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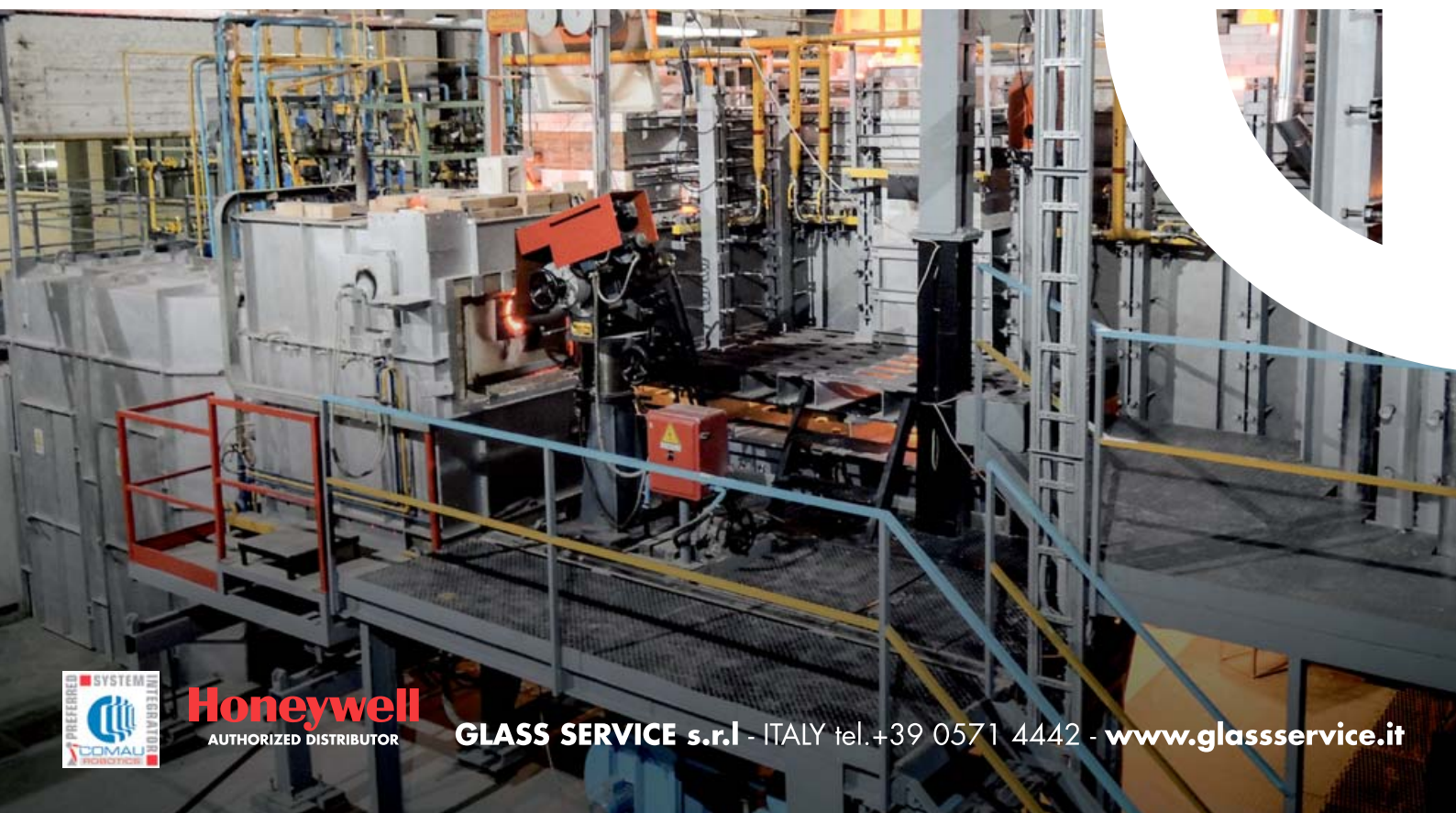
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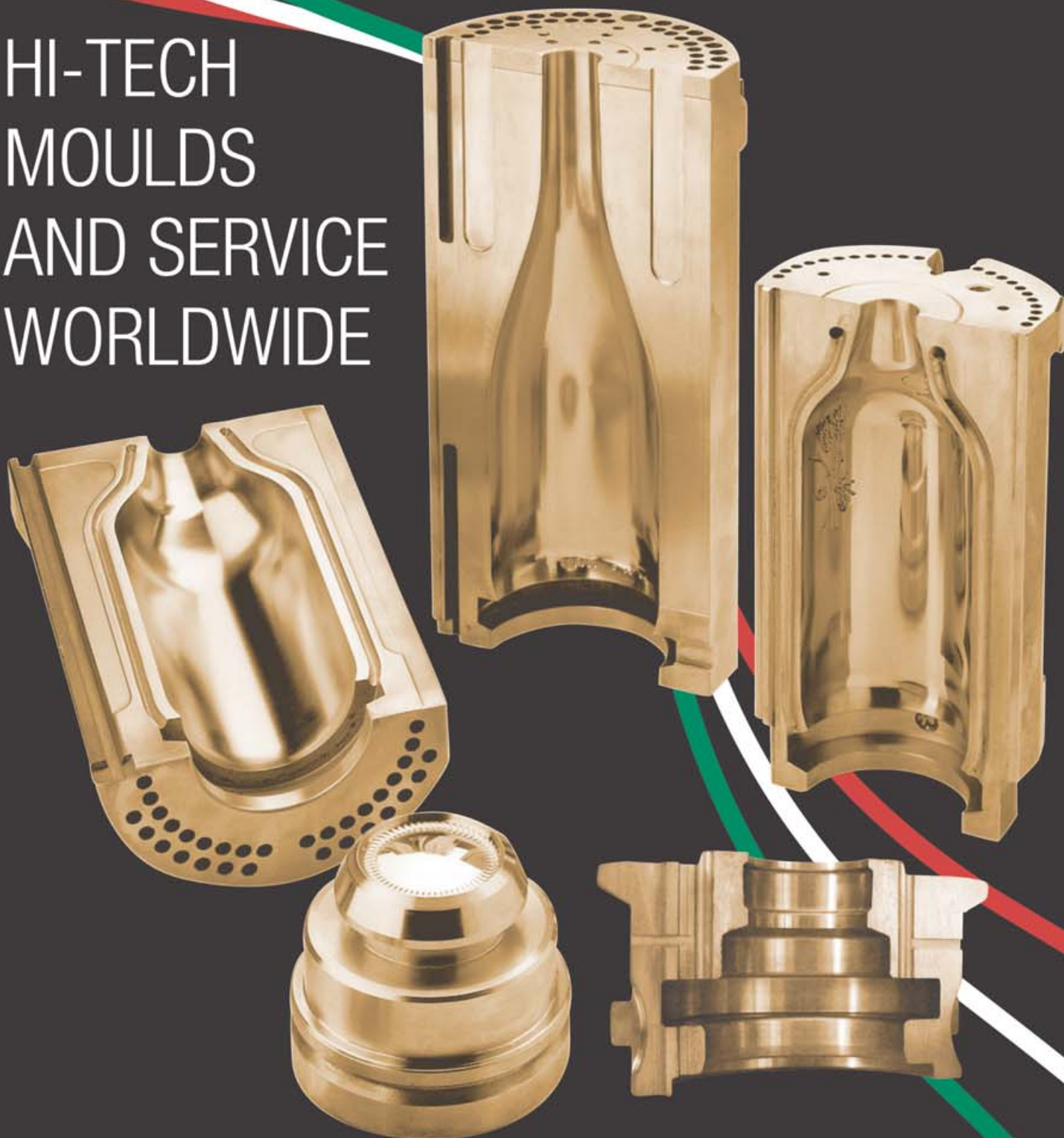


