glass machinery world plants&accessories

BI-MONTHLY INTERNATIONAL MAGAZINE FOR GLASS MANUFACTURING

YEAR 36 • ISSUE NO. 4/2024

SPECIAL
GLASS MOULDS

Driving excellence: BDF and BETA GLASS make waves together

Redefining glass container handling: VETROMECCANICA raises the bar

BB operation efficiency with HEYE's gob weight control

Conditioning systems upgraded by HORN's extractive oxygen measurement

CPHI MILAN
PHARMA GLASS

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

heye international

NO.1 IN SPEED AND FLEXIBILITY

MAXIMISE YOUR PROFIT

+ High production speed
+ Fast job changes
+ Reduced downtimes
+ Robot option
+ Clean design

WE ARE GLASS PEOPLE

www.heye-international.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

Matter of TRUST

#strongertogether

Despite the size of a group employing more than 100 people and with the fourth facility in Plovdiv in full operation, SIGMA is and remains a family-owned and managed company.

Passion, hard work, know-how, specialization and high reactivity are our key points, even if a **long-lasting partnership and mutual trust with our Customers established over the years are our greatest strengths**.

A unity of purpose and a natural alliance aimed at overwhelming **together** the challenges and difficult tasks we are all exposed to.

SIGMA GROUP
REFRACTORIES *with passion*

CLEANER MELT.
BETTER PERFORMANCE.

One of our greatest capabilities is designing furnaces with advanced melting technologies to enhance performance and heighten sustainability. When combined, the SORG Group's three world-leading strengths provide a single source to support glassmakers throughout the complete furnace lifespan.

Grow from strength to strength.
sorg.de

eme.de sorg.de sks.net

FURNACE

BATCH

SERVICE

OCMI will attend **CPHI MILAN** and would like to invite all customer and partners to OCMI show room (10 min from the show) to see live demo of OCMI state-of-the-art solution for ampoules vials & cartidges.

Feel free to schedule an appointment with one of our representatives to learn more or for a demo :
Sales_Glass@ocmigroup.com

OCMI

OCMI KYP ACCESORIES

OCMI MODERNE MECANIQUE

OCMI INDIA

OCMI CHINA

CPHI Milan

08 - 10 October 2024
Fiera Milano - Milan, Italy

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

PUBLISHING DIRECTOR: Arcangelo Altamura

EDITOR-IN-CHIEF: Marco Pinetti

ASSOCIATE EDITOR:
Nicolaas François Fouché | nick.fouche@glassonline.com

CONTRIBUTORS:
Rajeev Jetley, Zoë Elaine Whitten,
Jennifer Pressman, Alexander Roe

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 Genoa - 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. 211, ANNO 37, 2024, PERIODICO BIMESTRALE.

COVER ADVERTISER

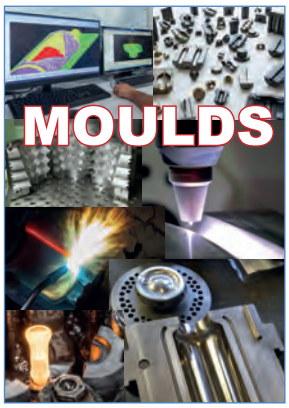
VETROMECCANICA

Strada Isolanda 26 - 43024 Neviano degli Arduini - Parma - ITALY
Tel.: +39-0521-343011
E-mail: sales@vetromeccanica.it - Web: www.vetromeccanica.it

REGULAR FEATURES

ARTICLES

THIS ISSUE ALSO CONTAINS



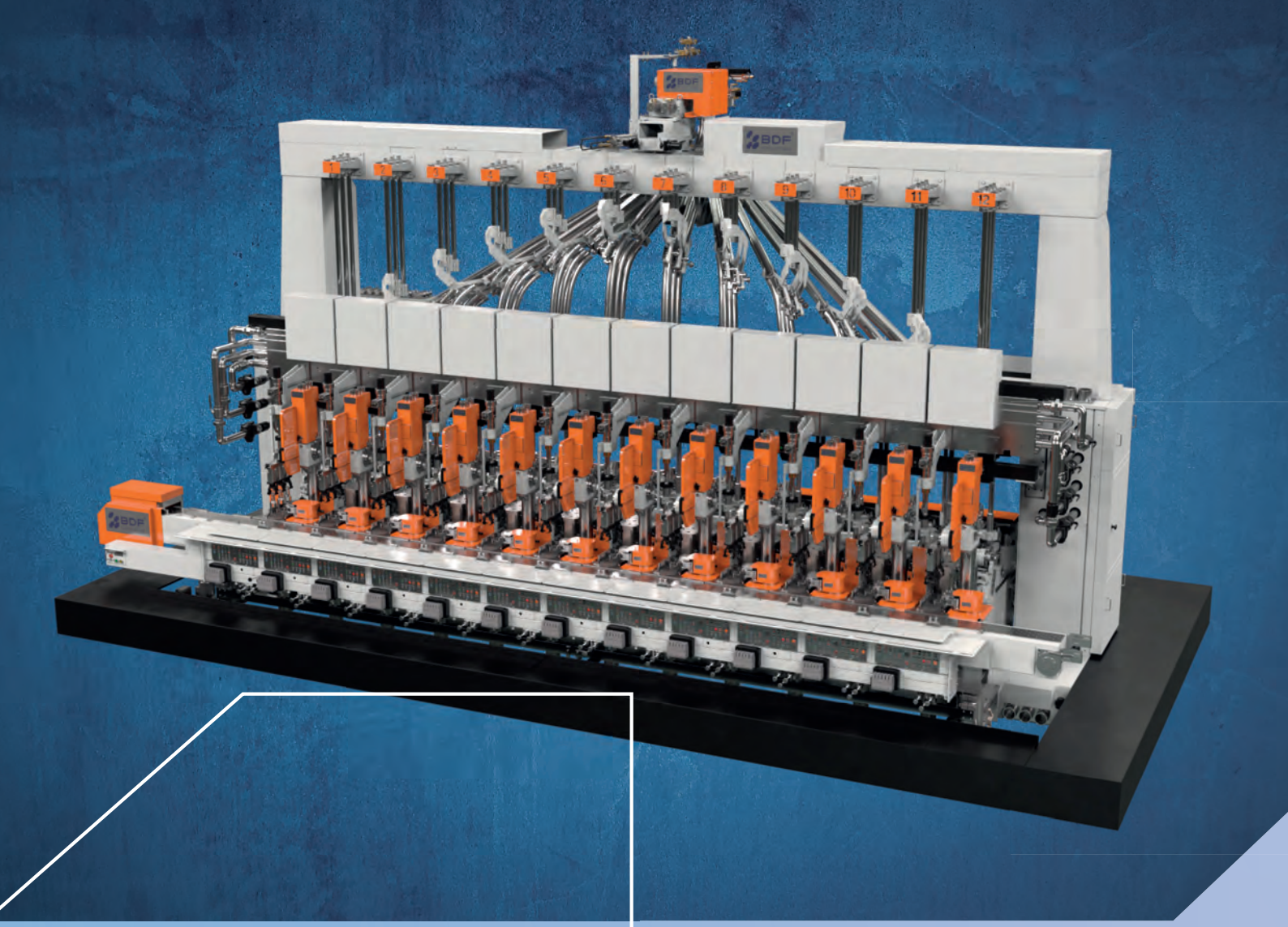
SPECIAL GLASS MOULDS

THIS ISSUE ALSO CONTAINS

SPECIAL CPHI MILAN PHARMA GLASS

BI-MONTHLY MAGAZINE
PUBLISHED BY

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



IS PARALLEL
ADV 8050

8-10-12 SECTIONS AND TANDEM
IS-P: DG 6 1/4"-TG 4 1/4"

IS ANGULAR
ADV 1050-8050

6-8-10-12 SECTIONS AND TANDEM
IS 4 1/4": SG-DG -TG 3"-TG 3 1/8"
IS 5"S: SG-DG-TG 85MM
IS 5 1/2": SG-DG
IS 6 1/4": SG-DG-TG 4 1/4"

Defining versatility: **IS Machines.**

Innovation, technology and versatility make the BDF IS Machines the ideal solutions for **high productivity**, low maintenance effort and considerable **energy saving**.

bdfindustriesgroup.com

The future we see through.

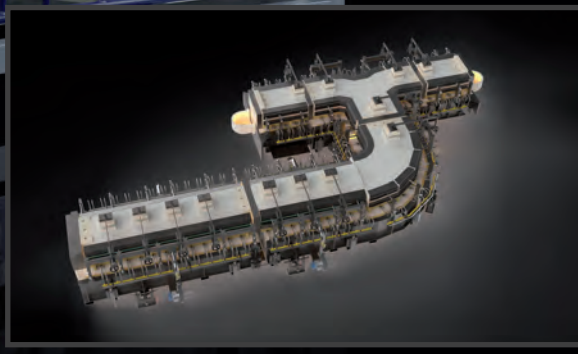
BDF® industries

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

ISO 9001 45001

GAS CONSUMPTION -60% REDUCTION

OXY-GAS DISTRIBUTOR
AND FOREHEARTH TECHNOLOGY



Glass SERVICE 30 1994-2024

The Future. Today.

BATCH PLANTS, FURNACES, FOREHEARTHS
COMPLETE SOLUTIONS
FOR GLASS MELTING TECHNOLOGY

BLOG

www.glassservice.it

glassserviceitaly

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

2024 TRADE FAIRS CALENDAR

The magazine will be distributed at the following Events

	issue	exhibition/conference	date	venue	deadlines
2024	1	MIR STEKLA	27 February 1 March	MOSCOW Russia	
		COSMOPACK	21-23 March	BOLOGNA Italy	Editorial files: 22-01-2024
		FEATURED CONTENT: RAW MATERIALS - BATCH CHARGE - REFRACTORIES			Deadline Adv files: 29-01-2024
2024	2	CHINA GLASS	25-28 April	SHANGHAI China	Editorial files: 15-03-2024
		FEATURED CONTENT: FORMING - ANNEALING - COATING			Deadline Adv files: 22-03-2024
2024	3	GLASSMAN LATIN AMERICA	15-16 May	MEXICO CITY Mexico	
		PACKAGING PREMIERE	21-23 May	MILAN Italy	Editorial files: 12-04-2024
		GLASS TECHNOLOGY CONFERENCE	27-29 May	AACHEN Germany	Deadline Adv files: 19-04-2024
2024		Glass Industry Directory 			Editorial files: 07-06-2024 Deadline Adv files: 14-06-2024
2024	4	ICG ANNUAL MEETING	25-28 August	INCHEON South Korea	
		CONFERENCE ON GLASS PROBLEMS	16-20 September	TOLEDO (OH) USA	
		AFGM	23-27 September	BALI Indonesia	
		CPHI	8-10 October	MILAN Italy	Editorial files: 18-07-2024
		FEATURED CONTENT: GLASS MOULDS			Deadline Adv files: 22-07-2024
2024	5	GLASSTEC	22-25 October	DÜSSELDORF Germany	Editorial files: 20-09-2024
		ALL GLASSTEC EXHIBITORS ADVERTISING IN THIS ISSUE ALSO RECEIVE A FREE GLASSTEC PREVIEW			Deadline Adv files: 27-09-2024
2024	6	ALL4PACK	4-7 November	PARIS France	
		ICG - INTERNATIONAL CONGRESS OF GLASS	20-24 January 2025	KOLKATA India	Editorial files: 21-10-2024
		SPECIAL ISSUE: POST-GLASSTEC REVIEW			Deadline Adv files: 28-10-2024

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

Switch on A.I.

...in your MCAL

Yes, Tiama can retrofit any existing MCAL with AI.

No hassle, only benefits:

- **False reject reduction**
  saving large amounts of containers
- **Faster & easier job change**
  with only two parameters to set, no further expertise required
- **Improved inspection performance**
  with clear defects recognition for process optimization

We don't blame you if you don't believe us, so contact us today to get it **in your MCAL.**

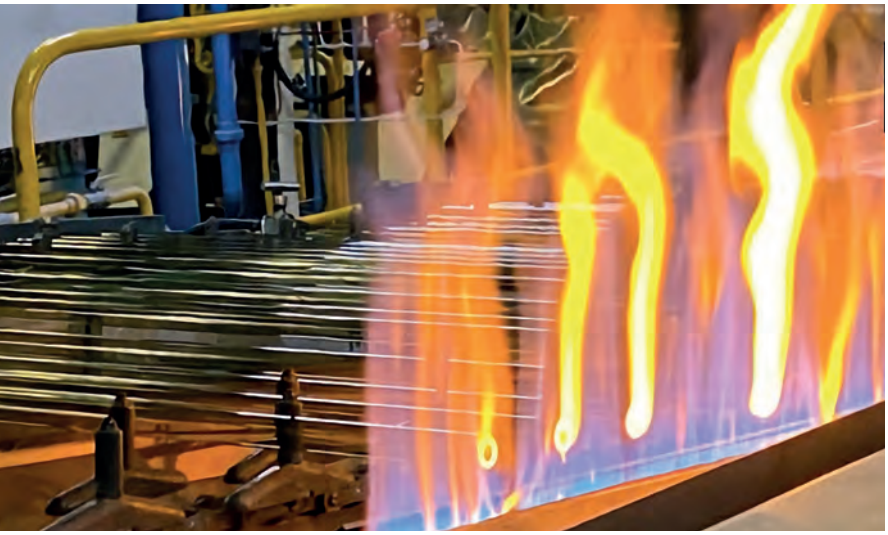
tiama
INSPECTION WORLDWIDE
artificial intelligence – it's here

NIPRO

Latest furnace technology

Nipro Pharma Packaging India, part of the **NIPRO GROUP**, recently announced the upgrade of the furnace technology at the Nipro Meerut, Uttar Pradesh, India plant.

This technical upgrade is designed to enhance production capabilities, allowing the company to offer a more comprehensive range of products while ensuring superior quality and reliability.



Key benefits of furnace upgrade

- Expanded Product Range;
- The new furnace technology will enable the company to manufacture a broader array of glass tubing sizes, meeting diverse market needs and customer requirements;
- Enhanced Quality

The state-of-the-art furnace will ensure more consistent and higher-quality products that adhere to stringent industry standards and specifications;

- Sustainable Production

The upgraded furnace incorporates advanced energy-efficient technologies, significantly reducing environmental footprint, and supporting commitment to sustainability.

Ensuring a smooth transition

During the upgrade process, every measure will be taken to minimise any disruption to operations. Nipro Pharma Packaging India maintains a regular stock of standard sizes to serve during the transition period. Additionally, other critical or urgent required sizes will be delivered from other Nipro glass tubing plants. The company is working diligently to ensure a smooth transition, with anticipation of being operational by mid-2025.

WWW.NIPRO-GROUP.COM

VETROPACK

Solar energy clear as glass at Kremsmünster plant

In several expansion stages, photovoltaic systems with an output of more than eight MWh are to be installed on the roofs of the **VETROPACK** plant in Kremsmünster, Austria, by 2026. Even in the first expansion stage, the systems will generate as much solar power as 410 households consume per year.

The second expansion stage has just been completed and together the PV systems on the roofs with a total capacity of 4.18 MWp generate a total of 4,469 MWh of solar power. In the final expansion stage, the PV systems will produce just over eight megawatt hours of solar power, which corresponds to the annual consumption of around 2,000 households.

The photovoltaic system was planned and implemented in collaboration with the Austrian energy company Verbund. The entire system was adapted to the plant's explicit electricity consumption profile to ensure that 100 percent of the electricity generated can flow di- ➜

rectly into production. After the final expansion stage, this will save around 345 tons of CO2 per year and have a positive impact on our carbon footprint.

Since April 2024, the first expansion stage of Vetropack's PV system has also been the focus of the company partner Verbund's current photovoltaic campaign "Solar energy from our own power." Johann Eggerth, Managing Director of Vetropack Austria, acts as a testimonial and motivates energy-intensive companies to follow the company's example and also install their own PV system, because every additional system is an important step towards a green energy future and a positive contribution to the energy transition.

WWW.VETROPACK.COM

TOYO GLASS

Approval of glass furnace with on-site hydrogen supply

Toyo Glass, a consolidated subsidiary of Toyo Seikan Group Holdings, has been selected to participate in the 2024 Regional Hydrogen Utilisation Technology Development section of the New Energy and Industrial Technology Development Organization's (NEDO) Development of Technologies for Realising a Hydrogen Society project, with its proposal for the development of a glass melting furnace equipped with an on-site hydrogen supply facility.

This is **TOYO GLASS**'s second NEDO project related to hydrogen utilisation, following its Research and Development of the Utilisation of an Oxygen–Hydrogen Combustion Flame as the Heat Source for Soda-Lime Glass Melting proposal, which was selected in June 2023 as "Technology Development Project for the Construction of a Competitive Hydrogen Supply Chain/ Comprehensive Survey and Research/ Survey and Research on the Application of Oxygen and Hydrogen Combustion Technology to Heat Demand".

If the glass melting furnaces owned by Toyo Glass were converted to hydrogen, over 6,000 large hydrogen trailers would be needed annually for each furnace. However, obtaining such a large amount of hydrogen from external sources would pose challenges, such as constructing multiple large storage tanks on factory premises and the consequent requirements for stringent safety management of high-pressure and liquefied hydrogen.

Water electrolysis involves passing an electric current through water (H2O) to separate it into oxygen (O2) and hydrogen (H2). Constructing an on-site hydrogen supply facility that uses electrolysis would make it possible to produce hydrogen according to demand using existing water and electricity sources, eliminating the need for large storage facilities.

Additionally, as a glass melting furnace requires only the pressure necessary for combustion, there is no need to compress or liquefy hydrogen, making it easier to introduce. Furthermore, if the electricity needed for electrolysis is supplied from local renewable energy generation facilities, this could lead to the development of a regionally self-sufficient hydrogen energy utilisation system.

In this project, a bench-scale model of the facility will be created, and technology will be developed toward its future implementation in glass melting furnaces.

WWW.TSKG-HD.COM

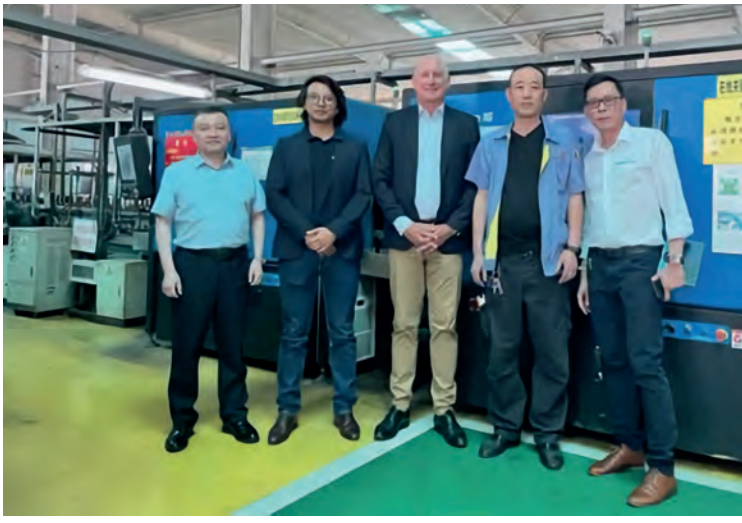
IRIS INSPECTION

Ten years partnering with Tsingtao beer

IRIS Inspection machines is celebrating ten years of successful partnership with Tsingtao beer and Shandong wine.

IRIS INSPECTION is proud to inspect Tsingtao beer and Shandong wine bottles with the company's Evolution machines: Tsingtao beer alone represents over 50 percent of China's beer exports.

WWW.IRIS-IM.COM



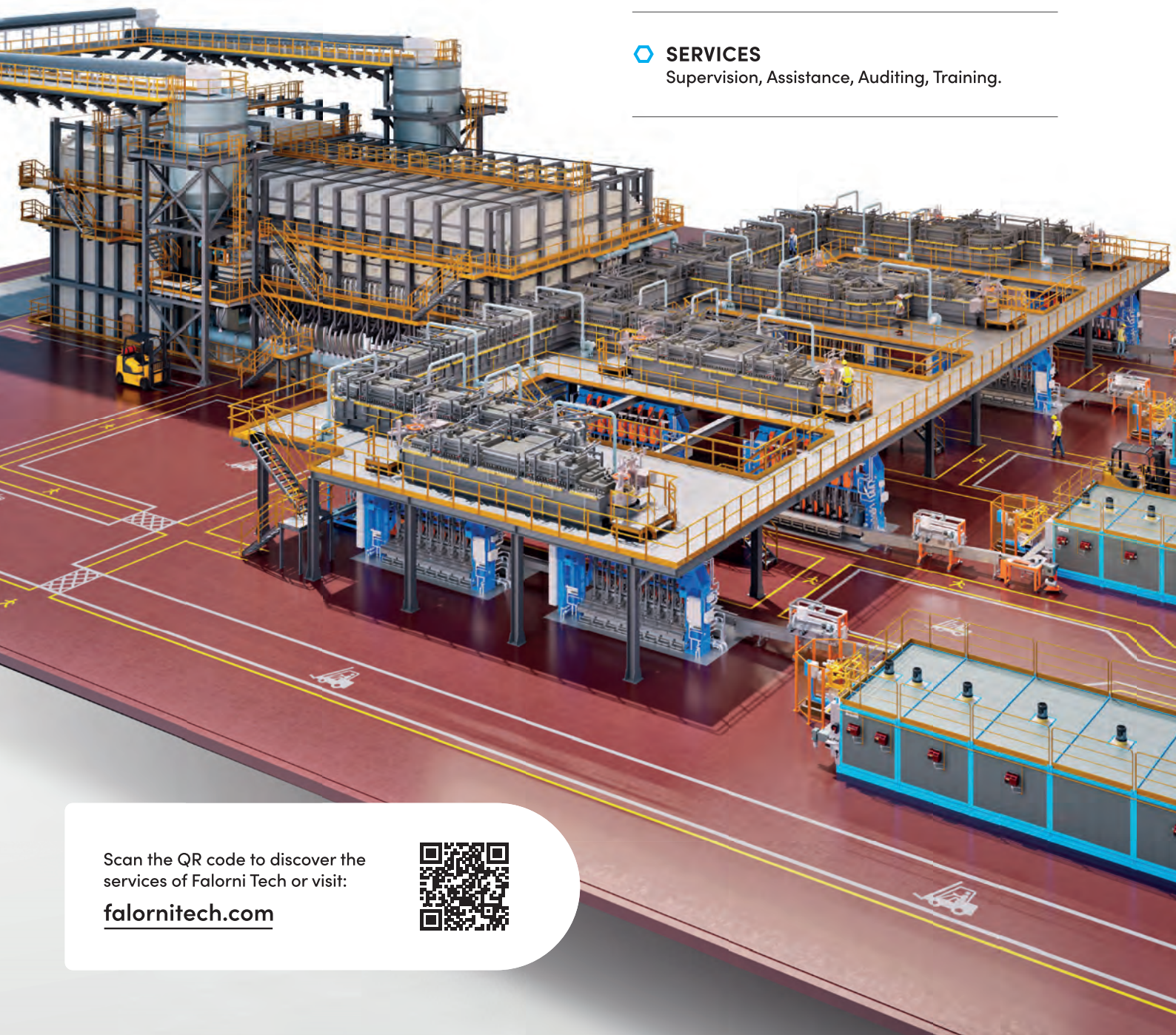
falornitech
glass melting technology

When experience and innovation matter.

EPC, EPCM
Unified management of all project phases to produce better outcomes with certain, transparent costs, and guaranteed quality.

GLASS MELTING TECHNOLOGIES
Profound knowledge of glass melting and conditioning processes with up-to-date technologies. The true heart of a glass operation.

SERVICES
Supervision, Assistance, Auditing, Training.



Scan the QR code to discover the services of Falorni Tech or visit:

falornitech.com

PRO-SIGHT VISION

Visy Glass supplied with six UFI machines

Pro-Sight Vision, an industry leading provider in innovation of inspection solutions, has successfully deployed six Universal Finish Inspection (UFI) machines across Visy Glass' production facilities in Australia and New Zealand.

The UFI inspects finish dimensions of containers; a difficult but critically important Quality Control process. **PRO-SIGHT VISION**'s in-house engineers worked closely with glass manufacturers during the development of the machine, ensuring it is tailored to the requirements of QC departments and personnel.

Rapid inspections of all finish dimensions such as E, T, L, F, N, S, H, etc., plus the Tuck Under Angle and Radius and guide plate seam defect inspections, enables greater efficiency and the ability to perform more frequent checks. Batch reporting means customers are closer to the quality of production, whilst built-in Gauge R&R functions give confidence for Statistical Process Control.

The implementation of Pro-Sight Vision's UFI machines at Visy Glass further improves quality control processes in glass container production, a typically traditional manufacturing industry.

WWW.GLASS.PRO-SIGHT-VISION.COM

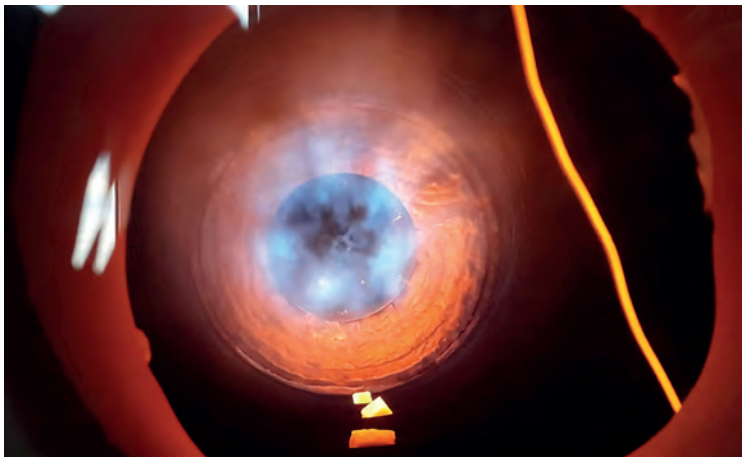
FIVES & LHYFE

Green hydrogen to decarbonise industrial combustion

Lhyfe, one of the world's pioneers in the production of green and renewable hydrogen, and **FIVES**, a world leader in industrial combustion, recently announced the signing of a memorandum of understanding to provide a complete decarbonised offer for industry, from hydrogen production to combustion.

This offer speeds up energy transition by facilitating the use of hydrogen in process industries, without needing to modify all the equipment. LHYFE will produce and supply green hydrogen and Fives will provide optimised and safe solutions for its use in industrial combustion processes.

In recent years, the combustion of hydrogen, which emits no CO2, has emerged as one of the most promising solutions for reducing the carbon footprint of industrial processes.



For example, a secondary aluminium furnace that today produces 120 tonnes per day using natural gas would tomorrow reduce its annual CO2 emissions by more than 4,000 tonnes with the use of hydrogen (based on the assumption: 5t/hr furnace – 700 kWh/t – 6,000 hr/year, 210 g of CO2 avoided per kWh).

As recognised experts in their respective fields, Lhyfe and Fives will focus primarily on the metals, glass and cement industries and some selected industrial heating processes and applications in Europe and North America.

➜

← Fives and Lhyfe teams, at the Lhyfe Bessières site (Occitanie), for the signing of the MoU.

Matthieu Guesné, Founder and CEO of Lhyfe, said, "We are in a pivotal period in the industrial sector and in particular in industrial combustion. After several years of development, hydrogen solutions are now mature and available on the market regionwide. We are proud and delighted to sign this agreement with a company such as Fives, which is helping to accelerate energy transition in the glass, cement and metals industries, thanks to turnkey solutions for their processes."

Frédéric Thrum, Deputy General Manager of Fives and President of the Energy Division, said, "As a pioneer in decarbonisation, Fives supports industrial companies in their energy transition, in particular their switch to hydrogen. Our unique and innovative combustion systems are developed to reduce the environmental impact of our customers around the world. We are proud to be partnering with Lhyfe, to respond together to the urgency of climate change and make industrial processes more sustainable and efficient."

WWW.FIVESGROUP.COM

O-I GLASS

Technology & sustainability transformation of Alloa, UK, plant

O-I Glass plans a major transformation of its Alloa, UK, manufacturing plant into an even more technologically advanced facility with an expected significant reduction in CO2 emissions. Over the next two years, the company plans to invest approximately USD 150M in a series of upgrades to the site. The transformation includes a rebuild of one of its existing furnaces, featuring state-of-the art technology and improved sustainability performance through several planned measures including gas-oxy combustion and increased levels of renewable energy and recycled glass.

In addition, **O-I GLASS** has begun to build an all-new furnace featuring the same technological advancements. This furnace will increase long-term flexibility to serve the company's customers, support their growth plans in the Spirits segment, and strengthen their own sustainability efforts.

These investments are consistent with O-I's recently updated sustainability roadmap, which is aligned with the company's previously announced capital spending plan, as well as with expected market demand. The company expects both furnaces to come online in 2025 when these measures will gradually and significantly reduce the plant's emissions and provide another building block of the company's strategy to reduce CO2 emissions 25 percent by 2030.

To fuel the gas-oxy furnaces, O-I is partnering with a supplier to establish an oxygen farm adjacent to the Alloa plant. Bringing more new investment into the area, this state-of-the art facility will separate air into oxygen, nitrogen and argon, and is set to also serve the needs of hospitals and other local manufacturing companies.

These initiatives establish an infrastructure that prepares a base for continued transformation of the Alloa site with a long-term horizon towards the end of the decade.

"With glass production starting in the year 1750, the Alloa plant has the longest heritage of all O-I sites," said Jim Rankine, O-I's UK Managing Director. "We are proud that Alloa is also a prime example of transforming heritage into a state-of-the-art facility in the 21st century, and we are looking forward to continuing to serve our customers with sustainable glass."

WWW.O-I.COM

ZIPPE

Service Point established in the USA

To cope with the increasing demand and activities in the US, batch and cullet specialist **ZIPPE INDUSTRIEANLAGEN GmbH** has established a service point in the USA. The office is located in Alpharetta, Georgia.

The person responsible for service and sales-related activities in the US is Marco Cabrera. Cabrera holds a degree in mechanical engineering and has valuable experience in the process engineering industry.

WWW.ZIPPE.DE


NO LIMIT BEYOND THE SKY
INSTALL AND FORGET
LOW ENERGY CONSUMPTION AND HIGH TECHNICAL SERVICE
ANTONINI
FLORENCE ITALY
ANNEALING LEHRS, DECORATING LEHRS, TEMPERING LEHRS,
LEHRS FOR GLASS BLOCKS, LEHRS FOR HV INSULATORS, MOULD PREHEATING KILNS, COLD END
SPRAY SYSTEMS, UPGRADING AND OVERHAULING.
ANTONINI S.R.L. ITALY +39 0571 93221 com@antoninisrl.com www.antoninisrl.com

GLASS SERVICE ITALY

Cold test for ACHT Group furnace

GLASS SERVICE ITALY recently announced that the construction of the new glass production plant in China for the **ACHT GROUP** in Anyang, Henan Province, China, has reached the cold test phase: and Glass Service's technicians have successfully completed all the necessary tests.

This is the company's second installation of a furnace for the production of borosilicate alpha 50 neutralised glass at ACHT.

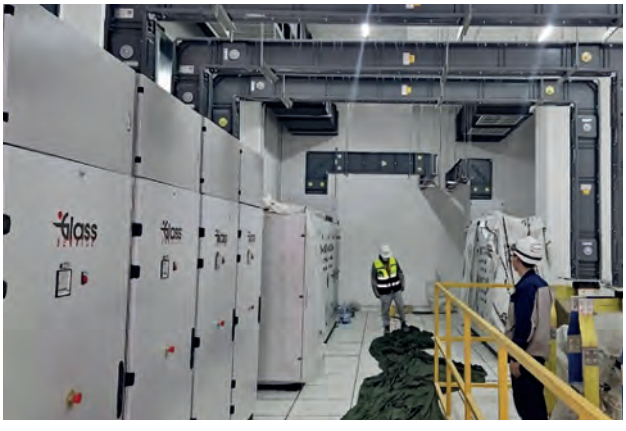
The furnace, with a production capacity of 25 tonnes-per-day, is equipped with:

- a bubbler barrier to improve fining and homogeneity of the glass melt;
- electric bottom heating;
- zirconium drain;
- DHPT platinum removal technology.

Eco-friendly Solutions

- Oxygen/Natural Gas Combustion System: By utilising a combustion system that combines oxygen and natural gas, we significantly reduce harmful emissions;
- 4-Section Electric Boosting: This innovative feature enhances energy efficiency and further reduces our carbon footprint;
- Hybrid Furnace: The combination of advanced technologies in our hybrid furnace plays a key role in minimising CO2 emissions.

