, have proved to be more reliable and quicker in the control tasks than the most experienced employees. The purpose of every hollow glass manufacturer is to produce more containers with the best quality at the lowest cost. Industry connected to quality control systems, works constantly to increase the capability of inspection with two main goals:

1. increasing the capability of the system to identify defects; and
2. reducing the false positives on container inspection.

Video Systems' Imago line products today, are all powered with AI and, in particular, the solutions are deep-learning engine-based, dedicated to various defects on containers.

SIDEWALL QUALITY CONTROL

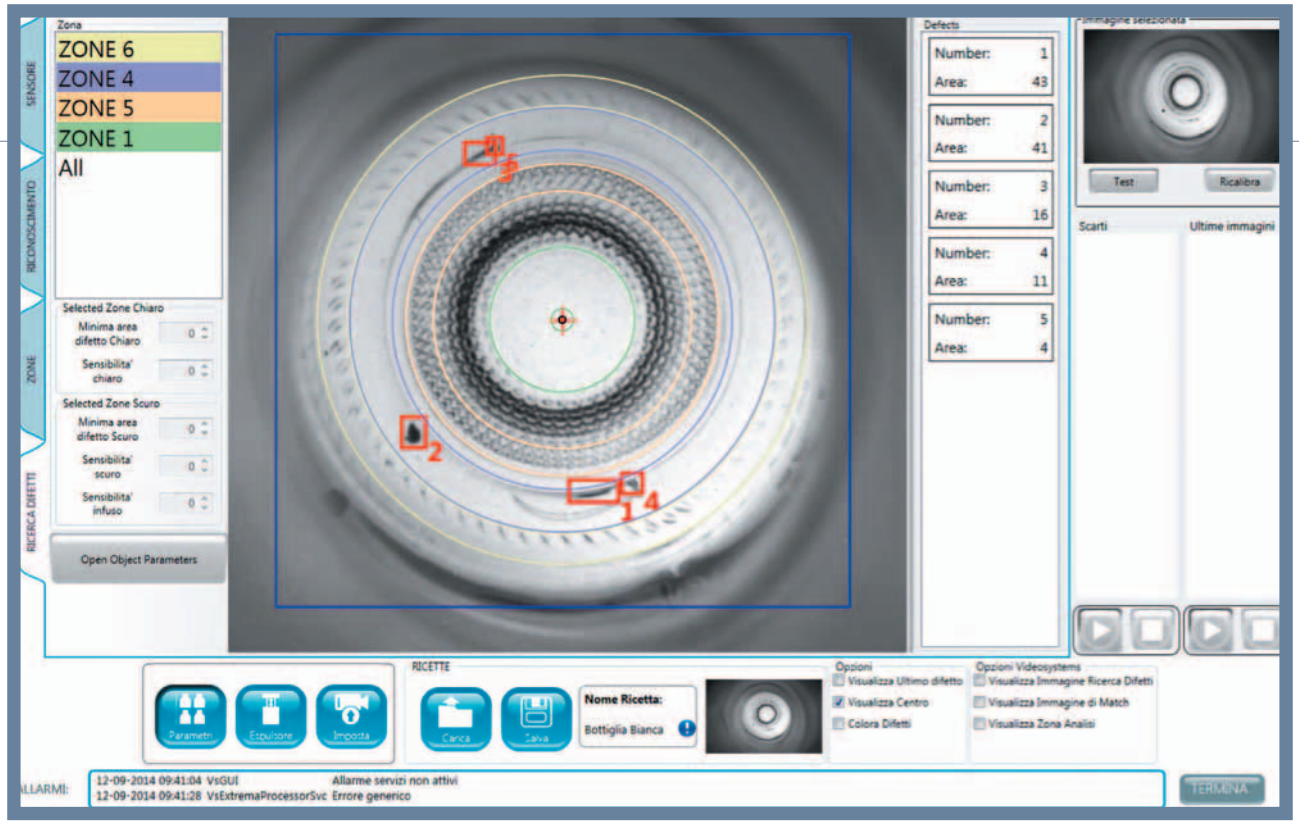
In stone identification, the use of Artificial Intelligence technology decreases false positives significantly. Simultaneously, this approach reduces machine set up time thanks to the lower parameters and self-tailoring system. Video Systems' Imago Omnia sidewall machine thanks to dell-learning, is able to bring a false positive effect down to 0.2 per cent.

IDENTIFYING REAL STRESS DEFECTS

The AI engine has the ability to identify real stress defects instead of reflections on container surfaces, which usually represent a problematic aspect on high density containers such as Champagne bottles.

LINEA SYSTEM-SHOULDER AND FINISH CRACKS

Linea system is a contactless solution for shoulder and finish cracks in standard carousel



machines. Thanks to its deep-learning engines the only operation necessary is to select the ROI of analysis and other parameters, for example the minimum size of defect, with no need to set up the light emitter and receiver. The system performs a 99.8 per cent capability of defect identification with a 0.1 per cent of false positive effect on about 20 different bottle shaped formats.

CONCLUSIONS AND OUTCOMES

The quality control of articles is an increasingly important requirement for hollow glass producers due to the rising demand for quality by the final market for such products.

For many years the glass inspection task has been performed by handwork without the reliability and speed required by current production cycles.

Nowadays almost all production lines provide automated systems for the quality control of glass containers. These systems use vision systems that can analyse bottles and identify defective ones. They use classic algorithms to detect defects and therefore need to set a high number of parameters. Some of these methods also need the defective sample in order to prepare the recipe for analysis.

Video Systems' approach is focused on the AI based solution having the capability to manage colour images to propose simple and fast setup machines that can produce very low-level false positives. In the last few years, Video Systems has been working on new tailor-made solutions that apply robotics, AI and machine vision technologies to supply future solutions to market research that is supported by EU in APICUS and ZDMP H2020 projects and the InterQ H2020 project. ■

OCMI-OTG: flexibility, innovation and customer support

OCMI-OTG, worldwide supplier of complete lines for the production of tubular borosilicate glass containers for medical and cosmetic use based in Milan, Italy, is celebrating 100 years of activity. In its continuous search for growth and development, the company has acquired its competitor Kyp Accesorios, and now produces 30-station forming machines and the new FLA18 vial forming machines with index rotation.

OCMI-OTG AND KYP ACCESORIOS

OCMI-OTG acquired its former competitor Kyp Accesorios, the Spanish manufacturer of ampoule lines with almost 30 years of experience, in 2019. Thanks to the resulting combined know-how and comparison of skills, OCMI-OTG now introduces a completely renovated solution for the production of borosilicate glass ampoules, characterized by full automation, integrated function control and easier set up, resulting in a considerable reduction of dead times caused by job change.

30-STATION FORMING MACHINES

The 30-station forming machine, manufactured at OCMI factories in Madrid (Kyp Accesorios) and Chelles (Moderne Mecanique) are now available with an integrated separate control cabinet with touch screen for the full control of all machine functions such as loading, chucks and machine speed setting, cam setting and dimensional control of products through a camera.

The software of the touch panel can be updated with an automatic loader control if this complementary equipment is installed. Stations can be loaded during machine setting for new ampoule production, or excluded from loading if maintenance is needed.

Alarms for any malfunctioning can be checked directly on the screen, and a Hold Cycle function can be activated in case the tubes over the loading stations need to be lifted to undertake maintenance operations.

NEW MOTORS MEET ENVIRONMENTAL REGULATIONS

The after-forming line has been upgraded with a new family of motors and servo-motors with drivers controlled by the same PLC. The motor's parameters can be managed from the all-in-one integrated panel. These new motors grant more efficiency and are manufactured in full compliance with current environmental regulations, especially the new resolver mounted on V-chain motor, which allows a significant reduction in noise during its operation.

SINGLE INTEGRATED PANEL CONTROL

One of the main features of OCMI upgraded ampoule lines consists in the possibility of centralizing the control of all functions. This means that all operations related to colour rings, OPC, printing, Form B cutting and Form D closing (if present) can be managed from one integrated panel.

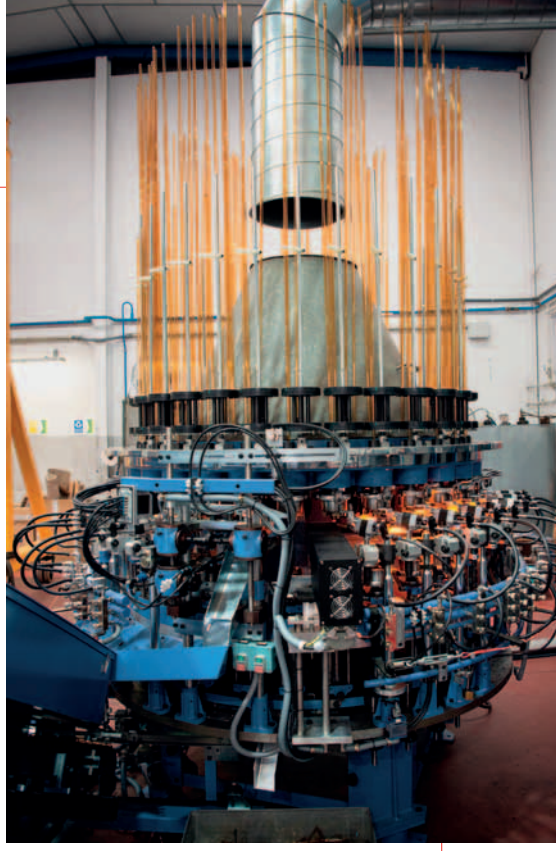
Remote visualization

The control software, available in multiple languages, also offers the possibility of remote visualization of the same screen pages on portable devices such as mobile phones and tablets.

IMPROVEMENTS REDUCE DEAD TIME

The improvements applied to the new ampoule line recently developed by OCMI at its Spanish factory of Kyp Accesorios reduce job change times and manual handling of each device, thus improving daily productivity.

Setting recipes can be saved inside the line control panel with names and recalled if necessary for future production batches.



Electronic control can also be extended to ampoule lifting devices of the different processing stations which are driven by electronic parametrizable cams. Statistics concerning production and working shifts are available to be uploaded from the panel.

NEW ITALIAN SHOWROOM

This completely renovated ampoule line was officially introduced by OCMI at the beginning of October 2021 in its new show room set up at its Milan headquarters. Customers who are interested in seeing the machine in operation are welcomed to Milan's OCMI facilities or have the possibility to follow webinar sessions in direct connection with OCMI commercial and technical staff obtaining answers to any questions in real time.

FLA18 VIAL FORMING MACHINE

The new FLA18 vial forming machine with index rotation, already available in OCMI's range of solutions, is also ready for tests and inspections. With its 18 upper stations and nine lower stations, the machine assures maximum productivity even in the event of one lower station being out of service.

The machine has been developed to reach a maximum output of 55 pcs/min. with 2R vials, with the possibility of processing glass tube diameters from 10mm to 30mm.

Turret rotation is driven by torque-motor that is supplied together with a water chiller for cooling which can also be used for cooling the forming plungers.

Forming operations are performed through three stations respectively dedicated to roughing and shoulder preparation, pre-finishing and finishing. As in OCMI continuous rotation forming machines, these stations follow the rotation of upper chucks through rotating bearings mounted on forming heads making any manual alignment with chucks unnecessary. All these three stations can be removed to make maintenance and job-change operations easier.

Tools, plungers and rollers are servo-driven, making setting and forming operations more precise and smoother. This feature enables adjustment of the parameters related to tools, starting/ending position and their acceleration from the machine control panel.

OPTIVIAL CAMERA SYSTEM

After mouth forming, main dimensions can be controlled by the Optivial camera system. This new generation camera takes up to 15 pictures of the same rotating vial allowing for a more precise average value for each dimension.

Servo-motors also drive the setting of tube receiving plates and cutting stations.

Nine lower chucks of the lower turret are driven by independent motors. Before unloading the device, a dedicated station flattens the bottom through a containment buffer.

Lower chucks are equipped with blowers enabled by solenoid valves, aimed at removing smoke from the inner side of vials in order to keep alkalinity into limits fixed by ISO standards.

NEW AFTER-FORMING LINE FOR THE FLA18

The new after-forming line specifically developed in connection with the FLA18 machine is under development and will be ready by the end of 2021. ■

Paints that have rewritten the history of color. Since 1956.

FOR MORE THAN 60 YEARS FLUORITAL HAS BEEN REFERENCE OF QUALITY PAINTS AND INKS FOR GLASS, PLASTIC AND METAL.

FLUORITAL

A pioneer of non-flammable water-based products with a low volatile organic compounds content, Fluorital has made eco-sustainability a true pact with the Planet, proven by its environmental certifications.

Its paints and inks can be cross-linked at low temperatures or with UV lamps, with great energy savings: eco-friendly features combined with a great physical and mechanical resistance of the products, proven by laboratory tests.

The fields of application of its products include perfumery and cosmetics, lighting and tableware, automotive and household appliances, furniture and objects, up to the eyewear and sporting goods sectors.

Top quality products that today, just like 60 years ago, give color to your imagination and design an increasingly sustainable future.

WWW.FLUORITAL.COM

HEADQUARTER: Fluorital S.r.l. Via Roma, 54 31020 Villorba - Italy | info@fluorital.com
FLUORITAL GROUP: FRANCE - U.S.A. - ITALY - POLSKA

Cutting-edge artificial intelligence technology from BUCHER EMHART GLASS

Niki Ester - Software Manager
BUCHER EMHART GLASS

"Twenty years ago, detecting bird swings anywhere on a glass container was considered difficult. No system on the market could find all of the defects reliably. Glassmakers lived with this and managed the risks knowing that the automated inspection equipment installed on their lines could not get all of the defects. Today, if a machine cannot find all bird swings, it's out."

I recently overheard a conversation between glass industry technicians that summed up the general development of automated inspection technology over the last decades very well. "Bird swings have always been critical defects. We just did not have a good way to detect them, so we lived with it and managed the risk. However, as technology improved and it became possible to detect these defects reliably, detecting these defects became a strict requirement for every inspection line."