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EDITOR-IN-CHIEF

Marco Pinetti..... marco.pinetti@glassonline.com

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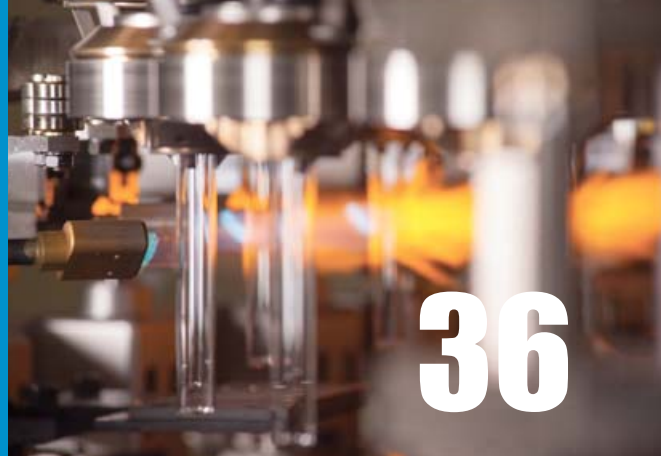
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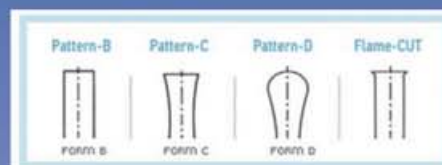
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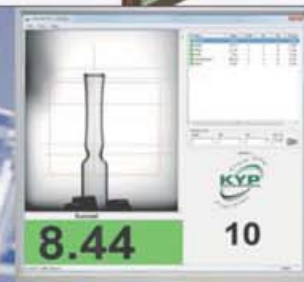


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SAGA DECOR

ACQUISITION OF SOCIÉTÉ CHARENTAISE DE DÉCOR

Saga Décor, a Verallia group company with expertise in decorating glass food containers, has acquired **Société Charentaise de Décor**, specialized in glass satin-finishing.

Through this deal, Verallia consolidates its decoration range to match market trends, while strengthening its presence in Charente, in the south-west of France. Founded in 1973, Société Charentaise de Décor specializes in satin-finishing glass bottles. Located in Gensac-la-Pallue, the firm decorates around 30 million bottles a year and employs 28 people. In 2015, its turnover was over EUR 6 million. Verallia and Société Charentaise de Décor have in common a customer base of major spirits brands representing the most dynamic market for glass bottle decoration.



With this acquisition, Saga Décor reinforces its industrial capabilities and affirms its know-how in satin-finishing. This announcement illustrates Saga Décor's willingness to invest in meeting new customer requirements, primarily demanding range variety and flexibility in decoration techniques. In this vein, late 2016, Saga Décor started up at its Pont-Sainte-Maxence facility, a lacquering line on full bottles with drying by UV lamps and a hot-stamping machine.

In the words of Xavier Volt, CEO of Saga Décor, "Société Charentaise de Décor is a company renowned for the know-how of its employees. We are pleased to welcome its teams inside Saga Décor and combine our industrial and human assets. Through this acquisition, we shall reinforce our presence on the dynamic Cognac and premium packaging market."

Michel Giraud, Groupe de la Seine board chairman declared: "I am delighted that Société Charentaise de Décor, with this sale to a world-renowned group, will ensure its continuity and the future of its workforce. On this point, I would like to thank all employees who have helped build the company's reputation over the last 44 years."

GLASS PACKAGING INSTITUTE

WINE DRINKERS CHOOSE GLASS PACKAGING FOR TASTE, QUALITY



"A recent EcoFocus Trend Study confirms why consumers will increasingly look to glass as a packaging choice in 2017," says Lynn Bragg,

Glass Packaging Institute president.

"Millennial consumers strongly believe that glass containers are one of the most likely packaging choices to protect them from chemicals leaching into beverages, and a best packaging option to lock-in freshness without using preservatives." Additional key survey findings show:

- 80% of wine drinkers, and 78% of Millennials, say wine tastes better from a glass bottle, while 3% of wine drinkers say this about boxes, 1% about pouches and 0% for cans.
- 81% of wine drinkers believe that glass bottles contain the highest quality wine, while 3% of wine drinkers say this about boxes, 1% about pouches and 1% for cans.
- 55% of wine drinkers say that single-serve glass containers are just the right size, while 9% of wine drinkers say this about pouches, 6% about boxes and 13% for cans.

A new survey has found that 95% of wine drinkers prefer drinking wine that comes in a glass bottle, with taste (80%) and quality (81%) leading as the top reasons consumers prefer wine packaged in glass. Additionally, 61% of Millennial wine drinkers, and 55% of all wine drinkers, say glass wine bottles are the most sustainable, compared to 11% of all wine drinkers saying that about boxes, 4% for pouches, and 3% who say that about cans.