WWW.GLASSSERVICE.IT



PIETRO BONAITI SRL

Participation at Glasstec 2024

All set to be present at the upcoming Glasstec 2024 edition in Düsseldorf, Germany, from October 22 to 25, **PIETRO BONAITI** SRL is to be located in Hall 13 Booth F69. An Italian company specialised in the production of conveyor belts for the glass industry, it has particular reference to belts for annealing furnaces and for decorating hollow glass two, sectors in which the company has a high level of know-how. The long experience, gained in over 74 years of activity, is accompanied by in-depth knowledge of the sector's requirements, production flexibility and the ability to design and manufacture equipment and systems that allow special processing and a higher degree of automation, always safeguarding production flexibility and quality. Certified ISO 9001:2015 for its Quality Management System, Pietro Bonaiti Srl includes in its production:

- wire link belts with round wire, half-round wire and flat wire;
- triple spiral wire link belts;
- loose mesh belts;
- wire link belt, reinforced edges;
- double spiral wire link belts with U-shaped wire ends;
- wire link belts, lateral chain.

In addition to the standard machining, Pietro Bonaiti Srl also produces conveyor belts for special applications that adopt innovative geometric and technological solutions and are able to provide precise answers to complex processes.

WWW.PIETROBONAITI.COM

VETROPACK

Shutdown of production at St Prex site begins early

VETROPACK GROUP, one of Europe's leading glass packaging manufacturers, recently announced that it is initiating the systematic shut-down of production at its site in St-Prex, Switzerland.

The Management Board has been forced to take this irreversible step two months earlier than originally planned as the plant can no longer be operated safely due to the poor condition of the furnace and low staffing levels. The relocation of production to the Group's other sites is already underway.

The Management Board informed employee representatives and employees at the site today about the decision and its background: the furnace was due to be replaced soon because of its age. The strike at the plant in May even resulted in a temporary overload of the cooling system. Vetropack then commissioned an assessment of the systems and the furnace to ensure continued safe operation.

"The external assessors came to the conclusion that continued operation is possible in principle. However, it would have to be absolutely uninterrupted and continuous and be accompanied by increased control measures regarding the condition of the furnace," said Johann Reiter, CEO of the Vetropack Group. "Unfortunately, we are currently experiencing an unusually high number of sick days in St-Prex and thus no longer have enough specialist staff at hand to ensure glass production. We therefore have to stop production earlier than planned."

The shutdown was originally planned for the end of August this year. As Vetropack had already been unable to supply its customers with stock from St-Prex due to the strike, the company had started preparing the relocation of production capacity to other plants in May. Vetropack is optimistic that it will be able to largely avoid supply bottlenecks during the transition phase and is keeping in close contact with its customers.

Vetro recycling not affected by production stop

The shut-down of glass production in St-Prex will have no impact on Vetropack's other activities in Switzerland. "We will continue to fulfil our responsibility in the area of glass recycling and maintain our cooperation with our municipal partners," Reiter said. "We are also not planning to withdraw from our home market of Switzerland. Our company headquarters will remain in Bülach."

WWW.VETROPACK.COM

ARDAGH GROUP

Houston facility to close

Ardagh recently announced the closure of its facility in Houston, Texas, oriented to the beer market and the indefinite curtailment of one in Seattle, Washington, that services wine bottles customers. A total of 464 total employees will be impacted by these lay-offs.

"After reviewing current beer market conditions, we have announced the closure of our Houston, Texas, glass production facility, effective July 2024. The affected customer base will be supplied from Ardagh's remaining glass manufacturing facilities across the US," the company said in a statement by Gina Behrman, vice president of marketing, communications and new product development at **ARDAGH GLASS PACKAGING**-North America. Ardagh acquired the Houston glass production site from Anheuser-Busch in 2021.

Ardagh is also laying off, at least temporarily, another 244 employees at the wine bottle manufacturing plant in Seattle. The company is indefinitely curtailing production in this facility, meaning lay-offs could exceed six months, though some of those employees "will remain actively employed for some period of time." If market conditions change, Ardagh says it will consider restarting production at this site.

The dismissals at the wine bottle facility are expected to begin July 1, according to the notice filed on June 17. "At this time, Ardagh's remaining U.S. production network will allow us to continue to provide our existing and prospective wine customers with high quality American-made glass packaging," the company said in a statement.

WWW.ARDAGHGROUP.COM

HORN

Company's largest end fired furnace supplied to Bastürk Cam

Horn recently completed its biggest end-of-fire furnace project in the company's history with Turkish glass manufacturer **BAŞTÜRK CAM**.

In June 2021, glass melting technology specialist **HORN** was contracted to build a furnace for Bastürk Cam in Malatya, Turkey. The order for Furnace B was placed in 2021, but due to the tragic earthquake in 2023, the project had to be delayed for a while.

With a melting surface of 185.4 square metres, the furnace is designed for a melting capacity of 560 tonnes-per-day and includes six forehearths for the production of container glass. The furnace will be heated by natural gas or back-up diesel oil burners.

In this greenfield project, Horn's scope of supply included the engineering of the refractory and steel structure, the combustion system, boosting system, measuring and control equipment, a HVR® 600F batch charger developed by Horn, NIR furnace camera, supervision of erection, heat-up and commissioning.

June of this year saw the new furnace, which produces flint coloured container glass, finally successfully commissioned.

WWW.HORNGLASS.COM

FIVES

Design and supply of first hybrid furnace in France

FIVES was recently entrusted by a leading glass bottle manufacturer to design and supply the first hybrid furnace in France.

The new technology comes as the first air-gas hybrid furnace for glass packaging applications. It is in line with the global decarbonization strategy of both companies as it will substantially reduce energy consumption and emissions. The furnace is capable of replacing up to 70 percent of conventional fossil fuel with electricity.

CO2 emissions at the site will be reduced by 43 percent in comparison to conventional technology with an average electricity usage of 50 percent. In addition to the decarbonization impact, the new technology will also further reduce NOx emissions.

Revolutionary heat recovery

The furnace is equipped with a revolutionary heat recovery and air preheating system which creates further efficiency gains.

The Heat Recovery Area (H.R.A.™) is designed to recover heat from waste gas. It enables preheating of batch blankets in a lowered superstructure section and reduces fume temperature without the need for additional equipment, such as regenerators. The H.R.A.™ also incorporates multi-zone electric-boosting technology, which replaces much of the conventional combustion.

"The hybrid melting technology offers greater flexibility in all aspects and is a game changing technology for the glass packaging market," said Alexandre Brusset, Vice President of Glass at **FIVES**. "It allows glassmakers to manage changing pulls and different glass colours, while significantly reducing energy consumption and emissions. This technology represents a step further down the road of decarbonization for glass makers."

WWW.FIVESGROUP.COM

VERESCENCE

New autonomous production unit inaugurated in La Granja

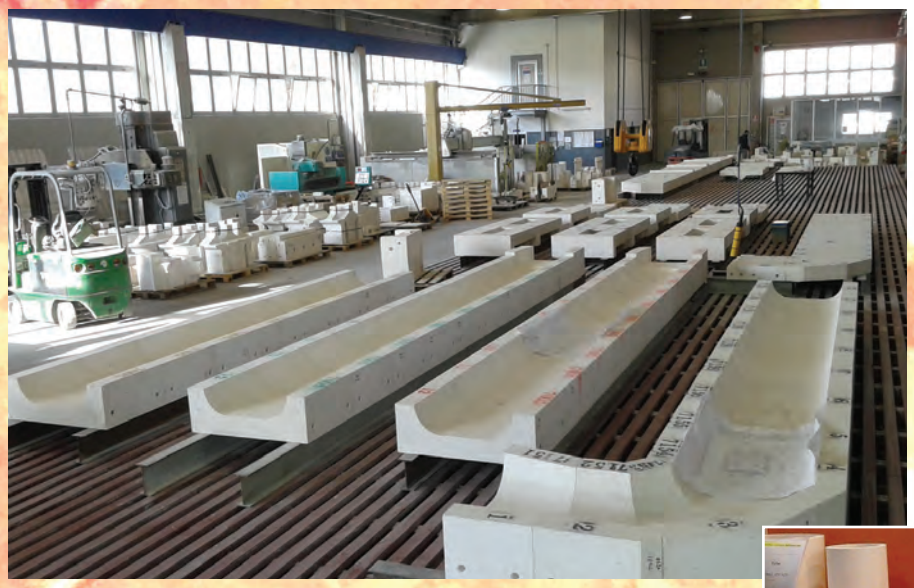
On 4 June 2024, Thomas Riou, CEO of **VERESCENCE**, world leader in glass bottle manufacturing for the Perfumery and Cosmetics Industry, along with Bruno Portellano, General Manager Spain, and Verescence colleagues, proudly inaugurated the new production areas and employee amenities of the decoration plant in La Granja, Spain, spanning over 1,000 square metres.

The facilities feature a 100 percent electric lacquering line, state-of-the-art screen printing and glueing lines, as well as modern offices, changing rooms and a cafeteria.

This marks a major milestone for Verescence La Granja, significantly increasing the production capacity of the plant and improving working conditions.

WWW.VERESCENCE.COM

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 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: info@lincobaxo.com | **www.lincobaxo.com**

Maref

TEC REF

TEC REF RANGE OF PRODUCTS

VIDRALA

PPA signed to supply energy to plants in Spain & Portugal

VIDRALA has signed a Power Purchase Agreement (PPA) with **ACCIONA** Energía for the supply of renewable energy that will cover between 20 percent and 25 percent of the company's electricity needs over the next 10 years.

The contract will come into effect in January 2025 and will allow Vidrala to source clean electricity for its operations at several manufacturing plants in Llodio (Álava), Caudete (Albacete), Castellar del Vallés (Barcelona) and Marinha Grande (Portugal). All the energy will be 100 percent renewable and sourced from ACCIONA Energía's wind farms.

This is the first PPA that Vidrala integrates into its decarbonization strategy to reduce emissions, and thanks to it, will avoid the emission of 150,000 tonnes of CO2 into the atmosphere during the contract's duration. Along with self-consumption projects and Guarantees of Origin (GOs), PPAs form the company's plans for the decarbonization of 100 percent of its electricity consumption by 2030. In this way, Vidrala strengthens its position as a leader in industrial sustainability while ensuring a cleaner, more diversified, secure, and competitive energy supply.

Galo Álvarez, Vidrala's Sustainability Director, highlighted the importance of this strategic alliance with ACCIONA Energía: "This agreement marks a significant milestone in our commitment to reduce our environmental footprint and promote sustainability in our value chain. By partnering with ACCIONA Energía, we reaffirm our commitment to decarbonization and lay the foundations for sustainable growth."

This contract, for which Vidrala has been advised by Advanced Energy Consulting (AEC), adds to the supply agreement that the companies have had since 2018 in Portugal, where ACCIONA Energía supplies renewable electricity to the Gallo Vidro and SB Vidros plants that Vidrala operates in the town of Marinha Grande.

With this milestone, Vidrala reaffirms its position as a pioneer in sustainability within the glass industry by committing to long-term sustainable energy solutions and advancing the transition towards a cleaner and more planet-friendly future for the industry.

WWW.VIDRALA.COM

FALORNI TECH

New development projects in Iraq

FALORNI TECH has signed an important agreement for the construction of a glass products production plant in Iraq. This project is part of a Framework Agreement finalised by SACE and Trade Bank of Iraq, with the support of the Ministry of Finance of the Republic of Iraq. The agreement, which aims to increase Made in Italy exports and support the Iraqi private sector, provides for investments of up to EUR 1 billion.

Falorni Tech, together with other Italian excellences, will participate in a development initiative totalling EUR 775M. Among the projects included, in addition to the Falorni Tech glass production plant, there is a steel complex, a pharmaceutical production plant and an integrated agriculture plant.

This agreement represents a significant step towards an increasingly intense collaboration between Italy and Iraq, favouring the economic diversification of Iraq and bringing Italian innovation and know-how to the international glass market.

WWW.FALORNITECH.COM

FRANKLIN PRECISION CASTINGS

New name, logo and website announced

Franklin Bronze Precision Components, a leading investment casting manufacturer, recently announced the change of their name to Franklin Precision Castings. The new name is accompanied by a new logo and website.

The rebrand comes from an initiative to reflect better who they are and to position itself for growth. **FRANKLIN PRECISION CASTINGS** builds upon its Franklin heritage – while removing "Bronze" to capture its capabilities to cast parts beyond brass and bronze. The name is also shortened and renamed from Precision Components to Precision Castings for conciseness and to reflect specifically its investment casting offering.w

The new name is accompanied by a new logo. The new logo symbolises strength in automation and precision. Franklin stands strong and lends itself to a clean and contemporary feel. The "I" in Franklin visually represents the pouring cup and tree, and the hot red to orange gradient mimics the transformation of molten metals during the investment casting process. The evenly spaced lines evoke automation and technical expertise.

"The transition to Franklin Precision Castings reflects who we are today and our plans for the future of the business – supplying high quality investment castings to customers in industrial markets in a range of cast alloys," said John Mangoyan, General Manager of Franklin Precision Castings.

The new branding is also rolled out to a new website, franklincastings.com. The website reflects the new brand with an improved navigational experience, specific industry and alloy poured pages to showcase Franklin Precision Castings' capabilities and expertise.

Franklin is a world leader in the manufacture of investment castings for the glass industry. Cast parts for glass include guide rings, plungers, baffles, neck ring inserts, thimbles, top plates, and more. The company pours a wide range of alloys for the glass industry, including nickel, brass and bronze, cobalt, and stainless steel – right at their U.S.-based facility.

WWW.FRANKLINCASTINGS.COM

O-I GLASS

USD 65M decarbonization investment in Veauche, France

O-I Glass plans to invest approximately USD 65M into the electrification and decarbonization of its plant in Veauche, France. As the first **O-I** plant globally to use this technology, one of its two furnaces will be fully renovated and equipped with state-of-the-art hybrid-flex technology.

This leading-edge innovation establishes flexibility to replace up to 70 percent of the conventional fossil-fuel-based energy with electricity. In addition, the furnace will be equipped with heat recovery and an air preheating system, creating further efficiency gains and reductions in energy consumption and emissions. At an average 50 percent electricity level, on-site CO2 emissions are expected to drop by approximately 43 percent compared to a traditional furnace, significantly contributing to the company's global target of a 25 percent reduction in greenhouse gas emissions by 2030.

The investment is consistent with **O-I GLASS**'s sustainability strategy and the company's previously announced investment plan into plant upgrades. Along with the decarbonization impact, the new technology is set to further reduce NOx emissions on top of the effects from the high performing DeNOx system already installed on site.

In parallel to the construction of the new hybrid furnace, O-I also plans to install a carbon-lowering heat recovery system in the plant. Heat recovered from the furnace will feed a new internal energy distribution network and will supply up to 94 percent of the plant's heating needs. Once both investments are completed – expected for December 2025 – the Veauche plant will be one of the most modern and sustainable sites for O-I globally. At that time, the entire site is expected to reduce its CO2 emissions by up to 35 percent versus pre-2020 levels, when its other furnace was completely rebuilt.

With two furnaces and seven lines, the O-I plant in Veauche produces approximately 300 million bottles each year. It is a role model for a local circular economy leveraging up to 87 percent of recycled glass ("cullet") sourced from a processing plant no more than 20 kilometres away. The plant in Veauche is well located within a few hours of most of its customers, minimising delivery and logistics. Built in 1882, the plant is a key site dedicated to modern high-tech glassmaking, manufacturing high quality bottles for premium markets such as champagne, spirits and wine.

WWW.O-I.COM

WECK

Investment in new Bucher Emhart IS machine at Bonn plant

With the investment in a new **BUCHER EMHART GLASS** 8 Station 5 1⁄2 inch IS machine in production at the Bonn-Duisdorf site, in Germany, **WECK** now has a completely modernised machine park that enables the company to continue to produce glass containers efficiently and to optimum quality.

The predecessor of this machine served faithfully for 40 years with Weck now presenting it as being ready for the next 40.

WWW.EMHARTGLASS.COM - WWW.WECK.DE

FAMOR
for glass industry

FAMOR
FORMING TECHNOLOGY
we know how!

Famor Engineering S.r.l. - via Avigliana, 3 - 10040 Rivalta (TO) Italy
www.famoreng.com

HORN

Furnace repair contracts from Noelle + von Campe

Glass furnace manufacturer and turnkey specialist **HORN GLASS INDUSTRIES** was awarded the contract for the general repair of furnace 4 at **NOELLE + VON CAMPE**. The German packaging glass manufacturer relies on Horn to equip furnace 4 with the latest technology. Horn is responsible for the complete planning of the refractories and steel construction for the furnace, distributor and five forehearths.

The regenerative end fired furnace is equipped with state of the art gas heating, measuring and control equipment together with a higher-level control system based on PCS7. A Horn E-Fusion power boosting system brings the electrical power into the glass melt via twelve electrodes.

To cool the electrode holders and further equipment, Horn equips the furnace with a complete cooling water supply. In addition, Noelle + von Campe in the future will be relying on two new Horn HVR 700F-2P batch chargers.

The contract includes furnace drain and demolition as well as the complete construction work for refractory material, steel and equipment. The furnace will be then tempered and put into operation by Horn. Commissioning is planned for June 2025.

WWW.HORNGLASS.COM

SIBELCO

Acquisition of Strategic Materials, Inc. completed

Sibelco, leader in glass recycling, has completed its purchase of Strategic Materials, Inc. (SMI), one of North America's largest glass recyclers.

The acquisition positions **SIBELCO** as a key global player in glass recycling, having already established a leading position in Europe. SMI operates 42 sites across North America, processing around 2 million tonnes of cullet (recycled glass) per year. This capacity adds to the 3 million tonnes of cullet Sibelco processes annually at its 24 recycling plants in Belgium, Estonia, France, Italy, Poland and the UK.

Hilmar Rode, CEO of Sibelco, said, "We are delighted to have completed this acquisition. Not only will the integration of SMI enable us to extend our leadership in glass recycling outside Europe, it will also expand Sibelco's offering in North America beyond our existing high purity quartz business, thereby building a resilient mineral platform at scale."

SMI employs approximately 800 full-time employees, excluding temporary and contractor workers, at sites in the United States, Canada and Mexico. Its products are used across a range of markets, including container glass, fibreglass insulation, reflective materials, fillers and abrasives.

Chris Dods, SMI President & CEO, commented, "Sibelco understands our business and shares our passion about the key role of glass recycling in a circular economy. The two companies' combined expertise and resources will create a true market leader poised for further growth."

WWW.SIBELCO.COM

FLUORITAL

THE *Colors* OF SUSTAINABILITY

WWW.FLUORITAL.COM

FLUORITAL has made its eco-sustainability policy a *true pact with the planet*, sealing this pact thanks to its environmental certifications.

For *over 60 years* it has been the main reference in the sector of **high quality paints** and inks for glass, plastic and metal; as well as a pioneer in non-flammable water-based products, with cross-linking at low temperatures and with low contents of volatile organic compounds.

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

SCHOTT PHARMA

Production facility opened in Lukácsháza, Hungary

After breaking ground in October 2022 and fresh off its IPO in September 2023, Schott Pharma opened the doors to an entirely new production facility for high-quality prefillable glass syringes in Hungary. Supported by a EUR 9M (HUF 3.321 billion) investment from the local government, **SCHOTT PHARMA**'s double-digit million Euro investment is realised with the opening of a facility that creates over 120 jobs.

- After EUR 76M (HUF 28.044 billion) investment and 1.5 years of construction, Schott Pharma opens its newest production facility in Lukácsháza, Hungary
- Expanding production capacity will support pharma megatrends and market growth for prefillable syringes made of specialty glass
- With financial support from the local government, the facility brings over 120 new jobs to the area

With this move, Schott Pharma is expanding its global capacities for strategically important high-value solutions that address key pharma trends. To supply the fast and dynamically growing market, Schott Pharma plans to further invest a multi-million Euro amount in Hungary in prefillable syringes in the next few years.

With an increasing number of drugs being stored in prefillable glass syringes – from GLP-1 drugs to critical vaccines and innovative biologics, the manufacturing beginning at this site today will continue to support major trends in the pharma industry," said Andreas Reisse, CEO of Schott Pharma.

As evidenced by their growing demand in the healthcare industry, these high-quality prefillable glass syringes not only offer a stable, long-term storage solution for drugs, but also a safe and convenient delivery system for patients and clinicians.

Schott Pharma's Hungarian site, which was inaugurated in Lukácsháza June 11, 2024, builds on the company's existing foundation and pharmaceutical production skill-set in the area, which already plays an important role in supplying the global industry with drug containment systems today.

Following the high-end processes and advanced quality assurance found in Schott Pharma's global production network in 14 countries, the facility is equipped with state-of-the-art machinery. The new site is the second site where the company manufactures glass syringes, in addition to the site in St Gallen in Switzerland.

WWW.SCHOTT-PHARMA.COM

ARDAGH GROUP

64 percent CO2 reduction producing bottles from NextGen Furnace

Ardagh Glass Packaging-Europe (AGP-Europe), an operating business of **ARDAGH GROUP**, recently announced that the glass bottles produced from its world first hybrid NextGen Furnace have reached a consistent 64 percent CO2 emissions reduction (based on modelling), saving approximately 18,000 tonnes of CO2 since the start of this year.

Since starting commercial production in October 2023, the NextGen Furnace at AGP-Obernkirchen in Germany has been gradually ramping up direct electrical heating via electrodes, towards a goal of 80 percent electrical heating and 20 percent gas. To date in 2024, AGP-Europe has achieved an average rate of 60 percent electrical heating in the NextGen Furnace; progress achieved in part due to the support and expertise of furnace supplier Sorg.

The NextGen Furnace is funded through the BMWK 'Decarbonisation of Industry' programme. It has pushed the boundaries of electric melting technology with commercial-scale output of up to 350 tonnes of amber glass, using up to 70 percent recycled glass cullet. Joris Goossens, R&D Project Manager, AGP-Europe, said, "Ramping up the electrical heating in the NextGen Furnace has not been an easy journey. In a conventional furnace, the combustion space is hotter than the glass, but in the NextGen Furnace, the glass gets hotter than the combustion space: the furnace is effectively upside down. We have been navigating uncharted territory."

Sven-Roger Kahl, Manager of Furnace Operations, AGP-Europe, added, "The NextGen design, which features electrodes in the bottom of the furnace, has challenged traditional furnace operating rules. It has been like learning to drive again, but it has been worth the effort to reach our goal of low-carbon glass packaging."

Many key customers, glass industry peers and suppliers have now visited the furnace to see it in action. Government officials have also been welcomed to Obernkirchen to discuss the need for electrical grid connection to roll-out the technology to other AGP facilities.

AGP-Europe intends to adopt hybrid and other sustainable melting technologies for furnace rebuilds from 2027 onwards, subject to access to the appropriate electrical infrastructure in the relevant markets.

WWW.ARDAGHGROUP.COM

Driving excellence: BDF and BETA GLASS make waves together

Precision, efficiency and collaboration are vital in industrial glass manufacturing. Both equally rigorous in making that trio of principles a reality, BDF Industries and BETA GLASS jointly exemplified all three after achieving a 'glass to glass' turnaround in Nigeria in just 32 days. Here BDF's Gianluca Cera shares the project details with our editorial team, as well as key factors behind its success.

GMP&A: FIRST OF ALL, GIANLUCA, CONGRATULATIONS ON THIS SUCCESSFUL PROJECT IN NIGERIA WITH BETA GLASS. COULD YOU BEGIN BY SHARING THE HISTORY OF BDF'S COLLABORATION WITH THE COMPANY?

GC: Thank you. BDF Industries has maintained a strong partnership with Beta Glass, spanning several decades. That relationship is grounded in mutual trust and a joint pursuit of excellence. We've supplied nearly all the furnaces and forehearths for Beta Glass' facilities in Nigeria. The reliability and performance of our equipment have solidified our reputation as a dependable partner. Our collaboration began years ago when Beta Glass was aiming to enhance their production capabilities. At the time they sought a partner capable of delivering advanced technology and expertise for effective implementation and maintenance. For them BDF was the clear choice, and our close collaboration has continued ever since.

GMP&A: Achieving a 'glass to glass' turnaround in just 32 days has been truly impressive. What critical elements made this remarkable efficiency possible?

GC: Achieving such rapid turnaround was the culmination of several pivotal factors. Initially, our engineering efforts were meticulously planned and executed, forming a robust project foundation. During the initial planning phase, our team invested considerable effort in ensuring comprehensive preparation, which necessarily included contingency plans for potential challenges. Daily meetings, sometimes twice per day, ensured seamless communication and swift resolution of issues, which is always crucial for maintaining project momentum. The technical proficiency and availability of our supervisors, Oscar and Dalibor, were invalu-

able. Here their experience and problem-solving abilities proves essential. Furthermore, Beta Glass' project leaders were exceptionally prepared, too, facilitating smooth operations with their prompt decision-making. Furnotherm's diligent on-site assembly support was also pivotal, ensuring timely and accurate execution. Our team in Italy provided continuous technical support, ensuring that our supervisors had the necessary resources. Ultimately, it was our signature team effort that won the day, with everyone contributing towards a shared objective.

GMP&A: Could you elaborate on the extent of BDF's contribution to the project?

GC: Certainly. BDF's contribution to this project was extensive. It encompassed the upgrade of plant technology through detailed engineering, supply of advanced automation equipment and subsequent commissioning. Specifically, we provided combustion systems, refractory materials, forehearth control panels and process control, and SCADA supervision systems. Our objective was to deliver high-quality solutions swiftly and effectively, and I'm pleased to report that we accomplished this goal. The combustion systems we supplied were tailored to enhance operational efficiency, with our SCADA supervision systems enabling real-time monitoring and data collection for rapid adjustments and continuous enhancement. This holistic approach ensures that every aspect of the production process is optimized for superior performance and reliability.

GMP&A: How much did daily meetings and the presence of your supervisors play a role in project success?

GC: Daily meetings were crucial for maintaining transparent communication and coordination among all key players. They enabled progress reviews, early issue identification and prompt decision-making - all to uphold project momentum. Such meetings also cultivated a culture of accountability and collaboration - ensuring clarity on both responsibilities and project timelines. Our on-site manager, Oscar, played a pivotal role - was always prompt with addressing technical challenges and leveraging his expertise to navigate project complexities. Alongside other BDF supervisors, he served as the bridge between our technical team in Italy and the on-site team in Nigeria - ensuring seamless communication while upholding our rigorous standards throughout the project.

GMP&A: How did the preparation and involvement of Beta Glass project leaders influence the project's outcome?

GC: The effectiveness of Beta

Glass project leaders played a pivotal role in our achievement. They were thoroughly prepared, understood the project complexities and swiftly made well-informed decisions - thereby reducing delays and maintaining our project timeline. Their adeptness in collaborating with our team and other stakeholders proved indispensable. Their input and feedback were invaluable in refining our strategies and promptly resolving challenges. This cooperative approach significantly contributed to meeting our ambitious turnaround goals.

GMP&A: What are BDF's future collaboration plans with Beta Glass moving forward?

GC: That-s easy to answer. Our outlook for the future is highly positive. BDF has initiated discussions regarding the refurbishment of Beta Glass' next furnace. We anticipate that this upcoming project will further capitalize on the achievements of our recent collaboration. We're also eager to maintain our track record of offering inventive and dependable solutions to Beta Glass. Here our enduring partnership underscores our shared dedication to excellence and ongoing

enhancement. Drawing on our expertise and the solid groundwork we've both lain, we aim to jointly tackle fresh challenges and reach new heights together. Our objective remains steadfast in delivering solutions that optimize the efficiency, quality and sustainability of Beta Glass' operations.

GMP&A: BDF seems to have certainly proven itself as a dependable partner for Beta Glass. Do you have any final reflections on the project?

GC: In closing I'd say this project demonstrates BDF's capacity to promptly and proficiently provide top-tier solutions. It underscores the superb engineering, cohesive teamwork and mutual dedication to excellence that BDF and Beta Glass both embody. Together, we take pride in our achievements, which has us now eagerly anticipating our future collaboration. We're confident that our collective expertise and commitment will sustain ongoing success and foster innovation within the industry. Our collaborative strategy and steadfast commitment to quality and efficiency have been pivotal to our achievements. Here's why we anticipate numerous successful ventures ahead with Beta Glass and other esteemed collaborators.

GMP&A: Thank you for your insights, Gianluca. The collaboration between BDF and Beta Glass clearly sets a high standard in the industry.

GC: Thank you. It's been a pleasure discussing this project, and I appreciate the opportunity to highlight the hard work and dedication of everyone involved. ■

Redefining glass container handling: VETROMECCANICA raises the bar

Showcasing its cutting-edge glass container handling solutions at Glasstec 2024 in Dusseldorf this October, VETROMECCANICA will be in Hall 13, Booth F30, where the company will be exhibiting its advanced technologies and comprehensive support services – highlighting its ongoing commitment to innovation, quality and global expertise in the cold-end process.

Handling glass containers is a nuanced field in which each glass factory has unique requirements that necessitate bespoke plants, each crafted with meticulous care. That same attention remains crucial throughout both the cold-end process and lifecycle, which spans everything from design to production and service. During critical junctures, only a dependable and capable partner can guarantee' unwavering support to ensure nobody stays isolated.

NEW ADVERTISING CAMPAIGN

Here's why Vetromeccanica's new advertising campaign for the

glass industry boldly asserts: "With Vetromeccanica, you will never be alone again," as a message portrayed visually on magazine covers, advertisements and a series of social media videos launched over July - using the shipwreck as a metaphor for the risks companies face without a steadfast partner.

STRENGTH IN TEAMWORK

The real strength of Vetromeccanica lies in its team members, who explain the global advantages of partnering with a company boasting 30 years of experience in glass container handling. Vetromeccanica offers comprehensive expertise, cutting-edge technologies and complete management of the entire supply chain for automatic glass container handling systems.

STATE-OF-THE-ART FACILITIES

Located in Neviano degli Arduini near Parma, Italy, Vetromeccanica operates from a headquarters spanning 41,000 square metres, complemented by a newly-acquired 13,000 square metre facility in Gattatico. This infrastructure enables the company to efficiently manage large-scale orders.

COLD END LINES EXPERTISE

The expertise of Vetromeccanica's department managers in Cold End Lines is pivotal. These start by first listening attentively to client needs from the design phase onward, offering comprehensive consultancy that's aimed at achieving optimal solutions. Here the Engineering department conducts rigorous technical assessments to ensure project feasibility and development - all tailored to the unique characteristics of each production environment.

COMMITMENT TO QUALITY AND INNOVATION

Combining deep-rooted expertise with a commitment to exceeding industry standards, Vetromeccanica develops high-quality, 100 percent Made in Italy Cold End Lines. These encompass the entire process from lehr exit to palletizing units - accommodating glass containers of diverse shapes and sizes.

IN-HOUSE MANUFACTURING CAPABILITIES

Vetromeccanica maintains quality control from raw materials through its advanced in-house carpentry and metalworking departments, ensuring flexibility and competitive advantages in cost and delivery times. The company also develops HMI and PLC systems

software internally, facilitating plant supervision, statistical management, machine safety and service optimization to minimise downtime and enhance productivity.

GLOBAL INSTALLATION AND SUPPORT

Installation, start-up, and upgrades of Vetromeccanica's lines are conducted globally, supported by both on-site and remote services. A robust after-sales assistance programme guarantees comprehensive support and rapid responses, bolstered by a well-stocked spare parts warehouse.

GLASSTEC 2024

These values and capabilities will be showcased at Glasstec 2024 in Dusseldorf this October, affirming Vetromeccanica's presence in Hall 13, Booth F30, where the team looks forward to sharing their expertise in the cold-end world once again. ■

Organized by:

GMIC
GLASS MANUFACTURING INDUSTRY COUNCIL

SAVE THE DATE

SEPT. 16–19, 2024
TOLEDO, OH, USA

GLASS WEEK 2024

where the glass manufacturing industry meets

85TH ANNIVERSARY

GLASS PROBLEMS CONFERENCE

14th ADVANCES IN FUSION AND PROCESSING OF GLASS

Endorsed by:

Alfred University

The American Ceramic Society
ceramics.org

gmic.org/glass-problems-conference

BB operation efficiency with HEYE's gob weight control

Using 3D gob imaging to measure weight and shape in real-time, HEYE's GobMaster camera-based weight control system enhances operational efficiency by stabilizing gob weight in blow-blow production. Improving production accuracy while reducing waste, the system also integrates seamlessly with existing IS machines - offering flexibility across various production processes.

Plunger cylinder sensor technology is a well-proven function of the Heye Process Control, supervising and adjusting both press-blow and NNPB production processes. The camera-based weight control of the Heye GobMaster now closes the gap for processes operating in blow-blow.

PROCESS CONTROL 4.0

Heye Process Control 4.0 is a closed-loop solution for the pressing process of all plunger mechanisms within an IS machine. Simultaneously, it keeps the gob weight stable. The technology displays a number of forming events on several selectable charts

and permits the improvement of parameter setting by comparing data. Early recognition at the start of malfunctions increases production efficiency. The integrated plunger cylinders ensure certain gob parameters for press-blow and NNPB production. That said, this technology cannot be used for heavy and premium articles produced using blow-blow operation. Consequently, glass container manufacturers have increasingly requested access to gob supervisory and adjustment technology for blow-blow production as well. The Heye GobMaster satisfies this requirement.