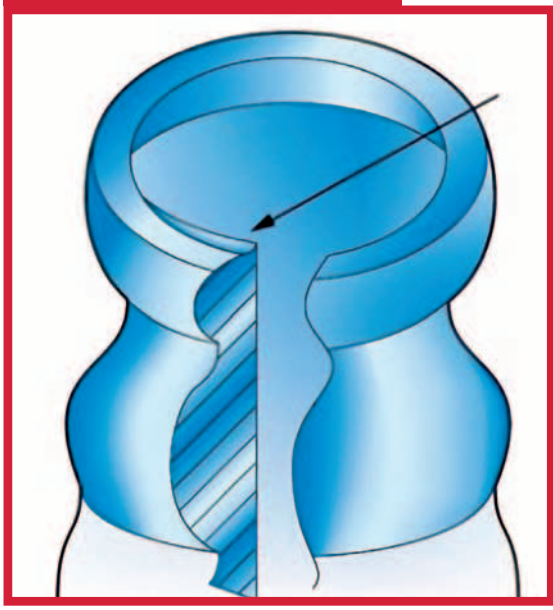
A recent example where the quality limits and expectations to detect critical defects has increased with inline inspection equipment is the so-called "Wire Edge" defect. A Wire Edge is excessive glass projecting upward from the inside edge of the finish where the guide plate and neck ring parting line is formed.

Historically, Wire Edge defects were hard to set up and detect. Even with a perfect optical set-up, some defects would slip through, or glassmakers would suffer from the loss of commercially acceptable ware.

SCOUT AI TECHNOLOGY

Today, utilizing SCOUT AI technology, these Wire Edge defects are detected with absolute reliability and controlled at very precise specification limits (0.1mm or less) defined by the end user. What makes this technology even more amazing is that all of this is now accomplished automatically, without the need for an inspection set-up expert.

A string of glass extending across inside of the container



This article discusses the latest inspection solution released by BEG using (AI) artificial intelligence technology to protect glassmakers and end users by reliably inspecting, detecting and removing critical "Wire Edge defects" from the production line.

OPTICS

Traditionally, the finish area of a container would be inspected with a top-down view. The bottle was inspected by looking at the top of the bottle from above, by different lighting methods and techniques used to highlight or suppress features of the container.

In this image of the sealing surface, the illumination is coming from the sides (cone light). This type of lighting highlights the edges of the sealing surface along with any other glass edges.

As a result, reflected light can be seen from the Wire Edge defect (if you know what you are looking for). However, without knowing more about the finish it was impossible for the inspection system to be able to distinguish between a stepped ring at the match line, versus a real Wire Edge with glass protruding upwards towards the finish. This was even more of an issue when the Wire Edge spanned the entire 360° circumference of the finish.

RETHINKING AN APPROACH

Quality managers will not look for the Wire Edge defect from above but will tilt the container and change the viewing angle until they can see the defect. This behavior made it clear, in order to create a new inspection device that could reliably detect these defects, that acquisition of images at the proper angles was necessary.

The challenge to face was that people interpret the image much easier and more accurately than any vision system. Humans see the glass edge on the finish that shouldn't be there and easily determine if it is good or bad. However, vision inspection systems need to be configured to see a feature. If the feature changes at all, the system might not be able to determine if it is good or bad.

These constraints apply to all conventional vision inspection looking for simple features like 'edges', 'bright pixels', 'dark pixels' or 'shapes' – when looking

In this image of the sealing surface, the illumination is coming from the sides

for these defects there are simply too many similar edges, straight lines and other simple features, that can affect the results.

As a software engineer, creating a perfect tool capable of analyzing this type of image with all of the features making up the image, along with all of the possible variations, was considered "impossible" with computer vision. Meaning, it could not be done.

ARTIFICIAL INTELLIGENCE-WIRE EDGE

Today, Emhart Glass has achieved this utilizing the power of SCOUT AI. The new Finish-Wire Edge station uses one conventional top-down finish image and four additional images taken from the sides of the container to accurately and reliably detect the defect within the noise.

3D MODELS

After the images are taken, they are analyzed and combined to build a 3D model of the container finish. (The inner neck ring area, where Wire Edge defects occur, is shown by the software as a yellow circle. The Wire Edge defect is marked red.) This 3D model is largely invariant to orientation changes, small reflections or lighting changes, guaranteeing the system's high recognition and repeatability rates.

NO COMPLICATED SET-UP

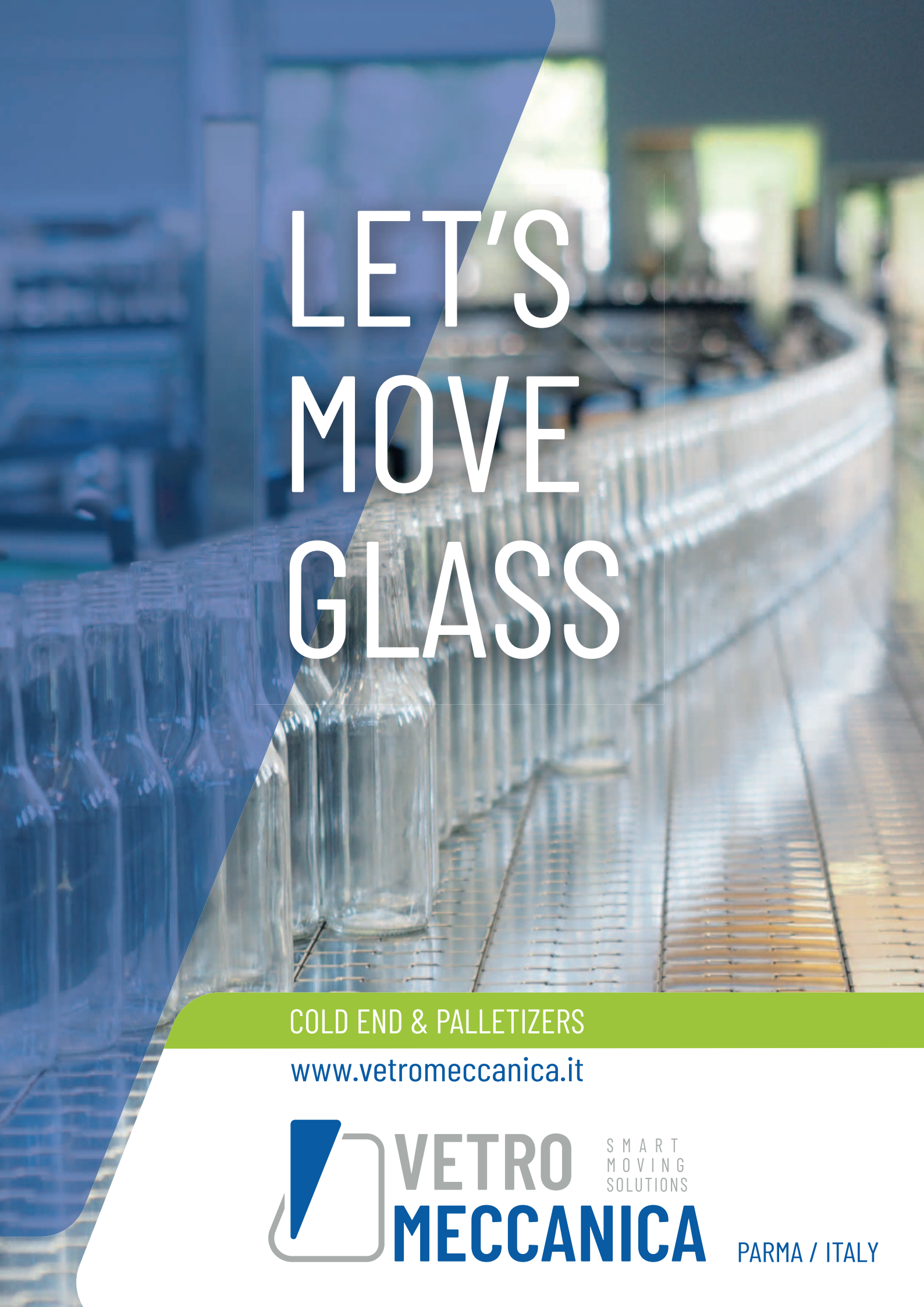
It also eliminates the need for complicated set-up. The SCOUT AI based Finish-Wire Edge inspection has been trained with hundreds of different container finish types, colours and sizes to make this analysis completely automatic. That means no set-up is required, apart from switching the function on or off and setting control limit.

But if there is no set up, what happens if the system is not trained to a defect? Again, the crucial part is the 3D model. The user can optionally train new good and defective containers to reject only the truly defective containers. The system will then compare the 3D model of each inspected container with the 3D models of the trained good and defective containers, and only reject the truly defective ones.

CONCLUSION: THE LATEST CUTTING-EDGE ARTIFICIAL INTELLIGENCE TECHNOLOGY

Reliable Wire Edge defect detection has become a hard requirement for many production lines in the last few years.

The Emhart Glass Vision Finish-Wire Edge system uses the latest cutting-edge artificial intelligence technology to build a 3D model of each container finish based on multiple views of the container. The system can detect Wire Edge defects with minimal set-up and excellent reproducibility. It has been tested in production since the beginning of 2021 as well as in several customer acceptance tests. It can be purchased as an option for new Emhart Flexinspect B Generation III machines, and as an upgrade for existing Symplex chili-base inspection machines. ■



LET'S MOVE GLASS

COLD END & PALLETIZERS

www.vetromeccanica.it

VETRO MECCANICA

SMART MOVING SOLUTIONS

PARMA / ITALY

VETROMECCANICA has completed its offer with new shuttle cars for cold end lines and palletizers

Vetromeccanica responds to the glass industry with its new generation shuttle cars. A 2-seat shuttle car has already been delivered with an entire cold end line and the palletizers, while two 4-seat and 1-seat shuttle cars are ready for delivery.

CONTAINER HANDLING SINCE 1992

Vetromeccanica, thanks to a team of technicians with years of experience in the hollow glass industry, offers the feasibility study, design and manufacturing of customized solutions for handling and palletizing glass containers

Flexibility and customization

Flexibility with the customers and the ability to customize the offer according to their needs together with the experience in the served industries of our highly specialized technical team, qualifies Vetromeccanica as a trusted partner for all needs.

Control of the manufacturing process

The in-house manufacturing of all the proposed lines allows to have constant and complete control of the production process and of the quality with consequent competitive advantage both in economic terms and in delivery times.

CONSTRUCTION TYPE

Depending on the number of lines to be served, the shuttle car can handle from 1 to 6 loading stations (1-2-4-6 pallet places).

- multi-station in line or side by side;
- with or without telescopic transfer system (movable pallet transfer for lateral safety passage);
- with or without top press;
- particularity: the top press moves with the tandem in order to make the transfer of the pallets not yet packed safer;
- with roller conveyor belts for packed pallets;
- with chain conveyor belts for unwrapped pallets;
- with built-in obstacle recognition systems (PLS).

PALLETS DIMENSIONS

From 800 x 1200 up to 1120 x 1420, Vetromeccanica designs and manufactures its solutions in order to ensure the smooth and safe transfer of full pallets to the required packaging area. The bottles, running from the lehr exit and passing by inspection and palletizing stations, will be delivered to the shuttle car and end of line area.

The main goal of Vetromeccanica has always been that of helping its partners, glass container manufacturers, to be able to present the finished pallet in perfect configuration to their customers of the food & beverage industry.

POSITIVE MARKET REACTIONS DURING COVID 19

"In the palletizing business we are discovering a great demand for new machines and overhauling of existing equipment. The market is really brilliant and did not stop during the Covid Pandemic. We were and are nicely surprised by the positive reaction of the Glass industry and we would like to thank our customers for their intense activity of cold end projects to which we have been invited to participate," says Francesco Cavatorta, Cold End and Palletizers department Sales Manager. ■

VETRO MECCANICA SMART MOVING SOLUTIONS

VETROMECCANICA SRL

Strada Isolanda, 26
43024 Provazzano di Neviano
degli Arduini (PR) - Italy
Tel.: +39-0521-343011
Fax: +39-0521-342182
E-mail: coldend@vetromeccanica.it
www.vetromeccanica.it

NNPB process optimisation, regulation and digitalisation from HEYE

Based at Obernkirchen, Germany, Heye International GmbH is an international glass container industry supplier of production technology, high performance equipment and production know-how with more than five decades of experience in process optimisation, regulation and digitalisation of the NNPB process.

Industry expertise, combined with enthusiasm and a positive attitude, mirror the company's 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.

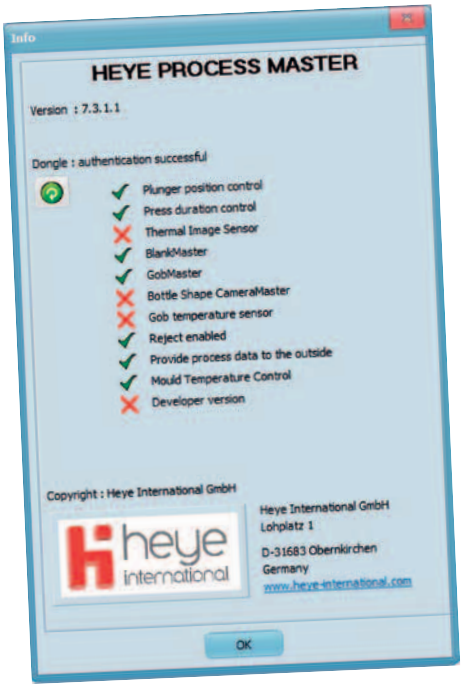
HEYE PROCESS CONTROL 4.0

According to Hans Renders, Head of Product Management at Heye International, the Heye Process Control 4.0 (HPC) was the crucial milestone to initiate Industry 4.0 within the glass industry. Heye Process Control 4.0 is a closed-loop-solution for the press process of all plunger mechanisms within an IS-machine. Simultaneously, it keeps the gob weight stable. Its computer interface displays several forming events on selectable charts and allows users to improve parameter setting by comparing data.