The October 2016 Survey USA poll interviewed 2,000 adults age 21+ in the US from all 50 states about their wine purchasing habits and wine consumption preferences.

Glass doesn't require a plastic or chemical liner, so there's no interaction between the container and product inside. This offers wine brands that choose to package in glass a clear advantage when it comes to product protection, taste and shelf life.

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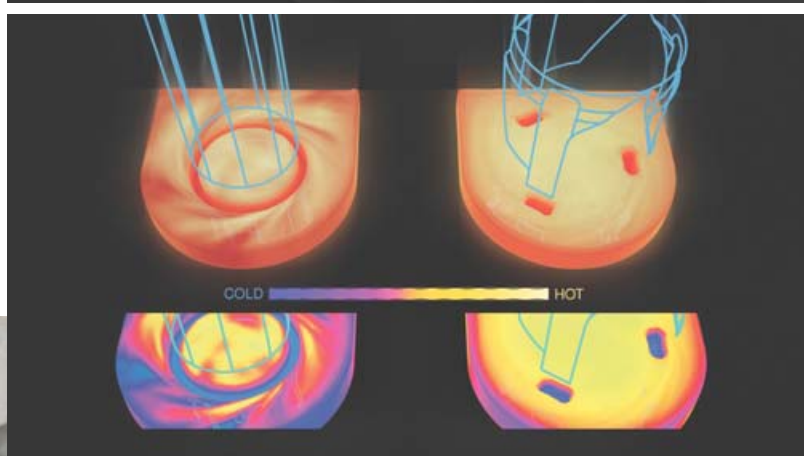
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RUSCAM STANDARDISES ON HEYE ROTOR MECHANISM

As part of the international *Sisecam Group*, **Ruscam** produces approximately one million tonnes of glass packaging annually from five advanced manufacturing plants throughout the country. Developed and manufactured in Germany by **Heye International GmbH**, the rotating movement of rotor segments within the *Heye Rotor Mechanism*

provides excellent homogeneity of the glass mass and optimal weight consistency. This servo-driven design guarantees reliable functionality, a long lifetime and is suitable for mounting on various feeder types. Via a rotating movement of the toothed ring, three paddles provide a stirring movement in the glass mass to keep it homogenous. Variable



speeds and a change of rotation direction are possible, together with manual height adjustment. The motion of the servo motor is controlled by *Heye Simotion® Servodrive*.

At the five Ruscam plants, mechanisms have been fitted to production lines. "We standardised the Heye Rotor Mechanism in all our glassworks, as this mechanism is an excellent solution with regard to weight consistency and homogeneity", says Ruscam Forming Department.

GIMAV

MEMBER DIRECTORY READY FOR DISTRIBUTION

The printed directory of **GIMAV** Members is ready for distribution to all glass industry professionals in Italy and abroad, providing information about the top performers in Italy's glass industry.

This must-have tool is the perfect showcase for the country's production and contains all the best that Italy's manufacturers of machinery, systems and plants, accessories and special products for flat and hollow glass processing have to offer.

After its preview presentation during the "Incentives for updating Italy's machine inventory and Industry 4.0 Seminar", organized in partnership with Assovetro, the first real hard copy distribution to an international audience will take place during *China Glass 2017*, slated for May 24-27 in Beijing.

Thanks to its compact format, the directory is practical and easy to consult.

Each Member firm is listed with its company data, contact information, company logo and description of its business.

A listing of technological products and manufacturers rounds out the entries, making it possible to instantly find the companies of interest to your search.

All the listings in the Directory are available in four languages: Italian, English, German and French.

RONDOT ANNOUNCE INNOVATIVE TOM CAT

Rondot SAS has developed the first portable fast optical system for measuring the thickness of the hot-end treatment (HEC) on all shades of glass with **TOM CAT**, an innovative portable appliance for optical measurement of glass hot-end coating, approved by **Arkema**.



At last, thanks to this appliance, operators are able to check immediately the thickness of the thin tin oxide layer of coating at the hot end, without waiting for lehr time or laboratory control. This system has been validated by Arkema's Glass Coating laboratory based in Vlissingen (NL) and its efficiency has been verified.



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ARDAGH

USD 1.9 BILLION FINANCING

Ardagh Group has launched a bond offering for a total financing of approximately USD 1.9 billion, through the issue of USD 700 million 6.000% Senior Notes due 2025, representing an add-on to the USD 1,000 million 6.000% Senior Notes due 2025 issued on 30 January 2017, USD 700 million Senior Secured Notes due 2022 and EUR 500 million Senior Secured Notes due 2024, (collectively the "Notes").

The proceeds from the issuance of the Notes, net of expenses, will be used to redeem in full the USD 415 million 6.750% Senior Notes due 2021, per the call schedule, redeem in full the USD 265 million First Priority Senior Secured Floating Rate Notes due 2019, per the call schedule, repay in full the USD 663 million Term Loan B Facility, redeem EUR 500 million of the 4.250% First Priority Senior Secured Notes due 2022 with a make-whole call and pay accrued interest and applicable redemption premia.

PRICING OF INITIAL PUBLIC OFFERING

Ardagh Group S.A. announced the pricing of its initial public offering of 16,200,000 Class A common shares at a price of USD 19.00 per share, for a total offering size of

USD 307,800,000.

In addition, Ardagh has granted the underwriters a 30-day option to purchase up to an additional 2,430,000 Class A common shares at the initial public offering price less the underwriting discount. The shares trade on the New York Stock Exchange under the symbol "ARD".

Citigroup, Deutsche Bank Securities, Goldman Sachs & Co, Barclays, Credit Suisse and J.P. Morgan are acting as joint book-running managers for the offering. Davy and Wells Fargo Securities are acting as co-managers for the offering.

The offering is being made only by means of a prospectus. A copy of the final prospectus related to the offering may be obtained from Citigroup, c/o Broadridge Financial Solutions, 1155 Long Island Avenue, Edgewood, NY 11717, by telephone at 800-831-9146.

A registration statement relating to the offering has been filed with, and declared effective by, the United States Securities and Exchange Commission. This press release does not constitute an offer to sell or a solicitation of an offer to buy, nor will there be any sale of these securities in any state or jurisdiction in which such offer, solicitation, or sale would be unlawful before registration or qualification under the securities laws of that state or jurisdiction.