FUNCTIONALITY AND BENEFITS

The camera-based system makes it possible to determine and control the gob weight while favourably exploiting the additionally generated data for all production processes. Two cameras placed underneath the shears act as sensors, generating 3D gob images. The software logic determines such geometric digital 3D model data as length, diameter, position and tilt angle - all data that ultimately calculates gob volume and weight.

GOB WEIGHT AND SHAPE

In real time, gob weight and gob shape are measured, with weight deviations above or below the production limits being automatically rejected. Weight deviations are corrected through the Heye tube and plunger drive systems. Production runs operating the blow-blow process benefit most from this recent technology. However, the added value for press-blow and NNPB production runs is also obvious. With GobMaster technology, gob shape and gob fall are both measured - being made impossible using the plunger cylinder functions alone. Gob shape and weight become reproducible, which results in a stable production process - ultimately improving efficiency and quality. Neither energy nor raw materials waste due to data inaccuracies will result.

ANSWERED BY EXPERTS

Heye International experts confirm that the GobMaster can be retrofitted to all types of IS-Machines: Where a Heye Process Control 4.0 is already available, the latest version can easily be retrofitted via a plug-and-play device. But it is also available as a stand-alone version. Various upgrade paths are possible depending on the existing equipment. The GobMaster itself consists of two high speed cameras, a control unit and a monitor. Furthermore, the settings of the Heye Process Control system can easily be adapted to several gob weights running simultaneously on a single machine. This underlines the high flexibility of the system and shows its sophisticated functionality. ■

ABOUT HEYE INTERNATIONAL

Based in Obernkirchen, Germany, Heye International GmbH supplies the container glass industry with its high-end technology and equipment as well as sophisticated production know-how. Its mechanical engineering has set industry standards for more than six decades. Extensive industry expertise, combined with the positive attitude and enthusiasm of Heye International employees is mirrored by the company motto 'We are Glass People'. The glass people at Heye got the vision to ensure cost-effective, sustainable and safe operation of glassworks worldwide and thus further strengthen the position of glass as the packaging material of the future. Its three sub-brands HiPERFORM, HiSHIELD and HiTRUST form the Heye Smart Plant portfolio - addressing the glass industry's hot end, cold end and service requirements respectively.

heye international

HEYE INTERNATIONAL GmbH

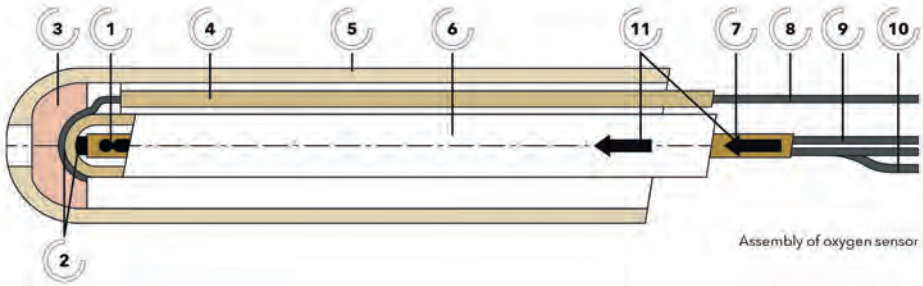
Lohplatz 1
31683 Obernkirchen - Germany
Tel.: +49-5724-26-452
Fax: +49-5724-26-229
E-mail: marketing@heye-international.com
www.heye-international.com

Conditioning systems upgraded by HORN's extractive oxygen measurement

Glass conditioning should always be kept in mind when factoring in for melting furnace heating technologies. Here, as the team at HORN will attest, extractive measurements constitute a useful tool for stable and defined combustion, being an important parameter in glass for both quality and colour. It certainly comes in handy in the tin bath – reducing operating costs while increasing operational safety.

Christian Reichl
furnace technology specialist
HORN GLASS INDUSTRIES AG

After merging with Horn in 2021, Eurox's product line is now two-tiered: a directly-inserted, high temperature sensor system for oxygen measurements in glass furnace flue gas and a heated sensor system for extractive measurements. With its focus on extractive oxygen measurement in glass conditioning systems, this latter system for extractive measurements is dedicated to gas analysis for both glass conditioning and in the protective tin bath atmosphere. Founded in 1993 by Rainer



Assembly of oxygen sensor

1. Thermocouple embedded with a special cement
2. Pressed-on solid electrodes
3. Active ceramic diffusion block
4. Insulating tube
5. External protection tube
6. ZrO_2 tube
7. Capillary tube for inside electrode, thermocouple and reference air
8. Platinum wire outside electrode
9. Platinum wire inside electrode
10. Thermocouple
11. Compressing forces for electrode attachments

Fig.1 Assembly of oxygen sensor

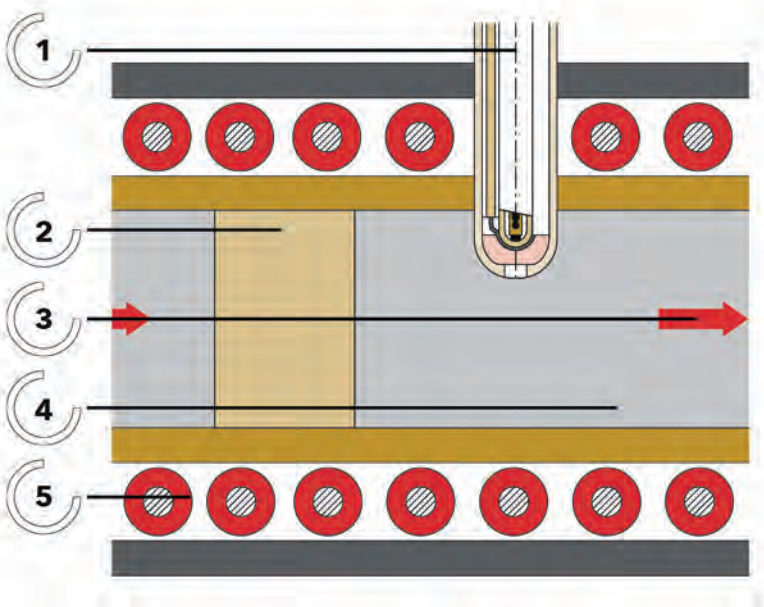
Gorris in Wiesbaden, Eurox initially focused on zirconium oxide-based oxygen measurement systems. Then from 2011 onwards its products became specialised for use in the glass industry. It integrated as a subsidiary of Horn in 2014.

PRINCIPLE OF MEASUREMENT

The oxygen sensor setup:

The measurement of the gas to be analysed is done against reference air (ambient air). (Fig. 1). In Eurox sensors an additional protection of the measuring cell by diffusion component is carried out. The gas is fed into the reaction chamber and catalytically decomposed at 1000 °C. The picture below shows the schematic reaction and measuring chamber. (Fig. 2).

Several measuring points -or heating zones- are connected via a valve unit with the heated sensor. So only one system is needed for up to 12 measuring points.



1. Oxygen sensor
2. Catalytic mass
3. Flow direction of the gas to be examined
4. Measurement chamber
5. Heating coil

Fig.2

$$\lambda = \frac{actual\ air\ volume}{minimum\ air\ demand}$$

Fig.3 Lambda value

REASONS FOR MEASUREMENT

The atmosphere in forehearth and distributor has a great influence on glass quality. Therefore fluctuations or even the wrong atmosphere can lead to glass defects. This is why a stable and correctly set combustion condition is important in glass conditioning. A correctly-set Lambda value is an important parameter for the combustion condition. It is a safe indicator if the combustion is under- or over-stoichiometric. (Fig. 3).

Actual air volume can be set though the minimum air demand cannot be controlled directly. Influencing factors here are the stoichiometric oxygen demand of the fuel and the O2 content provided by the oxidiser. (Fig. 4).

In practice the NG/Air mixture is often analysed with a normal hand-held O2 metre by measuring the O2 content in the mixture. Here, a Lambda value is assigned to an O2 value that originates from theoretical calculations or based on experience. So, for example it is assumed that you have a Lambda value of 1.0 at 18.9 percent O2 in your premixed gas. However, it only states that you have a gas mixture of 18.9 percent O2. The assumption is only correct if natural gas H with approx. 8600 kcal/Nm3 and a normal O2 value prevails in the air. But the first problem in practice is that the oxygen content in air is not constant at 20.9 percent. As can be seen in the below graph it depends on various factors, such as humidity. (Fig. 5).

A further problem in practice is the chemical composition of the fuel gas, which influences the air requirement and thus the combustion state. In future, greater and more frequent fluctuations in the gas composition are to be expected due to the different gas sources. (Fig. 6).

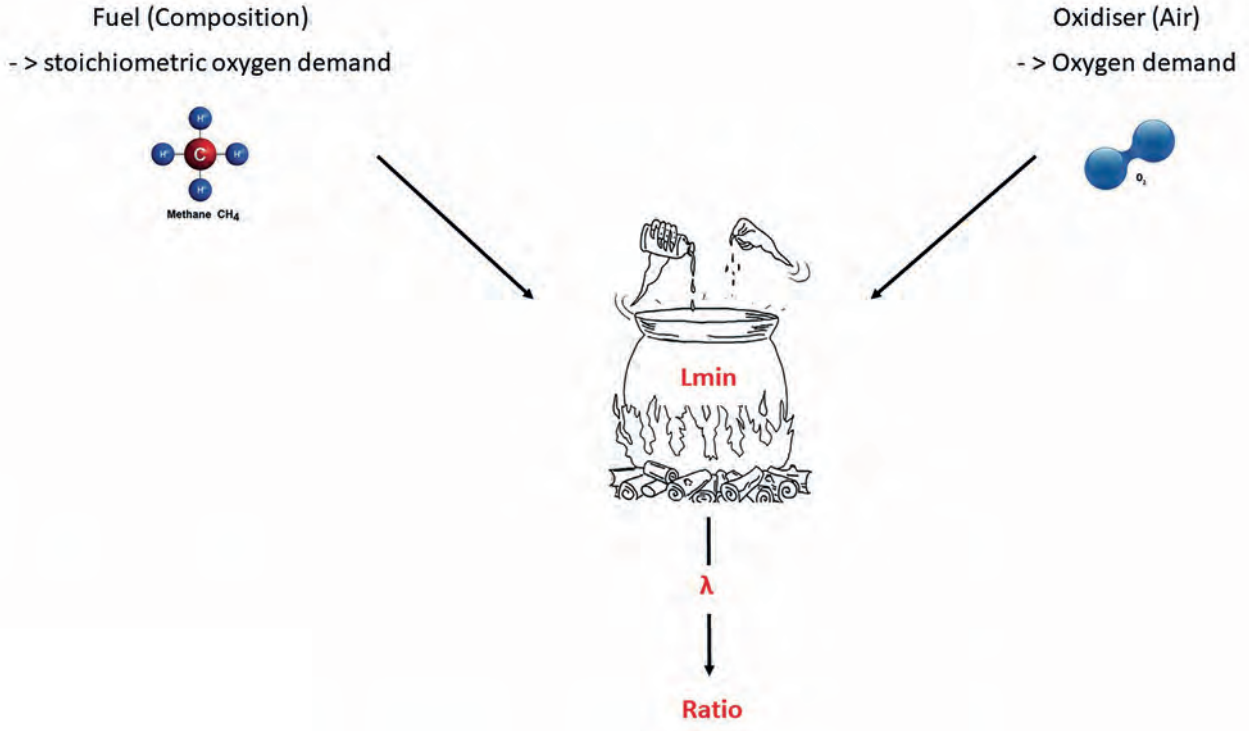


Fig.4 Factors influencing minimum air demand

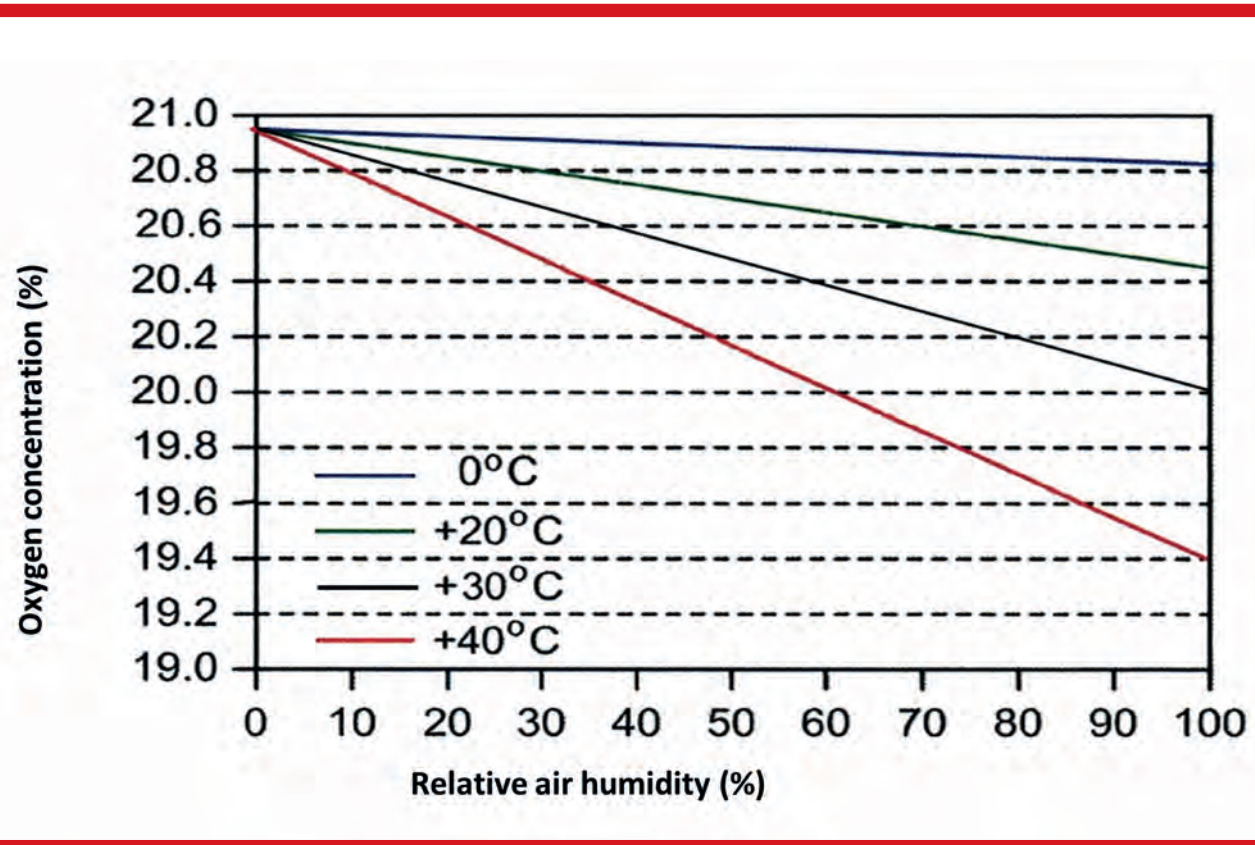


Fig.5 Change in O2 content as a function of humidity

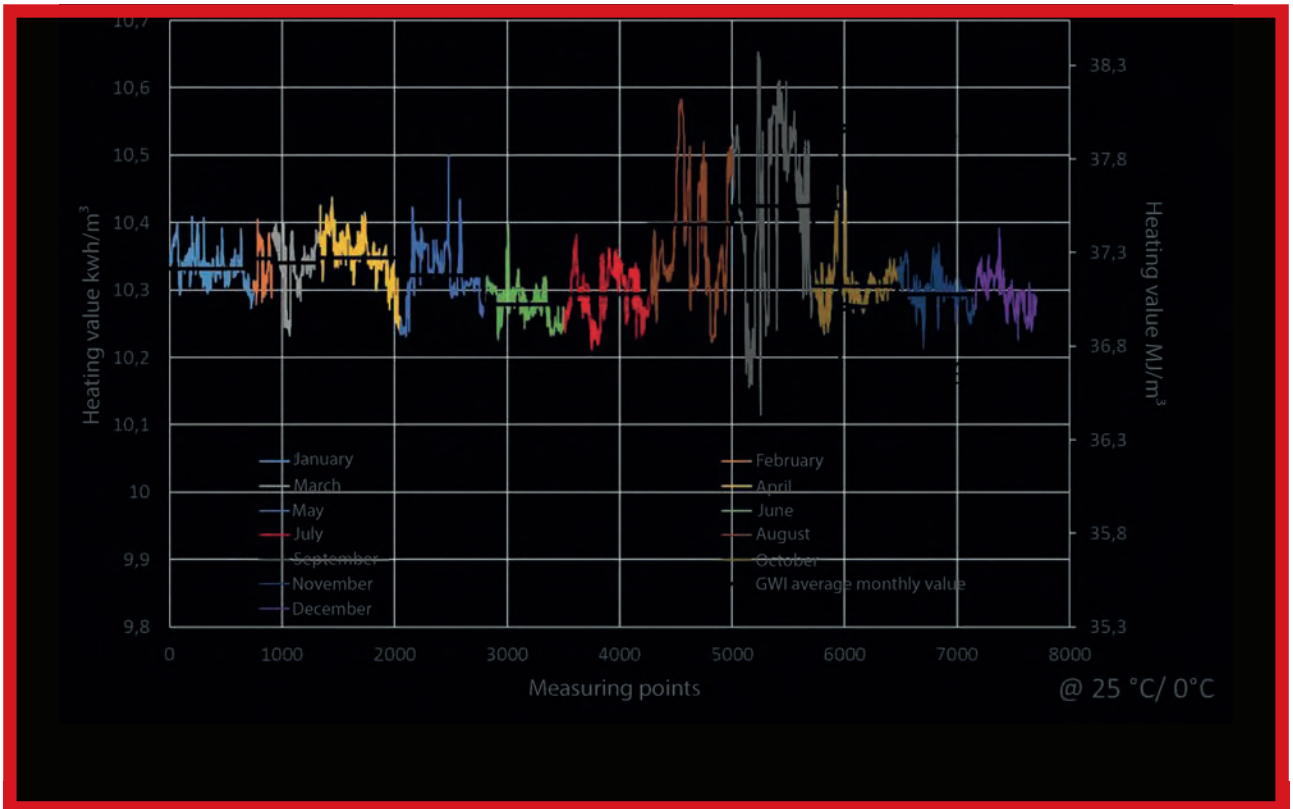


Fig.6 Example of calorific value change in Central Europe within one year

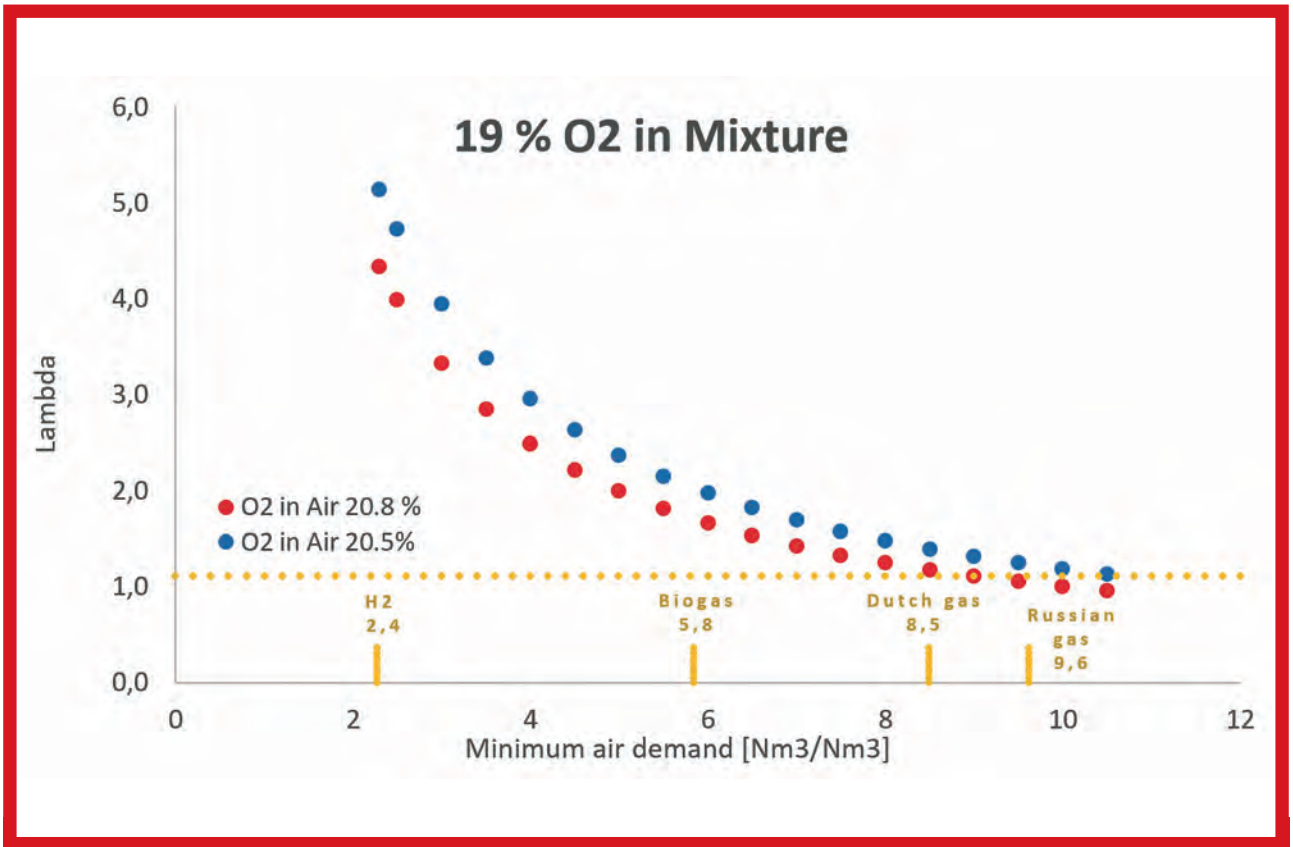


Fig.7 Influences to minimum air demand

In the following graph, the influence of the oxygen demand of the NG and the oxygen content in air to the calculated minimum air demand and to the Lambda value is shown. Also some examples for different burning gases are shown. Calculation here was carried out simply. (Fig. 7).

As can be seen here, Lambda value represents a more precise and reliable value for describing combustion condition as compared with oxygen content measurement in premixed gas alone. Determining the actual lambda value provides information about the actual combustion state of each measured zone.

MEASUREMENT SYSTEM

Each zone to be monitored is connected to the sensor via a valve unit. An integrated control unit carries out control and evaluation of the measurement system. (Fig.8).

Together with a control system, a defined and stable combustion state can be achieved. Each sensor is calibrated before shipping. A typical calibration curve of a heated sensor is shown below. (Fig. 9).

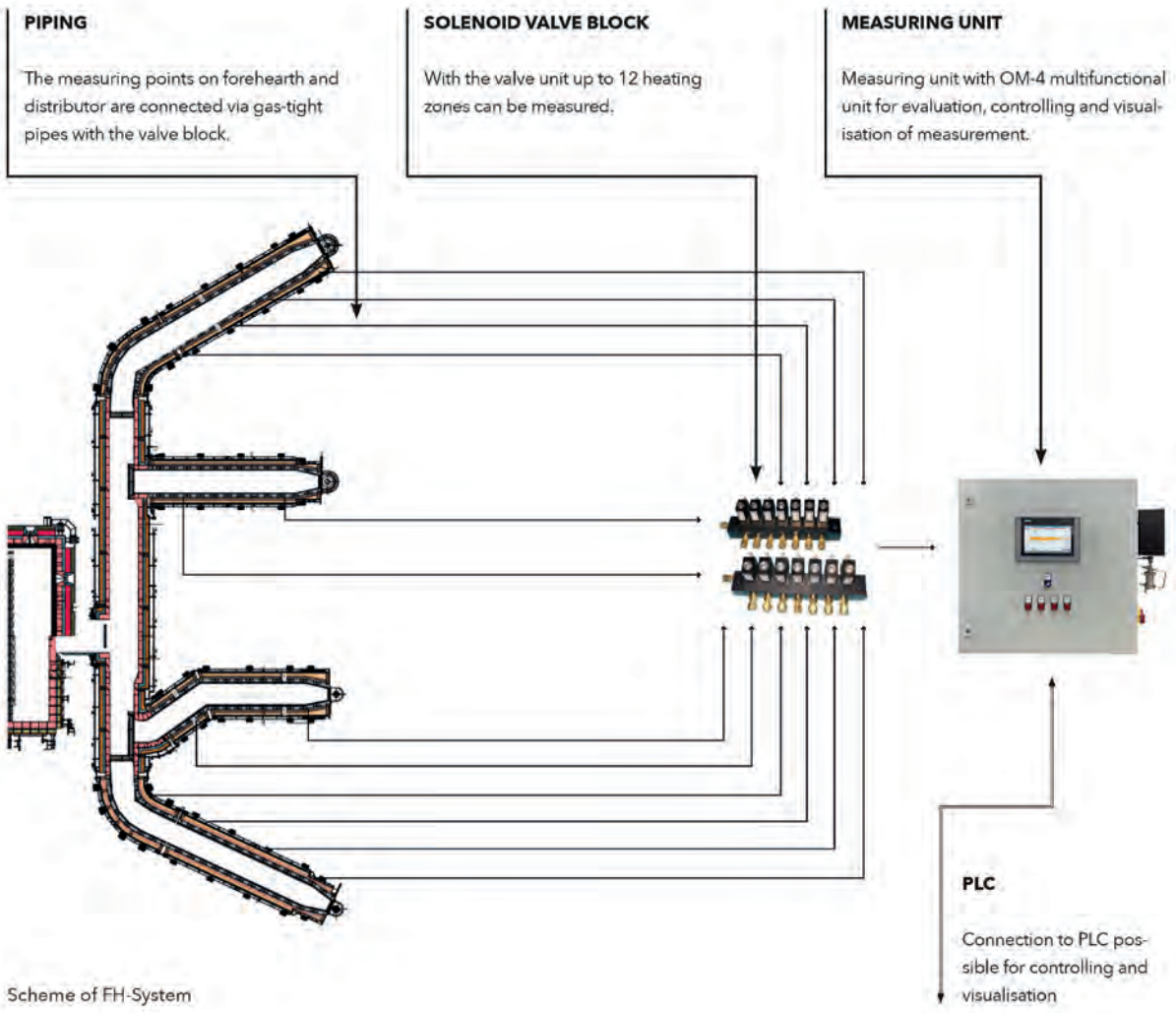


Fig.8 Extractive measurement system - conditioning system

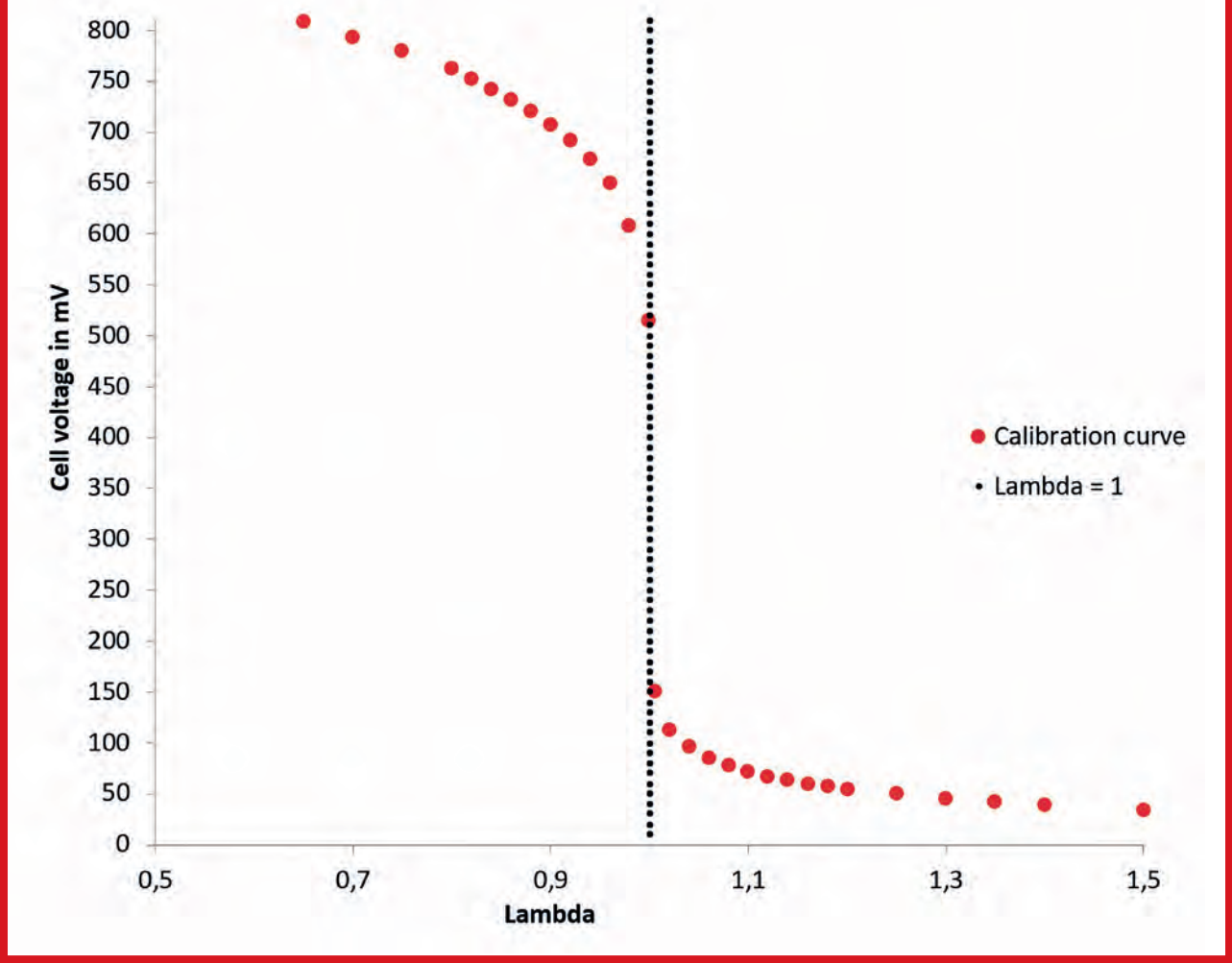


Fig.9 Calibration of heated sensor curve

Portable EpRox measurement system

Fig.10 Portable solution for extractive measurement system

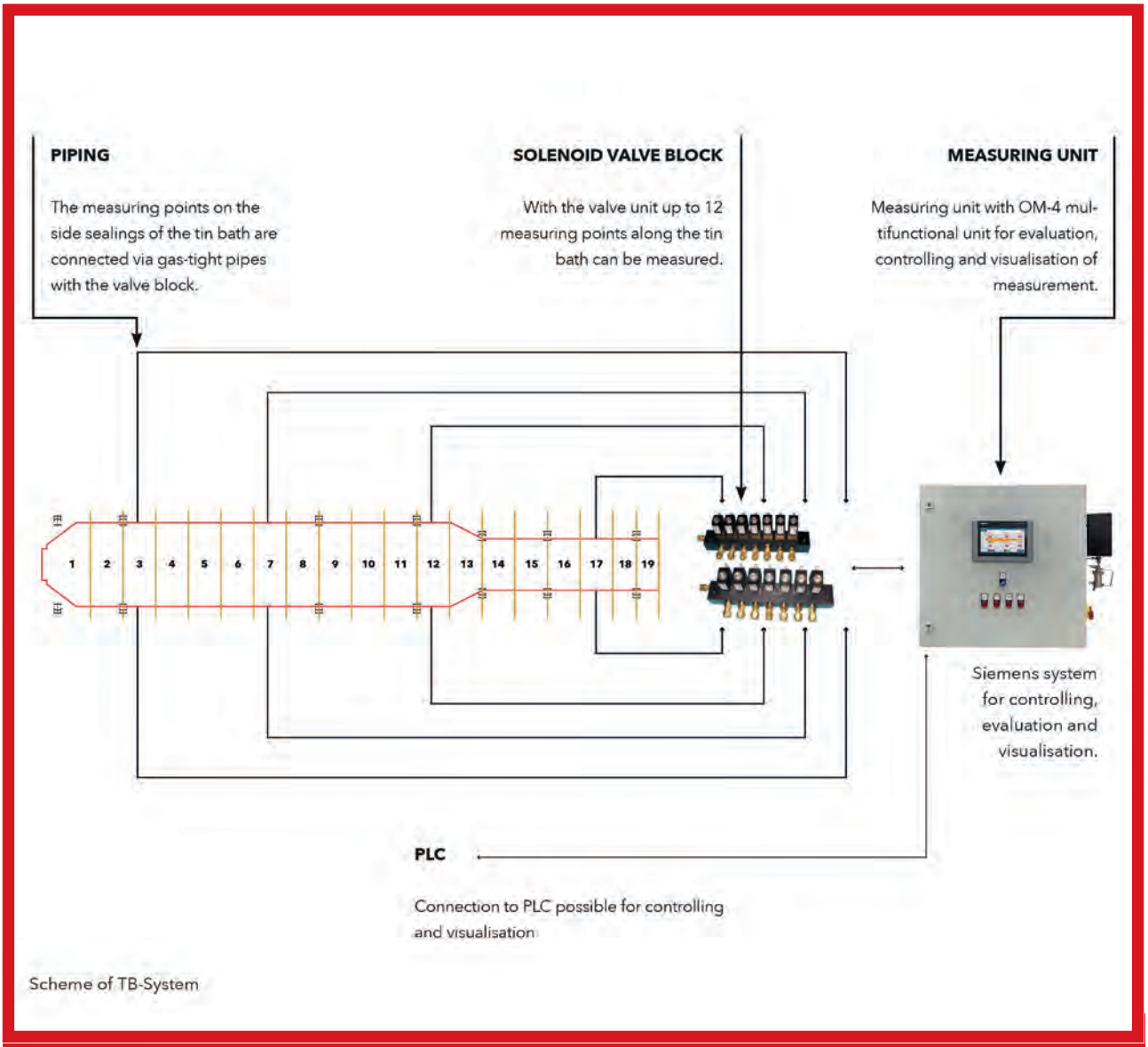


Fig.11 Extractive measurement system - tin bath

As output value the Lambda value is provided, but also the calculated O2 content in the premixed gas before combustion (because of historical reasons).