Early detection of malfunctions increases production efficiency. The integrated plunger cylinders guarantee precise and consistent parison parameters for press-blow and NNPB production.

Sustainable process data management

The Heye Process Control is an essential closed-loop system for every glass manufacturer in order to meet the high quality requirements of NNPB production.



Heye ProcessMaster: Overview of available functions according to customer-specific requirements

Changes in customers' process requirements have driven Heye International engineers to modify the Heye Process Control (HPC) from solely a plunger sensor to a holistic solution. The data acquisition from different sensors and the regulation of process parameters are now realised in the Heye ProcessMaster in which the Heye Process Control becomes a subsystem.

HEYE PROCESSMASTER

The Heye ProcessMaster (HPM) is a modular central software solution which is used as a basis for most sensor solutions in Hot End production. HPM now makes it possible to implement single sensors as well as complex sensor systems.

These sensors are, for example:

- the Heye GobMaster for weight control of BB-process and additional information like gob-shape, temperature and dimensions;
- the Heye BlankMaster, which monitors different mould part temperatures and gob loading at the blank side; and
- stand-alone gob temperature sensor.

All collected sensor and machine data can be used inside the production process to regulate process parameters like gob weight, press duration or mould part temperatures.

All collected process data is stored in the HPM for seven days.

HEYE SMARTLINK

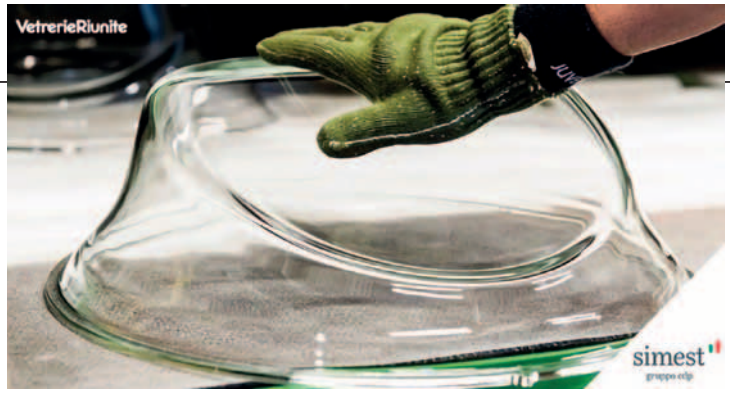
The collected data can be extracted via Heye SmartLink to be used by a third-party Manufacturing Execution System (MES) to get a long-term history of all relevant machine and process data. This generates a better understanding of the process and the machine behaviour and consequently to implement optimisations on process and machine.

USER INTERFACE

Heye maintains contact with its customers to set up user interfaces for a friendlier and more intuitive operation. Hence, the HPM gets a reworked user interface on each operating system update to let the operator feel more comfortable and familiar when handling the system. ■

HEYE INTERNATIONAL GmbH

Lohplatz 1
31683 Obernkirchen - Germany
Tel.: +49-5724-26452
Fax: +49-5724-26539
E-mail: sales@heye-international.com
www.heye-international.com



VETRERIE RIUNITE

Acquisition of Chinese competitor

Vetrerie Riunite, leading manufacturer of technical glass for household appliances, has acquired an important competitor operating on the Chinese market for washing machine portholes thanks to SIMEST, strengthening its presence on the Asian market.

With a total investment of EUR 7 million, SIMEST has become a minority shareholder of the Chinese subsidiary of Vetrerie Riunite. The operation, which also benefited from the intervention of the Venture Capital Fund, a facilitating instrument managed in agreement with the Italian Ministry of Foreign Affairs and International Cooperation, allowed the Vetrerie Riunite Group to acquire 70% of the capital of the Chinese Suizhong Minghui Industrial Technology Ltd.

SIMEST is the company of the Cassa Depositi e Prestiti Group that has supported the growth of Italian companies since 1991 through the internationalization of their business. Shareholders are SACE, which holds 76%, and a large group of Italian banks and business associations.

Davide Vassena, CEO of Vetrerie Riunite, said of the operation, "The acquisition of Minghui consolidates the position of Vetrerie Riunite as a world leader in the production of glass portholes for washing machines, with a strong presence in the world and, in particular, in the markets with the highest growth rates. This objective would not have been achieved without the continued support of SIMEST and other investors in our global growth and leadership strengthening strategy."

"SIMEST's goal is to support the international success of Made in Italy products, synonymous with quality in the world," said Mauro Alfonso, CEO of SIMEST. "We did it with Vetrerie Riunite, a company that has managed to acquire a position of world leadership thanks to the ability to constantly invest in areas with a high rate of development. China is certainly the largest and most dynamic market and this operation will allow the company from Veneto to improve its global positioning, accompanying its customers all over the world."

HTTPS://VETRERIERIUNITE.IT/EN/

SCHOTT

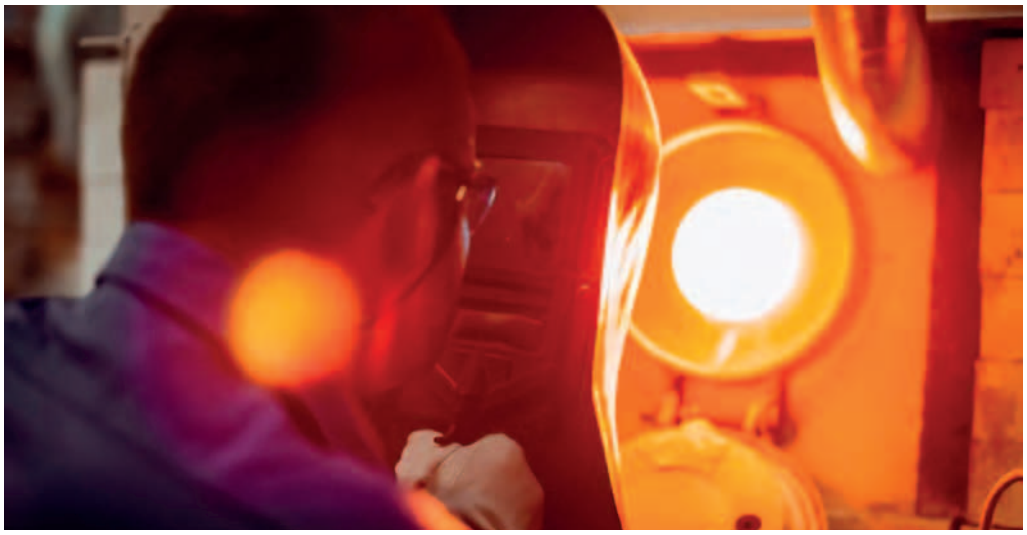
Next expansion stage at Chinese tubing plant completed

In light of the ever-growing demand for Type I borosilicate glass tubing for primary pharmaceutical packaging, **SCHOTT** has completed the next expansion stage at its new pharmaceutical glass tubing site in Jinyun, China. The construction of the site was completed after just 15 months despite the pandemic and the plant started its production in November 2020. It was officially inaugurated with customers and government representatives in summer 2021 and it supplies high-quality borosilicate glass tubing to produce pharma containers that store vaccines (e.g., against COVID-19) and other drugs.

"Right on schedule with our planning, we have doubled our melting capacity. It's another big milestone for pharma tubing in China. The expanded infrastructure will enable a reliable local supply of glass tubing, which is needed urgently to serve the increased demand for pharmaceutical packaging," said Dr. Patrick Markschläger, Executive Vice President of SCHOTT's Business Unit Tubing.

SCHOTT has established a solid production base for high-quality borosilicate glass tubing in Jinyun as a supply hub for the local Chinese market. The most modern tubing production site worldwide uses state-of-the-art manufacturing technology.

The plant in Jinyun created so far 250 new jobs and enabled an improved supply chain which will subsequently help enhance the packaging quality. Dr. Markschläger said, "This new site marks the first time our company is melting glass in China. It's our commitment to help bring the government's vision of 'Healthy China 2030' into reality." SCHOTT has invested EUR 60 million in this Chi- →



nese tubing plant as part of a worldwide USD 1 billion pharma business investment program.

Producing high-quality glass tubing to manufacture containers to package drugs requires extraordinary skills in melting but also in further processing. The manufactured glass tubing FIOLAX® is a 5.0 Type I borosilicate glass supporting the strategy of the Chinese government to move away from the low borosilicate glass, the so-called 7.0 glass. Borosilicate glass has been the preferred material for pharmaceutical packaging since Otto Schott invented it around 1890. The glass is highly inert, protects life-saving drugs and vaccines from unwanted drug-container interactions. And it plays a crucial role in the pandemic – already more than 90% of all approved COVID-19 vaccines rely on SCHOTT's FIOLAX® glass tubing.

WWW.SCHOTT.COM

VETRERIA DI BORGONOVO

ORC plant for glassworks

The **Vetreria di Borgonovo** glasswork in Piacenza, Italy, covers 52,000 sq.m. and produces about 45,000 tonnes of glass per year using two modern melting furnaces.

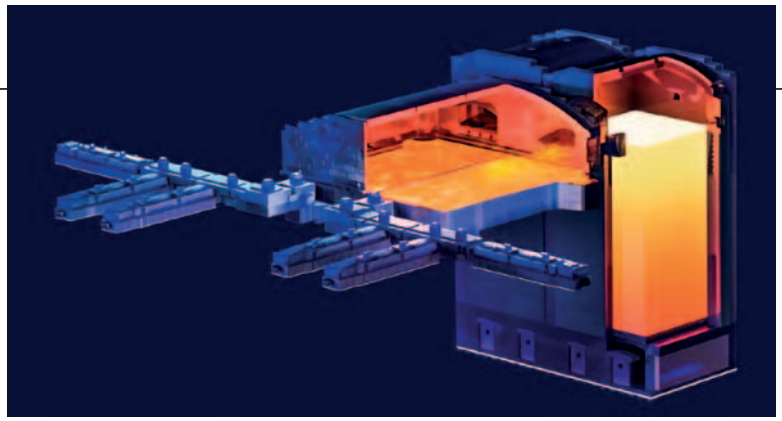
The system realized by Zuccato Energia involves the operation of an ZE-200-LT ORC (Organic Rankine Cycle) module to produce up to 200 kW of electricity, recovering 1400 kWt from the furnace's fumes. The module recovers the waste heat and through a closed process produces clean electricity to use in the overall plant.

The recovery is carried out employing a heat exchanger which intercepts the flue gases from the furnaces and uses them to heat some water, the vector fluid necessary for the operation of the ORC system.

The electricity production is zero emissions: the glasswork can avoid emission of 274 TOE and 376 tonnes of CO2 per year.

Waste heat recovery through ORC technology becomes the means to achieve the goal of "environmental sustainability": recovering heat at medium and low temperatures indeed, allows to reduce the environmental impact of industrial processes and at the same time to reduce their economic impact allowing them to exploit their waste and to convert them into electricity, with high flexibility, minimal maintenance requirements and with custom made components.

WWW.BORGONOVO.IT/EN/



FORGLASS

The world's first MultiGlass™ furnace

Forglass, the Polish technology company, has re-imagined and re-engineered the glass melting process to help its clients manage production, save money and improve the environmental impact.

With smaller order volumes for specific assortments of container glass and ever shorter order lead times, glassworks all over the world are struggling with the current technology, which does not allow them sufficient flexibility to efficiently produce what their customers order. Answering that challenge, Forglass engineers have created the world's first furnace that can simultaneously melt two or more different types of glass.

Merging the need to quickly implement changes in production schedule involving different glasses with the desire to maintain the highest possible melting efficiency for as long as possible in one furnace is difficult, most often impossible. The Forglass MultiGlass™ Furnace is the perfect answer to these expectations because it can simultaneously produce smaller volumes of two or even several glasses with energy consumption comparable to melting only one glass in a standard, single-tank furnace.

Lower energy consumption per ton of glass also reduces the emission of environmentally harmful compounds (CO2, NOX, SOX), and eliminates reject of glass that is unsellable due to its undesired properties or quality, but has to be produced when changing the glass composition in the furnace "on-the-fly".

The Forglass MultiGlass™ Furnace is the ideal option for both greenfield investments and modernizations in restricted spaces. For many glassworks located in urban areas, this opens up new opportunities for expansion or restructuring of their production capacities. Conversion of a standard furnace into the Forglass MultiGlass™ Furnace can be carried out in any glassworks by expanding the furnace (adding a second tank) only in its width, not length. It is generally the only space available in the production hall and, what's crucial, the expansion of a U-fired furnace does not involve radical rebuilding of the regenerator, which makes it inexpensive and fast.

Forglass is once again blending the line between the technical and the creative, pushing the limits of glass production to help its clients remain competitive in the changing marketplace.

WWW.FORGLASS.EU/EN

O-I

Investment in new plants

Glass packaging manufacturer **O-I** will invest BRL 990 million in two new factories in Brazil, the first movement of expansion for the local industry in the last ten years.

The investment is part of a USD 680 million package that will be dedicated by O-I between 2022 and 2024 to increase production in markets facing restricted supply and the introduction of technology that transforms the glass production process. Currently, between 10% and 15% of the Brazilian demand for bottles is supplied by imports.

"The new plants will start production in the third quarter of 2023 and, by the summer, the market will have returned to balance," said Hugo Ladeira, president of O-I South America.

One of the new units will be in the Rio-São Paulo axis and the other in the Southern region, but the exact location of the plants has not yet been decided.

WWW.O-I.COM/

VALMIERAS STIKLA ŠĶIEDRA

Investment in second furnace

Latvian glass manufacturer **VALMIERAS STIKLA ŠĶIEDRA** has decided to rebuild the melting glass furnace No.4.1 in the beginning of 2022, thereby doubling its production volume.

The aim of this project is to increase the production capacity to meet growing demand and provide the market with the required volume of high silica glass fibre products. The company has planned to invest approximately EUR 10 million in this project, including technologies for further glass processing.

The current preliminary project plans outlines masonry work on the glass melting furnace to take place in the first quarter of 2022, followed by the launch of the production of high silica glass fibre products at double capacity.