DRUJBA GLASSWORKS

NET PROFIT IN 2016

Bulgarian glassware and bottle maker **Drujba Glassworks** announced recently that it has turned a net profit of BGN 16.1 million (USD 8.7 million/EUR 8.2 million) in 2016, from a net loss of BGN 9.8 million in 2015.

Sales revenues fell to BGN 249.7 million in 2016, from BGN 263.8 million a year earlier, Drujba Glassworks said in its annual financial report, filed with the Sofia bourse.

Production costs dropped to BGN 189.6 million, from BGN 206.3 million in 2015.

Other costs fell sharply to BGN 7.1 million in 2016, compared to BGN 24 million a year earlier.

Last year, Greek glassware and bottle maker Yioula sold substantially all of its glass container business, which also included Drujba Glassworks, to Portuguese group BA Vidro for an undisclosed sum. In January, *BA Vidro* launched a buyout offer for the remaining 0.76% of Drujba Glassworks it does not already own.

Drujba Glassworks has two production units - in Sofia and in Bulgaria's second-largest city of Plovdiv, in the south of the country.

HORN GLASS

NEW ORDER FOR END FIRED FURNACE IN THAILAND



Horn Glass Industries AG has recently received its latest order from the *Osotspa Group, Siam Glass Plant* in Thailand for the rebuild of a 250 tonnes per day - end fired furnace with three production lines. Siam Glass Industries was established in 1977 and produces narrow and wide-necked bottles in flint and amber color.

The current furnace rebuild is the AY 102 furnace in the Ayutthaya factory, located in Ayutthaya Province. The total plant production capacity is approximately 600 tpd. The main focus of the design for the new end port furnace is low energy consumption, glass quality and low environmental emissions. The Glass conditioning will be specially designed and equipped for modern NNPB lightweight production.

The furnace will produce 250 tonnes of amber bottles for energy drinks per day.

Momentum Recycling opens first bottle-to-bottle glass recycling plant in Colorado

PRAXAIR AND LIBBEY

GRANT FOR EMISSIONS REDUCTION PROJECT IN EUROPE



Praxair, Inc. and its customer, **Libbey Inc.** have been awarded a EUR 2.3 million euro LIFE grant (LIFE15 CCM/NL/000121 – LIFE OPTIMELT) from the European Commission. The LIFE programme is the European Union's financial instrument for supporting environmental, conservation and climate action projects. This grant is supporting the installation of Praxair's **OPTIMELT®** thermochemical regenerator (TCR) system at Libbey's glass melting facility in the Netherlands. In April 2016, Praxair and Libbey, one of the largest glassware and tableware manufacturers globally, announced they would install the OPTIMELT TCR system as well as an on-site oxygen vacuum pressure swing adsorption (VPSA) plant at Libbey's facility. The system is designed to support a capacity realignment plan that reduces carbon dioxide (CO₂) and nitrogen oxides (NO_x) emissions by approximately 45 to 60% and 30 to 40% respectively. Through Praxair's proprietary OPTIMELT TCR system, incoming natural gas is heated and reacts with a portion of the flue gas to produce a hot syngas fuel that recovers the waste heat stored in regenerators for more efficient combustion in the furnace. Both the OPTIMELT TCR system and oxygen supply are scheduled to start up in 2017.

"At Praxair we are achieving our mission of making our planet more productive through the development of technologies that reduce emissions, save energy and lessen our reliance on natural resources," said Todd Skare, chief technology officer at Praxair. "Through our innovative OPTIMELT technology and VPSA oxygen supply system, we are improving air quality and helping Libbey to achieve its sustainability goals."

"Libbey is committed to minimizing its impact on the environment through the reduction and conservation of natural resources," said Terry Hartman, vice president, global engineering and manufacturing support, Libbey Inc. "Reductions in global air pollution require innovative solutions that go beyond filters. In partnership with Praxair, we have constructed and launched the highest-efficiency glass melter in the industry at our Royal Leerdam facility in the Netherlands. This new furnace represents the type of collaboration and process innovation that enables us to help lead change as a responsible global company."



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WALL COLMONOY

APPOINTMENT OF COMMERCIAL DIRECTOR, EUROPEAN HQ

Wall Colmonoy has appointed Nathan Stroud as Commercial Director for its European Headquarters.

Nathan joined Wall Colmonoy in February 2013 as Distribution Channel Manager and has enthusiastically taken on ever-expanding roles and responsibilities. In November 2013, he assumed the position of Sales Manager

and in October 2014 Nathan joined the senior management team and took on the full duties and responsibilities of Commercial Manager. Nathan has brought with him over 25 years' experience in Customer Account Management with a vast knowledge and experience in Business procurement, global sourcing, purchasing and material management. His

extensive management experience comes from his time working at large Blue Chip companies such as Mitsubishi, where he worked for 12 years in a Managerial role, Hewlett Packard for 12 years where he worked in a Senior Managerial role and TVonics Solutions for 18 months where he worked in an Account Director's role. In his new role of Commercial Director, Nathan is responsible for all Commercial aspects for Wall Colmonoy Limited including sales, key account management, customer service, estimating, planning, and

contracts. "I am very excited and privileged to be given the opportunity to manage the Commercial department at Wall Colmonoy, Pontardawe, Swansea. There are tremendous business development opportunities to be exploited in our European & International markets. I am really excited about leading the Customer service and External Sales team to even greater success," said Nathan. Nathan has a Bachelor of Science Degree in Business Administration from the University of Glamorgan.

VETROPACK

SUCCESSION ARRANGEMENTS FOR THE BOARD OF DIRECTORS AND GROUP MANAGEMENT



The Board of Directors of **Vetropack Holding Ltd.** has appointed Johann Reiter, General Manager of the Business Division Switzerland/Austria, as CEO of Vetropack Group

with effect from 1 January 2018.