PORTABLE SOLUTION FOR EXTRACTIVE MEASUREMENTS

A portable measurement unit can be used for commissioning or short-term measurements. All relevant parts for extractive measurement, as well as internal memory, are stored in a transportable box. The unit can be used on both glass conditioning systems and tin baths. (Fig. 10).

TIN BATH EXTRACTIVE OXYGEN MEASUREMENT

To prevent oxidation of the liquid tin, a protective gas atmosphere is created in the tin bath. A critical point of oxidation should not be exceeded, while a high degree of protection is negative for operating costs. This is why constant monitoring of the tin bath is essential for safe operation. The bays are connected to the valve unit at equal intervals along the left and right of the tin bath. The tin bath measurement scheme is shown above. (Fig. 11). ■

Glass Industry

Directory 2024

DOWNLOAD THE 2024 EDITION

- Supplier Profiles
- Yellow Pages
- Glassworks contacts
- Associations

OVER 1,600 CONTACTS

PUBLISHED BY

Poste Italiane Spa - Spedizione in abbonamento postale - 70% - 1O/MI • € 2 - Copia omaggio

LANDMARK MILESTONE

Industry visionary CONDAT marks 170 years of lubrication excellence

2024 marks a significant milestone for Condat as the company celebrates its 170th anniversary. Based on embodied values, such as its historical one 'Build to last', Condat has demonstrated its ability to adapt, innovate and reinvent itself over the decades - leveraging its extensive and steadfast expertise.

For over 20 years, Condat has distinguished itself by providing the industry's least impactful lubricants, with a special focus on operator health and environmental sustainability across various application fields. Biodegradable lubricants for agriculture or the wood industry, vegetable-based coolants for machining and borax-free soaps for wire drawing are just a few examples of initiatives driven by the company within its value chain.

Such is Condat's commitment to what the group calls Responsible performance. To this end, it has established its LUBRISCORE ® to offer customers better visibility on its eco-designed products. LUBRISCORE ® is a self-evaluation method that rates products based on life cycle crite-

170
1854 - 2024

In the run-up to Glasstec 2024, CONDAT prepares to showcase its eco-friendly lubricants and innovative solutions for the glass industry. The group's responsible performance initiative, including its LUBRISCORE® rating, highlights an ongoing commitment to reducing environmental impact while being as serious about operator health as high performance.

ria: Raw materials and design, Production, Transport, Use, End of life. Using a point system and responses to about twenty questions, LUBRISCORE® assesses the level of eco-design in Condat products. Providing safe, high-performance and low-impact products is the driving force behind Condat's dynamic approach. Currently, 28 percent of raw materials are sourced from renewable resources - thereby enabling the production of lubricants without petroleum basic constituents.

Condat also places significant emphasis on overall impact. Decarbonizing its industrial sites has been on its strategic roadmap since 2021. By acting as a responsible industrialist, Condat proudly reports avoiding 3,860 tonnes of CO2 emissions over the past three years. This achievement is the result of concerted efforts by the company and its employees, including a new policy on deliveries, waste reduction and projects focused on reducing water and electricity consumption, as well as gas and fuel usage. All these efforts have paid off. Condat was awarded the Platinum medal for its Corporate Social Responsibility (CSR) by EcoVadis in 2021 and was renewed in 2023. This result places Condat among the top one percent of the best-rated companies in the world.

HOW DOES CONDAT HELP THE GLASS INDUSTRY?

Based on its commitment to responsible performance, Condat is a true leader in offering products with minimal environmental impact without compromising on performance and productivity. Beyond providing high-quality and efficient lubricants, it also distinguishes itself through personalized advice on implementing optimal lubrication solutions tailored to each glass-making plant. Aligned with its ethos of responsible performance, Condat aims to help glass producers consume less while achieving better results. In connection with eco-use, the Condat team conducts on-site assessments to reduce total glass process costs, enhance productivity and maximize lubricant effectiveness - encouraging consumption of the right quantity of lubricants. Some innovative and responsible lubricants dedicated to the glass industry follow here:

EMBRACING SUSTAINABILITY

The evolution of non-graphite lubrication in glass moulds

Graphite has long been a key

component in swabbing grease formulations due to its high performance. Its origins can be natural (mining ore) or synthetic (full chemical process). However, it can cause defects like dirtiness and buildup in glassmaking. To address this, Condat offers lower-graphited and non graphite swabbing greases, providing a cleaner working environment and reducing graphite use. These greases not only replace graphite but also offer technical benefits such as increased thermal resistance, extending swabbing frequency by three to five times, and improving operator safety. Additionally, Condat's non graphite swabbing solutions are made from renewable vegetable-based and recycled refined oils. They have high flash points to limit fire risk and ensure equipment and co-worker safety, with safety data sheets free of hazardous pictograms.

IS machines fluids consume less

Condat's GLASS HTS 250 IS, a 100 percent synthetic oil for central lubrication of IS machines, is approved by both glass plants and IS machine OEMs. It offers unique benefits such as low evaporation, high thermal stability, low oxidation and excellent lubricating properties. This lubricant reduces consumption by up to 50 percent compared to standard mineral oils and is free of heavy metals, chlorine and solvents, further minimizing fire risks and maintenance costs. This product is available with a fluorescent dye that reflects easily under UV light. This allows maintenance to detect machine leaks very quickly and consequently lower lubricant consumption.

Swabbing greases for glass robot – using the right product quantity

The best waste is no waste. Using the right quantity of lubricant while maintaining high performance is a major issue at Condat. Equipment like MICRODOSE helps save 50 percent on consumables by ensuring reliable and constant dilution. Sprayable CONDAGLASS swabbing greases reduce product usage by seven times and eliminate dangerous manual operations, increasing productivity by four percent.

Condat, the glass making partner

Altogether, Condat's lubricating solutions aim to reduce the glass industry's carbon footprint by promoting responsible consumption and eco-use. With 170 years of expertise, Condat continues to adapt and innovate, leading the way toward responsible performance. For over 30 years, Condat has supported the container glass industry, with around 200 customers worldwide relying on its solutions for productivity and safety. Condat addresses every aspect of the glass production process, offering high-value solutions for shears, scoops, deliveries, moulds and IS machine mechanisms. With capacities to produce in different areas in the world, Condat can also apply its mantra: Think Global, Act local. Shortening transportation delays, reducing carbon footprint and investing in local companies also make up Condat's commitment to the glass industry. To know more about this glass lubricants offer, experts from the group will be available for visits at Glasstec Düsseldorf, Hall 14 stand E11. ■

ABOUT CONDAT

Condat is an independent company with international presence, specializing in the field of industrial lubrication. For 170 years, it has adapted its products to the specific needs of each market (drawing, cold heading, metal working, glass industry, etc.) and has developed a wide range of soaps, greases, oils, etc. Condat lubricant range is recognized on the glass industry market, in particular for its wide range of lubricants. The company covers all glass processing needs, from glass containers, flat glass to optical glass. It offers among others: shear spray oils, scoop oils, delivery coatings, graphited varnish for mould lubrication, graphite and graphite-free Swabbing mould compounds, IS machine maintenance oils and also float cutting oils, coolants cutting oils, flocculants for water treatment. Condat also provides lubricants for the maintenance of such equipment as hydraulic oils and greases and suitable equipment to ease implementation of such lubricants as dosing equipment.

CONDAT

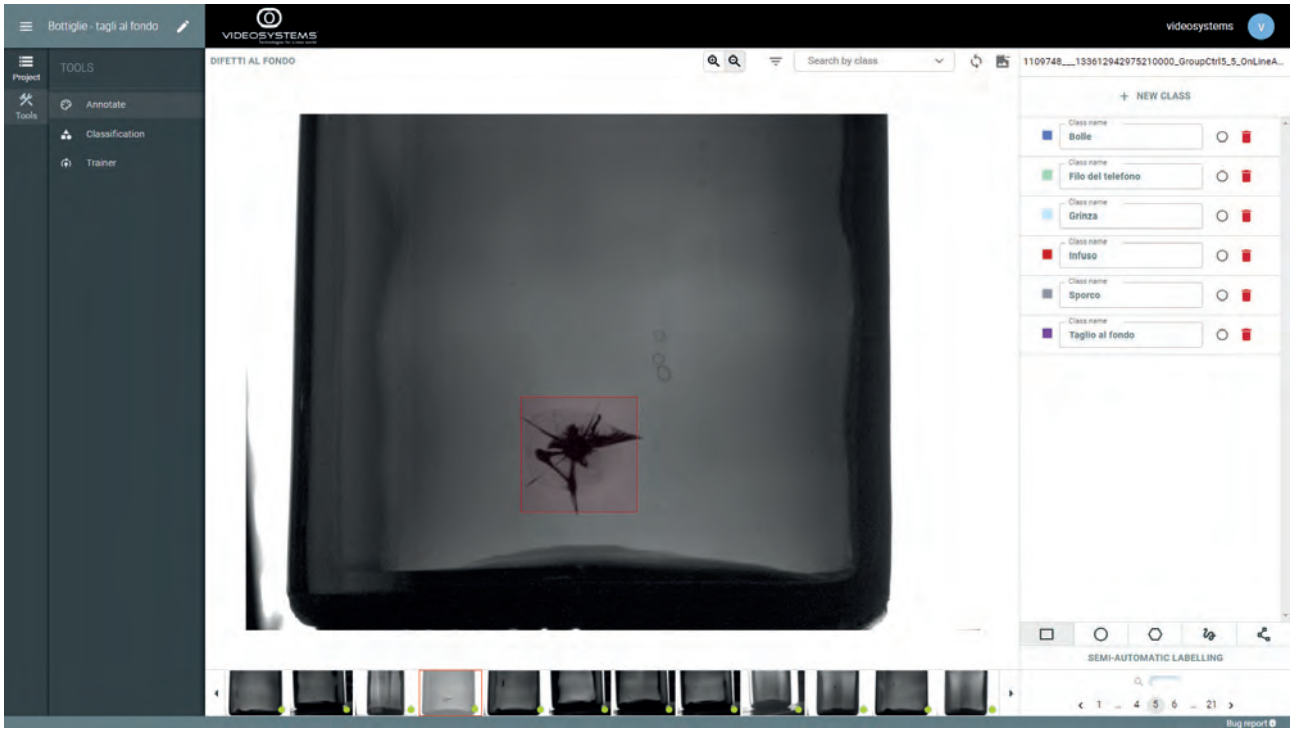
CONDAT

104 Avenue Frédéric Mistral
38670 Chasse-sur-Rhône – France
Tel: +33-4-78-07-37-11
Fax: +33-4-78-07-35-39
Email: info@condat.fr
www.condat.fr

Imago® how VIDEO SYSTEMS transforming hollow glass quality control

As they revolutionize hollow glass quality control with AI-based solutions, such VIDEO SYSTEMS products as Imago Omnia and Imago Oculus are leveraging advanced AI and smart cameras to enhance defect detection and reduce false positives. The technology is improving production efficiency, reliability and sustainability - making significant strides in the glass manufacturing industry.

Video Systems, founded in 1993, has emerged as a global market leader in developing and producing product quality control and process control solutions in the manufacturing sector. By the late 1990s, the company leveraged its expertise to support the hollow glass production industry - collaborating with the market leaders of the time. This led to the development of tailor-made applications that eventually became market products. During its first decade, such collaboration was protected by exclusive agreements due to the innovative impact of the proposed solutions. In 2012, Video Systems began the large-scale distribution of these solutions.



ARTIFICIAL INTELLIGENCE BY CHOICE AND VOCATION

Since the early 2000s, Video Systems has been incorporating artificial intelligence (AI) technologies, with models developed internally by the company's software development team. It also developed the first smart cameras with built-in AI, which have evolved with the latest market technologies, such as integration with NVIDIA GPUs. One of the company's early projects was the development of the first multi-format appearance inspection machine around 2002, which became the genesis of the current Omnia system. This system can analyze clear and stressed containers up to 600 mm in height and 220 mm in diameter, using advanced AI systems introduced in 2003 that drastically reduced false rejections.

A COMPREHENSIVE RANGE OF AI-BASED CONTROL SOLUTIONS

Today, the entire range of Imago® inspection products from Video Systems® includes advanced and modern AI systems for image analysis. The company offers complete

AI-based image analysis solutions with Imago Omnia starting from 2018 the first colour camera based sidewall analysis system, bottom inspection with Imago Extrema, contactless finish and shoulder cut inspection with Imago Linea, applicable to bottles, jars, glasses and pharmaceutical containers. Laboratory systems like Imago Vertigo provide statistical control of geometric parameters, while Imago Pyxides handles the inspection of pharmaceutical container packs. Continuing the tradition of Video Systems, the company also develops special machines for specific customer needs. This comprehensive product line is made possible by the company's hardware and software development capabilities.

OCULUS: GENESIS AND EVOLUTION OF A SMALL GENIUS

In 2005, a collaboration with a major Italian glass group led to the development of a vision system to enhance carousel machines and replace traditional aiming systems, marking the beginning of Imago Oculus, now in its sixth generation. As Oculus approaches its 20th year on the market, it has evolved to meet the demands of the most discerning customers and rotary machine manufacturers. The solution is highly performant, reliable and user-friendly - all thanks to distributed computing, scalable camera installations, intelligent illuminators and software developed with master glassmakers. Widely tested on virtually all market carousel machine models, it represents the most reliable and efficient solution for enhancing cut and defect control in glass container production.

WHY ARTIFICIAL INTELLIGENCE?

Pioneering the development of AI-based solutions since 2001, Video Systems has always believed in this transformative technology. Significant research investments, supported by collaborations with leading international universities, have enabled the Italian company to offer high-performance solutions. These solutions are suited for high-productivity and high-reliability sectors such as glass, steel, automotive and aerospace, where Video Systems has operated for over 30 years. The ability to identify various types of defects has improved over this period thanks to innovations in electronic and optical devices. However, even today, some defects are not identified satisfactorily. Current identification systems perform well in detecting minimal defects, but sometimes this ability is compromised by an increase in false positives. Maximizing production while optimally identifying defects is not only a goal for glass manufacturers but also a necessity for sustainable production. Optimizing production will reduce pollution generated per ton of product delivered to the market. This article proposes an AI-based method for optimizing traditional inspection methods for glass containers. Thanks to this methodology, developed by Video Systems since 2003 and improved year by year through new studies, technologies and market demands, a significant reduction in false positives has been observed, along with improved ability to identify particularly difficult defects. Starting in 2001 with academic texts and driven by the will and perseverance to create new solutions for the manufacturing market, the company's 20-year journey has proven fruitful. It has been a long process because the company philosophy demands that it always presents finished, stable, safe and high-performing products to fully satisfy its customers and their needs.

STAYING AHEAD WITH QUALITY CONTROL AND PROCESS MANAGEMENT SOLUTIONS

The company is always available to respond to all unmet quality control and process management needs. Here it pledges to continue its research and development activities - thanks to its partners and team of seasoned and new researchers, which aims to make the glass industry more efficient, safe and sustainable. This October Video Systems will be at Glasstec 2024 in Düsseldorf where it will be presenting its latest innovations - ever on hand to discuss attendee needs. ■

VIDEOSYSTEMS
Technologies for a new world
VIDEO SYSTEMS
Viale Mangiarotti, 4
33033 - Codroipo - UD - ITALY
Tel.: +39-0432-913582
E-mail: sales@videosystems.it
www.ideosystems.it

CLOSE THE GLASS LOOP reports record collected glass volume

POSITIVE TRENDS AMID RISING DEMAND

Significantly, the amount of glass collected has kept pace with the substantial 4.5 percent increase in glass packaging introduced to the market. This balance highlights a positive trend in glass collection efforts across Europe, suggesting that as demand for glass packaging grows, so does the efficiency and effectiveness of collection systems. Speaking on behalf of Close the Glass Loop partners, Secretary General of FEVE (the European Container Glass Federation) Adeline Farrelly said recently: "More glass packaging was collected in 2022 than ever before, reaching a record level of 12.4 million tonnes, representing an increase of about 542 000 tonnes over the previous year. The increase in volumes of collected glass demonstrates the resilience and commitment of the glass packaging value chain to increase the availability of post-consumer glass for the manufacturing of new glass bottles and jars."

TOWARDS THE 2030 COLLECTION OBJECTIVE

To achieve the ambitious target of a 90 percent collection rate by 2030, it is crucial to further advance initiatives focused on the separate collection of glass packaging from both households and the hospitality sector. Additionally, investments aimed at maximizing glass recycling outputs, particularly towards a closed-

The European Union's glass value chain continues to demonstrate remarkable stability, maintaining an impressive 80.2 percent glass packaging collection rate, coupled with a record volume of collected glass. Recent data unveiled by CLOSE THE GLASS LOOP reveals that in 2022, the EU's average collection for recycling rate of glass packaging remained consistent at 80.2 percent.

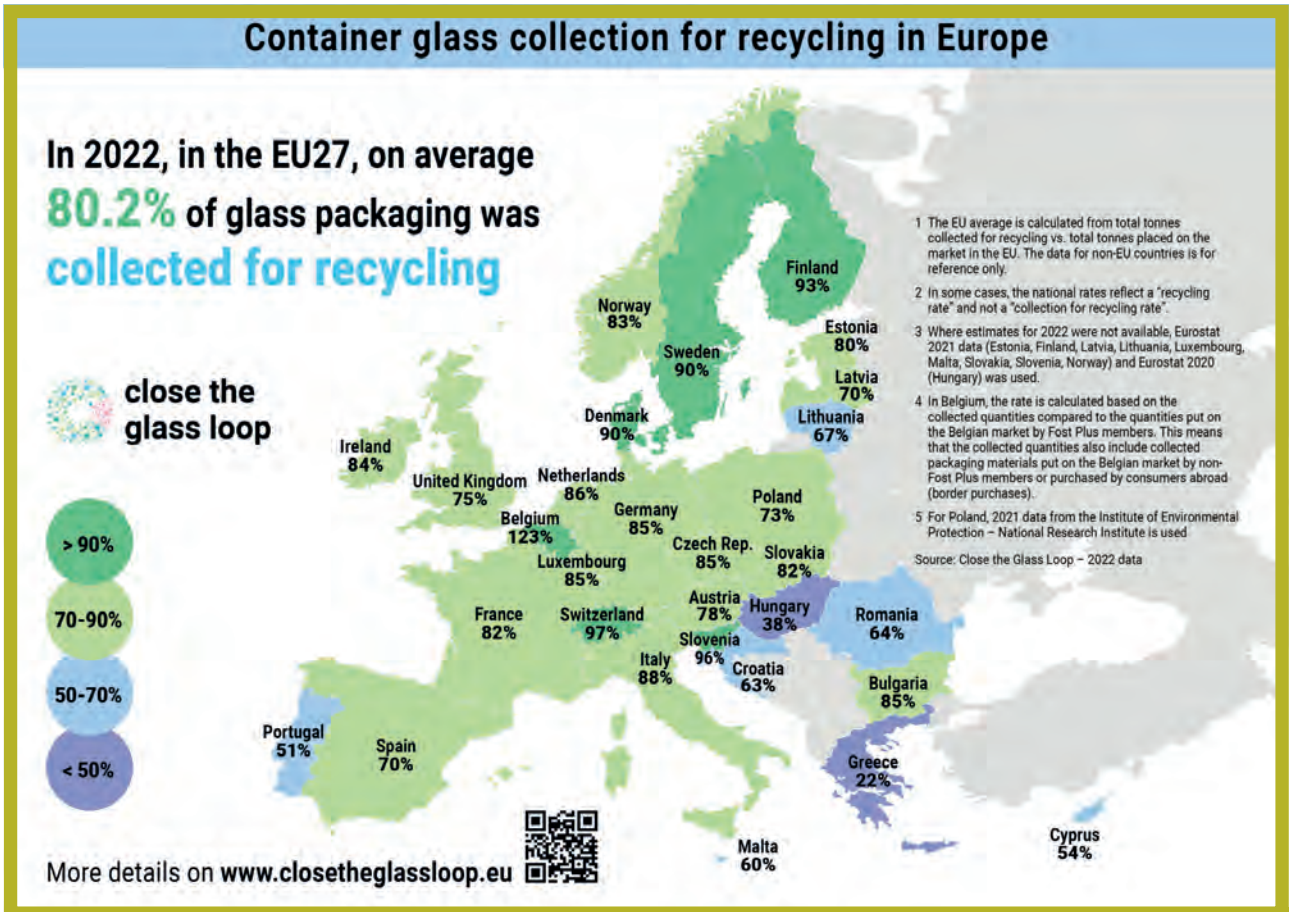


Image courtesy of www.closetheglassloop.eu

loop system, must be supported. The urgency of these measures cannot be overstated; they are vital for ensuring a sustainable and efficient glass collection and recycling framework throughout Europe. Secretary General of FERVER (European Federation of Glass Recyclers) Olivier Deweerdt, likewise speaking on behalf of Close the Glass Loop partners, recently said: "Close the Glass Loop national Platforms play a pivotal role in achieving the 90 percent collection target. The exchange of best practices and support for projects and activities at the national level are vital for increasing and improving glass collection for recycling. This will be reflected in our upcoming 2025-2030 Close the Glass Loop Action Plan."

MOBILIZING NATIONAL PLATFORMS AND ACTION PLANS

The activation of National Platforms and the implementation of National Action Plans are essential to stimulate the necessary actions for boost-

ing glass collection and recycling rates in each EU Member State. This year, the network has been strengthened with the inclusion of Romania and the Netherlands as new National Platforms. Their participation enhances our capacity to execute tailored strategies at the national level, addressing specific challenges and opportunities.

EXPANDING PARTNERSHIPS FOR A SUSTAINABLE FUTURE

Close the Glass Loop is committed to fostering more partnerships across Europe to bolster glass collection and recycling efforts. By expanding our collaborative network, we aim to develop and implement effective, localized solutions that contribute to the overarching goal of a sustainable and efficient glass recycling system across the continent.

CONCLUSION

The steady collection rate and increasing volumes of recycled glass underscore the EU's robust efforts in glass packaging recycling. However, to meet future targets, ongoing promotion of separate collection initiatives and strategic investments are necessary. With the support of national platforms and a focus on tailored national strategies, the EU is well-positioned to enhance its glass recycling capabilities and achieve its 2030 objectives. ■

FEVE
The European Container Glass Federation

CLOSE THE GLASS LOOP

c/o The European Container Glass Federation - FEVE
Avenue Louise 89 - Bte 4
1050 Brussels - BELGIUM
Tel: +32-0-48682-3936
E-mail: info@closetheglassloop.eu
https://closetheglassloop.eu

Successful completion by VERALLIA of Vidrala glass acquisition in Italy

With the recent finalising by VERALLIA of its acquisition of Vidrala's glass business in Italy, the company is expanding its strategic presence within a growing market. Equipped now with modern facilities, its Corsico plant is strengthening Verallia's offering to today's food and beverage industry.

Vidrala's Italian subsidiary operates from one production site in Corsico near Milan, with two furnaces. In 2023, the company generated revenue of EUR 131M and EBITDA of EUR 33M.

This transaction reflects Verallia's willingness to further invest in a strategic and growing market and expand its glass container offering for the food and beverage industry in Italy for the benefit of all its customers.

Following satisfaction of the regulatory filing and other conditions precedent, Verallia confirms that the acquisition of Vidrala's glass business in Italy,

for an enterprise value of EUR 230M, has been finalised today. The acquisition is financed with a three-year Term Loan set up with a pool of international banks.

Equipped with two recently renovated furnaces, the Corsico-based plant benefits from modern production facilities with a capacity of 225Kt/year and enjoys a strong positioning, particularly in the beer, food and spirits markets. Nearly 200 employees will reinforce Verallia's expertise - all with a view to sharing knowledge and best practices.

A WORD FROM THE LEADERSHIP TEAM

Following this acquisition, Verallia Group now operates seven production sites in Italy. Said Patrice Lucas, Chief Executive Officer, Verallia:

"The acquisition of the Corsico plant represents a real asset for Verallia's growth. It is in line with our strategic plan to grow in key European markets. It is an opportunity to reinforce our operational excellence for the benefit of our customers. We extend a warm welcome to all Corsico teams."

Marco Ravasi, Managing Director Italy, added:

"I'm delighted with the outcome of this acquisition project, which will enable us to improve our industrial footprint in Italy - enhancing our ability to satisfy the expectations and needs of our customers." ■

ABOUT VERALLIA

Verallia's purpose is to re-imagine glass for a sustainable future. The company seeks to redefine how glass is produced, reused and recycled to make it the world's most sustainable packaging material. It works together with its customers, suppliers and other partners across the value chain to develop new, beneficial and sustainable solutions for all. With almost 11,000 employees and 34 glass production facilities in 12 countries, Verallia is a European leader and the world's third-largest producer of glass packaging for beverages and food products. It offers innovative, customised and environmentally friendly solutions to over 10,000 businesses worldwide. In 2023, Verallia produced more than 16 billion glass bottles and jars and recorded revenue of EUR 3.9 billion.

The company's CSR strategy has been awarded the Ecovadis Platinum Medal, placing the Group in the top one percent of companies assessed by Ecovadis. Its CO2 emissions reduction target of -46 percent on scopes 1 and 2 between 2019 and 2030 has been validated by SBTI (Science Based Targets Initiative). It is in line with the trajectory of limiting global warming to 1.5° C set by the Paris Agreement.

Verallia is listed on compartment A of the regulated market of Euronext Paris (Ticker: VRLA – ISIN: FR0013447729) and trades on the following indices: CAC SBT 1.5°, STOXX600, SBF 120, CAC Mid 60, CAC Mid & Small and CAC All-Tradable.

Verallia Italia SpA

Via Del Lavoro, 1
36045 Lonigo VI
ITALY
Tel.: +39-01955701
Fax: +39-0195570352
E-mail: info.italia@verallia.com
www.it.verallia.com

Core values demonstrated in STARA GLASS's formidable track record

SHOWCASING TECHNICAL EXCELLENCE

With projects just finished by the technical department of Stara Glass being many, and those to come being no less numerous, current activities by the company's R&D department are still underway in the field of research and innovation - mostly aimed, for now, at the important challenge of decarbonization that will see Stara Glass fully engaged over the years ahead.

Stara Glass proudly shares some of these completed and ongoing activities:

- **Finishing ahead of schedule in Austria**

The reconstruction of two glass distribution channels at a major customer in Austria has just ended successfully - and ahead of schedule.

- **Embracing hybrid furnace solutions with CENTAURO**

Ve.me. (O-I Italy group) confirmed its preference for the hybrid furnace solution CENTAURO, thereby assured its order for the supply of a new plant that will be built alongside the existing one.

- **Innovative initiatives in decarbonization: SU.G.A.R.**

The project SU.G.A.R. (sustainable Glass: Architecture of a furnace heat recovery system including a steam Reformer), sponsored by the European Community, is now entering its pilot phase, which will allow for the production of Hydrogen, obtained from the processing of furnace exhaust fumes then reused as additional fuel. This will be carried out as part of the new CENTAURO project at Ve.me. (O-I Italy group) first half of 2025.

- **Global developments**

After a complex project just concluded in South Korea, with customer Soo-Seok, to whom the company delivered a latest-generation Oxygen combustion furnace, Stara Glass also finished a challenging job in Brazil, with one of the world's leading groups in the flat glass sector. The EPC project, just completed, involved all the technical departments of Stara Glass at a highly technical level.

- **Decarbonization and alternative energy**

The process of decarbonization, which has begun worldwide, will increasingly require the use of alternative energy sources to fos-

With 2024 just passed its halfway mark, STARA GLASS now showcases its commitment to innovation and sustainability in the global glass manufacturing market. Here, highlights include the successful early completion of projects in Austria, advances in decarbonization with SU.G.A.R. and global endeavours in hybrid furnace solutions, as well as advanced modelling software development.

sil fuels or produced through sustainable methods. Among these mentioned is electricity; seen as a 'green' energy source, it is increasingly entering -as a form of fuel- into the design of melting furnaces for glass. Indeed there is now frequent talk of the use of 'super boosting' systems or 'hybrid furnaces', intended in the sense of a high percentage use of electricity in contribution to the melting of gas or gas and oxygen, as well as the future of glass production. Even in this field, Stara Glass is strongly active, thanks to the upcoming completion of an advanced project for the realisation of a new concept of 'hybrid furnace' to be completed with the collaboration of a major European glass group.

- **Advanced Modelling Software**

For many years now, Stara Glass has been developing a series of in-house, advanced mathematical calculation and modelling software which, through the introduction of process, chemical, physical and production information, will allow for optimization of the design of a melting furnace. Among its latest activities in progress, Stara Glass has created a new software to drive qualitative improvement in the choice of refractory materials leveraged in furnace construction. Here it aims to improve insulation characteristics, which will positively impact the final result of fuel consumption such that furnaces are not only 'green' but also 'energy saving'.

- **H2 Glass**

H2 Glass is a European project studying the behaviour of the glass melting process in furnaces that use Hydrogen as fuel - as well as related production aspects. Stara Glass is a very active partner - participating in all stages of this project. Here readers are invited to follow its progress on the company website.

- **COREu**

COREu, too, looks to the future of reducing CO2 production. A European project, it is part of the much larger project Horizon, which aims to analyse the possibility of introducing Carbon Capture methods in glass production as a means of achieving sustainable forms of decarbonization for this global industry. In this project Stara Glass is an active participant through its R&D departement.