After the reconstruction, the expected maximum production capacity of the glass melting furnace No.4.1 will reach additional 7 – 10 tonnes of high silica glass fibre per day. The service life of glass melting furnace No.4.1 after the reconstruction is expected to increase significantly thanks to the new furnace design.

WWW.VALMIERA-GLASS.COM/EN/

STOELZLE GLASS GROUP

Investment in Köflach plant

Following its long term growth strategy as a leading international packaging glass manufacturer, the **Stoelzle Glass Group** is investing EUR 22 million in the Austrian site of Stoelzle Oberglas in Köflach in autumn 2021.

The demolition of the flint glass furnace, which has been in operation for eight years, providing more than 500,000 tonnes of glass for the production of high-quality bottles for pharmaceuticals, food, beverages and cosmetics, will start beginning of October. The whole rebuild is scheduled to be completed within eight weeks' time. The new expanded flint glass furnace will reach a daily capacity of around 270 tons of melted glass and will be state-of-the-art in terms of energy efficiency and sustainability.

Modern melting technology will reduce the amount of energy used in the melting process by an estimated 13% per ton of glass. Improved E-boosting allows to use more green electricity in a flexible way in order to reduce the consumption of natural gas. Adding around 20% of PCR cullet to the batch will further contribute to reduce significantly the CO2 emissions of the entire glass production. This investment is an important step towards decreasing the CO2 emissions by 50% by 2030.

Glass has a very long tradition and is definitely the material of choice not only for more than 3,100 employees at all Stoelzle sites worldwide, but for many industries and branches, as well. Made from 100% natural raw materials, infinitely recyclable and ideal for packing high-quality products in a pure, inert and stylish way.

WWW.STOELZLE.COM/

HORN

New greenfield glass plant for PGP Glass

PGP Glass Private Limited is a global specialist in design, production, and decoration of glass packaging (flaconnage). PGP leads the way globally, for glass packaging solutions in businesses such as Pharmaceutical, Cosmetics & Perfumery, and Specialty Food & Beverage.

The company, under the globally recognized brand name of "PGP Glass", offers complete end-to-end glass packaging solutions in over 50 countries. PGP has its design, production, and decoration footprint in the USA, India, and Sri Lanka with an overall capacity of 1475 tonnes per day, with 12 furnaces and 65 production lines.

On 14 August 2021, **HORN** started the furnace heat-up process at Asia's largest speciality glass manufacturer PGP Glass´ 250 tpd end fired furnace J in Jambusar, India. HORN supervisors for utility and electrical equipment were on site to support the processes. The new container glass furnace with seven forehearths manufactures cosmetic/premium flint glass.

In this greenfield project, HORN´s scope of supply included the Engineering of the refractory material and steel construction, Combustion system, Measuring and Control Equipment, Boosting System and HORN Batch Chargers HVR® 500F.

WWW.PIRAMALGLASS.COM - WWW.HORNGLASS.COM/

REVIMAC

Articulated project for Verallia Lagnieu

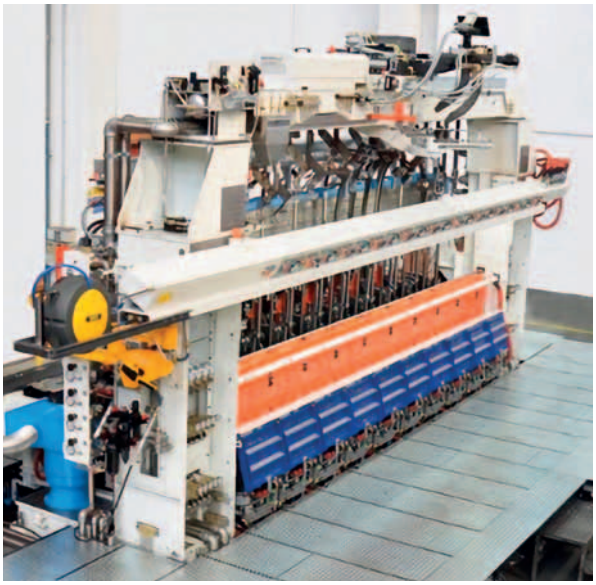
To continue the collaboration with **Verallia, Revimac** had the chance to be selected for an ambitious project delivered to Verallia plant in Lagnieu, France.

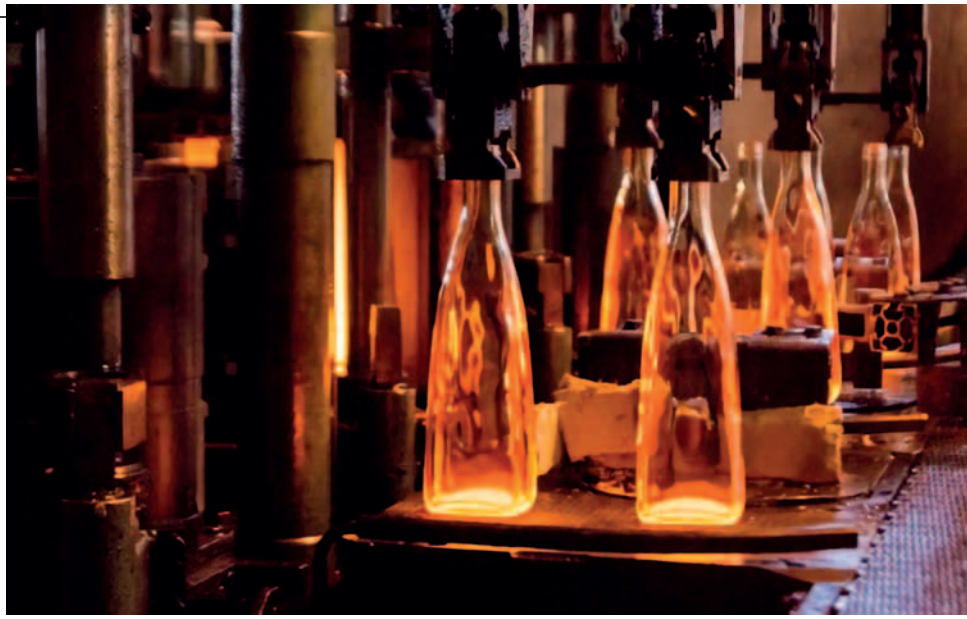
During the second quarter of 2021, Revimac accomplished the exchange of section boxes and the supply of a complete IS machine.

For both projects, the customization has been a key aspect, in particular for the complete IS machine, installed in place of a smaller machine, as Revimac team had to reshape the structures around the machine.

To complete the installation, as usual, Revimac's ware transfer and peripherals with the well appreciated Hi-Performance three-axis servo stacker and NTR cullet conveyor.

WWW.REVIMAC.COM/EN/





GRODNO GLASSWORKS

New plant

Belarusian glass producer **Grodno Glassworks** is preparing the launch of a unique production facility. The completed factory will allow for processing bottles of any colour, with the transition from one colour to another being possible within just two to three days. The project cost is expected to be approximately USD 56 million.

Advance payments have already been made for the supply of imported equipment, which has no analogues in the country. The future plant will be a modern production facility using energy-efficient and resource-saving technologies. The heart of the production will be a furnace with a capacity of 220 tonnes per day. It will supply to three lines: two 8-section and one 10-section.

The operating mode is three-drop, which is also a novelty for the glass industry of the Republic of Belarus. According to Denis Yurchenko, General Director of Grodno Glassworks, it is expected to produce more than 200 million finished products a year. Depending on the demand, the new plant will be able to produce glass of absolutely any colour.

To reduce the impact of production on the environment, the furnace will be equipped with an electrostatic precipitator and an automated control system for the operation of cleaning mechanisms, the quantitative and qualitative composition of emissions into the atmosphere.

The country plans to gradually move away from plastic containers. However, the current capacities of Belarusian glass factories are not enough to supply even the domestic market. New production in Grodno will fill this deficit, not only with new capacities, but also the modernization of older plants to help increase the production of glass containers and compensate for this transition.

HTTP://EN.GRODNOGLASS.BY/

CINER GLASS

Glass packaging factory in Belgium

Ciner Glass Belgium NV, a subsidiary of **Ciner Glass**, has decided to establish a glass packaging factory in Lommel, Belgium.

The production capacity of the factory will be approximately half a million tonnes of glass packaging per year, with an investment of approximately EUR 400 million. The project will also create employment for 400 to 500 people.

Ciner Glass plans to use sand extracted in the region as raw materials, while recycled glass will be another source of raw material. Quartz sand producer Sibelco is located approximately 14 km from the new factory.

HTTPS://CINERGLASS.COM/

BUCHER EMHART GLASS introduces new Roller Bearing Neckring mechanism

Bucher Emhart Glass, the leading provider of equipment for the glass container industry, has introduced a new Roller Bearing Neckring mechanism that offers glass container producers better efficiency, service life, and performance and reduce finish defects.

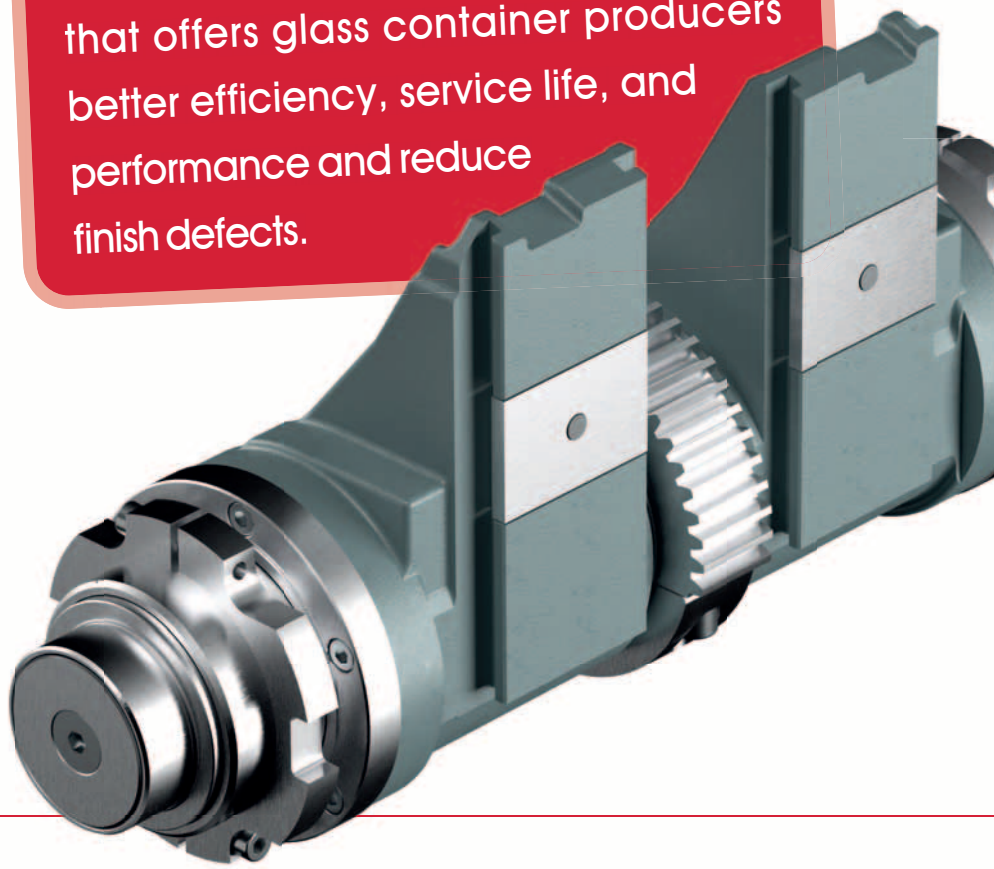
Bucher Emhart Glass' new Neckring mechanism, which, the company says, provides improved efficiency, service life, and performance, uses two roller bearings to ensure smooth motion during the parison transfer from blank to blow moulds. It also reduces friction and dynamic loads during operation, allowing for higher performance than before.

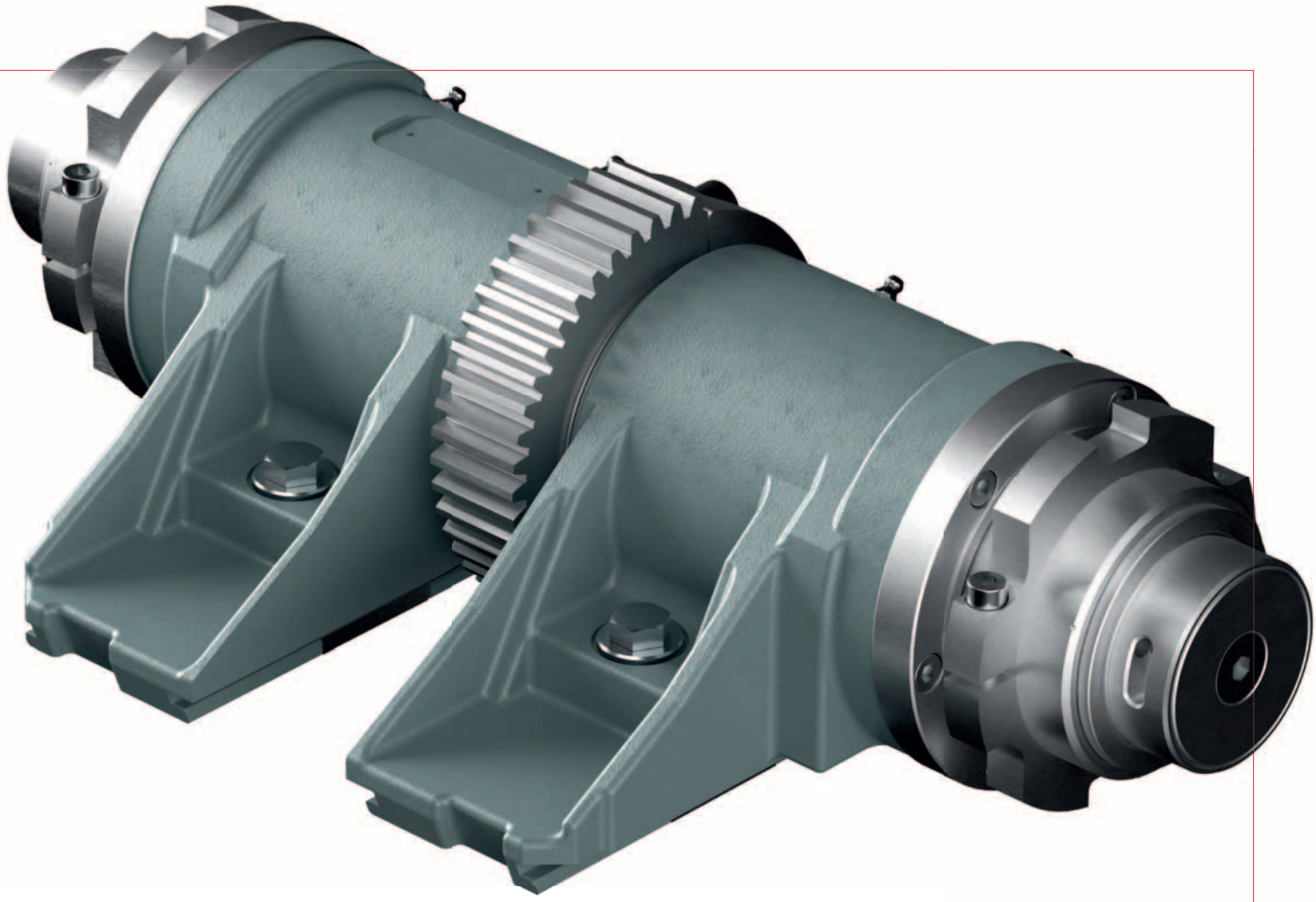
TECHNICAL ENHANCEMENTS

This superior performance has been achieved with a range of technical enhancements throughout the mechanism.