Claude R. Cornaz, who will continue to lead Vetropack Group as CEO until the end of 2017, is stepping back from operational business and will be proposed as the new Chairman of the Board of Directors at the Annual General Assembly in 2018. Hans Rüegg, Chairman of the Board of Directors of Vetropack Group, will stand for election for one more year at the Annual General Assembly on 10 May 2017, but will leave the Board at the Annual General Assembly in 2018, having reached the age of retirement. The CEO designate of Vetropack Group, Johann Reiter, has been successfully in charge of the Business Division Switzerland/Austria since 1 November 2010. This division consists of the Swiss company Vetropack Ltd. and Vetropack Austria GmbH. As a member of the Group Management team, he is not only very familiar with the situation in both countries, but also knows all about the

international challenges facing the glass industry, especially in those countries in which Vetropack Group has a presence. The search for a successor for Johann Reiter in his present role will start immediately.

"In Johann Reiter, we have chosen a very experienced manager and someone with extensive knowledge of our industry to succeed Claude R. Cornaz," says Chairman of the Vetropack Board of Directors Hans Rüegg. "We deliberately opted for an internal appointment, because Johann Reiter, as head of our biggest business division, has excellent contacts in the industry and within our group. He is familiar not only with our managers and staff but also with the needs of the markets and our customers."

Claude R. Cornaz is to step back from operational business at the end of 2017 and will be proposed as the Chairman of the Board of Directors at the Vetropack Group Annual General Assembly in 2018. In that role he will concentrate mainly on the company's long-term strategic development. "I am very pleased to be able to hand over to Johann Reiter a financially sound Vetropack Group that is in a strategically good place and is led by a strong team," declares Claude R. Cornaz, who has been CEO for 18 years and has steadily built up Vetropack Group over that time.

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RAMSEY

NEW SALES MANAGER TO STRENGTHEN RELATIONSHIPS IN NORTH AMERICA

Ramsey is pleased to announce the addition of Haines Maxwell as Sales Manager for North America. Haines joins Ramsey after many years in Industrial Distribution and Power Transmission. His responsibilities will include the development of Ramsey's distributor network and end users. In addition, Haines will assist Ramsey's manufacturer's representatives as needed.

When asked why he joined Ramsey, Haines commented, "I joined Ramsey for two reasons; Ramsey's products lend themselves to a wide variety of applications; that gave me the opportunity to learn and grow. And, I like the family atmosphere and culture at Ramsey." David Holcomb, VP of Sales added, "Haines' experience is a perfect fit with Ramsey. Haines will be able to develop relationships and support our customers well. We are excited to have him."

O-I

CLOSURE OF NETHERLANDS PLANT

Owens-Illinois (**O-I**) will close its container glass production facility in Schiedam in August, affecting 230 jobs.

The company claims that the plant is no longer profitable, due to overcapacity in the glass market, relatively high production costs and outdated furnaces. The closure is part of the O-I's strategy to increase its competitiveness in Europe and to better serve the long-term needs of its customers.

According to reports, the company will invest EUR 155 million in its European facilities in 2017. This includes the continued modernisation of plants in France, Italy, Germany, UK, the Czech Republic and Poland, across all of the company's business segments.

Some of the affected staff will be offered positions at other O-I sites at Maastricht and Leerdam, according to HR director Rob Daamen. The company says the planned closure is subject to consultation with employees representatives.



LIBBEY

CFO APPOINTMENT



Libbey Inc., one of the largest glass tableware manufacturers in the world, has announced the appointment of James C. (Jim) Burmeister to the position of vice president, chief financial officer. Burmeister joined the company as an executive officer on 30 March 2017, and will have accountability for Libbey's worldwide finance organization and for implementing financial and operating strategies to support the Company's drive to improve its financial performance. Burmeister joins Libbey from The Anderson's, Inc. in Maumee, Ohio, where he served as vice president, finance and treasurer, with responsibility for the treasury, investor relations, tax, sourcing, business development and continuous improvement organizations. Prior to joining The Andersons, Inc., he held roles of increasing responsibility in operations finance with Owens Corning, beginning in 2005 as director, finance of Owens Corning's cultured stone business and culminating in his role from 2013-2014 as vice president, finance of Owens Corning's roofing and asphalt division. Earlier in his career, Burmeister served in a variety of roles

with General Electric, including an assignment with GE's highly regarded Corporate Audit Staff, and with Rubbermaid in its supply chain function. A graduate of the US Naval Academy, Burmeister served as a captain in the Marine Corps from 1990-1995, including service in the Persian Gulf.

"We are pleased to welcome Jim to Libbey's senior management team," said William Foley, chairman and chief executive officer, Libbey Inc. "His extensive knowledge of operations and corporate finance, along with his nearly 20 years of business leadership experience, make him highly qualified to take on the CFO role." "On behalf of the board of directors, I would also like to extend my sincere gratitude to Ronni Smith, who seamlessly assumed the interim CFO role three months ago," continued William Foley. "She has once again demonstrated that she is a strong and talented leader." With Burmeister's appointment, Ronni will resume her previous position as vice president, corporate controller.

BA VIDRO

BUYOUT BID FOR DRUJBA GLAS- SWORKS SUSPENDED



The Bulgarian financial regulator has temporarily suspended the buyout offer by Bareck Overseas, a wholly owned subsidiary of Portugal's **BA Vidro**, for the remaining shares of **Drujba Glassworks**.

The Commission for Protection of Competition gave no further details in its notice of the suspension published on Friday. In February, Drujba Glassworks stated that Bareck Overseas, based in Cyprus had launched a buyout bid for the stocks representing 0.76% of Drujba Glassworks' capital. It proposed paying 1.9 Euro per share. In October 2016, the Greece-based glassmaker **Yioula** agreed to sell its Bulgarian unit Drujba Glassworks to BA Vidro as part of a larger divestment plan that also includes the group's glass container business in Romania. Drujba Glassworks has one plant in Sofia and one in Plovdiv.

SORG

SOUTH AMERICAN REPRESENTATIVE ANNOUNCED

SORG is pleased to welcome César Rodrigues to the team. César is the founder of the company **Vichie** and will be representing **SORG** and **EME** in South America. His background includes a Master's degree in materials science and engineering, as well as more than 15 years working in sales, distribution/resale and sales representation of international suppliers. César has extensive experience in Brazil and South American countries, having taking part in several negotiations within the glass market. These include batch plants, furnaces, inspection machines and goods from initial approach, technical and commercial negotiation, installation/commissioning and after sales service. International partnerships, a worldwide network, strong relationships and development of business and customers in multicultural environments are some of his competencies in the pursuit of high performance and continuous results for all companies involved. In addition to Portuguese, he is also fluent in English and Spanish.