A FUTURE PATH OF INNOVATION AND SUSTAINABILITY

These few lines summarise the main activities, projects and works with which Stara Glass has been involved, or has begun to realise over this past half of 2024. As there is still a long way to go, the company invites Glass Machinery Plants & Accessories readers to watch this space as it continues to give more details to the industry in the near future. ■

STARA GLASS

Piazza Raffaele Rossetti 3 A/1
Genova, 16129 - ITALY
Tel.: +39-010-576391
Fax: +39-010-564763
E-mail: staraglass@hydragroup.it
www.staraglass.com

UzGlass

Expo for Glass Industry in Uzbekistan

NOV. 27-29, 2024

TASHKENT, UZBEKISTAN

THE FIRST GLASS INDUSTRY EXPO IN CENTRAL ASIA

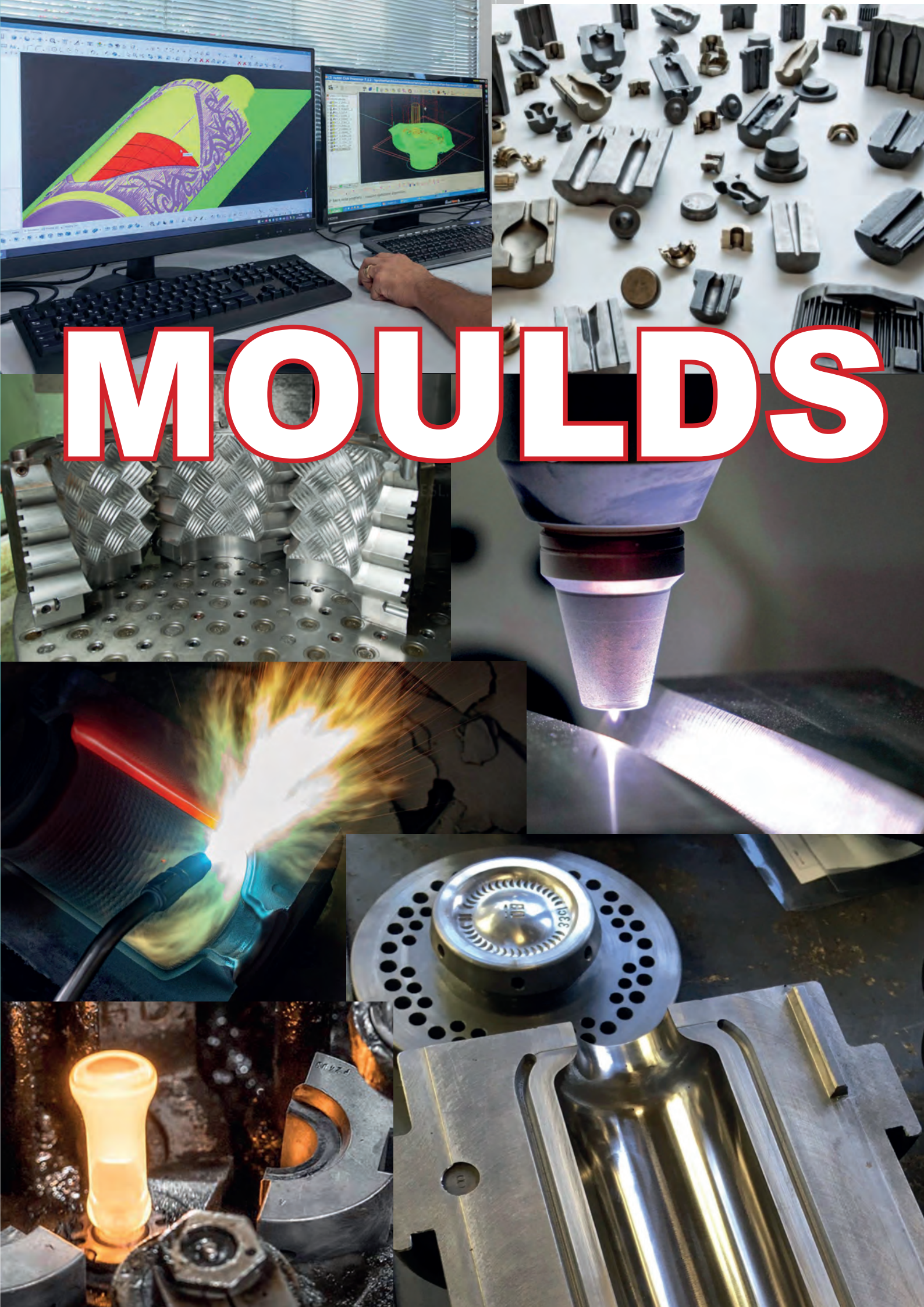
REGISTER NOW

ORGANIZED BY:

Y T International Enterprise Inc

Uz Expo Centre

More Information :
WWW.UZGLASS.COM


MOULDS

Anniversary, 1964-2024

GIANCARLO PEREGO marks 60 years of excellence

In a world as fast-paced as the glass industry, longevity is a testament to resilience, innovation and unwavering dedication. A renowned name in glass moulds and accessories, GIANCARLO PEREGO SpA proudly celebrates its 60th anniversary today. To commemorate this significant milestone our editorial team had the honour of sitting down with the Founder Giancarlo Perego, the CEO Leonardo Perego, Sales Director Michele Giordano and the CTO Andrea Galli.

Mr Giancarlo Perego 1960

GMP&A: LEONARDO, COULD YOU GIVE US AN INTRODUCTION TO GIANCARLO PEREGO SPA AND A BRIEF HISTORY OF THE COMPANY SINCE ITS FOUNDING?

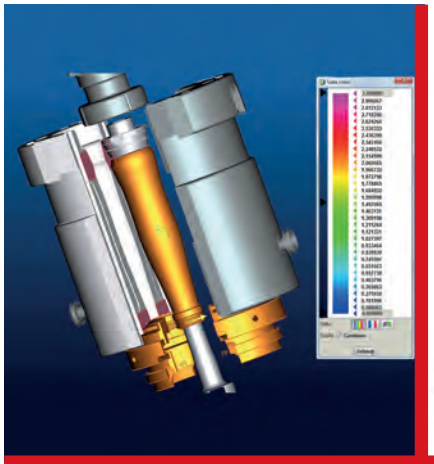
LP: Sure. Giancarlo Perego SpA has a rich industry history that now spans 60 years. That makes it stand out as one of the largest producers of glass moulds and accessories in Italy today. Our company founder, my father Giancarlo, embarked on his career as a technician at IVISC, which is was a company that specialized in glass tableware and bottles. Back then he developed projects for various glass articles while designing moulds for producing glass containers. Already then, Giancarlo harboured a vision of establishing his own enterprise - a dream he'd soon realize by founding his inaugural company, ALPE, on the ground level of the family home. Before long, the confines of Giancarlo's residential basement proved insufficient, prompting him to contemplate a significant leap forward. Then in 1964 Giancarlo Perego SpA came into existence with its headquarters at Via Marchesina, 58 in Trezzano S/N. To this day that's where the company's primary production facility remains situated.

GMP&A: And from there the company went from success to success.

LP: That's right. By 1980, buoyed by favourable exports, we underwent our first plant expansion, expanding to approximately 5000 square metres. Later, in response to escalating demand in 2000, a new plant was erected adjacent to the existing one - expanding the total area to 11000 square metres. Then in 2001, acknowledging its deficiency in offering accessories to the market, the company embarked on an expansion initiative by acquiring the majority percent stake in the Croatian company SPJ - Spijliak D.O.O. By 2011, the new Croatian plant was fully established, enabling the group to expand to 15000 square metres. Today the company's board is evaluating a further expansion of this site to accommodate its growing needs.

GMP&A: Very impressive indeed. Michele, share with us the secret to your company's remarkable success over six decades?

MG: First and foremost, I have to say that our success is a result of the dedication and hard work of our entire team at Giancarlo Perego SpA. We are a family here, and that unity is what drives us forward. To elaborate on some specific factors that have contributed to the company's success, I'd say key among them is our commitment to customer satisfaction. We take a personalized approach with each customer, ensuring that they feel supported and valued throughout their journey with us. That same dedication has been



paramount to building trust and loyalty ever since 1964.

GMP&A: Are there any recent achievements or milestones you'd like to highlight that you could tie in with the future of Giancarlo Perego SpA within the industry?

MG: Of course. We are extremely proud of the growth we have seen in our plants. That success is a testament to our ongoing commitment to excellence and innovation. We're very optimistic about the future, which is already explained by the significant investments we continue to make in cutting-edge technologies to ensure we remain competitive and at the forefront of the industry. Here we are talking about an investment of EUR 2.8M in the Group Plants. That said, our focus remains on customer-centricity which, coupled with a united and dedicated team, will doubtless continue to drive our success in the years to come.

GMP&A: Michele, thanks for sharing your insights with us and congrats again on the company's 60 years of success.

MG: Thanks, you're most welcome! And here's to many more years of prosperity and innovation! ■

A GLASS BOTTLE
IS NOT JUST A BOTTLE
IT IS A JOYFUL EXPERIENCE

WE HELP YOU SHAPE
THE EXPERIENCE

GIANCARLO PEREGO SPA
MOULDS FOR GLASS INDUSTRIES

ŠPILJAK d.o.o.
Member of Giancarlo Perego S.p.A. - Milano Group

www.gperego.it

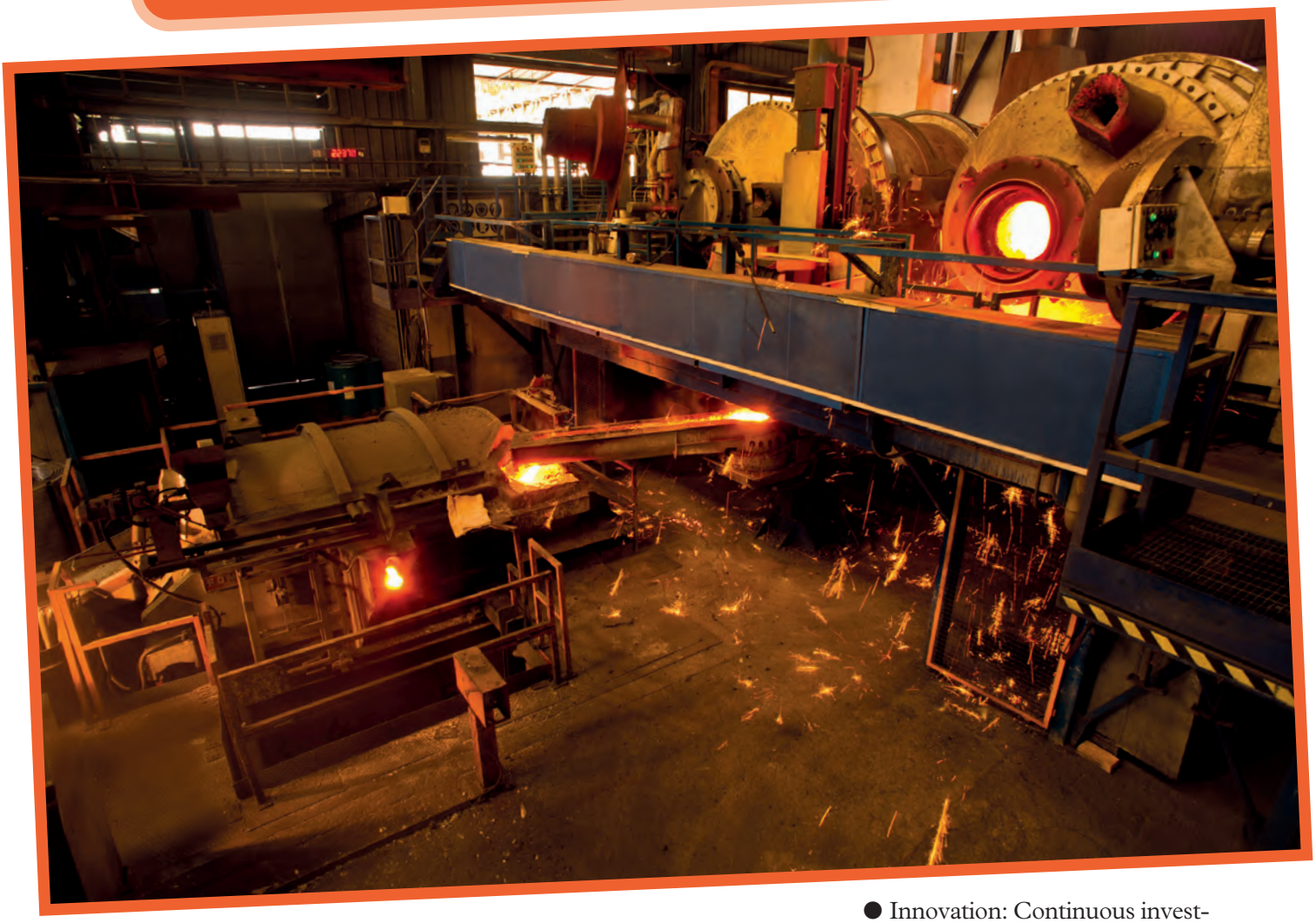
Crafting quality: FONDERIE VALDELSANE's glass moulds journey

Founded in 1961 in the picturesque heart of Tuscany, Colle Val d'Elsa, Fonderie Valdelsane has emerged as a global leader in the production of specialised cast irons and bronze alloys for glass moulds. From its inception, the company has demonstrated an unwavering commitment to the glass sector, honing specific skills and pioneering advanced technologies tailored to meet the unique demands of this market. Over the decades, propelled by escalating demand, the company has transcended national boundaries - garnering international acclaim and forging robust partnerships with major global glass corporations.

PILLARS OF SUCCESS

- Specialisation: Fonderie Valdelsane's exclusive focus on castings for glass moulds has enabled the development of unparalleled and highly specialised expertise. This concentrated approach has positioned the company at the forefront of the industry.
- Quality: The company's commitment to quality is evident through rigorous controls and the use of meticulously selected raw materials. This

Since it opened to business over sixty years ago, FONDERIE VALDELSANE has consistently excelled at producing specialised cast irons and bronze alloys for glass moulds. Known for its quality, flexibility and innovation, it offers bespoke solutions and comprehensive support. Evidenced by its ISO 14001 certification, the company's commitment to sustainability is matched by its significant investments in eco-friendly technologies.



dedication ensures products of the highest calibre, meeting the strictest international standards, and contributing to enhanced performance and efficiency in glass production.

- Flexibility: With a remarkable ability to adapt to the specific requirements of each customer, Fonderie Valdelsane can produce custom alloys and patterns in less than a week, showcasing an exceptional level of responsiveness.
- Innovation: Continuous investment in research and development underscores Fonderie Valdelsane's drive to incorporate the most advanced technologies. This relentless pursuit of innovation optimises production processes and guarantees superior product quality.

- Service: Beyond mere production, Fonderie Valdelsane offers comprehensive support, including technical assistance, consultancy, and after-sales services, ensuring a holistic customer experience.

DEFINING COMMITMENTS

A significant portion of the company's resources is dedicated to R&D, enhancing performance to meet the evolving needs of the glass market. A team of highly qualified engineers and technicians collaborates closely with customers to develop bespoke solutions. Notably, the 'K 250' iron-based and 'B' copper alloys, produced exclusively for glass moulds, are internationally registered trademarks - assuring glass manufacturers of their provenance.

CERTIFICATION

In its steadfast commitment to sustainability, Fonderie Valdelsane has adopted an ISO 14001 certified environmental management system, investing in eco-friendly technologies and processes. In 2024, the company completed the installation of a 1,650 kWh photovoltaic system at its Monteriggioni facility. Spanning an area of approximately 12,000 square metres, more than 3,000 solar panels were installed, marking the largest solar project in Siena province to date.

LEADING THE WAY WITH SUSTAINABILITY

Membership in the Carbon Neutrality Area highlights Fonderie Valdelsane's dedication to reducing environmental impact. The new photovoltaic system is projected to reduce CO_2 emissions by 613 tons annually - underscoring the company's role as a pioneer in sustainability within the glass industry. Fonderie Valdelsane's storied legacy is one of innovation, quality, and environmental stewardship - setting a benchmark in the global glass industry while paving the way for a greener, more efficient future. According to European parameters, Fonderie Valdelsane compiled its first ESG sustainability report in 2024, which will be issued at year-end. ■

Fonderie Valdelsane S.p.A.

FONDERIE VALDELSANE

Strada di Gabbricce 6
53035 Monteriggioni SI - ITALY
Tel.: +39-0577-304730
E-mail: com@fonderievaldelsane.com
www.fonderievaldelsane.com

The VIDRIMOLDE pathway from local supplier to global leader

A key supplier in the decorative and glass container moulds market, VIDRIMOLDE is renowned for its advanced technical capability and elevated product quality. Committed to efficiency and sustainability, the company leverages state-of-the-art technology and rigorous quality assurance as it aims to lead the Iberian and European markets.

Vidrimolde was born in 1985 as a direct answer to customer demand. Initially the company only supplied businesses in the Marinha Grande region. However, it soon became a point of reference in Portugal before starting to export soon thereafter. Its good name then spread like wildfire thanks to the company's advanced technical capability, it's product quality and the close collaboration it was able to forge with clients. Though decorative glass has always been a part of daily life throughout the world, crystal glass and decorative glass companies have typically struggled when scouting for a mould producer that could make quality moulds with the requisite shape and design of constantly changing trends. Vidrimolde later entered the glass container moulds market. Today, with the technological level it has reached, it has achieved acclaim as one of the main mould suppliers for glass producers of every stripe.

MISSION

Vidrimolde aims to supply high quality moulds and accessories to the glass mould industry - both efficiently and sustainably.

VISION

A core vision is to be a leading supplier of moulds and accessories for the packaging glass mould industry within the Iberian market as well as Europewide. That

means securing a global footprint while being positioned among the world's largest manufacturers of glass moulds - always based upon such key pillars as quality and innovation.

VALUES

- Satisfying the Customer while respecting all other Stakeholders
- A focus on process innovation, efficiency and sustainability;
- Orientation towards the technological development of advanced solutions;
- Responsibility;
- Trust.

STRATEGY

The company looks to invest in projects/initiatives that focus on manufacturing moulds and accessories with more efficient and automated processes - ever taking both energy and environmental aspects into account. To that end it seeks to promote cost reduction in terms of generated waste while identifying more advantageous solutions in terms of oils used in the manufacturing process. Furthermore it works to get optimise workplaces with a view to minimising OSH risks and improving working conditions.

QUALITY

Different factors account for Vidrimolde mould quality, namely:

- Strong and reliable equipment that's adequate to production demands and sufficiently technologically advanced to yield the best end results;
- Specialized human resources offer daily dedication in responding to customer requirements;
- All orders undergo robust quality analysis prior to shipment;
- The latest 3D and modulation software gives shape to the requisite design, so optimizing results in close association with the customer.

Applauded by the company's customers, the combination of all these factors has been translated into the company's ISO 9001:2015 quality certification.

PRODUCTION

Vidromolde is a well-equipped company today technologically speaking. It offers state-of-the-art, efficient CAD/CAM systems and a modern showcase of CNC machines which includes several multipurpose systems. Through shared resources with the Intermolde group, the company offers eight PLASMA robotic welding machines and a total of more than 100 CNC machines. Vidrimolde's RDI system, which was a pioneer in obtaining certification from an external entity, is integrated with the Intermolde group. This demonstrates a shared commitment to the search for better practices while optimizing manufacturing processes. Much of Vidromolde's success is due to the knowledge of its collaborators, which has been acquired over the years by leveraging classical methods - all of which continue to be used today in full harmony with new technologies. ■

Commemoration

A proud salute to six decades of FIMA OLIMPIA growth

The green Tuscany countryside surrounding FIMA OLIMPIA has been an important ingredient to making twin priorities of sustainable development and environmental conservation. Having always committed dedicated resources to monitoring emissions, the company has been no less serious about maintaining a healthy workplace.

With certifications that fit into the context of its continuous attention to safety and compliance with current legislation, Fima Olimpia has consistently guaranteed a solid, farsighted investment in the customers who trust the company with their patterns and projects. It has been ISO9001-certified for Quality since 1997, with the ISO14001 and ISO18001 certifications for Environment and Safety later translated to ISO45001 over the ensuing years. It also has the 231 Model Certificate: a set of rules and procedures promoting a culture of transparency and accountability which are aimed at preventing and combating such illegal activities as corruption, fraud, child exploitation, undue favouritism and unequal opportunities within the company.

CHOOSING EXCELLENCE

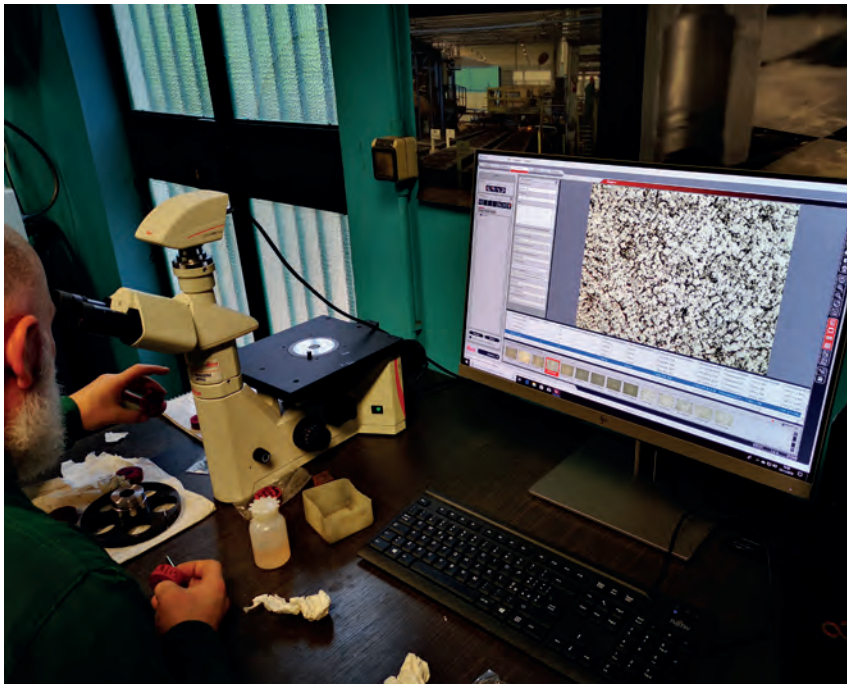
Passion and advanced technology are the driving forces behind Fima Olimpia's rise to prominence in the hollow glass market, where its expertise lies in special cast iron for glass mould industries. Here it offers the glass market a diverse range of over 20 alloyed cast-iron varieties, categorized as follows into the three primary cast iron families, namely:

- Lamellar cast iron
- Spheroidal cast iron
- Vermicular cast iron

Depending upon the technological requirements of production of the glass factory, Fima Olimpia will serve as support in both suggesting and supplying the most suitable cast iron material.

During the last three years, the company's production has been implemented with three new cast-iron materials which are progressively conquering the glass market worldwide - all poised to guarantee to customers the highest performance and reliability.

A dynamic structure open to all challenges, even the most difficult ones, with its two production lines Fima Olimpia provides optimum flexibility in briefly managing



easy sampling, as well as small and large series.

Upon requests the company produces large castings and specific equipment for mold processing and such machining machinery as holders, supports and the like.

Continuous ambitious investment in research and development of new materials is a key strength that paves the way to close collaboration with some of the most important glass factories, with customized solutions that can meet specific requirements and needs.

MOULDS MATTER

Over the years, a policy aimed at continuous updating has led to substantial structural investments with the implementation of new high-tech plants. Indeed, thanks to today's commitments to improving production chain management, logistic and technical organization, Fima Olimpia is now on the market with a modern, qualified structure that can respond to the needs of prestigious customers worldwide - all completely independent in every production process.

A Pattern Shop entirely dedicated to mould model construction is well-equipped with the most modern technologies, CAD-CAM systems as well as two extremely versatile CNC machines. This guarantees a high level of dimensional quality and uniformity in the moulds produced. The Green Sand automatic moulding plant has a high pressure system which includes patented Formimpress technology. Here automatic plate changes also gives great flexibility during production of the small series.

The Otto Junker Duo Melter melting system with a capacity of six tons/hour has been developed for maximum flexibility and quality reliability. Add to this the automatic casting furnace which is perfectly adapted to handle frequent alloy changes. The Grinding department is equipped with three automatic grinding machines that are suitable for small and medium castings and moulds as well as two automatic grinding machines which work on big, weighty castings. Heat treatment is managed in Fima Olimpia by five annealing furnaces. The internal laboratory is well-equipped to process chemical analysis, microstructure control (matrix and graphite) and Brinell and HBS hardness tests. It further includes controls required by both the entire production process associated with final tests.

All testimony to Fima Olimpia's objective to create positive experiences, reliable services and high quality products for its customers. ■

Technological strides at HSTEC GLASS SYSTEMS lead moulds innovation

A Croatian-based company established in 2016, HSTEC GLASS SYSTEMS specializes in advanced machinery for mould production and refurbishment in the glass container industry. Renowned for its innovation and precision, it offers comprehensive solutions, including robotic automation and end-to-end services. The company's commitment to technological excellence and customer satisfaction positions it among the industry leaders.

Every remarkable journey begins with a significant inception, and the story of HSTec Glass Systems is no exception. Originating from the esteemed HSTec, which was founded in 1997, the company represents the pinnacle of innovation and precision within the glass container industry. Based in Croatia, HSTec Glass Systems emerged as a successful spin-off in 2016 - born from ambitious development projects aimed at revolutionizing the glass container industry. Since its founding, it has established itself as a leader within its field.

HSTec Glass Systems specializes in the development and manufacture of advanced machinery designed for mould production and refurbishment in the glass container sector. The company's offerings range from standalone machines to comprehensive, multi-machine automated robot cells. This versatility ensures it can cater to varied industry needs - providing tailored solutions that enhance both productivity and efficiency.

A fundamental aspect of HSTec Glass Systems is its dedication to delivering a complete service worldwide. The company manages everything from the initial concept and design to manufacturing, installation, training and after-sales support. This end-to-end approach ensures that clients receive not only cutting-edge machinery but also the expertise and support needed to maximize investment.

MISSION AND VISION

The company's mission is to revolutionize the glass container industry through contemporary solutions and superior technology. It aims to offer extraordinary know-how that meets and exceeds the evolving demands of its global customer base. By focusing on the development and manufacture of machinery for mould production and refurbishment, HSTec Glass Systems ensures it remains at the forefront of technological advancement.

The company envisions a future where the glass container industry thrives on the back of technological excellence. It aspires to exceed expectations, driving positive change through pioneering solutions that redefine the possibilities in mould production and refurbishment. Its unwavering dedication to innovation positions it as a leader in the industry, continually setting benchmarks for quality, reliability and sustainability.

SUPERB PRODUCTS AND SERVICES

HSTec Glass Systems boasts impressive products designed to meet the diverse needs of the glass container industry. Its line-up includes:

- Mould Comparator Machine
- Cavity Polishing Machine 200
- Cavity Polishing Machine 400
- Plunger Polishing Machine
- Plunger Nose / Radial Polishing Machine
- Mould Repair Workstation Hydraulic
- Mould Repair Workstation Pneumatic
- Mould Repair Workstation Manual

In addition to these advanced machines, HSTec Glass Systems offers comprehensive service packages, consumables and a wide range of spare parts, ensuring customers have everything they need for optimal operation and maintenance.

Furthermore, it specializes in programming and commissioning comprehensive robotic stations tailored to elevate manufacturing efficiency and productivity. This

expertise enables its clients to reach new heights in operational performance.

Moreover, HSTec Glass Systems excels in creating custom products - managing everything from concept to after-sales support. It oversees every stage of the process, including concept development, design, manufacturing, installation, training and continuous after-sales support. This comprehensive approach ensures that clients receive tailored solutions that perfectly align with their specific needs and operational requirements.

EMBRACING THE FOURTH INDUSTRIAL REVOLUTION

HSTec Glass Systems exemplifies the Fourth Industrial Revolution by seamlessly integrating advanced 2D & 3D vision technologies with the latest artificial intelligence (AI) advancements and Industry 4.0 principles. The company's expertise in intelligent automation and advanced technology solutions is unmatched. Its comprehensive robotics and automation services span engineering, design and the production of customized robotic stations. By utilizing industrial robots from renowned manufacturers like Fanuc and ABB, HSTec Glass Systems guarantees the quality, reliability and longevity of every investment.

CORNERSTONE OF SUCCESS

The cornerstone of HSTec Glass Systems' success is its exceptional team. The company's greatest strengths lie in the extensive know-how, experience and commitment of its team members. This synergy drives innovation and excellence in all their endeavors, making HSTec Glass Systems a beacon of quality in the industry. Proof of this success is reflected in its valuable and loyal references from some of the biggest names in the glass container industry, including Ardagh Group, OI, OMCO, Vetropack and many others.

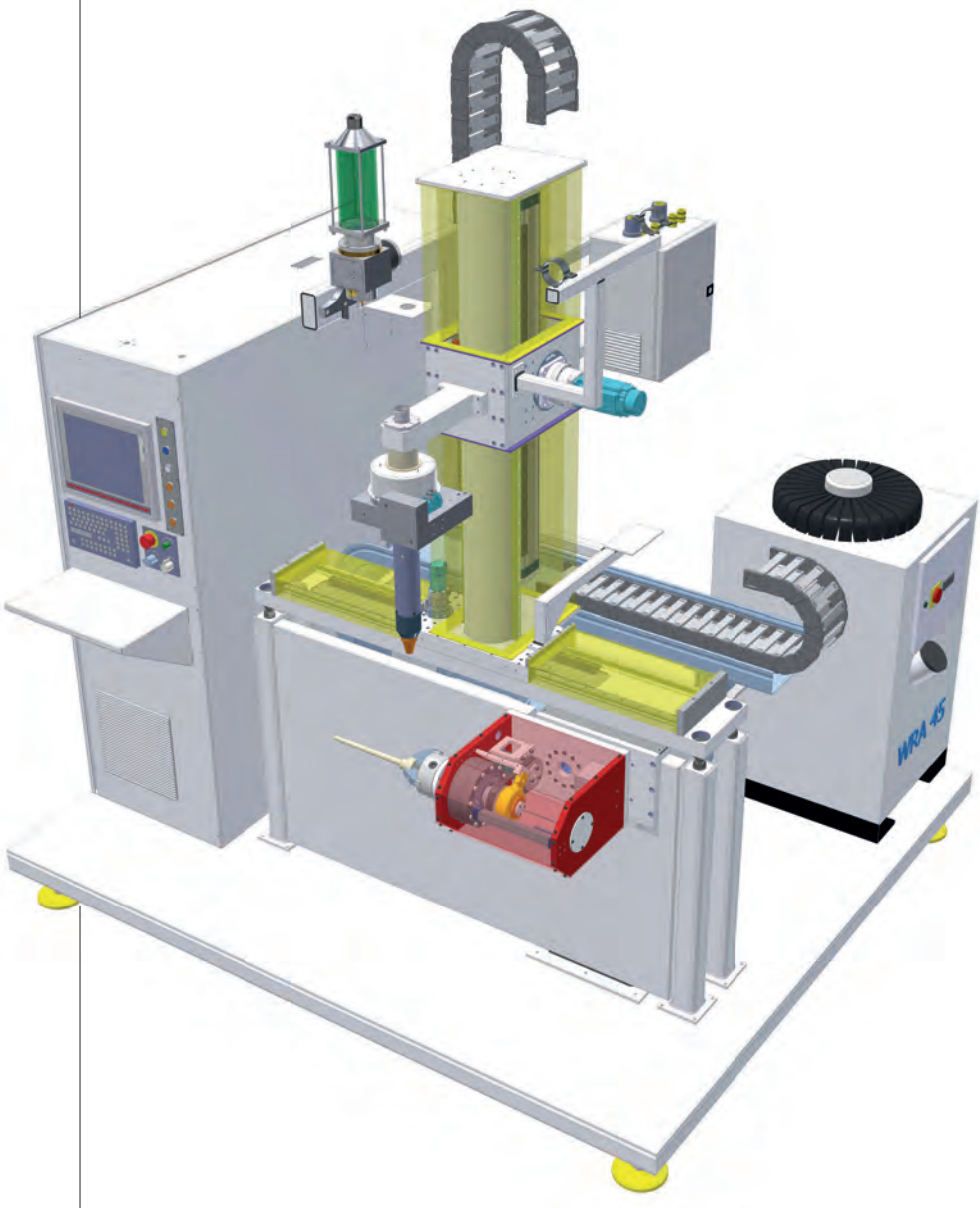
COMMITMENT TO CUSTOMER NEEDS

At HSTec Glass Systems, continuous communication with leading mould makers and glass container producers is paramount. By staying attuned to their needs and requirements, the company ensures it remains the preferred 'one-stop' supplier for introducing new products and developments. This commitment to customer satisfaction and industry leadership underpins every aspect of its business.

SHAPING THE FUTURE

HSTec Glass Systems is poised to shape the future of glass container manufacturing. Through continuous growth, customer satisfaction and a relentless pursuit of excellence, the company empowers its customers to thrive and succeed. As it continues to innovate and push the boundaries of what is possible, HSTec Glass Systems remains committed to revolutionizing the industry with unparalleled technology and service. In sum, HSTec Glass Systems stands as a testament to the power of vision and innovation. With such a rich history rooted in precision and a forward-thinking approach, it looks ahead towards leading the glass container industry into a new era of technological excellence and customer-centric solutions. ■

Advanced plunger coating achieved with COMMERSALD IMPIANTI technology



Technological research by Commersald Impianti concerning machines and equipment for P.T.A. (Plasma Transferred Arc) hard-facing glass moulds continue to produce innovation. Until now, the use of nickel alloys has had a fundamental role in the coating of plungers for the glass sector - filling the gap between mould wear, neck-rings, bottom and plunger. Here the term 'nickel' is applied to describe the series of nickel-chrome-boron-silicon alloys (Ni, Cr, B, Si) which have a relatively low melting temperature of between 1050°C and 1150°C. If one considers that cast iron or steel have melting temperatures of around 1400-1450°C, it's easy to see how such alloys can be easily coated and recast without causing the melting of the base material. In fact, the difference in melting temperature between nickel-based alloys and base material is around 250°C, allowing the operator to perform the recasting of the nickel-based alloy in complete safety. Remelting is necessary as nickel-based alloys are mainly coated using two methods: oxyacetylene flame and HVOF technology.

Demonstrating how nickel and cobalt alloy coatings for plungers enhance both durability and efficiency in moulds, COMMERSALD IMPIANTI's research into Plasma Transferred Arc technology continues to advance glass mould production. Indeed the company's PTA machines improve coating precision and reduce waste, significantly extending plunger life – all to the benefit of glassmakers and mould manufacturers alike.

During these two methods, the nickel-based powders are fused and impacted against the base metal, creating a series of more or less porous layers (depending on the speed at which the particles impact the target surface) and must then be recast to remove porosity. Remelting can take place with different methods, in some cases by means of an induction system to bring the deposited layers close to the melting temperature, but the 'final touch' must be carried out by hand by experienced staff.