Sealing has been improved, reducing leakage of operating air as well as of lubrication oil. This, together with the bronze self-lubricating bushing for reduced friction, support a smooth, well-balanced open motion on the Neckring arms and reduces air as well as oil consumption.

This smoother, consistent and repeatable Neckring arm opening result in reduced finish defects such as check





finishes, split finishes, check under rings, pulled finish, and checked threads.

ADDITIONAL MODIFICATIONS

Additionally, exhaust channels have been enlarged and optimized for a balanced and fast neck ring arm closing motion. Auxiliary Neckring Open on the blank side supports saver and faster NR exchanges. The blow-side bracket caps are machined independently from the bracket for simple conversions, the mechanism centres itself between the inner sides of the bracket so that no special alignment is required, and a split-gear design makes maintenance far simpler.

Overall, the new Roller Bearing Neckring mechanism offers better performance, smoother operation, and lower air consumption, with balanced Neckring opening and smoother dynamics. The unit is easier to maintain and repair, and spare parts are easier to handle and install too.

The new mechanism is compatible with all BEG's AIS and IS machines and is available as a like-for-like replacement for conventional Neckring mechanisms using a conversion kit.

MINOR ALTERATIONS

Some minor alterations are also required: since the new unit is sealed to minimize air leakages, the 26-line valve block must be fitted with a fine needle (part number 210- 2102-4) to operate at low pressure. Also, the wear plates installed on the blow mould bracket for the installation of the previous Neckring mechanism are no longer required, so they should be removed.

"We're delighted to announce this latest technological improvement to our IS and AIS lines," says Matthias Kümmerle, BEG's President. "Innovations like this are a testament to the deep thought that our engineers put into improving forming processes and boosting performance for our customers. We're confident that many plants will agree that this as a quick and easy way to improve product quality and see a quick return on their investment."

The new mechanism is numbered 210-2064-1 and is now available to order from Bucher Emhart Glass. ■

Cutting edge solutions for glass container measurement from MARPOSS

Marposs was established by Mario Possati in 1952 and ten years later started its international expansion by establishing the first office abroad, in Germany. Today, the company is present in 24 countries with its own sales and service organization, and in 10 additional countries with agents and distributors.

Marposs, located in Bentivoglio, just outside Bologna, northern Italy, is a worldwide leader in measurement, inspection and testing.

The company designs and manufactures a wide range of products and solutions to be used in production environment.

Marposs is a primary supplier of the major automotive manufacturers, for both ICE and EV applications, as well as the aerospace, biomedical, energy, consumer electronics and glass containers sectors.

Glass Machinery Plants & Accessories recently spoke to Eleonora Bordini – Industry Manager for Glass Packaging at Marposs to get an update on the company specifically regarding this industry.

Glass Machinery Plants & Accessories (GMP&A): Marposs is a company with a very long history for producing gauging equipment for industrial environments. Would you firstly like to give us some background of the company?

Eleonora Bordini – Industry Manager for Glass Packaging at Marposs: Marposs was founded in 1952, so it's almost 70 years old. The first product was for the machine tool market and it was a very innovative system for measuring the parts during machining on grinding machines. The evolution of that specific product, of course, with many improvements, is still present in Marposs' portfolio and is widely applied. Of course, over the years, the product range has been enlarged as well as the markets covered, which include the Automotive industry, Aerospace industry, the Semi-conductors and the Electronic industries, Biomedical and Energy industries and of course, last but not least, the Glass industry.

GMP&A: Could you tell us a little bit more about your products for the glass industry?

Ms. Bordini: Marposs has been active in this industry for more than 20 years, both in the Flat Glass Industry and the Glass Packaging one. Especially for glass containers, we can provide fully automatic or semi-automatic sampling measurement systems, that can be installed in the QC lab or near the manufacturing lines. The main feature of these products is total flexibility, as they can measure any container irrespective of its dimensions, shape, colour, without any job change at all, with the highest accuracy among the solutions available on the market. The most complete solution is Visi-Quick, which is a totally flexible measuring system with automatic handling, it is also modular, so it can integrate different measuring stations to measure external dimensions with cameras, weight and push-up bore diameter and profile, actually with a gauging head that is the evolution of the first product manufactured by Marposs. We can also measure wall thickness, with chromatic confocal

GLASS CONTAINER MEASUREMENT

technology, on round, square and rectangular containers and labelling area profile, a solution patented by Marposs that allows to detect and measure, sinks and bulges on the areas of the container where the label has to be applied. Sinks and bulges can be responsible for wrinkles or bubbles when the label is applied.

GMP&A: Obviously there are a lot of reasons to choose Marposs for glass containers measurement. What specifically would you say would be the reasons a customer should choose Marposs?

Ms. Bordini: First of all, I would say for its know-how in metrology. Marposs is the only company active in the glass packaging industry with a solid background, know-how and experience in metrology.

Then for the quality level of its products, Marposs solutions use cutting edge technology. Last, but not least, for the approach to customers: Marposs philosophy is to stay close to customers, not only from a geographical point of view, but also building long term relationship with customers.

GMP&A: So obviously with a strong customer focus, what about after sales service and technical support? I imagine that's a big part of what you do.

Ms. Bordini: After sales service is one of Marposs's flagships. With more than 200 service engineers worldwide, locally present in the different branch offices of Marposs, in any continent, ready to support customers and speaking their own language.

We can also support customers by remote assistance. This is extremely useful for troubleshooting and for uploading new software in case this is required.

GMP&A: I imagine that has been particularly useful over the last year or two with the pandemic?

Ms. Bordini: Absolutely, yes.

GMP&A: Thank you. Is there anything else you would like to add today?

Ms. Bordini: Still talking about after sales service, I would like to add that we also propose trainings and preventive maintenance programs to our customers. The latter is very important to extend the machine life and avoid troublesome machine stops and more expensive corrective maintenance interventions. ■

MARPOSS

MARPOSS SPA HEAD OFFICE

Via Saliceto 13
40010 Bentivoglio (BO) - Italy
Tel.: +39-051-899111
E-mail: marposs@marposs.com
www.marposs.com

CHINA GLASS 2022

32nd China International Glass Industrial Technical Exhibition

Shanghai New International Expo Centre

13-16th April, 2022

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

Tel: +86-10-57811261, 57811409
Fax: +86-10-57811262
E-mail: ceramsoc@chinaglass-expo.com
http://www.chinaglass-expo.com

WeChat ID: CHINAGLASSEXPO

Container glass for the AUSTRALIAN BEER INDUSTRY

Rajeev Jetley

CONTAINER GLASS INDUSTRY IN AUSTRALIA

The Australian container glass industry has been dominated by two large container glass producers for quite some time. O-I, the largest container glass producer at global level, was the largest container glass producer in the country. However, the US-based company sold its container business operations in the country in 2020 to Visy Corporation, thereby transforming the container glass business landscape in the country and region. Orora Group, a multi-product packaging company, is the other important container glass producer in the country. Both companies meet the container glass demand of the two major Australian brewers.

Beer and wine industries together account for more than 60 per cent of the total demand of container glass in Australia. Beer alone is estimated to have a market share of more than 40 per cent of the total container glass consumption in the country. The share of container glass in beer

Australia is home to one of the largest per capita beer consuming population. On an average every citizen of the country consumes more than 75 litres of beer per year. On per capita basis, the country is 17th highest consumer of beers. Huge consumption of beers in the country has been an enabling factor for the growth of container glass industry. Glass Machinery Plants & Accessories presents an insight on country's container glass industry and impact of beer industry in its growth.

packaging has come down significantly in the last two decades in parallel with the rising popularity of metal cans in the beer industry.

THE AUSTRALIAN BEER INDUSTRY

Australia has one of the highest consumption of beers on a per-capita basis. Despite the country's low population (just under 25 million at the end of 2020), the country is one of the key markets for global beer companies. Recent acquisitions of the two large brewing companies in the country by the two major Japanese brewers is a testament to this fact.

The Australian beer industry is currently dominated by two major Japanese brewers. These two large brewers have histories dating back more than 150 years in one form or another, which has given them a wealth of experience in perfecting the equation between variety, quality and price.

Carlton & United Breweries, popularly known as CUB, is an iconic beer company founded in the mid-19th century in Australia, and is the largest brewer in the country. The company possesses a diverse portfolio of over 400 brands, and produces one of Australia's highest selling beers. Headquartered in Melbourne, Carlton & United Breweries employs nearly 1,600 people across five breweries and various offices around Australia.

Before the recent acquisition by Japanese brewer Asahi, it was a subsidiary of AB InBev as part of AB InBev's takeover of SABMiller.

In June 2020, Asahi officially took over Carlton and United Breweries. Before the deal, Asahi previously held approximately 30 per cent of the cider market, and 3.5 per cent of the beer market

in Australia. The completion of the AUD 16 billion deal marks the Japanese firm's takeover of AB InBev's 48.8 per cent market share. The sale was originally announced on 19 July 2019.

Lion Brewery is the other major brewer in Australia. The company brews popular beer brands such as Corona, Budweiser, Guinness, and Becks as well as local brands such as XXXX GOLD, Tooheys, Speights, Steinlager, Lion Red and Brown. Owned by Japanese brewer Kirin Holdings, Lion faces tough competition in Australian beer market from Carlton & United Breweries (CUB).

Japanese brewer Kirin purchased Lion Nathan brewery for AUD 2.5 billion in 2009. Lion Nathan Limited was formed through the merger of two major New Zealand companies, LD Nathan & Co. and Lion Corporation, in 1988. Both companies operated diversified holdings. LD Nathan centred around department store and

supermarket holdings, which included Woolworths, 3Guys, and others. Lion focused especially on its breweries and beer brand, which included the top-selling Lion Red brand.

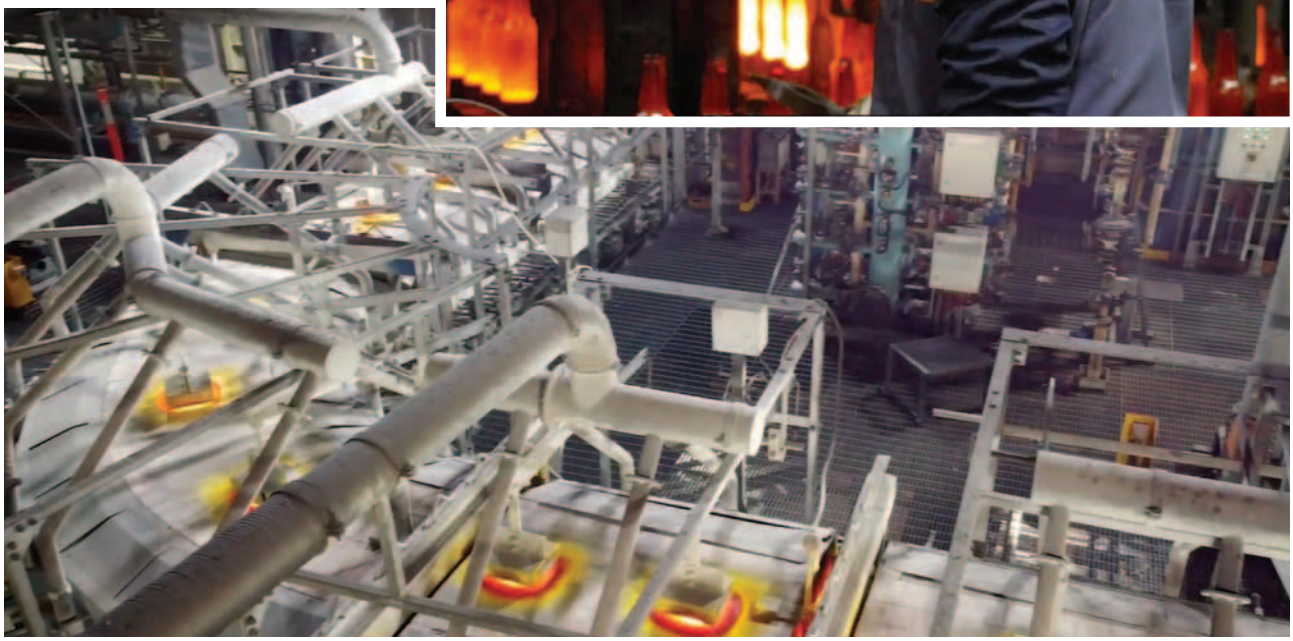
The roots of Lion Nathan's brewing interests were lain in the first half of the 19th century. In 1840, two Auckland-based liquor distributors, John Campbell and William Brown, founded the Hobson Bridge Brewery. Hobson Bridge eventually changed its name, becoming the Domain Brewery, before merging in 1898 with another company, the Albert Brewery, which was founded by Louis Ehrenfried in 1878.