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ŞİŞECAM INVESTMENTS FOR NEW GLASS FIBER PLANT IN TURKEY

ŞİŞECAM GROUP

Şişecam Group has announced a new investment of around EUR 100 million to build a glass fiber production plant in Turkey with a capacity of 70 thousand tons/year. The company is continuing to build its investments at a rapid pace.

Noting that the glass fiber is the main component of many leading industries and primarily automotive and textile industries in Turkey, Prof. Dr. Ahmet Kirman, Vice Chairman and CEO of Şişecam Group, said that the investment is a strategic decision to support the growth strategy and that the Group will continue to grow through new investments, new partnerships and acquisitions.

Şişecam has a growing global presence with more than 21,000 employees.

Globally it operates in 13 countries and its sales operations expands to 150 countries, Prof. Ahmet Kirman, Vice Chairman and CEO of Şişecam Group, stated "We are the world's third largest manufacturer of glassware and the fifth largest manufacturer in glass-packaging and flat glass fields. Besides, we are No. 1 in Europe in the field of flat glass. In addition to being the world leader in chromium chemicals, we rank among the top 10 soda producers of the world."

"We now have a strong global position."

According to Prof. Kirman, the Group is moving towards its goal of ranking among the world's top three manufacturers in its fields of activity. "Founded in 1935 with the mission

of starting and developing the glass industry in the country, our Group has gained a strong global position in its business fields in more than 80 years. The investment is a strategic decision to support the growth strategy and the Group will continue to grow through new investments, new partnerships and acquisitions. "Stating that they have made a strategic investment decision in the field of glass fiber, the main component of Turkey's leading industries which mainly include the automotive and textile industries, Prof. Ahmet Kirman continued: "Kaolinite and boron are among Turkey's main raw materials and this investment will help turning domestic resources into value added products".

"Şişecam has assumed a leading position in the development of the composite industry"

Şişecam Group has been operating in the field of glass fiber, one of the main inputs of the composite industry, since 1974, Ahmet Kirman continued, "Şişecam has a leading position in starting and developing the Turkish composite industry, which has now reached a volume of 1.2 billion Euros. It has recently gained further importance for the wind power, electronics, aviation, space and defense industries in addition to the leading industries of our country. The new plant, which is to be commissioned in the second half of 2018, will have an initial annual production capacity of 70,000 tons and will reinforce our glass solutions and services with further value added products for all the industries we serve.

ANCHOR GLASS

PRESIDENT AND CEO TAKING TEMPORARY LEAVE OF ABSENCE

Anchor Glass Container Corporation has announced that its President and CEO, Jim Fredlake, is taking a leave of absence for personal reasons. During his leave, Jim will remain on its board of directors. During Jim's absence, Anchor Glass board member and non-executive Chairman of BA Glass, Carlos Moreira da Silva, will serve as the interim CEO. Carlos has decades of experience in the glass industry, and he will spend a significant amount of time at corporate headquarters in Tampa, and the company's

plants during the interim period.

"Carlos brings decades of glass manufacturing experience to Anchor Glass and will help guide our employees and leadership team to continue executing on our business strategy and our commitment to quality," said Jim. "I am committed to Anchor Glass, our customers, employees and senior leadership team, and I hope to be able to return to the company in a full-time capacity later this year."

"Jim has built an exceptional executive team at Anchor Glass with years of experience in glass packaging manufacturing, sales and operations," said Thomas Kichler, chairman of the board.

"We have full confidence in the team's ability to continue implementing the company's strategy under Carlos's guidance."



Heye Managing
Director,
Dirk Pörtner



This year's Heye Symposium for international glass container industry customers will address a series of key challenges based on the theme **'BSMART. MOTIVATE. OPERATE.'** Representing a valuable opportunity to learn from a panel of international experts and exchange ideas, while also networking with fellow glassmaking professionals from around the world, this meeting is organised by Heye International GmbH and takes place in Hamburg, Germany, on 19-21 June 2017. The symposium will explore, for example, the digital progress developed by other manufacturing industries, with the chance to discuss existing and future possibilities for implementation in glass container production with leading authorities on the subject.

BSMART

'Being Smart' is the ability to adapt to a constantly changing world, with sometimes unforeseen

developments emerging. In addition, there is the important evolution of digitalization to address. Communication structures change, as do factories, with Internet of Things or AI (Artificial Intelligence) at the centre of discussion. Heye Symposium 2017 delegates will learn about the latest developments, including the following presentations:

'Digital transformation – Challenges and chances' (Ernst Raue, formerly Head of CeBIT and a leading IoT Expert).

'Digitalization in the traditional steel industry' (Premal Denali, CFO and CF Strategy, ThyssenKrupp Steel Europe).

'Investment decisions in times of uncertainty' (a Senior Manager from the Economic Department, UniCredit).

MOTIVATE

'Motivation' represents a second important element of this year's Heye Symposium. What trends are evident within

HEYE SYMPOSIUM 2017



Delegates of the last
Heye Symposium

customers' operations, what motivates people in the digital age and how can the best employees be identified and retained? Key presentations in this session include:

'Growth rates and global glass container industry trends' (Euromonitor Senior Analyst).

'Friends of Glass – Latest news on FEVE's European consumer campaigns' (Michael Delle Selve, Head of Communication at FEVE).

'The digital age – Challenges to corporate culture and employee training' (Dr Cassandra Riedl, Leadership Expert). 'How we innovate at Ardagh' (Sharon Todd, Head of Marketing at Ardagh Glass Europe).

OPERATE

The evolution of perfect operational procedures is essential for Heye International, developing the skills to lead glass container plants to the highest levels of productivity. So how can

the latest motivational and organizational concepts be combined with new technologies, what is possible today and what can be expected in the future? Confirmed presentations include: 'Concepts for managing operational excellence at Ardagh' (a speaker from Ardagh Glass Europe). 'Solutions for the Smart Plant' (Heye Product and Production Experts). Discussion on the glass plant on the future (all participants).

NETWORKING OPPORTUNITIES

In addition to providing a professional programme of presentations, sufficient time has been allocated to enjoy individual discussions for the establishment of new contacts and/or the renewal of existing ones. Heye International looks forward to welcoming invited guests to the LeMérédien Hamburg hotel on 19-21 June 2017.