USING COBALT COATING FOR PLUNGERS AND OTHER MOULD ACCESSORIES

Plungers are an important part of the moulds production process. PTA machines use an arc process to melt and deposit the powder material onto moulds. However, in the case of plungers, which are long and thin, the welded material tends to slide downwards. Another important fact to consider is that the coating of plungers is mostly carried out manually as opposed to automatically. Here's where one needs to factor in operator skills, given that s/he must carry out further work to weld the powders onto the surface 'by hand'. These plungers were then turned and processed to reach the smoothness required. Smaller plungers such as Blow Blow, were, until recently, made of Carbon steel or cast iron, then coated by hand (sprayed and then welded) by experienced and skilled workers. These operations had to result in a surface as compact as possible and then smoothed. Some clients showed that after 92 hours of work, the nickel in the coating of small-sized plungers started to 'lift away' from the surface of the metal. This meant that when the plunger came out of the bottle being produced (with glass at very high temperatures), it dragged some of the molten glass with it because the surface of the plunger was no longer smooth and compact. Thereafter, glassmakers started to request higher

hardness, even 40, 50 or 60 Rockwell instead of 30. This extreme hardness meant that after 92 or 100 hours of work the plungers needed to be completely replaced, with relative production downtimes to change the parts. Depending on the type of glass used, plungers work at high temperatures: 1200, 720, 650 or even 580°C. What's more, processing alloys with hardness of 60 Rockwell is extremely difficult, and even the strongest metals soften when working at high temperatures, such as nickel-chrome-boron-silicon alloys, which are hard at environmental temperatures. The only alloy that does not soften at high temperatures is a cobalt alloy. The term Cobalt defines an alloy with the following chemical composition: Cobalt-Chromium-Tungsten, or Cobalt-Chromium-Molybdenum, in some cases, with the best performing alloys, namely Cobalt-Chromium-Tungsten-Molybdenum-Silicon-Carbon-Boron. The main feature is the persistence of hardness when hot. In fact, cobalt alloys with a hardness of 40 Rockwell at environmental temperature, also maintain this level of hardness at high temperatures. This means that a plunger that is not so hard at environmental temperature (but easy to process) maintains this same hardness when working at extremely high temperatures. An important advantage for both mould and accessory manufacturers, as well as for glassmakers. The conclusion reached was that instead of coating using nickel-chrome-boron-silicon alloys, cobalt-based alloys should be used for plungers. But there was a problem which involved the fact that carbon steel and cast iron have a different melting temperature, which is about 1400-1450°C just like the cobalt alloys. This means that these alloys can be sprayed using the same blowpipe or by means of HVOF, but when these are re-melted, the part below the coating melts, so these alloys can be deposited using traditional methods, but not re-melted. The next step was then to look for another method of coating, and this is exactly what was done.

THE USE OF PTA

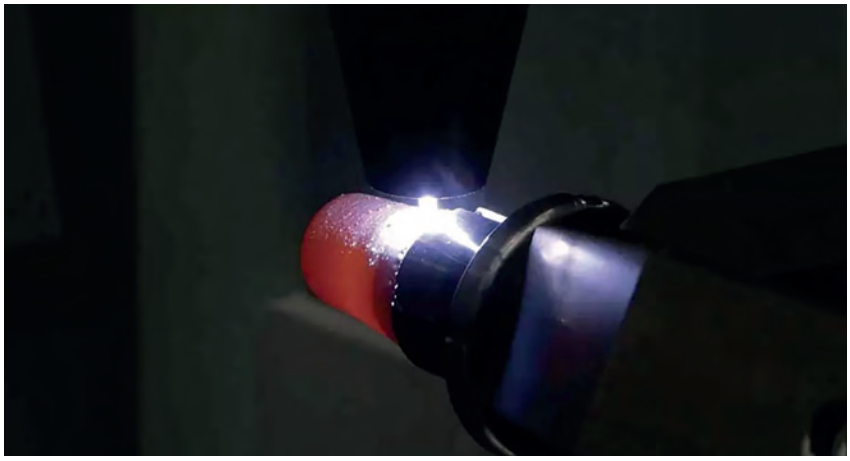
At this time, Commersald Impianti started using PTA, a special method of hard-facing, also for the smallest diameters, creating new equipment that works at very high rotating speeds with extremely efficient numerical control, and practically all new accessories, starting right from the nozzle. Using PTA to melt the coating onto the plungers with cobalt alloys, there is no need to re-melt, as PTA welds the material onto the surface at 18,000°C. The only part that is melted is the very external surface. When the plungers were tested in glassworks coated using this new method, their working life was discovered to be three times longer than other plungers (more than 300 hours, sometimes up to 600 hours depending on the type of glass being used, instead of 90 hours as previously). Moreover, there is another important advantage. With the traditional HVOF method of coating, a large part of the material (about 70 percent) to be coated is dispersed in the air. For example, a small-sized plunger needs 90 to 100 or even 120 grams of powder. With PTA, three plungers can be coated with the same amount of powder, as the process is completely automatic and numerically controlled, without human intervention. This also means that the machine can process up to 52 plungers in the same time it takes to coat a single plunger manually, without operator intervention for at least three hours, with the exact same coating results.

TESTING THE NEW PLUNGERS DIRECTLY AT THE GLASSWORKS

Testing was carried out directly at glassworks, i.e. at the end users of these accessories. During these tests, with cobalt-coated plungers working alongside nickel-coated plungers, the results were clear to see, especially concerning the duration of the plungers, but also the quality of the glass bottles produced. Glassworks then started to request cobalt-coated plungers from mould manufacturers, who needed Commersald Impianti's PTA machine to coat the plungers.

NEW MACHINES

Commersald Impianti's machines needed to be specifically designed to process these plungers. When speak-



ing to mould manufacturers, many reported that they manufacture plungers only for the first part of the month. Consequently they wanted a machine that could also process neckrings and bottom plates, etc. However, for the first machines sold (starting from Glasstec 2018), customers wanted a machine that processed neckrings too whereas they processed only plungers during the first year, over 18,000. Thanks to these new machines, companies have been able to significantly increase their plunger workload; first with nickel coating, then with cobalt-coated plungers. These machines can also coat with nickel, with the advantage of coating a higher number of plungers. The same machine can be easily adapted to work with neckrings and other accessories simply by changing the tray containing the items to be coated, the gripper to pick the items up and changing the programme of the machine. To date, however, solely plungers are coated with cobalt, due to the fact that other accessories are made of cast iron or bronze, which can't be coated with cobalt. With these new machines, Commersald Impianti has indirectly created a new type of demand in the market. PTA machines are really simple to use, as the operator needs to stay near the machine for the first 15 minutes only, just to set up the programme of the process to be carried out. The important characteristic of this machine is its standard format, which is able to process 52 items, working without operator intervention for almost three hours. When bottles are created with an IS machine, for example, temperature management is fundamental. In fact, the shorter the time it takes to create the bottle, changing the glass from liquid state to solid state, the better the results will be. On the other hand, if the glass temperature is low and the glass is too dense, it will damage the plunger. When IS machinery users replaced some of the plungers used with cobalt-coated plungers, they saw that these plungers worked at 100°C lower temperatures because the heat exchange created by the air flow was extremely efficient. This means that cobalt-coated plungers cool down faster. As such, they exhibit an elevated performance level and will manufacture more bottles as well. A lot of glass-making groups have already informed their mould manufacturers that they prefer to have cobalt-coated plungers, which is why mould manufacturers bought Commersald Impianti's machines (also thanks to the benefit of automatic working), with loading and unloading included. A further important characteristic of these machines is that both coating and all handling operations (including preheating operations if required) can be programmed by single numerical control.

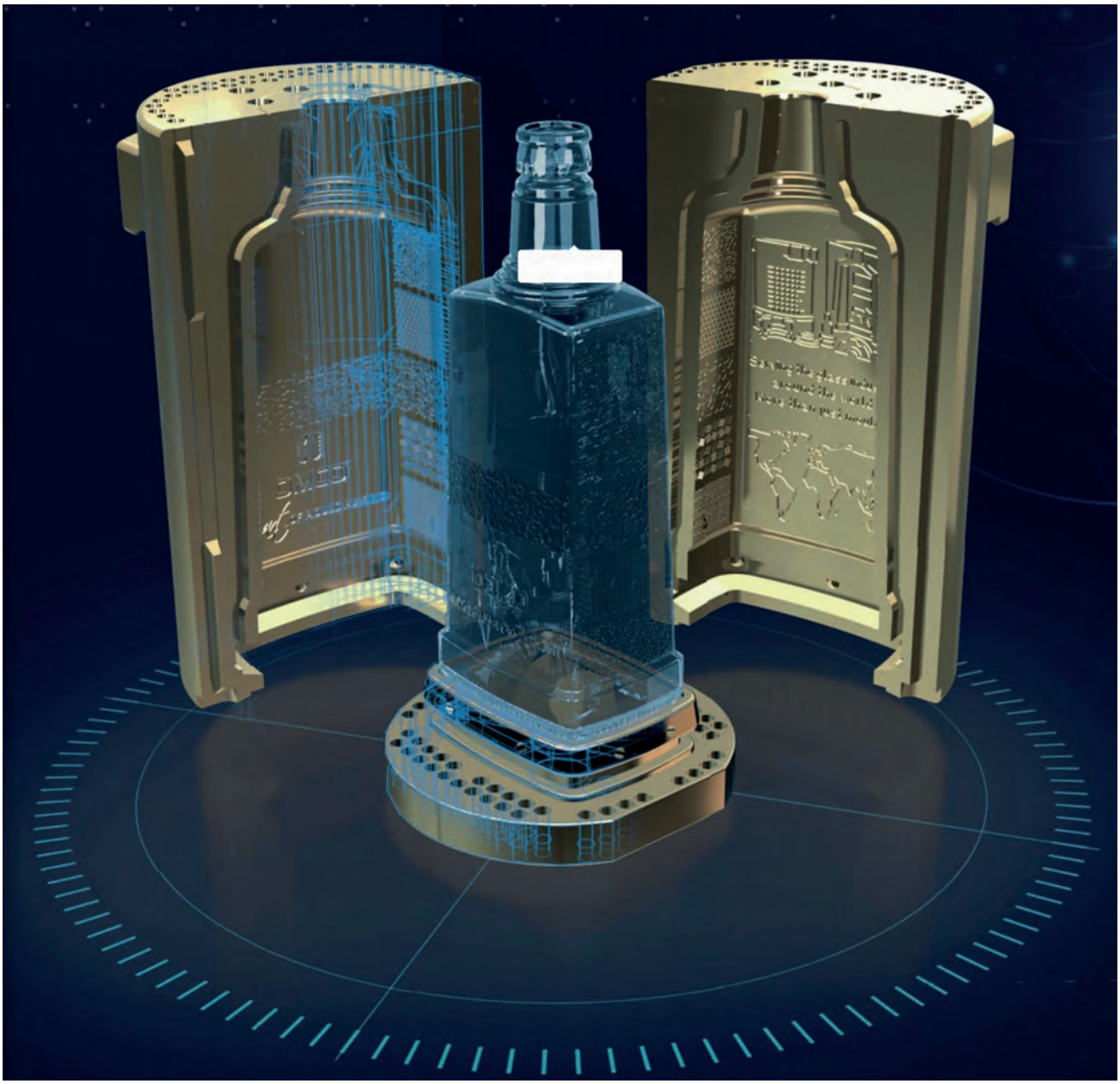
MACHINE TYPES

Here Commersald Impianti has created three machine types:

- Standard Version: Carries out automatic coating of plungers;
- Top Version: Coats neckrings and accessories and includes a 12 kW induction pre-heater;
- Manual Version: Requires automatic loading and unloading of plungers and allows the possibility of short production runs (not just for 52 items, but also for smaller batches such as 10 to 15 items for more modest-sized mould manufacturers).

This is an important example of how technological developments and human insights that lead to these developments are both essential to boosting the quality of final products - all while improving the working conditions of operators as well. ■

Pioneering glass mould manufacturer OMCO still changing the game



Within the dynamic glass container production landscape, OMCO stands as a leading mould manufacturer – consistently adapting to industry demands. Thanks to a rich history of innovation and strategic investments, its commitment to quality, innovation and customer satisfaction continues to position it at the forefront of the glass industry as the company's focus on prosperity and excellence drives the ongoing advancement towards its cutting-edge 'plant of the future'.

Glass container producers face tougher consumer demands, rising energy costs and increased competition from alternative packaging. As a consequence, mould suppliers have to be able to meet the demands for better quality and shorter lead time whilst retaining a competitive price level.

OMCO has gained much experience since its inception in 1964, continuously investing to improve its production processes. Over the last 15 years, the company has responded to increases in demand through acquisitions and, more recently, through green field ventures.

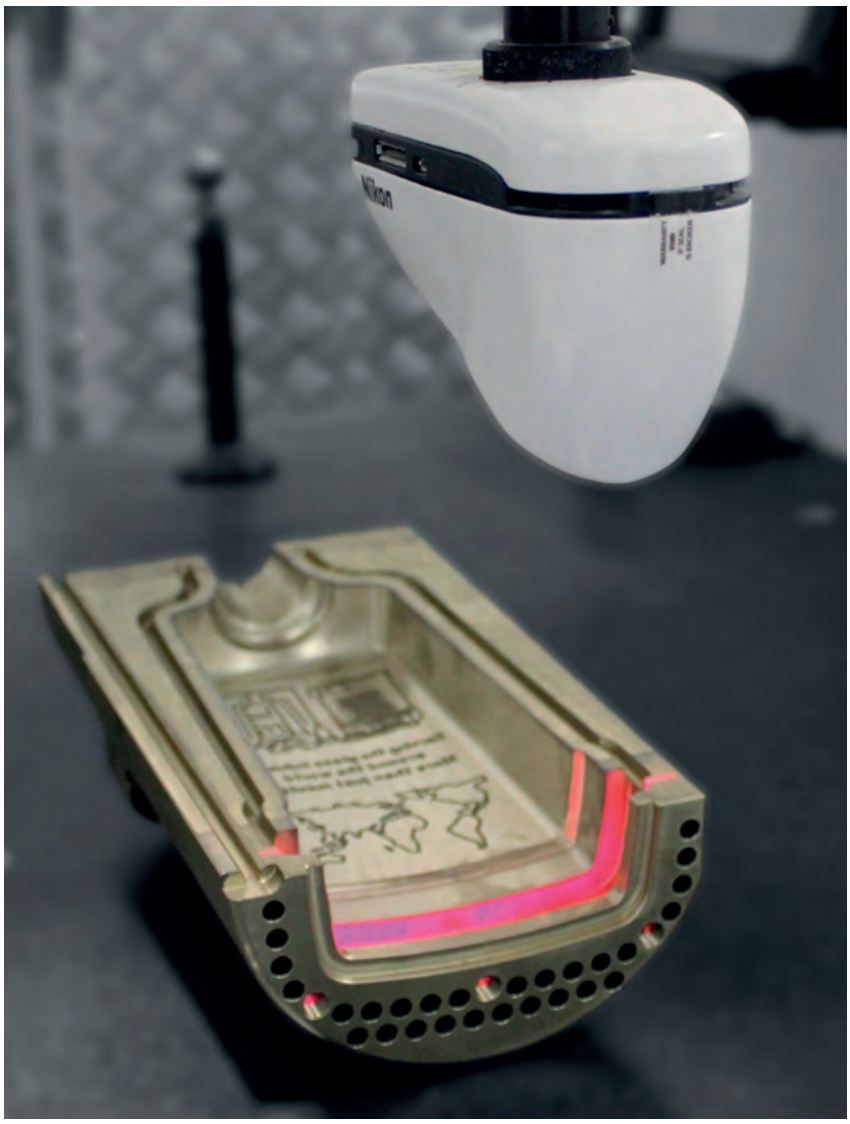
Today, as one of the world's leading mould manufacturers, OMCO continues to adapt its structure to meet the changing needs of the glass container industry. Based on a strategy of quality, innovation, expansion and a constant desire to exceed customer's expectations, it remains committed to serving the glass world.

The versatility of glass is legendary. Moulds are key to realising ideas in glass. Here OMCO provides a complete range of mould parts for glass container production, be it for cosmetic ware, pharmaceuticals, tableware, jars, bottles for fruit juices, beers and spirits. The company offers the equipment for any shape in a wide variety of quality cast irons or aluminium bronze, using various welding techniques to increase mould life. Indeed it offers a complete service range to make any project a success.

PLANT OF THE FUTURE

Anticipating the changes in customer demands driven by a challenging economic environment, OMCO has positioned itself for the next generation. Its business strategy is based upon three cornerstones, namely Prosperity, Excellence and People. Here the company invests unrelentingly in the latest technologies that can be applied to advanced glass mould manufacturing processes by building a 'plant of the future'. Using state-of-the-art CNC machines, robotic cells, measuring units and other sophisticated production and metrology equipment, OMCO factories are known for being world-class plants.

Through its investments in these technologies and plants, OMCO focuses wholeheartedly upon con-



sistently meeting the quality standards for which it aims because, which is its number one priority. The company cares about, believes in and invests in its people. Moreover, the engagement of its employees and their enthusiasm to achieve greater things makes each team member strive to meet the expectations of its customers. Being on the path towards a sustainable future, particular attention goes out to sustainability projects that improve environmental, social and economic performance. Here OMCO is constantly thinking of ways to stay a step ahead while relying on know-how instead of muscles. This makes OMCO a responsible global leader in glass mould manufacturing.

Continuously investing in technology, quality and sustainability is the key to success in a challenging market and here OMCO's 'plant of the future' strives to clear the way to ever higher targets.

DESIGN

Design is highly valued at the company as it forms the basics to ensure production runs smoothly at glass plants. Starting with the product design all the way up to the finished set of mould construction drawings, OMCO works to create and deliver designs efficiently to ensure successful container production.

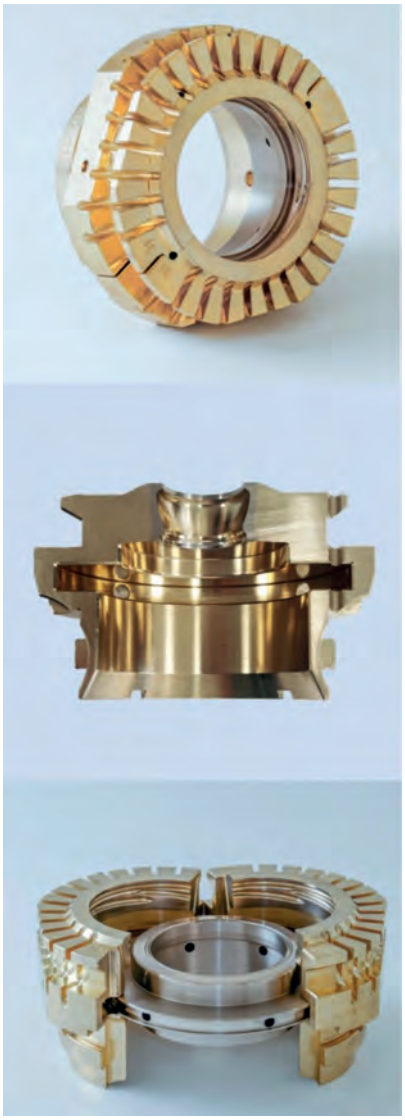
Average time for new development projects:

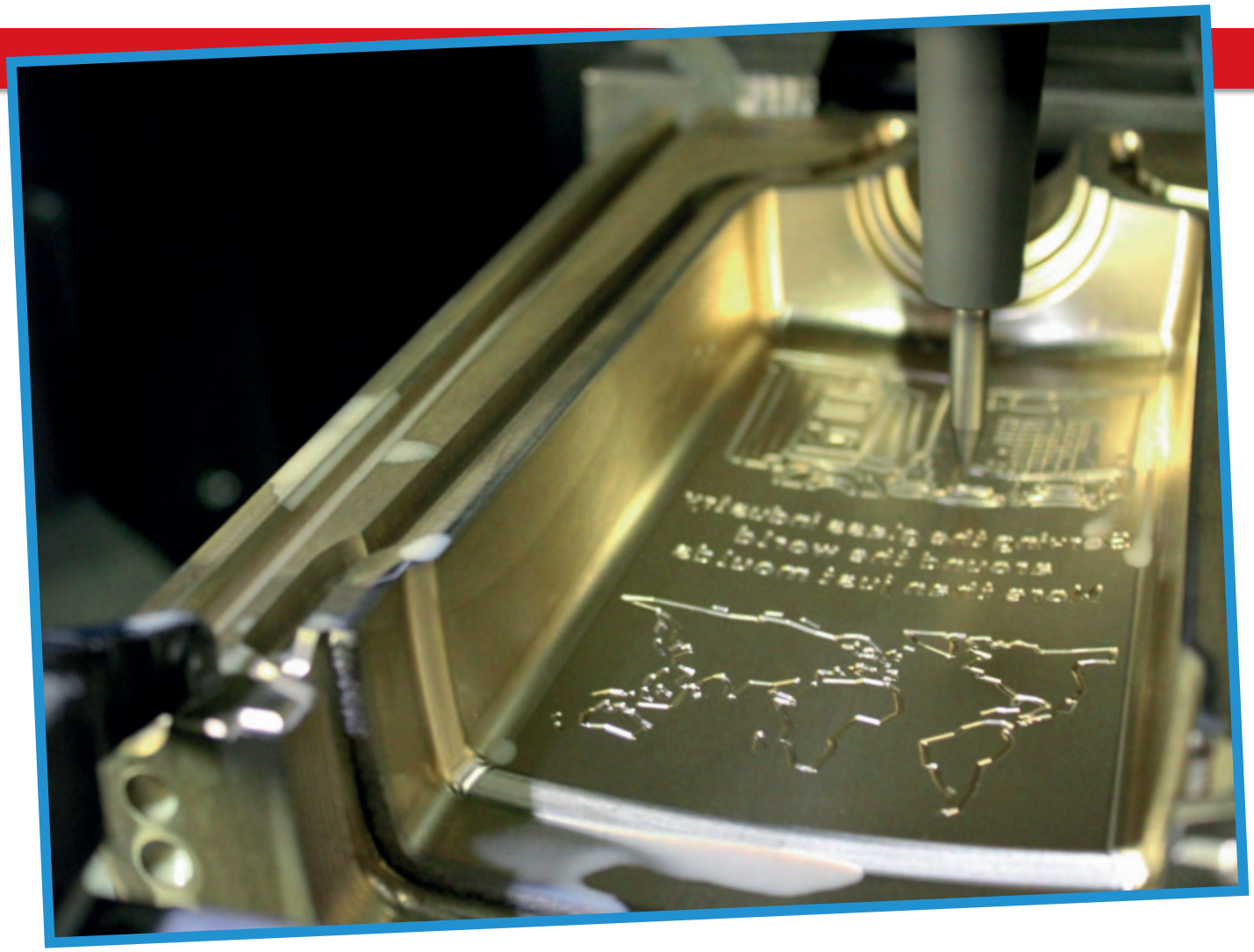
- 2 days for round moulds
- 3 days for shaped moulds

METALS

OMCO offers all types of quality for Cast Iron materials as well as Aluminium Bronze. With two strategically located foundries within our group (Belgium and Slovenia), the company monitors its material quality and is able to respond quickly to customer needs. With a total annual capacity of more than 11,500 tonnes, its foundries are built to produce all types and shapes for glass moulds and parts.

OMCO continuously invests and takes a proactive stance in the research and development of new materials. Based on extensive experience, the company can always recommend proper material choice





that will best perform in terms of glass quality, thermal conductivity, wear resistance and manufacturing. Furthermore, its foundries have become a worldwide leader for bronze mould castings, neck ring castings and inserted neck rings.

MOULDS

Glass is one of the most environmentally acceptable packaging materials and moulds are the key element in successfully manufacturing glass products. The mould has a direct effect on the final shape of the container. Recognizing the importance of it, OMCO has been working on optimising the quality of mould making since its inception back in 1964. The company has since gained much from experience and is constantly investing to improve its production processes and enlarge its capacity to

shape the future of glass making.

CAPACITY

Through sharing best practices across all of its production units, OMCO makes more than 280.000 mould cavities per year.

DURABILITY

With proper material choice and laser weld it can challenge an increase of lifetime - exceeding far more than one million glass gobs per mould.

REFURBISHMENT

With a focus on refurbishment and increasing the lifetime of moulds/blanks, reducing the capacity back to nominal value as well as design modifications, OMCO is stepping up its capacity and know-how also in the area of mould repair.

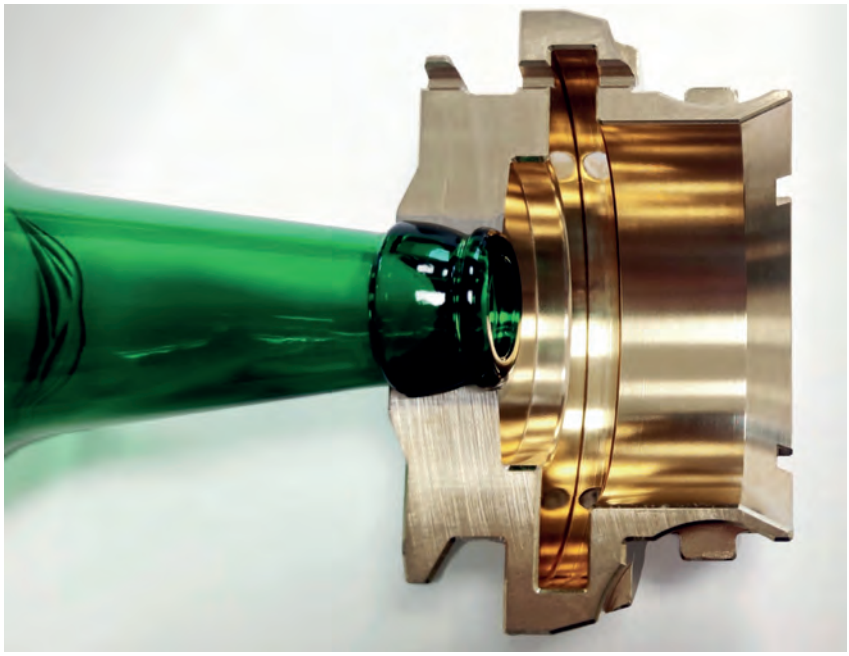
NECK RINGS

With a 12,000 m2 facility, OMCO Croatia has strived to become the biggest single facility in the world for dedicated glass mould manufacturing. This facility houses the group's entire neck ring and guide plate manufacturing unit. As a result of a very intensive investment programme in robotisation, the company can produce more than 600,000 Neck Rings and 1 million Guide Plates yearly, in different materials and in all shapes and sizes. This figure will grow as, based on the finding of our deep market demand monitoring efforts, OMCO is already working to ensure the further expansion. of its capacity with the latest top technologies.

PLUNGERS & ACCESSORIES

OMCO offers all variations of coated and solid base material Plungers to meet the glass container industry's lightweight drive by focusing on wise investments, the high speed of spraying and subsequent machining, which is fully robotized.

The company has an annual capacity of 200,000 high quality Plungers of various types at com-



petitive prices. Dedicated manufacturing units for PB and NNPB plungers are based in Turkey and Hungary with ambitious ongoing plans to grow capacity.

The 'all-in-one-place' concept is a major strength of the OMCO Group. This is further supported by its ability to produce every component required for the moulding process. In line with the customer needs, all illustrated accessories are produced in-house and can be supplied as part of a mould set.

650+ CNC MACHINES

OMCO has an impressive machine shop consisting of multi-spindle and multi-tasking machines (+60), simultaneous 5-axis, high speed machines, fully-automated machines with a system of workpiece stockers and gantry loaders, etc.

LASER TECHNOLOGY

The company is a true pioneer in the glass container industry when it comes to the implementation of laser technology. Here the areas are welding, engraving and 3D scanning.

70+ ROBOT CELLS

By continuous growth of robotic cells (+ 70) and in synergy with skilled employees, OMCO has significantly increased productivity.

TECHNOLOGY

As the result of its investment policy, long-term planning and intensive R&D activities, OMCO factories are equipped with state-of-the-art CNC machines, robotic cells, measuring units and other sophisticated production and metering equipment. Today its factories are world class plants in which cutting edge technologies are implemented and processes are automated and digitised.

QUALITY

Delivering quality is held to be OMCO's key success factor and its number one priority. In doing so, the company is committed to delivering constant improvement and advancements. As part of this strategy, it has implemented a group-wide UKAS-compliant Quality Management System which has resulted in the its ISO 9001 certification. The QMS is the foundation for ensuring consistent quality standards which creates harmonised, high-quality standards across the group. Furthermore, through the digitalization of its quality systems (OMCOPEDIA, Quality Reporting System) all relevant technical information is stored and easily accessible to +2,000 employees at ten sites in nine OMCO countries.

SUSTAINABILITY

Sustainability is a main focus area of the OMCO Group. Here it cares about its own environmental, social and economic performance, as well as those of its customers. One of the ways we do so is by ensuring stable supplies. Indeed it views sustainability as the key to a better future. OMCO invests in sustainability for the future of the company and for the employability of its people by establishing goals aimed at bringing focus, embracing change and fostering innovation at every level. Here it isn't satisfied with merely looking after its employees and customers but also society at large and the environment in which it operates. The company does this by making efforts that go beyond what may be required by regulators.

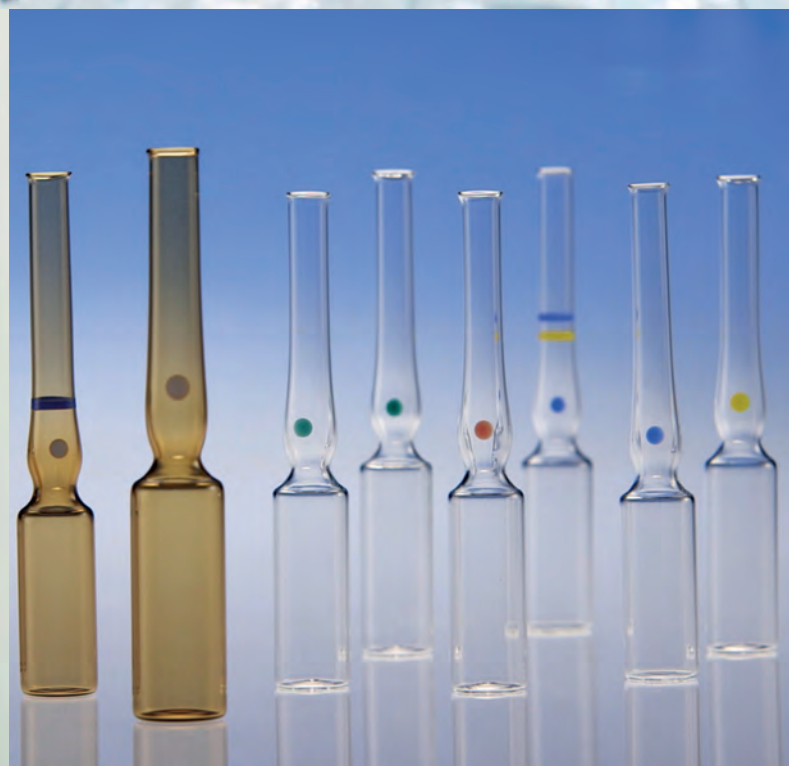
Through some of the dedicated projects already completed, OMCO has already reduced its CO2 emissions substantially. Here its ongoing and future projects and investments will enable it to produce more pieces using the same amount of energy - all while raising its sustainability targets to the highest levels. ■

OMCO

OMCO INTERNATIONAL

Venecolaan 10 9880 Aalter
BELGIUM
Tel.: +32-9-374-20 05
Fax: +32-9-374-34 69
E-mail: sales@omcomould.com
www.omcomould.com

Pharma Glass



DECARBONIZATION

Benchmark set by SGD PHARMA in journey towards Net-Zero

In this article, SGD PHARMA CEO Olivier Rousseau explains how his company is leading the glass pharmaceutical packaging industry in decarbonization as it aims to cut Scope 1 and 2 CO2 emissions from its 2020 baseline by 35 percent by 2030 and 65 percent by 2040. Here, supporting global sustainability goals, its strategy includes renewable energy adoption, production process redesign and increased recycled glass use.

INTRODUCTION

The glass manufacturing industry has already taken significant steps towards decarbonization, with companies across the sector under pressure to adopt innovative technologies and sustainable practices to reduce their carbon footprint. FEVE, The Federation of European manufacturers of glass containers, reports that glass is now 30 percent lighter, 70 percent less energy-intensive and emits 50 percent less CO2 than fifty years ago. The glass packaging industry, however, strives to improve performance on these figures,

investing around EUR 600M each year on further enhancing energy efficiency through such measures as plant upgrades. The pharmaceutical glass industry is no exception. Manufacturers in this sector are increasingly adopting new initiatives to reduce carbon emissions and make glass production more sustainable, recognizing the importance of these efforts for producers and consumers alike.

SGD PHARMA'S DECARBONIZATION STRATEGY

SGD Pharma, leader of decarbonization in the glass pharmaceutical packaging industry, subscribes to international decarbonization efforts, such as the United Nations Sustainable Development Agenda and the European Union Climate Law, by implementing a comprehensive decarbonization strategy which aims to dramatically reduce the company's carbon footprint.