VISY INDUSTRIES

Visy Industries is the larger of the two container glass producers in Australia. In July 2020, Visy bought O-I ANZ operations for USD 652 million (AUD 932 million). This is one of the biggest manufacturing acquisitions by an Australian owned business in Australian business history. The deal, which captured the attention of Australian and New Zealand FMCG producers and packaging industry back in late 2019 was completed eight months later in July 2020.

Prior to its acquisition by Visy Industries, O-I was the largest manufacturer of glass bottles and containers in Australia-New Zealand with factories in Sydney, Melbourne, Brisbane, Adelaide and Auckland. Australia and New Zealand business comprised the majority of O-I's container glass businesses in the Asia Pacific region. Operations in these two countries accounted for approximately 85 per cent of net sales in that region for the full year 2019 for O-I.

Visy – which is owned by executive chairman Anthony Pratt and his two sisters Heloise Waislitz and Fiona Geminder – is one of



the world's largest privately owned packaging and recycling companies. The company was established in Melbourne in 1948 and has since grown to become one of the world's largest privately owned paper, packaging and recycling companies.

Visy is planning to spend AUD 500 million to overhaul the production systems at existing production plants. The company is expected to spend on technology to make bottles lighter without compromising their performance, and on sorting machines with computer vision, which should allow more glass to be recycled and double the level of reused glass in each bottle made from 33 per cent to 66 per cent.

ORORA LIMITED

Australia's other container glass producer – Orora – is also a packaging producer and supplier. In addition to container glass, the company also produces aluminium cans, closures and caps, boxes and cartons, point of purchase displays, packaging equipment, recycled paper, rigid and flexible packaging, bags and sacks, and packing materials and supplies.

Carved out of global packaging giant Amcor in 2013, Orora Limited operates a total of 44 manufacturing plants and 90 distribution sites globally. The company's business interests are spread over Australasia and the North American region.

The company's container glass production facility is located at Gawler in the southern part of the country. It operates a total of three furnaces with an installed capacity to produce about 380,000 tonnes of glass containers per year, for the Australian beer and wine industries. The company can produce glass bottles in seven colours. Spread over an area of 62-hectare, company's manufacturing site also includes a huge warehousing to store the bottles.

In 2018 Orora invested AUD 42 million at its Gawler facility to increase glass bottle production capacity by 60 million bottles to a total of over one billion per year. The expansion was completed in the first half of 2020. Before this expansion, Orora had been forced to look for offshore bottle imports to keep up with demand. According to a statement from the Government of South Australia, the expanded facility has resulted in more than AUD 10 million a year being spent within the South Australian supply chain through raw materials, energy, maintenance and labour costs.

According to the company, "We have invested AUD 250 million in the world-class Gawler facility since the demerger in FY14, including the G2 furnace rebuild, capacity expansions, mould insourcing, system upgrades and highly automated on-site warehouse capacity."

In May 2021 Orora Group announced AUD 19 million investment at its Gawler site for setting up a glass-bonification plant. Orora's managing director and CEO Brian Lowe said, "The company was delighted with the support from the Commonwealth and South Australian governments, with the AUD 8 million funding injection enabling Orora to get the project off the ground immediately. The new plant will be built adjacent to the existing glass packaging manufacturing site at Gawler in South Australia's Barossa Valley, and it is scheduled to be up and running by the first half of 2022. The plant will give us the ability to sort post-consumer recycled glass by colour, segregate the glass from other contaminants, and give us a clean stream colour-sorted recycled glass to feed into our furnaces at Gawler."

Orora currently has exclusive rights regarding container deposit schemes (CDS) glass in South Australia, and access to CDS glass from Western Australia, which commenced last October. Orora will soon be sourcing from NSW CDS, and Victoria's CDS comes on stream in 2023, Orora's plant will be fully operational and able to process the additional cullet. Utilisation of more recycled glass during packaging production will deliver sustainability benefits, including a reduction in the amount of energy (and CO2 emissions) and in virgin materials deployed to manufacture glass, and will divert waste away from landfill. ■

Follow us online!

YouTube

Glass Industry network

Daily Newsletter

LinkedIn

Focus On

Online publications

Company videos

glassOnline

The World's Leading Glass Industry Website

SAVERGLASS: Innovation, expertise, know-how and quality

Saverglass, a specialist in manufacturing, customizing and decorating high-end glass bottles for the premium and super-premium spirits, fine wine and champagne, perfume, cosmetics and food markets. Recognized for its mastery of know-how, its glass-making expertise and the quality of its products and designs, Saverglass has made a name for itself throughout the world through its capacity for innovation, becoming a true corporate culture.

CREATOR OF VALUE

Saverglass offers modern, versatile and original designs, which help make the company's identity and reputation what they are. Saverglass, strives to forge new creative paths and seek out added value, maximizing the company's blend of glassmaking and decoration expertise, the variety and breadth of its ranges, the wide choice of innovative solutions, and its role as a consultant and guide throughout the project development phase, to demonstrate its originality and stand out as a value creator.

FROM MANUFACTURING TO CUSTOMIZED AND DECORATED GLASS

The Feuquières glassworks, the Group's current headquarters, were founded in 1897. The site is in the Bresle Valley, which has been a stronghold of French glassmaking since the 15th century. From 1969 to 1976, the Feuquières plant belonged to the Société Autonome de Verreries, part of the Saint-Gobain Group. When Loïc Quentin de Gromard became President of the Company in 1985, he chose to focus on hyper-specialization thereby giving the company a viable foothold in a market dominated by large-scale groups. Saverglass went on to seize a strategic position in the niche market of the luxury bottle sector. Flexible, small production runs meant that Saverglass could offer products that did not exist in the eighties. Since then, the company has based its development on aspiring to make exceptional products, especially in the spirits industry. The decoration business, launched in 1991 on the Feuquières site, complements the high-end service and provides new solutions for demand that is growing in terms of sophistication and customization. This gives the company a special posi-

tion in the glass landscape, with expertise ranging from manufacturing to customized and decorated glass. The company uses its production tools and expertise to manage significant volumes of orders whilst meeting the specific needs of its customers for special and short runs. This technological expertise, the quality of its services and its capacity for creation, place Saverglass in a unique position on the market. Saverglass masters both the glass and glass bottle decoration trades and accompanies its clients in their project from the idea to the actual production of the bottle.

A PASSION FOR INNOVATION

Saverglass, a pioneering spirit for innovation projects and creation, has the core business of its employees divided between R&D, design, glass and decoration development, computer graphics and marketing, with nearly 200 people working permanently on innovation-related projects. This culture permeates the entire Group and enables it to propose creative designs that accompany and anticipate major trends (more than 400 new designs and decorations are created each year), and constantly improve its industrial facilities to offer more technological solutions and greater performance, placing its full capacity for innovation at the service of environmental commitment.

LUXURY BOTTLES

For Saverglass, a bottle is much more than just glass: it is above all a beautiful object, that personifies the customer's excellence and difference. To make it reflect the customer's image, Saverglass gives it shape (more than 250 ranges are available or by creating a specific model) and colour, engrave it (glass engraving) and master all the finishing techniques to give it its

unique appearance. Ink-screen printing, coating, acid-etching, sandblasting, 3D decoration, hot stamping, setting accessories... Saverglass multiplies the possibilities of freeing up imagination and creativity.

ORGANIC DECORATION, NEW TACTILE AND VISUAL EFFECTS, PERSONALIZED PRODUCTS

Saverglass offers partners a stronger differentiation, more striking impact, and maximum quality for creating a new type of bottle or decanter. Developing a specific bottle means choosing to create an original bespoke bottle and gives the opportunity to work on the smallest details. The Saverglass group works with its customers to design shapes, choose tints, personalize products (ring finishes, punt shapes, etchings, etc.) and add decoration or accessories. Saverglass endeavours to use the most appropriate technical solution and design and to ensure the feasibility of each project, whilst respecting the original spirit of the product.

DECORATION

Saverglass makes its knowledge and expertise in luxury decoration available to reliably reproduce simple or complex graphics. It also creates new combinations: mirror effects, organic multicolour screen printing combined with hot stamping, total, partial or shaded SAVERCOAT® effects, glossy, matte, opaque or translucent effects, night effects.

Enamel and precious metal screen-printing

Screen-printing is a process that utilises a succession of screens to apply colours one by one. The desired artwork is reproduced precisely on the rotating bottle. It provides a definitive fixation of the enamels. Available in a wide range of colours, it is highly scuff resistant, has a variety of possible effects (gloss, matte), and is compatible with other decoration processes (frosting, coating, hot stamping etc.). The process also allows the use of precious metals creating high brilliance of gold and platinum decorations and high quality of the renderings.

Embossing

Embossing decoration sets a new stage in personalization, value-creation and differentiation of a bottle. It requires perfect mastery of registration of printed decors vis-à-vis the embossed area. The Key advantages include the perception of high quality, the sophisticated level of finishing and the increased visibility on the market.

Hot stamping

Compatible with organic coatings, hot stamping produces a luxurious appearance and brings a strong value to the bottle. It is available in gold, platinum or metallic colours. Effects such as glossy, satin, matte, soft touch or night effects can also be produced. It is fully compatible with organic coatings and can be produced in relief.

COATINGS

Savercoat

Savercoat is a proprietary process for high-performance organic coating offers a variety of colours and surface effects (glossy, matte, satin or opaque), making it possible to decorate even the most complex shaped bottle and be applied to the entire surface of the bottle or partially, in one or multiple colours. It can be applied to complex shapes in a wide variety of appearances (glossy, matte and satin, translucent or opaque, and in a selection of colours or effects (partial, gradient, two-tone). It does not contain heavy metal.

Saverbox®

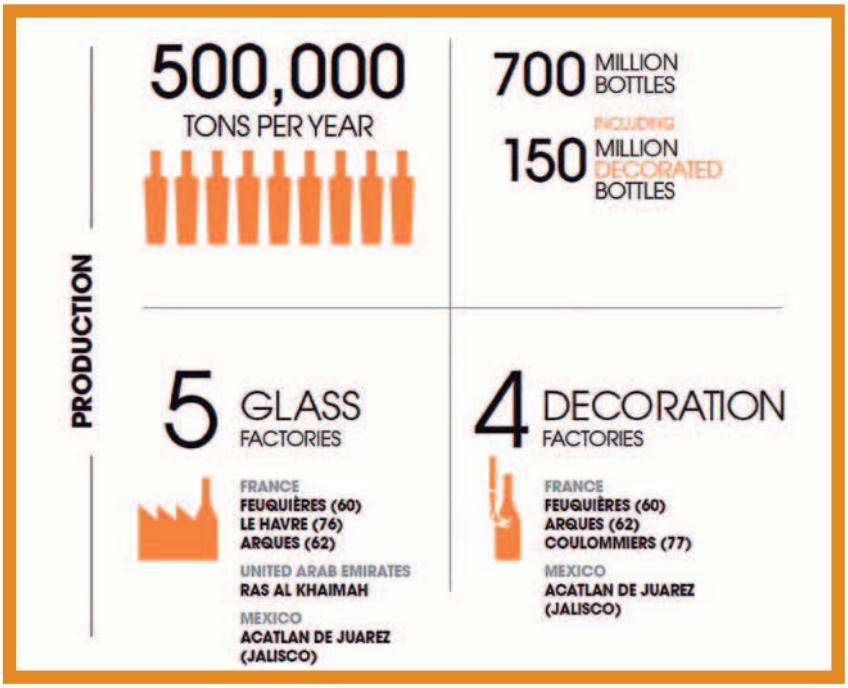
Saverbox® is a process which consists in applying a coloured coating on the base of the bottle inside the base stippling. The colour creates an aesthetic concentric point that is reflected in all the facets of the bottle. Custom tooling needs to be developed for each project but it allows for decoration of an area that is usually hard to reach, concentric point of the colour and the reflection of the chosen colour in the bottle.

Acid-etching

Acid-etching complements multi-colour screen printing. The acid-etching process produces a frosted effect, changing the feel of the bottle while offering a perfectly uniform appearance (silky or "peach-skin" feel) and long-time stability. The acid-etching can be full or partial (with windows of varying sizes). It can be applied on any glass colour (classic or select colours®, Black glass Onyx or Empire green). Moreover, it allows for multi-colour screen-printing and the creation of 'windows'.

Sand-blasting

Sand-blasting produces an indentation or a motif in relief with a frosted appearance of varying roughness. The indentation can be deeper or shallower, which will allow the motif to stand out on the bottle surface. It has a strong frosted appearance, a rough feel and is long lasting.



3D DECORATION, PUSHING THE BOUNDARIES OF RAISED DESIGN: ART &TOUCH®

Saverglass masters both the glass and glass bottle decoration trades and accompanies its clients in their project from the idea to the actual production of the bottle. Innovative decoration process alters the vision of 3D decoration, opens the field of possibilities and starts a new era for the engraving of three-dimensional motifs on glass. This new way of sculpting bottles combines a variety of eye-catching textures and raised motifs.

TWO NEW WAYS TO HIGHLIGHT BOTTLES

Auréalis

This iridescent effect, is a decoration process applied on the entire bottle surface which features shiny "rainbow" or "oil" effects, depending on the intensity. Its advantages are random application and mirror effects.

Polaris

Following on from Auréalis, Saverglass created a way to multiply the iridescent effects with the key advantages being the multiplication of the sparkle on the bottle's surface and the intensification of the shine depending on the colour of the liquid in the bottle. While less visible, the metallic effects are subtle.