HENRY F. TEICHMANN

HENRY F. TEICHMANN, INC.

NEW SALES MANAGER

Sam Leaper joined **Henry F. Teichmann, Inc.** as sales manager as of 1 March 2017. Sam has over 15 years of experience in the glass industry, during which time he has held a variety of technical and sales roles. Holding diplomas and an apprenticeship in both mechanical and electrical engineering, he began his career as an Electrical Engineer, advanced into global projects as a Field Service Supervisor, and more recently excelled from Sales Engineer through to International Sales Manager at *E.W. Bowman*.

Henry F. Teichmann, Inc., a world leader in engineering and contracting to the glass industry worldwide, is headquartered in the Pittsburgh area of the US. It is celebrating its 70 years of outstanding services to the glass industry worldwide.

ARC



TRANSFORMING OPERATIONS AT ARQUES

Arc, the world's largest producer and distributor of tableware, announced in March a definitive plan to transform the operations of its flagship site in Arques, France through a collaborative partnership with unions and other stakeholders. The plan would result in the strengthening of the site's profitability through investments in plant and equipment which will ease work and improve productivity in the 200-year-old site, Tim Gollin, the Group CEO, said.

"As our glassmakers reach the age of retirement, we need a way to transmit their know-how to the next generation," he said. "Through our transformation plan, we will pave the way for employees to pass on their know-how to a new generation." An apprentice programme for 100 to 200 new employees per year will be a vital part of the plan, he added. "In our city of Arques, our company is an integral part of the community. We look forward to reviving the recruitment and development of new workers, which was for generations our tradition."

The plan calls for a new external investment, provided from Arc's shareholders and a group of sovereign wealth funds, in addition to approximately EUR 100 million already invested in the site since its acquisition in 2015 by an investor group led by Peaked Hill Partners and customary annual investment of EUR 35 million, which will continue, Gollin said. "We are delighted to continue the revitalization of the site and the region demonstrating that French industry, with its deep technical know-how and engineering expertise, can deliver great products to our customers globally."

FIVES

SUCCESSFUL START-UP OF NEW ALL-ELECTRIC FURNACE AT BORMIOLI

In 2015, **Luigi Bormioli**, one of the world's leading producers of tableware and perfumery glass containers, has contracted Fives for the enlargement of one of its existing electric-furnaces at its glass plant located in Parma, Italy. The cosmetics glass segment is one of the most demanding in terms of glass quality requirement. **Fives** was in charge of the design, engineering and commissioning of the furnace. This cold top all-electric furnace, *Primum® E-melt CTVM*, incorporates Fives latest design features that offer a specifically engineered furnace structure, as well as an steelwork-integrated cooling system in order to improve glass melting/refining performances and reduce refractory wear rates. This newly developed design was developed following intensive mathematic modelling sessions performed in partnership with *CelSian Glass & Solar BV*, a leader in CFD (computational fluid dynamics) modelling for the glass industry. Fives successfully commissioned the all-electric furnace with a capacity of 80 tons per day in October 2016 making this furnace one of the deepest furnaces in the world (3.7m). The expected furnace lifetime will be eight years. Furthermore, the cosmetics glass segment is one of the most demanding in terms of glass quality requirement.