SGD Pharma's strategy follows eight main steps, namely mobilise, measure, disclose, set targets, reduce, engage, contribute to neutrality and prepare to adapt. These steps are the product of a collaboration between three levels of decarbonization committees: the PAI Decarbonization Committee Board, the SGD Pharma Decarbonization Committee and the CO2 working groups. The trio of committees meet several times a year to assess the progress of the strategy and mark areas for improvement. Under the decarbonization strategy, SGD Pharma will transition to renewable energy sources, reassess the raw materials used in glass production, redesign production processes, adopt more recycled glass and develop lighter products. An ambitious strategy, it will facilitate the accomplishment of SGD Pharma's company goal of reducing Scope 1 and 2 CO2 emissions by 35 percent by 2030 and by 65 percent by 2040 (compared with its 2020 baseline), in line with the 1.5°C trajectory of the Science Based Targets initiative. Holistic in scope, the strategy also aims to tackle Scope 3 emissions within SGD Pharma but also across the company's suppliers and customers by increasing the weight of sustainability criteria in sourcing decisions and decreasing product weight respectively. The strategy has already helped SGD Pharma to become the leader of decarbonization in the glass pharmaceutical packaging industry and achieve recognized successes, including:

- Gold EcoVadis medal for sustainability, with a company total score of 78
- ISO 14001 certification for environmental management of 100 percent of SGD Pharma's global manufacturing sites
- PAI Sustainability Award
- Investments in renewable energy sources, such as solar and wind, at all five of SGD Pharma's global manufacturing sites have provided 6.5 percent of the company's total electricity.

DECARBONIZATION INITIATIVES IN ZHANJIANG, CHINA

At SGD Pharma's Zhanjiang, China manufacturing plant, energy use is a key focus and is regularly reevaluated to ensure

it meets the highest sustainability standards. Earlier in 2024, SGD Pharma announced a EUR 20M investment in the plant, consisting of a complete rebuild of its furnace and an improvement of the plant's facilities to significantly improve energy efficiency. Prior to this, the Zhanjiang plant had already made considerable advances in its move to greener fuel. In 2018, a switch from heavy oil to liquified natural gas (LNG) saw a ten percent reduction in the site's greenhouse gas (GHG) emissions. Then, in 2023, the site introduced a renewable energy purchasing programme to cover one-third of the plant's electrical consumption.

SGD Pharma's Zhanjiang plant also supports mangrove conservation in China through its partnership with the Zhanjiang Nature and Resource Bureau. Mangroves are central to the plant's decarbonization efforts as a single tree can absorb up to 12 kg of carbon annually. In 2022, the team in Zhanjiang planted 1,000 mangroves, achieving an estimated carbon sink of 10,000 kg. Expanding upon these efforts, the site launched its 'The Future is Green' campaign at the 27th China Beauty Expo in Shanghai which included the planting of 168 mangroves also in the Xiashan Sea Corridor Landscape. With the help of its customers and suppliers, the Zhanjiang site aims to plant an additional 10,000 trees in 2024 and to reach a total 1,000,000 mangroves planted by 2030.

Relationships between the Zhanjiang plant and its wider community have been essential in establishing these sustainable practices. A delegation, led by Zhanjiang Mayor Mr Zeng Jinze, visited the factory last year to learn about its dedication to sustainable energy. Following discussions with CEO Olivier Rousseau and other key executives, both the Mayor and Vice Mayor Mr Zhang Renjian expressed support for the plant's green energy solutions, which include wind and solar power.

FURNACE REBUILDS AT SAINT-QUENTIN-LAMOTTE (SQLM), FRANCE

One of the two furnaces at SGD Pharma's SQLM plant has

been 100 percent electric since 2015 but has recently undergone a rebuild for improved efficiency. The second furnace has also been rebuilt to increase electricity use and to halve gas consumption in the forehearths. Oxy-fuel combustion has been trialed in this furnace and has led to the production of glass with lower carbon emissions. Both furnace rebuilds have been supported by the French government which has provided partial funding under the France 2030 initiative, operated by ADEME, France's environmental and energy agency. Partnerships such as these help to expedite the progression of environmentally friendly glass production.

At the start of 2024, SQLM also successfully trialed hydrogen burners with the help of Air Liquide, paving the way for the use of hydrogen in future industrial-scale glass production. During the trial, up to 50 percent of the burners at SQLM were converted to operate using a combination of hydrogen and oxygen combustion instead of the previously used Oxygas. The hydrogen burners contributed to around 75 percent of the total volume of combustion gases, confirming the possibility of using hydrogen to further decarbonate glass production.

RENEWABLE ENERGY GLOBALLY

Across SGD Pharma's other glass manufacturing plants, in Vemula (India), Kipfenberg (Germany) and Sucy (France), there has been a shift towards adopting renewable energy sources which has contributed to the 6.5 percent of electricity generated by renewable sources company-wide. At the Vemula plant, solar panels have been installed across the entire facility's rooftop which have generated around 1.5 GWhs of energy, decreasing dependence on other fuel sources. Alongside this, heat recovery units are minimising energy use by capturing waste heat from industrial processes and reusing it elsewhere on the site, for example for air conditioning. Combined, the installations have achieved a significant reduction in carbon emissions which the plant hopes to increase by purchasing renewable energy from external sources in the future.

SGD Pharma's Kipfenberg plant has replaced all combustion engine company cars with either hybrid or fully electric models. In an effort to encourage the use of cleaner fuel, the site has also installed electric car charging stations which can be used by all employees at a discounted rate. Meanwhile, in Sucy, a furnace rebuild has resulted in a 13 percent reduction in energy consumption as well as a significant reduction in NOx emissions. These initiatives illustrate SGD Pharma's commitment to renewable energy through a diverse range of means across all its global manufacturing plants.

CONCLUSION

Building upon the decarbonization initiatives already in place, SGD Pharma has set both short- and long-term goals in line with international targets. Perhaps most significantly, the company aims to meet its target of reducing CO2 emissions by 65 percent by 2040, but in the short-term it plans to both achieve a 90 percent EHS (Environmental, Health and Safety) maturity matrix and ensure that all its sites are ISO 50001 energy management certified by 2025. With these clear objectives, SGD Pharma demonstrates its commitment to a sustainable future and a safer and healthier global environment. ■

SGD PHARMA

Liberty Tower 17 place des Reflets
CS 30300 92097 - Paris La Défense
Cedex - France
Tel.: +33-0-1-4090-3600
www.sgd-pharma.com

STEVANATO GROUP's *Ready To Use* nested vials – a high value solution for lyophilized pharmaceutical products

The biologics market is forecast to grow at a double-digit compound annual growth rate (CAGR) of more than 15 percent until 2027 and beyond.1 This growth will be driven by GLP-1, antibodies and proteins as well as mRNA applications.

The share of lyophilized drugs in the total number of injectable medicines in vials is estimated to be between 20 percent and 25 percent. A figure confirmed by the percentage of new biological drugs in lyophilized form approved by the FDA between 2017 and 2021 of 24 percent.

It is also expected that the demand for sterile small batch fillings will continue to rise in parallel.[1]

Ultra-low temperature storage was the only sensible solution for the Covid SARS-CoV-2 vaccines. The available capacities and, above all, the time pressure did not allow for any other options. However, ultra-low temperature storage is impractical in terms of handling and, in particular, supply chain costs. Alternative storage options, e.g. in the form of freeze-dried products, are therefore being considered for new developments to enable uniform storage conditions and times.

Ready-to-fill containers such as Stevanato Group's EZ-fill® vials have proven to be an excellent solution for filling small batches. Wouldn't it be perfect if these vials could be lyophilized in their nest without the need for additional handling steps?

Stevanato Group, in collaboration with the Politecnico di

Figure 1: Nested EZ-fill® Vials of Stevanato Group

In collaboration with the Politecnico di Torino University, STEVANATO GROUP has conducted a groundbreaking study to explore the freeze-drying of pharmaceuticals within nested vials. Recently published in two papers, the research delves into the potential of ready-to-use nested vials - demonstrating their potential as a high-quality solution for freeze-dried drug products.

Torino University (POLITO), has carried out an extensive series of tests to address this question of freeze-drying pharmaceuticals in nested vials. The results of these tests were published in two papers and are discussed and described in this article. [2,3]

INTRODUCING RTU NESTED VIAL – A HIGH VALUE SOLUTION FOR LYOPHILIZED PRODUCTS

The continued growth of biologics and biosimilars, whose complex characteristics require high-performance primary packaging, effective filling and finishing processes and therefore innovative solutions, poses significant challenges for pharmaceutical manufacturers. Manufacturers producing these typically high-value and low-volume drugs need to implement a flexible production strategy that provides control over the many variables potentially affecting the process, especially when freeze-drying is considered as an option.

The freeze-drying process consists of three sub-steps: firstly, freezing (ice formation), secondly, primary drying (sublimation) and thirdly, secondary drying (desorption). The current process with bulk vials is based on direct contact between the vials and the freeze dryer shelf. This ensures good heat transfer, which is considered essential.

The nested vials are placed in a suspended framework "nest" complying with ISO standard 21882. This avoids glass-to-glass contact during the filling phase and reduces the mechanical stress that can cause vial breakages and particle contamination. All this leads to a reduction of the risks of product wastage, productivity losses and, in the worst case, a costly product recall.

However, the suspended arrangement may raise doubts about the mechanism of heat transfer from the shelf to the vials. Doubts that turned out not to be critical thanks to the tests carried out.

TESTING CONDUCTED BY STEVANATO GROUP AND THE POLITECNICO DI TORINO

The test series included primarily the following aspects:

- Change of the ice nucleation temperature distribution due to the different loading configuration of the vials. Bulk vials directly placed on the temperature-controlled shelf and nested vials in a rack system - Stevanato Group EZ-fill® nested vials
- Influence of the loading configuration on the morphology of the lyophilized product
- Influence of the loading configuration on the residual biological activity of an enzyme (Lactate dehydrogenase (LDH) as selected model enzyme

-Freeze drying behaviour

Nested vials tended to nucleate at higher temperature compared to vials standing directly on the shelf. This can have an important practical effect. It is known from the literature that the higher the nucleation temperature (i.e., the lower the degree of supercooling), the bigger the ice crystals and the bigger the pores during the sublimation phase and thus the higher the sublimation rate. [4,5]

The different freezing profiles observed in the two groups of vials made it clear that the vials stored in a nest showed slower cooling dynamics than the vials in direct contact with the shelf. Since the two groups of vials were loaded together on the same shelf, they were exposed to the same freezing ramp of the shelf, apart from the intrinsic heat exchange heterogeneity of the shelf. This resulted in similar primary drying profiles of the nested and direct contact loaded vials. Thus, everything points to a noticeable influence of the nest on the heat transfer during the freezing step, resulting in a slower cooling of the solution in the vials.

The two freezing profiles delivered in a clearly different morphology of the freeze-dried cakes, as shown by SEM

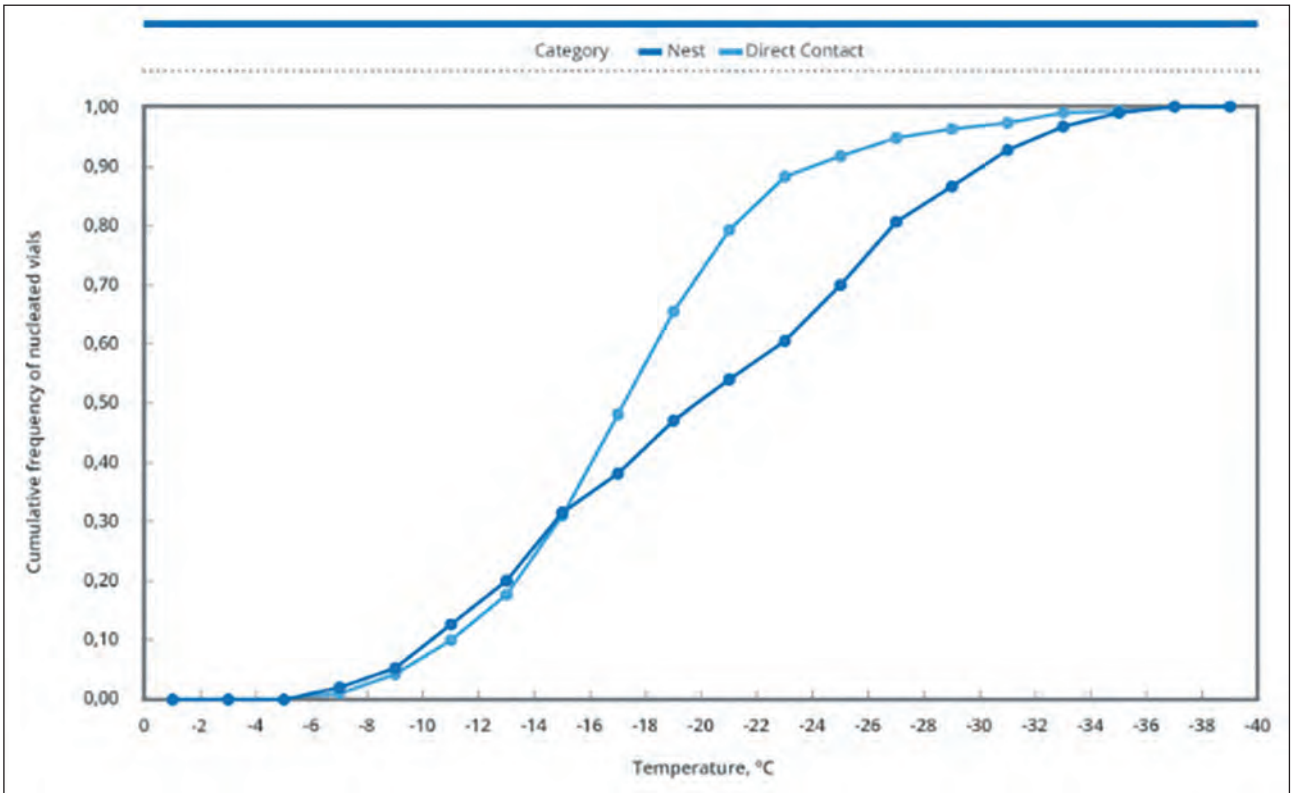


Figure 2: Comparison between cumulative nucleation temperature distributions for nested vials and in direct contact with the shelf applying a 1.0 °C/min freezing ramp

(Scanning Electron Microscopy) (Figure 3). The product freeze-dried in the nest exhibits a more open structure characterized by larger pores, which is consistent with the higher nucleation temperature. In contrast, the product freeze-dried in vials in direct contact with the shelf had a more compact structure with smaller pores. More specifically, the average pore size of the sample in the nested vials was 170 µm compared to 75 µm for the vials placed directly on the shelf.

The surface area of the cakes was also determined. As expected, the surface area of the freeze-dried product in the nest was smaller than in the direct contact configuration (0.45 and 0.61m2/g, respectively).

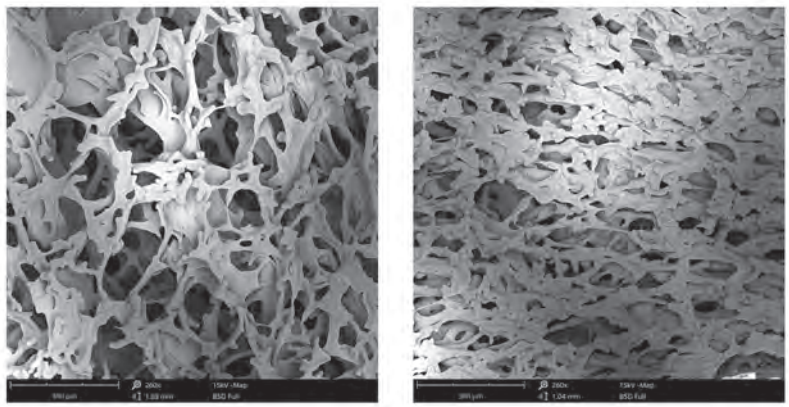


Figure 3: SEM images of the dried center of the cake - in the case of (left) nested vials and (right) in direct contact with the shelf

A freeze-drying cycle using a 5 percent Mannitol solution was performed to compare the thermal behaviour of the product during primary drying. During the ice sublimation phase, the product temperature in nested vials was about 2°C lower compared to the direct contact configuration. Overall, the differences in temperature and time were very minimal.

The distribution of the heat transfer coefficient (Kv) within the batch showed less variability for nested vials compared to the vials in direct contact with the shelf, suggesting a more uniform heat transfer from the freeze dryer to the product within the batch. Such a feature is particularly interesting as it reduces the variability between the vials and increases the homogeneity of the batch.

The biological activity of the enzyme LDH (lactate dehydrogenase) was almost 40 percent higher in the nested vials after

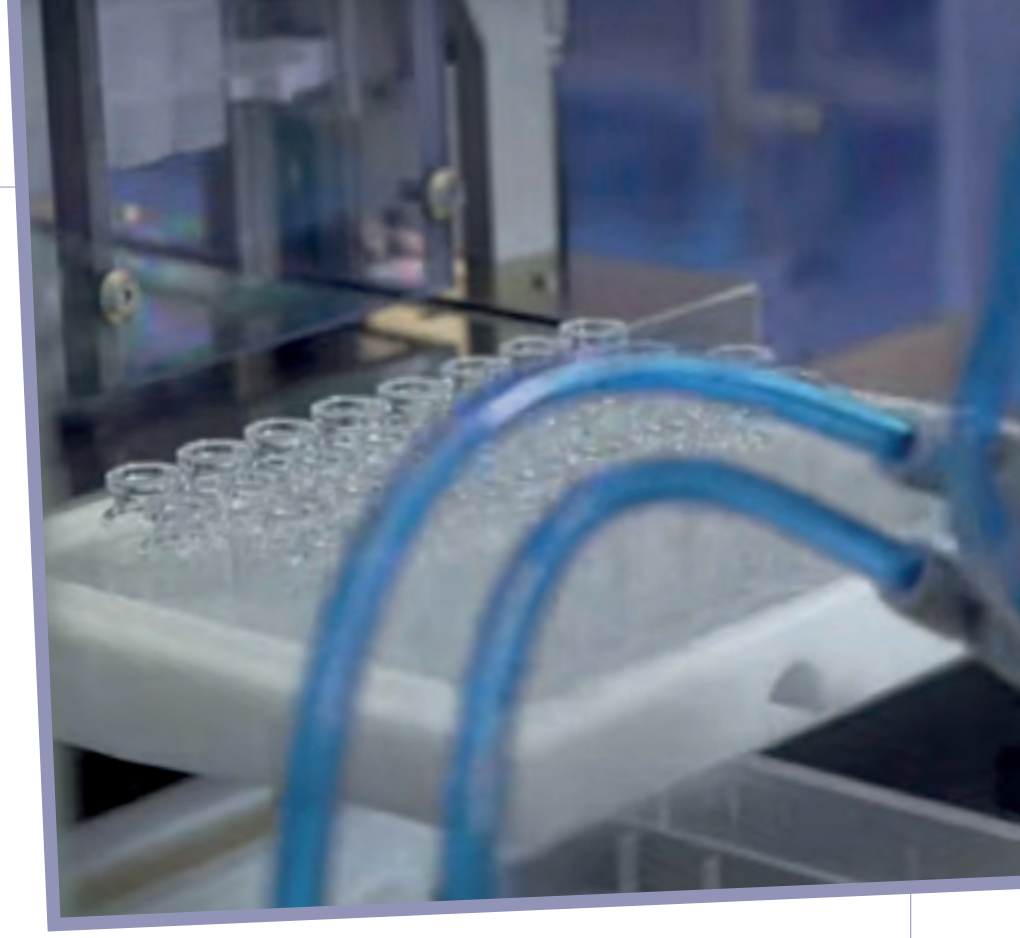
	Freeze-thawing (0.25°C/min)	Freeze-thawing (1.00°C/min)
Nest	36.9 (± 12.0) %	33.9 (± 12.4) %
Direct contact	17.1 (± 7.2) %	21.8 (± 6.8) %
	After lyophilization	
Nest	27.1%	
Direct contact	19.4%	

Figure 4: LDH residual activity obtained after the freeze-thawing and lyophilization for vials loaded in the nest and direct contact with the shelf.

freeze-thawing and after lyophilization. This is consistent with the different morphology of the ice crystals obtained for the two loading configurations: Vials loaded in nests were characterized by larger crystals and consequently a smaller interface between the ice and the cryo-concentrated solution. Since this interface is the trigger for the denaturation of LDH, the recovery of LDH bioactivity was always significantly higher for nested vials.

CONCLUSIONS AND ADVANTAGES OF EZ-FILL® NESTED VIALS

The main advantages of the EZ-fill® nest configuration highlighted from these tests are:



- Easier scale-up of the cycle and safer transfer to the final industrial site
- No significant impact on the duration of the freeze-drying cycle
- Reduction of interfacial stresses to which a biopharmaceutical product is exposed during the freezing and drying phases
- Considerably better recovery of LDH bioactivity
- Reduction of variability within and between batches

These advantages are key for both setting the lyophilization cycle conditions during the freezing and drying phases as well as for transferring a cycle from one freeze dryer to another.

The overall results of the study confirm the usability of nested vials for lyophilization and, most importantly, demonstrate their potential as a high-quality solution for freeze-dried drug products.

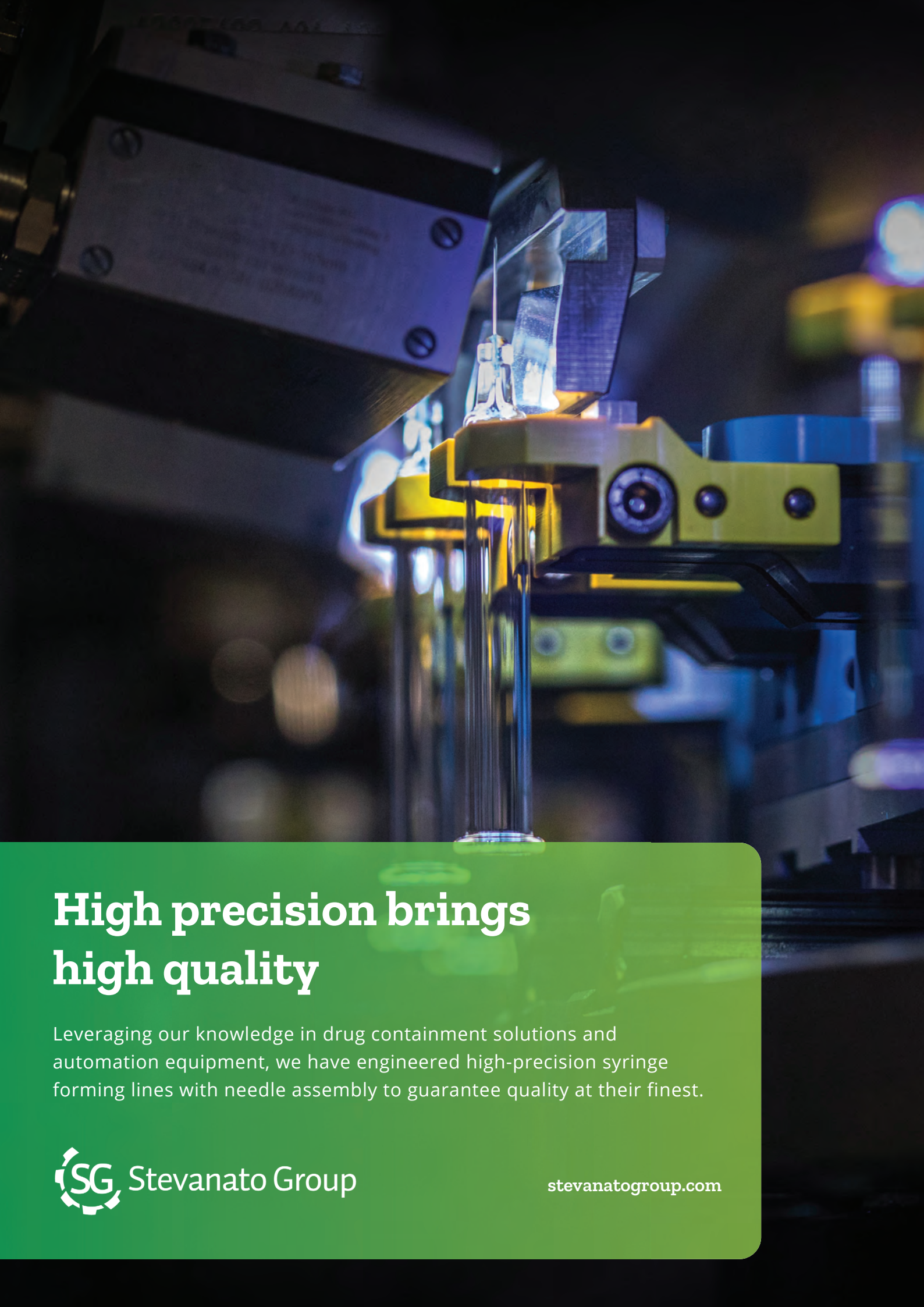
This in addition to the unique and proven benefits of nested vials:

- Lower Time-to-Market from the clinical stage to industrialization: resulting in faster revenue gain, a reduced risk of entry of new competitors and a reduced risk of failures during tests/clinical phases
- Higher Flexibility: A flexible aseptic process - providing the nest & tub format for all sterilized containers (vials, cartridges, syringes), EZ-fill® allows pharmaceutical companies maximum flexibility in aseptic filling with a common filling platform (combi-line)
- Increased Quality and Patient Safety: No glass-to-glass contact increases container performance resulting in less breakage, less cosmetic issues, less particles, less rejections and waste
- Reduced Total Cost of Ownership: reduced complexity, less implementation (lower investments) and operating costs, less validation costs, less quality costs, less utilities costs (e.g. energy, WFI), less labor costs and overall and an overall lower footprint

The significantly higher residual bioactivity together with the virtually non-existent impact on freeze-drying cycle time and the above-mentioned advantages of EZ-fill® containers represent a truly high value solution for lyophilized pharmaceutical products.

REFERENCES

1. Source: IQVIA and Stevanato Group internal analysis
2. Pisano R, Artusio F, Adami M, Barresi AA, Fissore D, Frare MC, Zanetti F, Zunino G. Freeze-Drying of Pharmaceuticals in Vials Nested in a Rack System-Part I: Freezing Behaviour. Pharmaceutics. 2023 Feb 14;15(2):635. doi: 10.3390/pharmaceutics15020635. PMID: 36839958; PMCID: PMC9960346.
3. Artusio F, Adami M, Barresi AA, Fissore D, Frare MC, Udrescu CI, Pisano R. The Freeze-Drying of Pharmaceuticals in Vials Nested in a Rack System-Part II: Primary Drying Behaviour. Pharmaceutics. 2023 Nov 2;15(11):2570. doi: 10.3390/pharmaceutics15112570. PMID: 38004549; PMCID: PMC10674193.
4. Arsiccio, A., Marenco, L., & Pisano, R. (2020). A model-based approach for the rational design of the freeze-thawing of a protein-based formulation. Pharmaceutical Development and Technology, 25(7), 823–831.
5. Searles, J.A.; Carpenter, J.F.; Randolph, T.W. The ice nucleation temperature determines the primary drying rate of lyophilization for samples frozen on a temperature-controlled shelf. J. Pharm. Sci. 2001, 90, 860–871.



High precision brings high quality

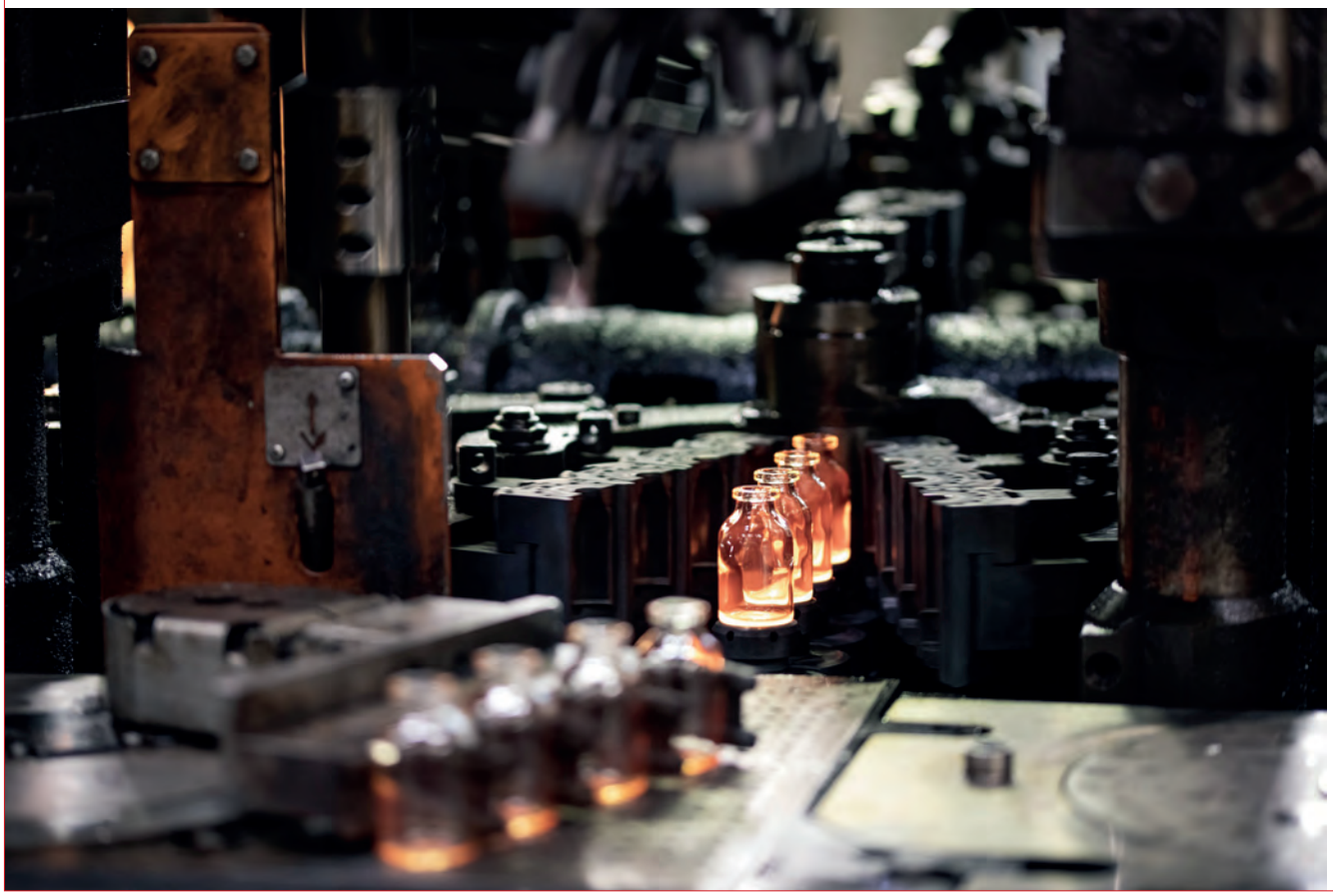
Leveraging our knowledge in drug containment solutions and automation equipment, we have engineered high-precision syringe forming lines with needle assembly to guarantee quality at their finest.

Stevanato Group

stevanatogroup.com

Glass production sustainability shift spotlights BORMIOLI PHARMA leadership

As global pharmaceutical glass usage surges, sustainability is no longer an option; it's a necessity. Global demand for glass pharmaceutical packaging, according to Freedonia, is projected to rise 6.5 percent per year to nearly 20 billion dollars in 2025. In particular, prefillable syringes and vials for parenteral, high value-added drugs and biologicals will lead growth, leveraging on glass as one of the most used materials due to a number of reasons, including strong barrier properties, enhanced chemical and moisture resistance, ease of process and improved shatterproof features. These features are continuously enhanced thanks to consistent R&D investments, addressing a higher demand for higher quality



In the following article, BORMIOLI PHARMA Engineering Director Davide Faverzani explains how his company is pioneering the future as a key participant in the transition towards sustainable pharmaceutical glass manufacturing.

glass. At Bormioli Pharma, we are not just watching this trend. We are working to lead it.

While inherently sustainable due to its natural ingredients and infinite recyclability, glass still has untapped potential for reducing environmental impact. As the powerhouse behind the production of over 2.4 billion glass vials annually, we are continuously pushing boundaries to set new standards in sustainability.

FOUR-PRONGED STRATEGY

Our recently published ESG report unveils our audacious four-pronged strategy to revolutionize the environmental footprint of pharmaceutical glass bottles.

Firstly, we're shaking up the recipe for glass production. Our ambitious 50-in-5 project isn't just a target; it's a commitment to our planet. By 2025, we aim to incorporate 50 percent sustainable materials in our products, including a significant increase in glass cullet usage. This bold move will improve our environmental impact and energy efficiency.

Secondly, we are taking resource management to the next level. We have set challenging targets for reducing water withdrawal intensity and carbon intensity, in particular when it comes to an energy intensive industry such as glass manufacturing.

Thirdly, we are scrutinizing every stage of the product lifecycle. In 2023, we conducted Life

Cycle Assessments (LCAs) on glass vials and we're gearing up to adopt the Carbon Footprint Systematic Approach (CFSA). This scientific methodology enables us to pinpoint areas for improvement and implement cutting-edge strategies to reduce our carbon footprint: for example, increasing the percentage of cullet in glass manufacturing.