Watermark

Watermarking is a decoration process used to bring out a logo, a motif, a signature or a serial number. Much more precise than decoration using a finishing mould, the engraving produces a high quality result and offers the advantage of being highly customizable (by the unit) while being durable (long-lasting).

Metallization

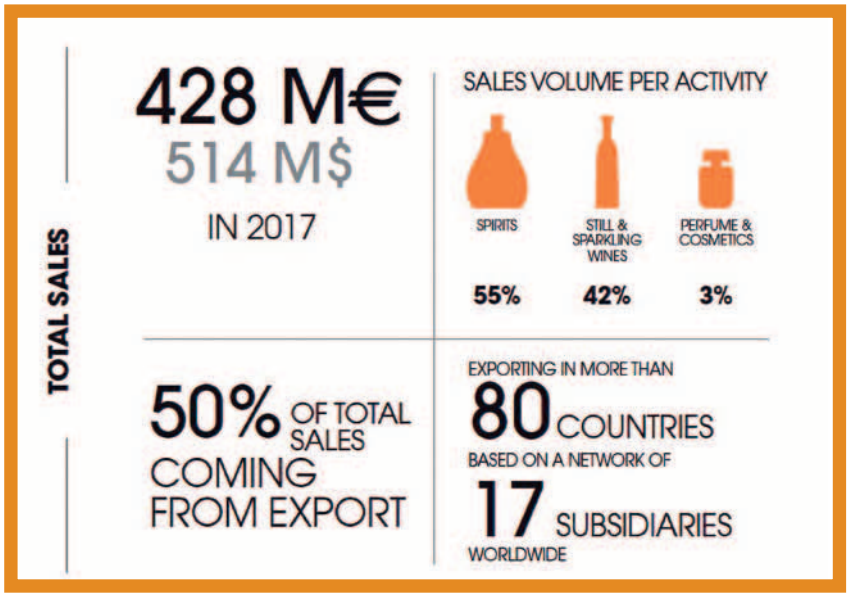
This process is used to sublimate a bottle by giving it a metallized aspect and a mirror effect (gold, silver, platinum, copper...). It is produced by applying thin layers of metal until the full or partial surface of the bottle is covered, which allows for opacity or transparency effects. The result can be glossy or matte and in any colour selected.

Decals

Decals (aka 'chromos') are images usually composed of multiple colours in enamel, precious metals or ink. Their application is carried out either manually or semi-automatically (heat transfer), allowing to decorate areas that cannot be screen-printed and where highly precise registration is required. Saverglass offers a wide range of colours and this technique can be done with organic inks.

PIONEER FOR ORGANIC DECORATION

Saverglass has been using uses organic inks and glazes since 2005, with the Organic Colour Play® brand. The Group continues to strive for innovation, developing new materials and processes to increase productivity, quality, differentiation and environmental excellence.



Organic screen-printing

This decoration process uses screens and organic inks to achieve realistic, natural-looking graphics of varying complexity in precise detail, using an almost infinite palette of vivid natural colours. One of its main advantages is that it's environment-friendly and fully recyclable.

ACCESSORY APPLICATION

The last stage of decoration of a bottle or a decanter, the application of an accessory can help reach the highest level of personalization and sophistication. It can be a wax seal, a metallic medallion, a crafted glass accessory or a leather piece, a synthetic or a natural jewel. This operation is carried out either automatically or semi-automatically.

THE COLOURS OF GLASS

To meet the high-end and luxury markets, Saverglass offers a selection of 15 colours. 'Classic colours' are offered year round in scheduled production cam-

paigns, but Saverglass also offers multiple 'new' or personalized colours.

Classic colours

Saverglass offers its clients five glass colours year-round: Extra-White Flint, Antique colour, Champagne Green, Dark and Light Amber. These colours are timeless and offer UV filtration characteristics often sought after for many types of wines and spirits. For all colours offered, Saverglass produces 'glass skin', for lustre and brilliance.

New colours

The eight original Select Colors® broaden the field of possibilities in design and provide brands with the assurance of a strong identity to visually stand out in the retail environment. There are four colours for the Spirits market: Blue Ice, Grey Smoke, Blue Moon, Yellow Green and four colours for the still and sparkling Wine markets: Honey, Water Green, Moka, Jade Green.

Onyx, unique and sophisticated black glass

Available year-round, Onyx is produced with Saverglass' 'glass skin'. Its opacity also provides excellent UV filtration to preserve premium spirits.

Empire Green

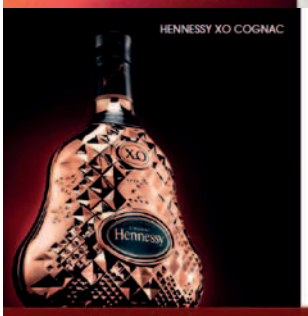
Elegant and stylish, this deep and intense green colour, also providing an excellent UV filtration for still and sparkling wines.

QUALITY: THE BACKBONE OF THE COMPANY

Saverglass combines pursuit of excellence with the demand to constantly improve performance on a daily basis. Early on, the Group achieved the ISO 9001 standard, becoming the first glass group to be awarded this standard. The ISO 9001 standard covers the ability to design, produce, inspect and deliver products following a constant process to ensure continuous quality.

The products manufactured by Saverglass are for the food industry and are designed according to the HACCP (Hazard Analysis Critical Control Point) system. All of the company's production sites are also certified ISO 14001 (environmental management) and ISO 22000 (food safety) standards.

Last but not least, Saverglass rounds off its quality approach with the 22301 certification for 'Business Continuity Management'. The company was the first glass and decoration company in the world to receive this certification in 2014. ■



SAVERGLASS ESPRIT DESIGN

SAVERGLASS GROUP HEADQUARTERS

BP1 - Place de la Gare
60960 Feuquieres - France
Tel.: 0033-3-44464545
Fax: 0033-3-44464500
E-mail: info@saverglass.com
www.saverglass.com

suppliers guide
YELLOW PAGES

COMPANY	website
ACH - ADVANCED CONTAINER HANDLING	www.achandling.it
ALL GLASS	www.allglass.it
ANTONINI	www.antoninisrl.com
BDF INDUSTRIES	www.bdf.it
BUCHER EMHART GLASS	www.emhartglass.com
EMS GROUP	www.gruppoems.it
FONDERIE VALDELSANE	www.fonderievaldelsane.com
GLASS SERVICE	www.glassservice.it
HEYE INTERNATIONAL	www.heye-international.com
HFT	www.hft.com
LINCO BAXO	www.lincobaxo.com
OLIVOTTO GLASS TECHNOLOGIES	www.olivotto.it
TIAMA	www.tiama.com
VETROMECCANICA	www.vetromeccanica.it
VIDEO SYSTEMS	www.videosystems.it/en
VIDROMECANICA	www.vidromecanica.com

Listing in this section is reserved for advertisers.

www.glassOnline.com

FOR FURTHER INFORMATION PLEASE CONTACT
OUR ADVERTISING DEPARTMENT:
tel: +39 - 02 - 66306866 • e-mail: publications@glassonline.com

Listing in the "Suppliers Guide - Yellow Pages" is free of charge and reserved for advertisers. Advertisers of this issue are listed on the opening pages of this section, along with their logo, and listed in **bold** on the following pages. The "Suppliers Guide - Yellow Pages" promotes their products and services worldwide.

A.I NIR FURNACE CAMERAS

GS - Glass Service

AIR COOLING SYSTEMS

Forglass
KYP Accesories
Luben Glass

AIR COOLING SYSTEMS FOR I.S. MACHINES

Revimac-Bottero

AIR COMPRESSORS

Pneumofore

ALLOYS FOR MOULDS

Fima-Olimpia Fonderie
Fonderie Bartalesi
Fonderie Valdelsane

AMPOULE AFTER-FORMING MACHINES/ LINES

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

AMPOULE FORMING MACHINES/ LINES

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

AMPOULE PACKAGING MACHINES

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

ARTICLE PRODUCTION

Olimerk

ARTIFICIAL INTELLIGENCE

Video Systems

AUTOMATIC TUBE LOADERS

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

AUTOMATIC WAREHOUSES

EMS Group

AUTOMATION

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

BAG FILTERING PLANTS

BDF Industries
Stara Glass

BATCH CHARGERS

BDF Industries
EME
Falorni Tech
Forglass
GCG - Glass Consulting Group
Glass Service
Horn
MT Forni Industriali
Sorg Nikolaus
Stara Glass
TECO Group
ZIPPE

BATCH AND CULLET HANDLING SYSTEMS

EME
Falorni Tech
Forglass
Stara Glass
ZIPPE

BATCH/CULLET PREHEATERS

EME
GCG - Glass Consulting Group
Sorg Nikolaus
ZIPPE

BATCH PLANTS

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

BENDING FURNACES

Forglass

BLOWING MACHINES

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

BURN-OFF MACHINES

Famor Engineering
Forma Glas
Olivotto Glass Technologies
Waltec Maschinen

BURNERS & ACCESSORIES

BDF Industries
Car-Met
Falorni Tech
Famor Engineering
Forglass
GCG - Glass Consulting Group
KYP Accesories
Glass Service
Horn
Luben Glass
Moderne Mecanique
MT Forni Industriali
OCMI OTG
Olivotto Glass Technologies
Sorg Nikolaus
Stara Glass
Waltec Maschinen

BURNERS/ LOW NOx

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

BURNERS/ OXY-FUEL

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

CARPOULE AFTER-FORMING MACHINES/ LINES

Moderne Mecanique
OCMI OTG

CARPOULE FORMING MACHINES/LINES

Moderne Mecanique
OCMI OTG

CAST IRON FOR MOULDS

Fima-Olimpia Fonderie
Fonderie Valdelsane

suppliers guide

YELLOW PAGES

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

Bohemi Chemicals
Fluorital
Forglass
Graphoidal Developments
Luben Glass
Vidromecanica

COGENERATION AND TRIGENERATION THROUGH HEAT RECOVERY SYSTEMS

BDF Industries
Stara Glass

COLD-END LINES

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

COLOURS & ENAMELS

Bohemi Chemicals
GCG - Glass Consulting Group
Fluorital
Forglass

CONSULTING SERVICES

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

CONTROL & AUTOMATION SYSTEMS

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

CONVEYING & STOCKING SYSTEMS

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

CONVEYOR BELTS

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

CONVEYOR CHAINS & SPROCKETS (HOT-END)

Luben Glass
Pennine
Renold
Revimac-Bottero
Ramsey Products
WBT
ZIPPE

CRACK-OFF MACHINES

Forma Glas
Olivotto Glass Technologies
Waltec Maschinen

CROSS- CONVEYORS

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

CULLET SEPARATION & TREATMENT SYSTEMS

EME
Falorni Tech
Forglass
GCG - Glass Consulting Group
Vidromecanica
ZIPPE

DATAMATRIX READING DEVICES

TIAMA

DECORATING MACHINES

Fermac
Forma Glas
Koenig & Bauer Kammann

DECORATION CUTTING MACHINES

Waltec Maschinen

DECORATIVE ENAMELS

Fluorital
GCG - Glass Consulting Group

DEDUSTING & FILTERING SYSTEMS

BDF Industries
Forglass
Stara Glass

DOSING SYSTEMS: COLD-END EMULSIONS

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

DOSING SYSTEMS: GOB CUTTING LUBRICATION

Graphoidal Developments
Luben Glass
Revimac-Bottero

DRIVE SYSTEMS / VARIABLE SPEED

BDF Industries

Bottero
Forglass
futronic
Heye International
Olivotto Glass Technologies
Revimac-Bottero

DROPPER AFTER-FORMING MACHINES/LINES

Moderne Mecanique
OCMI OTG

DROPPER FORMING MACHINES/ LINES

Moderne Mecanique
OCMI OTG

ELECTRIC BOOSTING SYSTEMS

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

ELECTRONIC CONTROL SYSTEMS AND IT

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

ELECTRODE HOLDERS

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

ELECTRODE HOLDERS HOT AND COLD FURNACE INSTALLATION

Horn
Stara Glass
TECO Group

EMISSION MONITORING SYSTEMS

BDF Industries
GS - Glass Service
Stara Glass

EMULSION DOSING SYSTEMS

Graphoidal Developments
Luben Glass
Revimac-Bottero

ENERGY RECOVERING SYSTEMS

BDF Industries
Falorni Tech
Luben Glass
Stara Glass
ZIPPE

ENGINEERING SERVICES

Stara Glass
TECO Group

ENGINEERING AND MODELLING FOR BOOSTING SYSTEMS

Bock Energietechnik
Horn

ENGRAVING MACHINES

TIAMA

FEEDERS & MECHANISMS

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

FIBERGLASS / GLASSWOOL PRODUCTION LINES, EQUIPMENT & PRODUCTS

Falorni Tech
Glass Service
HFT
Olivotto Glass Technologies
TECO Group

FINISHING MACHINES

KYP Accesories

FIRE POLISHERS & EQUIPMENT

Famor Engineering
futronic
Luben Glass
Olivotto Glass Technologies
Vidromecanica
Waltec Maschinen

FOREHEARTHS & SYSTEMS

BDF Industries
Bock Energietechnik
Bottero
Falorni Tech
Forglass
GCG - Glass Consulting Group
Glass Service
HFT
Horn
MT Forni Industriali
Revimac-Bottero
Sorg Nikolaus
Stara Glass
TECO Group