Fourthly, we are harnessing the power of innovation. Innovation is a fundamental asset in reducing environmental impact in glass manufacturing, so as it is industry collaboration and partnerships. That's why we have joined Glass Futures, a globally reaching research initiative focused on sustainable glass production. Glass Futures has been created with the intention of developing a new approach to glass production that can convey a technological and economic revolution of great impact to the industry, spearheading research into new low-emission methods and technologies for glass production. Through collaboration with universities, companies and research organizations, the project plans to bridge the gap between academic studies and commercial implementation with the launch of a unique first pilot furnace.

Moreover, we have been working with the Physics Department of Genoa University, in Italy, to simulate the functioning of our molded glass furnaces. This simulation has allowed us to address the best possible actions to optimize the efficiency of our furnaces, and to experiment the utilization of alternative fuels, such as hydrogen for example.

Talking about hydrogen, our San Vito furnace is designed to be compatible with hydrogen fuel, heralding a new era of greener production methods and future proofing our operations.

SUSTAINABILITY AS A CORE VALUE

All this explains how at Bormioli Pharma we're driving the pharmaceutical industry to sustainability - through both relentless innovation and unwavering commitment to sustainability as we shape the future of pharmaceutical glass manufacturing. ■

Leadership in sustainability: STOELZLE glass packaging for pharma

Achieving EcoVadis gold status for three consecutive years now, STOELZLE is a leader in sustainable pharmaceutical glass packaging. Committed to decarbonisation, the group aims to cut CO2 emissions by 50 percent by 2030 and reach net zero by 2050. Innovations include EcoSecur Type 2 glass and the PharmaCos range - emphasising both recycled content and energy efficiency.

Stoelzle Glass Group stands as a premier manufacturer of high-quality primary packaging glass, catering to a diverse array of sectors including pharmaceuticals, healthcare, spirits, perfumery, cosmetics and food & beverages. Made entirely from natural raw materials, glass is ideal for pharmaceutical and healthcare packaging. Recognising it as one of the most sustainable packaging materials, Stoelzle's commitment to environmental responsibility

is evident in their gold status in the EcoVadis sustainability rating, which has been awarded for the third consecutive year. This prestigious recognition places Stoelzle in the top five percent of evaluated companies, underscoring the group's dedication to decarbonisation, continuous innovation and environmental protection - also highlighting the significant strides it has made over the years.

AMBITIOUS TO REACH CLIMATE TARGETS

As an energy-intensive industry, Stoelzle has set scientifically based decarbonisation targets validated by the Science Based Targets initiative (SBTi). The company's ambitious goals include a 50 percent reduction in CO2 emissions (Scope 1 and 2) by 2030, aiming for net zero by 2050. Stoelzle is one of the few European glass manufacturers with climate targets recognised by SBTi. The company's comprehensive sustainability strategy focuses not only on environmental goals but also includes social aspects and the supply chain. Energy savings, the transition to renewable ener-

gy and decarbonisation are central concerns. Over the years, the group has implemented substantial projects at their Pharma production site in Köflach, Austria. An example here is its process and energy management system, which significantly improves energy efficiency and achieves energy savings. Municipal water consumption was reduced by around 50 percent through targeted measures during the refurbishment of the furnace. Since 2020, Stoelzle has installed large rooftop photovoltaic systems on warehouses and office buildings - producing approximately 3,610 MWh of green electricity per year. The inclusion of cullet, or recycled glass, helps minimise the use of primary raw materials and reduce the carbon footprint through energy savings. In April 2023, another milestone was achieved with the installation of batch preheating at the Köflach site. This innovation reduces energy consumption for melting raw materials by more than eight percent, allowing for annual energy savings of 4000 MWh. Looking to the future, Stoelzle plans substantial investments to significantly enhance the electrification of their glass production processes and maximise the efficient utilisation of waste heat. As a member of the International Partners in Glass Research (IPGR), the company is working on an energy-efficient furnace.

INNOVATION IN REDUCING CHEMICAL USE WITH TYPE 2 PHARMA GLASS

A key pillar of its sustainability roadmap is eco-friendly innovation. Stoelzle has pioneered EcoSecur, an exciting reinvention of Type 2 glass injection and infusion vials for both human and veterinary medicine. This groundbreaking technique employs a liquid treatment process that allows for precise dosing customised to each bottle's size. The manufacturing process for Type 2 glass surpasses existing technologies in terms of quality, process stability and reliability - ensuring exceptional performance. Through the innovative EcoSecur process, Stoelzle has successfully reduced the use of chemical components by up to 50 percent while decreasing CO2 emissions by up to 80 percent.

NEW WELLBEING PACKAGING RANGE WITH INCREASED RECYCLED CONTENT

Stoelzle's new PharmaCos line is a comprehensive packaging solution for the wellbeing and healthcare industries. This line features an extensive range of glass jars and flat-shoulder bottles. The PharmaCos range is designed with sustainability at its core. The amber glass contains an impressive 73 percent recycled content, while the flint glass includes 38 percent recycled material. Combined with the lightweight design of the bottles, this line offers a highly sustainable option for healthcare packaging. All products are manufactured in a pharmaceutical-grade environment, ensuring adherence to the highest standards of quality and safety. With its unwavering commitment to innovation and sustainability, Stoelzle Glass Group continues to set the standard for environmentally responsible glass packaging solutions across a wide range of industries. ■

STOELZLE GLASS GROUP

Tel.: +43-3144-706
E-mail: office@stoelzle.com
www.stoelzle.com

suppliers guide
YELLOW PAGES

Listing in this section is reserved for advertisers.

COMPANY	website
AGR INTERNATIONAL	www.agrintl.com
ANTONINI	www.antoninisrl.com
BDF INDUSTRIES	www.bdfindustriesgroup.com
BUCHER EMHART GLASS	www.emhartglass.com
EME	www.eme.de
ALORNI TECH	www.falornitech.com
FAMOR ENGINEERING	www.famoreng.com
FLUORITAL	www.fluorital.com
FONDERIE VALDELSANE	www.fonderievaldelsane.com
GLASS SERVICE	www.glassservice.it
HEYE INTERNATIONAL	www.heye-international.com
KYP ACCESORIES	www.kypaccesories.com

COMPANY	website
LINCO BAXO	www.lincobaxo.com
MODERNE MECANIQUE	www.ocmigroup.com
NOVAXION	www.novaxion.fr
OCMI OTG	www.ocmigroup.com
PEREGO GIANCARLO	www.gperego.it
S.I.G.MA.	www.sigmaref.it
SKS - SORG KERAMIK SERVICE	www.sks.net
NIKOLAUS SORG	www.sorg.de
TIAMA	www.tiama.com
VETROMECCANICA	www.vetromeccanica.it
VIDROMECANICA	www.vidromecanica.com

AGVS/LGV

Tecnoferrari

A.I. NIR FURNACE CAMERAS

GS - Glass Service

AIR COOLING SYSTEMS

KYP Accesories
Luben Glass
Stara Glass
Tecsiglass

AIR COOLING SYSTEMS FOR I.S. MACHINES

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
Pennekamp
Stevanato Group

AMPOULE FORMING MACHINES/LINES

Euromatic
KYP Accesories
Moderne Mecanique
OCMI OTG
Stevanato Group

AMPOULE PACKAGING MACHINES

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

ARCHITECTURE OF A FURNACE HEAT RECOVERY SYSTEM

Stara Glass

ARTICLE PRODUCTION

Olimerk

ARTIFICIAL INTELLIGENCE

Video Systems

AUTOMATIC TUBE LOADERS

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

AUTOMATION

EME
GS - Glass Service
Luben Glass
Mimsan Conveyor Systems
R.Cestaro
Stara Glass
Tecsiglass
Vetromeccanica
Video Systems
ZIPPE

BAG FILTERING PLANTS

BDF Industries
Stara Glass

BATCH CHARGERS

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

BATCH AND CULLET HANDLING SYSTEMS

EME
Falorni Tech
ZIPPE

BATCH/CULLET PREHEATERS

EME
GCG - Glass Consulting
Sorg Nikolaus
ZIPPE

BATCH PLANTS

EME
Falorni Tech
GCG - Glass Consulting
Glass Service
Stara Glass
TECO Group
Tecsiglass
Vidromecanica
ZIPPE

BLOWING MACHINES

Bucher Emhart Glass
Famor Engineering
Olivotto Glass Technologies
Waltec Maschinen

BURN-OFF MACHINES

Famor Engineering
Olivotto Glass Technologies
Waltec Maschinen

BURNERS & ACCESSORIES

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

BURNERS/ LOW NOX

BDF Industries
Falorni Tech
Famor Engineering
GCG - Glass Consulting
Glass Service
Horn

suppliers guide

YELLOW PAGES

KYP Accesories
Pennekamp
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 Bertalesi
Fonderie Valdelsane

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

Bohemi Chemicals
Fluorital
Graphoidal Developments
Luben Glass
Pennekamp
R.Cestaro
Tecnosens
Vidromecanica

COGENERATION AND TRIGENERATION THROUGH HEAT RECOVERY SYSTEMS

BDF Industries

COLD-END LINES

ACH - Advanced Container Handling
All Glass
Bucher Emhart Glass
Heye International
Iris Inspection Machines
KYP Accesories
Mimsan Conveyor Systems
MSK Covertech
Pennekamp
R.Cestaro
Regina Catene Calibrate
Tecnosens
Vetromeccanica

COLOURS & ENAMELS

Bohemi Chemicals
GCG - Glass Consulting
Fluorital

CONSULTING SERVICES

AGR International Inc
BDF Industries
Bucher Emhart Glass
Falorni Tech
Bucher Automation
Fives
GCG - Glass Consulting
GS - Glass Service
Horn
Luben Glass
Olivotto Glass Technologies
Stara Glass
TECO Group
Tecsiglass
Video System

CONTROL & AUTOMATION SYSTEMS

BDF Industries
Bottero
Bucher Automation
Bucher Emhart Glass
Falorni Tech
GCG - Glass Consulting
Glass Service
GS - Glass Service
Luben Glass
Horn
Iris Inspection Machines
Marposs
MSK Covertech
Nirox
Olivotto Glass Technologies
Stara Glass
TECO Group
Tecnoferrari
Tecnosens
Tecsiglass
VMA
Video Systems
Waltec Maschinen
ZIPPE

CONVEYING & STOCKING SYSTEMS

All Glass
MSK Covertech
Olimerk
OMS
Ramsey Products
Regina Catene Calibrate
Tecnoferrari
Vetromeccanica

CONVEYOR BELTS

Bonaiti Pietro
Bottero
Car-Met
Famor Engineering
Luben Glass
Olivotto Glass Technologies
Pennekamp
Pennine
Ramsey Products
Regina Catene Calibrate
Vetromeccanica
Vidromecanica
Waltec Maschinen
WBT
ZIPPE

CONVEYOR CHAINS & SPROCKETS (HOT-END)

Bonaiti Pietro
Bottero
Luben Glass
Pennine
Ramsey Products
WBT
ZIPPE

CRACK-OFF MACHINES

Olivotto Glass Technologies
Waltec Maschinen

CROSS CONVEYORS

BDF Industries
Bonaiti Pietro
Bottero
Bucher Emhart Glass
Car-Met
Ergon Meccanica
Famor Engineering
Heye International
Luben Glass
MT Forni Industriali
Olimerk
Pennekamp
Ramsey Products
Vidromecanica
Waltec Maschinen
WBT

CULLET SEPARATION & TREATMENT SYSTEMS

EME
Falorni Tech
GCG - Glass Consulting
Vidromecanica
ZIPPE

DATAMATRIX READING DEVICES

TIAMA

DECORATING MACHINES

Fermac
Koenig & Bauer
Kammann
Pennekamp
Omso

DECORATION CUTTING MACHINES

Waltec Maschinen

DECORATIVE ENAMELS

Fluorital
GCG - Glass Consulting

DEDUSTING & FILTERING SYSTEMS

BDF Industries

DOSING SYSTEMS: COLD-END EMULSIONS

Bottero
GCG - Glass Consulting
Graphoidal Developments
Luben Glass
Pennekamp
R.Cestaro
Vidromecanica

DOSING SYSTEMS: GOB CUTTING LUBRICATION

Bottero
Graphoidal Developments
Luben Glass
R.Cestaro

DOUBLE SHELL RECUPERATOR

Stara Glass

DRIVE SYSTEMS / VARIABLE SPEED

BDF Industries
Bottero
Bucher Automation
Fives
Heye International
Olivotto Glass Technologies
Pennekamp
Tecnoferrari

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
Fives
GCG - Glass Consulting
Glass Service
Horn
Sorg Nikolaus
Stara Glass
TECO Group

ELECTRONIC CONTROL SYSTEMS AND IT

BDF Industries
Bock Energietechnik
Bucher Automation
Glass Service
Horn
Olivotto Glass Technologies
Sorg Nikolaus
Stara Glass
TECO Group
Tecsiglass
Waltec Maschinen
ZIPPE

ELECTRODE HOLDERS

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

ELECTRODE HOLDERSHOT AND COLD FURNACE INSTALLATION

Horn
TECO Group

EMISSION MONITORING SYSTEMS

BDF Industries
GS - Glass Service

EMULSION DOSING SYSTEMS

Bottero
Graphoidal Developments
Luben Glass
Pennekamp
R.Cestaro

ENERGY RECOVERING SYSTEMS

BDF Industries
Falorni Tech
Luben Glass
Novaxion
Stara Glass
Tecsiglass
ZIPPE

ENGINEERING SERVICES

Falorni Tech
TECO Group

ENGINEERING AND MODELLING FOR BOOSTING SYSTEMS

Bock Energietechnik
Horn

ENGRAVING MACHINES

TIAMA

FEEDERS & MECHANISMS

BDF Industries
Bottero
Bucher Emhart Glass
Ergon Meccanica
Famor Engineering
Fives
Glass Service
Heye International
Olivotto Glass Technologies
Waltec Maschinen

FIBREGLASS/ GLASSWOOL PRODUCTION LINES, EQUIPMENT & PRODUCTS

Falorni Tech
Glass Service
Olivotto Glass Technologies
Stara Glass
TECO Group
Tecsiglass

suppliers guide

YELLOW PAGES

FINISHING MACHINES

KYP Accesories

FIRE POLISHERS & EQUIPMENT

Bucher Automation
Famor Engineering
Luben Glass
Olivotto Glass Technologies
Vidromecanica
Waltec Maschinen

FOREHEARTHS & SYSTEMS

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

FORMING MACHINES

Amig - Ocmi - MT Forni
BDF Industries
Bottero
Bucher Emhart Glass
Ergon Meccanica
Famor Engineering
Heye International
KYP Accesories
Novaxion
OCMI OTG
Olivotto Glass Technologies
Stevanato Group
Waltec Maschinen

FURNACES: BUBBLING SYSTEMS

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

FURNACES: CLEANING SYSTEMS

Glass Service
Stara Glass
Tecsiglass

FURNACES: DRAINING SYSTEMS

Bock Energietechnik
Falorni Tech
GCG - Glass Consulting
Glass Service
Horn
Sorg Nikolaus
Stara Glass
Tecsiglass

FURNACES: ELECTRIC

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

FURNACES: HEAT-UP

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

FURNACES: HOT CULLET FILLING

Falorni Tech
Stara Glass
Tecsiglass

FURNACES: MELTING

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

FURNACES: METAL STRUCTURES

BDF Industries
Car-Met
Falorni Tech
Glass Service
Horn
Stara Glass
Tecsiglass

FURNACES: OXY-FUEL OR RECUPERATIVE

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

FURNACES: PREHEATING SYSTEMS

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

FURNACES: REPAIR, MAINTENANCE & REVAMPING

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

GASES

Glass Service

GLASS ANALYSIS AND TESTING SERVICES

AGR International Inc

GLASS BRICK PRODUCTION LINES

Amig - Ocmi - MT Forni
Olivotto Glass Technologies
Stara Glass
Waltec Maschinen

GLASS LEVEL CONTROL DEVICES

BDF Industries
Bock Energietechnik
Falorni Tech
GCG - Glass Consulting
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
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
Pennekamp
R.Cestaro
Vetromeccanica
Waltec Maschinen

HEAT ECUPERATORS

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

HEAT EGENERATION PLANTS

Falorni Tech
Glass Service
Horn
Stara Glass

HEATING SYSTEMS

Bock Energietechnik
Falorni Tech
Glass Service
Horn
Pennekamp
Stara Glass

HYBRID FURNACE & FOREHEARTH SYSTEM

Stara Glass

HYDROGEN BURNERS

Stara Glass

HOT-END PROCESS MONITORING SOLUTIONS

Falorni Tech
TIAMA

HOT GLASS CONTACT MATERIALS

Bucher Emhart Glass
Olivotto Glass Technologies

HOT GLASS SCRAPES

Car-Met
Falorni Tech
GCG - Glass Consulting
Stara Glass
Vidromecanica
ZIPPE

INFRARED THERMOMETERS

GCG - Glass Consulting
GS - Glass Service
KYP Accesories

INFRARED THERMOMETERS

Famor Engineering
Heye International
Olivotto Glass Technologies

INSPECTION MACHINES: COLD-END

AGR International Inc
Bucher Emhart Glass
Euromatic
Heye International
KYP Accesories
Iris Inspection Machines
Luben Glass
Marposs
Regina Catene Calibrate
TIAMA
Tecnosens
Video Systems
VMA

INSPECTION MACHINES: HOT-END

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

INSPECTION MACHINES: VIALS & AMPOULES

Euromatic
Iris Inspection Machines
KYP Accesories
Marposs
Moderne Mecanique
Nirox
OCMI OTG
Stevanato Group
Tecnosens
Video Systems

I.S. MACHINES

BDF Industries
Bottero
Bucher Emhart Glass
Ergon Meccanica
Heye International
Novaxion

I.S. MACHINES LUBRICATION SYSTEMS

BDF Industries
Bottero
Bucher Emhart Glass
Graphoidal Developments
Heye International
Luben Glass
Novaxion

I.S. MACHINE RECONDITIONING

BDF Industries
Bottero
Bucher Emhart Glass
Ergon Meccanica
Heye International
Luben Glass
Novaxion

LABORATORY FURNACES POLARISCOPES

MT Forni Industriali

LABORATORY TESTING AND MEASUREMENT EQUIPMENT

AGR International Inc

Marposs

LASER CUTTING MACHINES

Olivotto Glass Technologies
Waltec Maschinen

LEHR DRIVES

Fives
Heye International
Pennekamp

LEHRS: ANNEALING

Antonini
Bonaiti Pietro
Car-Met
Euromatic
Fives
Heye International
KYP Accesories
Moderne Mecanique
MT Forni Industriali
OCMI OTG
Pennekamp
Tecnosens
Vidromecanica

LEHRS: DECORATING

Antonini
Bonaiti Pietro
Car-Met
MT Forni Industriali
Pennekamp
Vidromecanica

LOW NOX BURNERS

Pennekamp
Stara Glass

MAINTENANCE AND REPAIR SERVICES

Bock Energietechnik
Bottero
Ergon Meccanica
Fives
Luben Glass
Olimerk
Pennekamp
SKS - Sorg Keramik Service
Stara Glass
Tecsiglass

MARKING MACHINES

Luben Glass
Sorg Nikolaus

MEASUREMENT & CONTROL SYSTEMS

AGR International Inc
BDF Industries
Bock Energietechnik
Bucher Emhart Glass
Bucher Automation
GS - Glass Service
Horn
KYP Accesories
Luben Glass
Marposs
Nirox
Novaxion
Olivotto Glass Technologies
Stara Glass
Tecnosens
Video Systems
VMA
Waltec Maschinen

MICRONIZATION

Stm Microtec

MILLING AND GRINDING

Stm Microtec

MIXERS

EME
GCG - Glass Consulting
KYP Accesories
MT Forni Industriali
R.Cestaro
Stara Glass
Teka
ZIPPE

MOLYBDENUM ELECTRODES

Stara Glass

MOULDS

Officine
Perego Giancarlo

MOULDS: CLEANING POLISHING MACHINES

BDF Industries
Ecotecne
Luben Glass

MOULDS: COMPONENTS & ACCESSORIES

Officine
Olimerk
Perego Giancarlo

MOULDS: INSPECTOR SYSTEM

Luben Glass

MOULDS: LUBRICANTS & SPRAY EQUIPMENT

Graphoidal Developments
Luben Glass
Novaxion
R.Cestaro

MOULDS: MAINTENANCE EQUIPMENT

Ecotecne
Luben Glass

MOULDS: POLISHING MACHINE

Luben Glass

MOULDS: PREHEATING OVENS

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

MOULDS: WELDING LINES

Commersald Impianti

MOULDS & PLUNGERS COATING SYSTEMS & MATERIALS

Commersald Impianti

NECK RINGS

Olimerk
Perego Giancarlo

PALLETIZING/ DEPALLETIZING LINES

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

PASTE MOULD MACHINES

Olivotto Glass Technologies

PHARMACEUTICAL LEHRS & HANDLING

Pennekamp

PLANT UTILITIES

GCG - Glass Consulting
Pneumofore
Tecsiglass

PLATINUM FEEDER SYSTEMS

BDF Industries
Glass Service
Olivotto Glass Technologies
Stara Glass

PLUNGER HONING MACHINES

Bottero

PLUNGERS & MECHANISMS

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

POLISHING/ GRINDING MACHINES

Luben Glass
Olivotto Glass Technologies

POWER REGULATION/ TRANSFORMERS

Bock Energietechnik

PREDICTIVE SOLUTIONS

Video Systems

PRESS MACHINES

Bucher Emhart Glass
Famor Engineering
MT Forni Industriali
Olivotto Glass Technologies
OCMI OTG
Waltec Maschinen

PRESS & BLOW MACHINES

Bucher Emhart Glass
Famor Engineering
Heye International
Messersì Packaging
MT Forni Industriali
Novaxion
OCMI OTG
Olivotto Glass Technologies
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
Fives
Heye International
Luben Glass
Olivotto Glass Technologies
Waltec Maschinen

RAW MATERIALS

Bohemi Chemicals
GCG - Glass Consulting
Minerali Industriali

RECYCLING PROCESSES

EME

RECYCLING SYSTEMS

Bucher Emhart Glass
EME
Falorni Tech
GCG - Glass Consulting
Linco Baxo
Olivotto Glass Technologies
S.I.G.MA.
Waltec Maschinen
ZIPPE

REFRACTORIES

Tecsiglass

REFRACTORIES INSTALLATION SERVICES

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

REPLACEMENT PARTS

Fives
Olimerk
Olivotto Glass Technologies
Stara Glass
TECO Group
Waltec Maschinen

ROBOTS: BALL GATHERERS

Falorni Tech
Glass Service
Novaxion
Olivotto Glass Technologies
Waltec Maschinen

ROBOTS: HANDLING & PACKAGING

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

ROLLING MACHINE

Fives

ROTATING TABLES

Messersì Packaging
Olivotto Glass Technologies
OMS
Vetromeccanica
Waltec Maschinen

SANDBLASTING MACHINE

Luben Glass

SAW MACHINES

Olivotto Glass Technologies

suppliers guide

YELLOW PAGES

SECOND- HAND EQUIPMENT

BDF Industries
Ergon Meccanica
Falorni Tech
Heye International
KYP Accesories
Novaxion
Olivotto Glass Technologies
Pennekamp
Vidromecanica

SERVICES

AGR International Inc
Bock Energietechnik
EME
Ergon Meccanica
Falorni Tech
Fives
Novaxion
Olimerk
Stara Glass
TECO Group
Tecsiglass

SERVICES IN HOT-DRILLING AND CHANGE OF ELECTRODE HOLDERS

Bock Energietechnik

SHEAR BLADES

BDF Industries
Famor Engineering
Heye International
Luben Glass
WBT

SHEAR BLADES LUBRICANTS

Graphoidal Developments
Luben Glass

SHEAR SYSTEMS

BDF Industries
Bottero
Famor Engineering
Graphoidal Developments
Heye International
Luben Glass
Olivotto Glass Technologies
Waltec Maschinen

SHUTTLE CARS

Tecnoferrari

STRETCH & SHRINK FILM WRAP MACHINES

All Glass
Messersì Packaging
MSK Covertech
OMS
Tecnosens
Vetromeccanica

SHRINK OVENS

Messersì Packaging
OMS

SILKSCREEN INKS

Fluorital

SILKSCREEN PRINTING LINES: HOLLOWARE & TABLEWARE

Euromatic
Fermac

SILKSCREEN PRINTING LINES: VIALS & AMPOULES

Moderne Mecanique
OCMI OTG

SOFTWARE

BDF Industries
Bottero
Bucher Emhart Glass
Bucher Automation
GS - Glass Service
Heye International
Olivotto Glass Technologies
Stara Glass
Tecnoferrari
Tecsiglass
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
Famor Engineering
Luben Glass
MT Forni Industriali
Olivotto Glass Technologies
Pennekamp
Regina Catene Calibrate
Vidromecanica
Waltec Maschinen

STEMWARE PRODUCTION LINES

Falorni Tech
Olivotto Glass Technologies
Vidromecanica
Waltec Maschinen

STEMWARE SEALING MACHINES

Falorni Tech
OCMI OTG
Olivotto Glass Technologies
Waltec Maschinen

STIRRERS

BDF Industries
Bottero
Falorni Tech
Fives
GCG - Glass Consulting
Glass Service
Horn
MT Forni Industriali
Olimerk
Olivotto Glass Technologies
Stara Glass
Vidromecanica

SUCTION GATHERERS

Falorni Tech
Olivotto Glass Technologies

SYRINGE AFTER FORMING MACHINES/LINES

Euromatic

SYRINGE FORMING MACHINES/LINES

Euromatic

SYRINGE FILLING INTO TRAY MACHINES/ MODULES

Euromatic

SUPERVISORS MODEL BASED PREDICTIVE CONTROL

GS - Glass Service

TAKE-OUT DEVICES & EQUIPMENT

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

TEMPERATURE MEASUREMENT & CONTROL

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

TEMPERING LINES

Pennekamp
Vidromecanica
Waltec Maschinen

THERMAL CLEANING SYSTEM FOR FURNACE

Stara Glass
Tecsiglass

THERMAL SHOCK TEST MACHINES

Vidromecanica

THERMOCOUPLES & ASSEMBLIES

Bock Energietechnik
Falorni Tech
Fives
GCG - Glass Consulting
Stara Glass

THERMO SHOCK TEST MACHINES

BDF Industries

TIN OXIDE ELECTRODES & CONNECTORS

Horn
Stara Glass
TECO Group

TRAINING SERVICES

AGR International Inc

TOOLS & EQUIPMENT

Bottero
Fives
Luben Glass
Stara Glass

TUBING LINES

Falorni Tech
Olivotto Glass Technologies
Stara Glass

TURNKEY PLANTS ENGINEERING & CONSTRUCTION

Amig - Ocmi - MT Forni
BDF Industries
Falorni Tech
EME
Glass Service
Horn
Olivotto Glass Technologies
Stevanato Group
Stara Glass
TECO Group
Waltec Maschinen

UV LAMPS

Graphoidal Developments

VACUUM PLANTS & ACCESSORIES

Pneumofore

VACUUM PUMPS

Pneumofore

VIAL AFTER -ORMING MACHINES/LINES

Euromatic
Moderne Mecanique
OCMI OTG
Pennekamp
Stevanato Group

VIAL FORMING MACHINES/LINES

Euromatic
Moderne Mecanique
OCMI OTG
Pennekamp
Stevanato Group

VIAL PACKAGING MACHINES

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

VIBRATING EQUIPMENT

EME
Vetromeccanica
ZIPPE

WASTE GAS CLEANING SYSTEMS

BDF Industries

WASTE GASES DUCT WORKS AND VALVES CLEANING SYSTEMS

BDF Industries

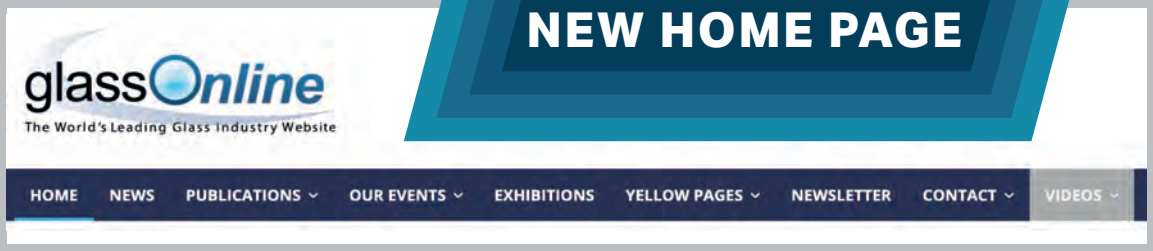
WATER CLEANING SYSTEMS

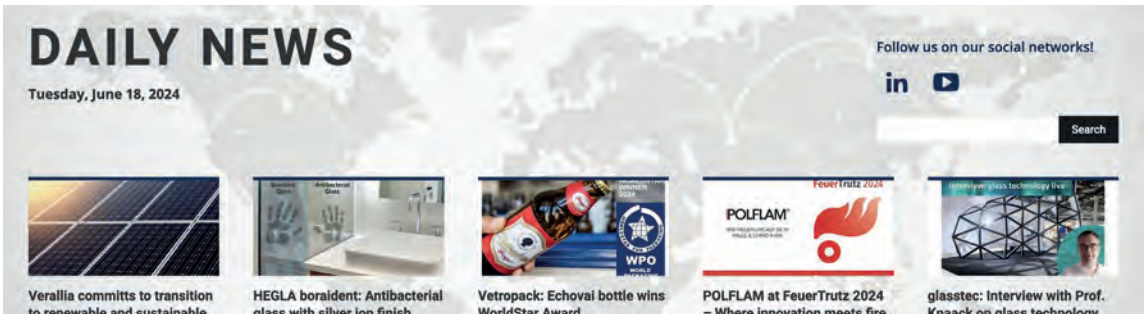
BDF Industries
Graphoidal Developments
Luben Glass
Tecsiglass
ZIPPE

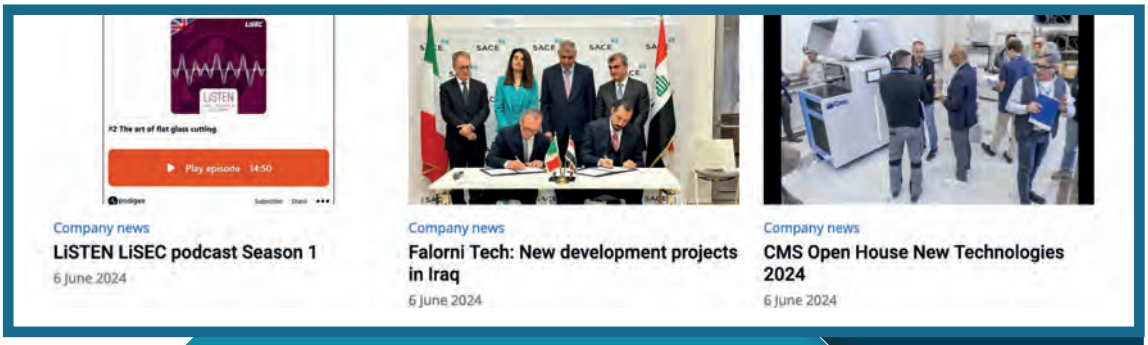
WATER COOLING SYSTEMS

Bock Energietechnik

NEW HOME PAGE







WWW.GLASSONLINE.COM

GlassOnline.com offers a full multi-media experience across channels and platforms

DAILY NEWS

Daily news from around the world of glass: industry, economy and finance, management, projects, systems, innovations, products, events, etc.

DAILY NEWSLETTER

Over 7,600 registered users receive the newsletter - with a worldwide news service - five days a week.

VIDEO INTERVIEW

GlassOnline, Glass Industry Network (Linkedin page) and our chanel Youtube, will host and promote your company videos and video interviews to a large professional audience

FOCUS ON

A service dedicated to companies that want to publish articles in real time on case histories, special company events and celebrations, business agreements and production innovations, etc.

OUR PUBLICATIONS

All our publications are available free-of-charge in digital desktop format, iPhone / iPad and Android mobile systems or in pdf format

The Glass Day

XXXVII ATIV Conference

PARMA—29 November 2024

"Hollow glass and flat glass today and tomorrow, technology production and application constantly evolving"

Main topics:

Industry 5.0

Artificial Intelligence

Energy efficiency and sustainability

Production problems

If you have any enquiries or would like to express an interest in attending, please contact us at **segreteria@ativ.eu** Or call +393286851552

Associazione Tecnici Italiani del Vetro - Sede legale: Viale Basetti 14, 43121 Parma – Italy

Cod.Fisc.: 01881950347 mail: segreteria@ativ.eu web: www.ativ.eu

On closer inspection, being better informed makes for better decisions

By gathering and collecting data from every inspection station, Master Track provides you with the complete quality results of every single container before the decision is made to pack or reject.

Available on the FleXinspect generation III.

emhartglass.com

BUCHER
emhart glass