FORMING MACHINES

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

FURNACES: BUBBLING SYSTEMS

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

FURNACES: CLEANING SYSTEMS

Glass Service

FURNACES: DRAINING SYSTEMS

Bock Energietechnik
Falorni Tech
Forglass
GCG - Glass Consulting Group

suppliers guide

YELLOW PAGES

Glass Service
Horn
Sorg Nikolaus
Stara Glass

FURNACES: ELECTRIC

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

FURNACES: HEAT-UP

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

FURNACES: HOT CULLET FILLING

Falorni Tech
Forglass
Stara Glass

FURNACES: MELTING

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

FURNACES: METAL STRUCTURES

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

FURNACES: OXY-FUEL OR RECUPERATIVE

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

FURNACES: PREHEATING SYSTEMS

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

FURNACES: REPAIR, MAINTENANCE & REVAMPING

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

GASES

Glass Service

GLASS BRICK PRODUCTION LINES

Amig
Olivotto Glass Technologies
Waltec Maschinen

GLASS LEVEL CONTROL DEVICES

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

GLASS METALISATION PROCESS MATERIALS

Fluorital

GLASS RECYCLING PLANTS

EME
Falorni Tech
GCG - Glass Consulting Group
Vidromecanica
ZIPPE

GOB WEIGHT CONTROL SYSTEMS

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

HANDLING EQUIPMENT

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

HEAT RECUPERATORS

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

HEAT REGENERATION PLANTS

Falorni Tech
Glass Service
Horn
Stara Glass

HEATING SYSTEMS

Bock Energietechnik
Falorni Tech
Forglass
Glass Service
Horn

HIGH TEMPERATURE INSULATION PRODUCTS

Stara Glass

HOT-END PROCESS MONITORING SOLUTIONS

TIAMA

HOT GLASS CONTACT MATERIALS

Bucher Emhart Glass
Olivotto Glass Technologies

HOT GLASS SCRAPERS

Car-Met
Falorni Tech

Forglass
GCG - Glass Consulting Group
Vidromecanica
ZIPPE

INFRARED THERMOMETERS

GCG - Glass Consulting Group
GS - Glass Service
KYP Accesories

INJECTION MACHINES

Famor Engineering
Heye International
Olivotto Glass Technologies

INSPECTION MACHINES: COLD-END

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

INSPECTION MACHINES: HOT-END

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

INSPECTION MACHINES: VIALS & AMPOULES

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

I.S. MACHINES

BDF Industries
Bottero
Bucher Emhart Glass
Heye International

I.S. MACHINE LUBRICATION SYSTEMS

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

I.S. MACHINE RECONDITIONING

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

LABORATORY FURNACES POLARISCOPES

MT Forni Industriali

LASER CUTTING MACHINES

Forma Glas
Olivotto Glass Technologies
Waltec Maschinen

LEHR DRIVES

Heye International

LEHRS: ANNEALING

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

LEHRS: DECORATING

Antonini
MT Forni Industriali
Vidromecanica

MAINTENANCE AND REPAIR SERVICES

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

MARKING MACHINES

Luben Glass
Sorg Nikolaus

MEASUREMENT & CONTROL SYSTEMS

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

MIXERS

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

MOULDS

Lege Mould Technology
Officine SL
Perego Giancarlo
Strada

MOULDS: CLEANING POLISHING MACHINES

BDF Industries
Luben Glass
Ecotecne

MOULDS: COMPONENTS & ACCESSORIES

Officine SL
Olimerk
Perego Giancarlo
UniMould

MOULDS: INSPECTOR SYSTEM

Luben Glass

MOULDS: LUBRICANTS & SPRAY EQUIPMENT

Graphoidal Developments
Luben Glass

MOULDS: MAINTENANCE EQUIPMENT

Ecotecne
Luben Glass

MOULDS: POLISHING MACHINE

Luben Glass

suppliers guide
YELLOW PAGES

MOULDS: PREHEATING OVENS

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

MOULDS: WELDING LINES

Commersald Impianti

MOULDS & PLUNGERS COATING SYSTEMS & MATERIALS

Commersald Impianti
UniMould

NECK RINGS

Olimerk
Perego Giancarlo
Strada

PALLETIZING/ DEPALLETIZING LINES

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

PASTE MOULD MACHINES

Olivotto Glass Technologies

PLANT UTILITIES

GCG - Glass Consulting Group
Pneumofore

PLATINUM FEEDER SYSTEMS

BDF Industries
Forma Glas
Glass Service
Olivotto Glass Technologies

PLUNGER HONING MACHINES

Bottero

PLUNGERS & MECHANISMS

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

POLISHING/ GRINDING MACHINES

Forma Glas
Luben Glass
Olivotto Glass Technologies

POWER REGULATION/ TRANSFORMERS

Bock Energietechnik

PREDICTIVE SOLUTIONS

Video Systems

PRESS MACHINES

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

PRESS & BLOW MACHINES

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

PRESS RECONDITIONING

Famor Engineering
Luben Glass
Olivotto Glass Technologies

PRODUCTION ASSISTANCE FOR HOLLOW GLASS

Olimerk

PUSHERS

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

RAW MATERIALS

Bohemi Chemicals
GCG - Glass Consulting Group
Minerali Industriali

RECYCLING PROCESSES

EME

RECYCLING SYSTEMS

EME
Falorni Tech
GCG - Glass Consulting Group
ZIPPE

REFRACTORIES

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

REFRACTORIES INSTALLATION SERVICES

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

REPLACEMENT PARTS

TECO Group
Olimerk
Olivotto Glass Technologies
Waltec Maschinen

ROBOTS: BALL GATHERERS

Falorni Tech
Glass Service
Olivotto Glass Technologies
Waltec Maschinen

ROBOTS: HANDLING & PACKAGING

ACH - Advanced Container Handling
All Glass
EMS Group
Euromatic
Falorni Tech
Famor Engineering

KYP Accesories
Messersì Packaging
MSK Covertech
Olivotto Glass Technologies
Spami-Optrel-Stevanato Group
Vetromeccanica
Waltec Maschinen

ROTATING TABLES

Messersì Packaging
Olivotto Glass Technologies
OMS
Vetromeccanica
Waltec Maschinen

SANDBLASTING MACHINE

Luben Glass

SAW MACHINES

Olivotto Glass Technologies

SECOND-HAND EQUIPMENT

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

SERVICES

Bock Energietechnik
EME
Forglass
Forma Glas

Olimerk
Stara Glass
TECO Group

SERVICES IN HOT-DRILLING AND CHANGE OF ELECTRODE HOLDERS

Bock Energietechnik

SHEAR BLADES

BDF Industries
Heye International
Famor Engineering
Luben Glass
WBT

SHEAR BLADES LUBRICANTS

Graphoidal Developments
Luben Glass

SHEAR SYSTEMS

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

SHUTTLE CARS

EMS Group

STRETCH & SHRINK FILM WRAP MACHINES

All Glass
Messersì Packaging
MSK Covertech
OMS
Vetromeccanica
EMS Group

SHRINK OVENS

Messersì Packaging
OMS

SILKSCREEN INKS

Fluorital

SILKSCREEN PRINTING LINES: HOLLOWARE & TABLEWARE

Euromatic
Fermac

SILKSCREEN PRINTING LINES: VIALS & AMPOULES

Moderne Mecanique
OCMI OTG

SOFTWARE

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

SPINNING MACHINES

Famor Engineering
Olivotto Glass Technologies
Waltec Maschinen

SPOUT ELECTRICAL HEATING ELEMENTS

Bock Energietechnik

STACKERS

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

STEMWARE PRODUCTION LINES

Falorni Tech
Forma Glas
Olivotto Glass Technologies
Vidromecanica
Waltec Maschinen

STEMWARE SEALING MACHINES

Falorni Tech
Forma Glas
OCMI OTG
Olivotto Glass Technologies
Waltec Maschinen

STIRRERS

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

Olimerk
Olivotto Glass Technologies
Revimac-Bottero
Stara Glass
Vidromecanica

SUCTION GATHERERS

Falorni Tech
Olivotto Glass Technologies

SYRINGE AFTER-FORMING MACHINES/LINES

Euromatic

suppliers guide

YELLOW PAGES

SYRINGE FORMING MACHINES/LINES

Euromatic

SYRINGE FILLING INTO TRAY MACHINES/ MODULES

Euromatic

SUPERVISORS MODEL BASED PREDICTIVE CONTROL

GS - Glass Service

TAKE-OUT DEVICES & EQUIPMENT

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

TEMPERATURE MEASUREMENT & CONTROL

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

TEMPERING LINES

Vidromecanica
Waltec Maschinen

THERMAL SHOCK TEST MACHINES

Vidromecanica

THERMOCOUPLES & ASSEMBLIES

Bock Energietechnik
Falorni Tech
GCG - Glass Consulting Group
Stara Glass

THERMO SHOCK MACHINES

BDF Industries

TIN OXIDE ELECTRODES & CONNECTORS

Horn
TECO Group

TRAY FORMERS

EMS Group

TOOLS & EQUIPMENT

Bottero
Luben Glass

TUBING LINES

Falorni Tech
Olivotto Glass Technologies

TURNKEY PLANTS ENGINEERING & CONSTRUCTION

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

UV LAMPS

Graphoidal Developments

VACUUM PLANTS & ACCESSORIES

Pneumofore

VACUUM PUMPS

Pneumofore

VIAL AFTER - FORMING MACHINES/LINES

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

VIAL FORMING MACHINES/LINES

Euromatic
Moderne Mecanique
OCMI OTG
Spami-Optrel-Stevanato Group

VIAL PACKAGING MACHINES

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

VIBRATING EQUIPMENT

EME
Forglass
Vetromeccanica
ZIPPE

WASTE GAS CLEANING SYSTEMS

BDF Industries
Stara Glass

WASTE GASES DUCT WORKS AND VALVES CLEANING SYSTEMS

BDF Industries

WATER CLEANING SYSTEMS

BDF Industries
Forglass
Graphoidal Developments
Luben Glass
Stara Glass
ZIPPE

WATER COOLING SYSTEMS

Bock EnergietechniK

Glass Industry

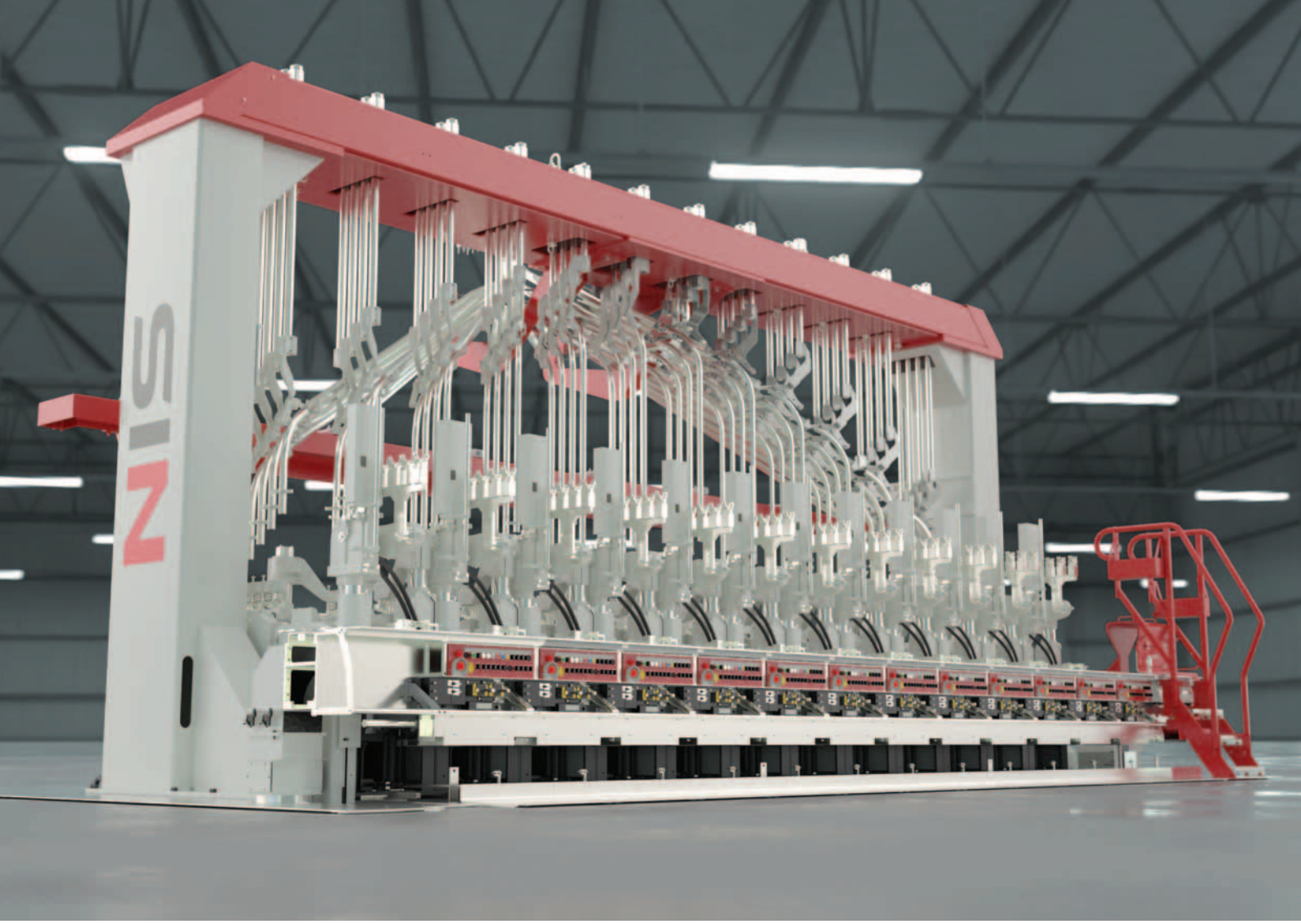
Directory 2021

- Suppliers' Profiles
- Yellow Pages
- Sales Network
- Glassworks' addresses
- Associations

OVER 1,900 ADDRESSES

IS PUBLISHED BY

Poste Italiane Spa - Spedizione in abbonamento postale - 70% - LO/MI • € 2 - Copia omaggio



REVOLUTIONISING GLASS MAKING

The NIS from Bucher Emhart Glass

The servo electric driven NIS machine outperforms traditional IS machines through enhanced, precise motion, perfect repeatability and a faster setup time. It is significantly reducing noise and energy consumption. The NIS is the most flexible (95 mm QG – 5" TG – 6 1⁄4" DG), high-performance future-proof forming machine, ready for the revolutionary change that automated End to End technology will bring.

emhartglass.com

BUCHER
emhart glass