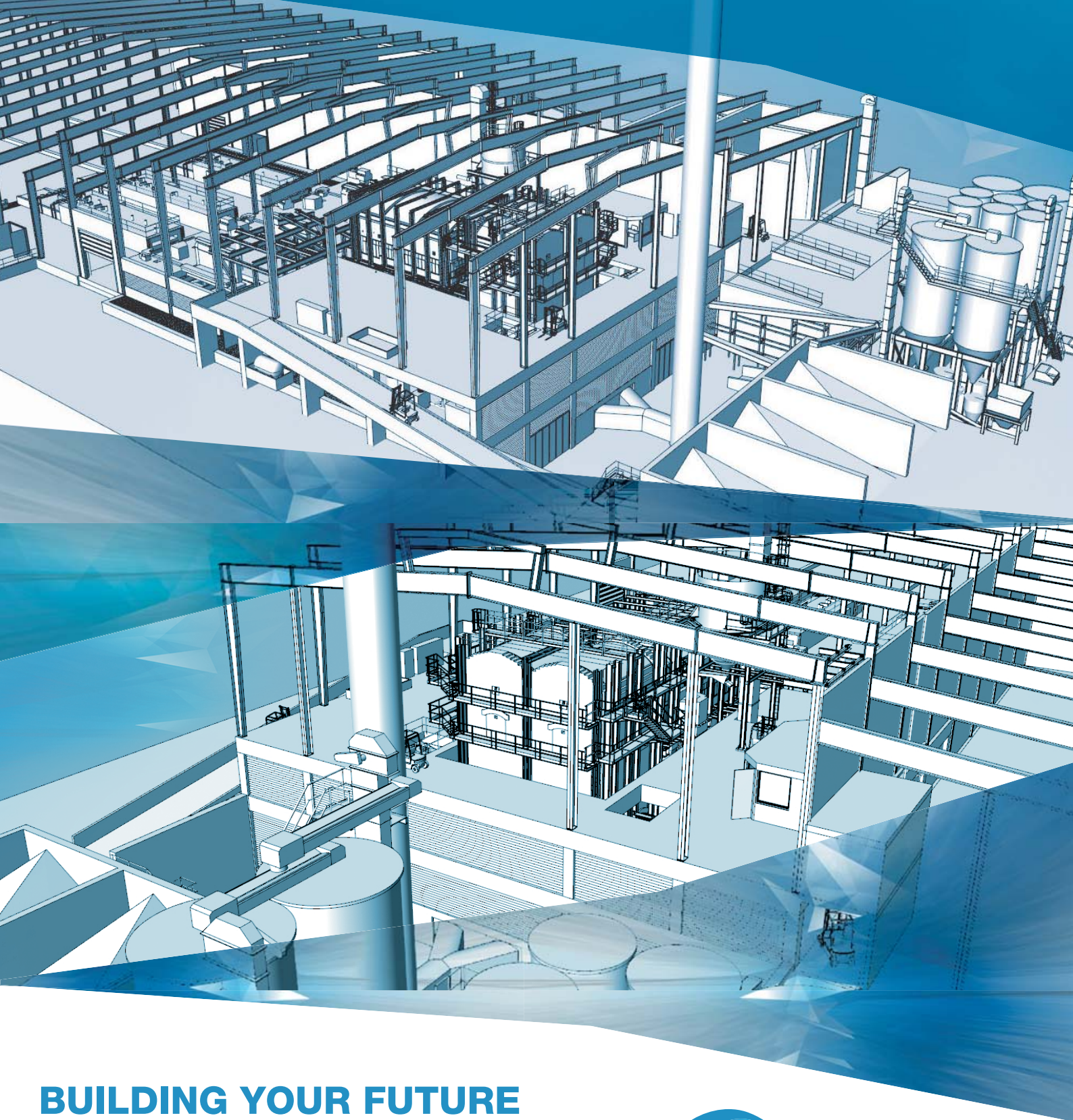
ALLIED

NEW ACCOUNT MANAGER

Allied Glass has appointed Craig Crooks to the role of UK Sales Account Manager, to further strengthen the company's already exemplary customer service team. Jonathan Culley Allied's Business Development Director, said "Craig's appointment will add additional depth to our sales support function, his strong commercial experience complementing our current skill set especially as we continue to grow within the premium spirits sector." With over 25 years experience in sales, Craig previously worked for a national packaging company servicing retail customers.

"It's exciting to be part of a company with such a rich history in manufacturing and a long-standing presence as a leader in the UK glass packaging industry. I look forward to supporting Allied's customer service offering and building on the existing strengths of our sales team," he said.





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TIAMA

AT THE CORE OF ASIA PACIFIC GLASS EXPANSION



With a new order for 21 machines, TIAMA is the preferred supplier in the **Asia Pacific Glass (APG)** state-of-the-art glass plant 100% equipped with TIAMA machines at the Cold-End.

Back in 2013: Thailand, Bangkok, the glassmaker confirmed its entry on the dynamic Thai hollow-glass market with a project to build a new factory with an initial 310 TPD furnace with three dedicated production lines to source Carabao, Thailand's energy drink leader.

TIAMA was selected to perform the Cold End Inspection with its best-selling *MCAL4*, *MULTI4* and *MX4*. In the summer of 2016, after almost three years of close collaboration with TIAMA offering its glass quality control know-how to this young but ambitious player, not only are the machines performing excellent inspections, in line with TIAMA's latest developments, but all production lines are running with consistent, repeatable and reliable quality control levels maintained by strict operational protocols maintained by APG staff

themselves. TIAMA's tailored inspection and service has played a key role in ensuring that APG's Cold End area now vies with the most prestigious glass plants worldwide.

The success of the new factory led to the decision to install a second furnace for 2017. It was logical for APG to call on Tiama's expertise once again for this addition. The company had been supportive and involved since the very beginning and a genuine relationship had developed.

Today, with a new order for 21 machines, it is no surprise that TIAMA is the preferred supplier in this state of the art glass plant 100% equipped with TIAMA machines at the Cold-End.

TIAMA has also strengthened its presence in Thailand and south east Asia with a local Customer Support team based in Bangkok, with 5 after-sales engineers dedicated entirely to this market. The ability of this team to ensure proximity and support in response to local needs, explains the noteworthy presence and success of TIAMA in the region.



BDF

2017 STARTS ON A HIGH NOTE

BDF Industries has launched into 2017 with three major successes. The company has, in fact, secured a furnace rebuilding project at *Glassforce*, Aba Plant Nigeria. After many years of operations, Glassforce Ltd. and its partner *Consol South Africa* has appointed BDF Industries for furnace rebuilding in Nigeria in 2017. BDF will provide complete technological equipment and service on a turnkey basis, confirming the strategic strength in terms of equipment and service in the Region.

The second major announcement is that BDF Industries has successfully completed the delivery of a turnkey glass plant in Angola. After the completion of all design, detailed engineering, equipment manufacturing, steelwork and MEP arrangements, all the materials and all the 297 containers have been delivered to site, ready for the erection phase. Thanks to good project management and carefully-selected suppliers, BDF has achieved the important target of manufacturing, factory tests and complete

on-site delivery services. And last but not least, BDF Industries has acquired *ECS Numerical Control*, an absolute leader in the Italian market and a great innovator in the sector as a whole.

ECS Electronic Systems S.p.A. was founded in 1970 with the aim of designing, producing and distributing numerical controls for machine tools (milling, turning and cutting). In the Numerical Controls sector, which includes in addition to the CNC also motors and drives for axes and spindle, ECS has assumed an increasingly important role in terms of market share and it has gradually expanded its commercial and technical presence in Europe and throughout the world.





GERRESHEIMER

NEW INDIAN PLANT

With seven plants, Gerresheimer enjoys a strong position in the South East Asian market for the highly specialised manufacture of glass and plastic products for the pharmaceutical sector. A new factory making vials and ampoules recently went on stream in Kosamba. "We are the specialist when it comes to vials,

ampoules, and cartridges," says Jens Heymann, Senior Vice President Europe & Asia Tubular Glass. "With our new plant in India and its counterparts in China, we will be able to fully meet demand from the Asian pharma industry for high quality primary packaging made from tubular glass." Having a uniform global standard

for its state-of-the-art machinery and employees who are trained in the production process ensures that all the workflows in all the plants meet the same standards. "Our zero-defect strategy is based on a "product-by-process" approach. We want our customers to get the same high-quality products from us wherever they are in the world. Which factory they were made in cannot be allowed to have an influence." Gerresheimer

manufactures its primary packaging for the Asian market in Shuangfeng in China and at its new plant in the Indian city of Kosamba. The Chinese factory has 30 years' experience in making vials and has been awarded a range of certificates that no other competitor in the region can match. The company supplies over 300 pharmaceutical customers in Asia, the US, and Eastern Europe and enjoys a leading position on the Chinese market.

BEATSON CLARK

INVESTMENT UPGRADES PRODUCTION LINE



Leading glass manufacturer **Beatson Clark** has invested almost GBP

3 million in the latest upgrade at its South Yorkshire glassworks.

The company has installed *Bottero* individual section (IS) machines on two of its manufacturing lines to improve production of glass bottles.

The IS machines form glass containers for well known food brands such as English Provender and Mackays, as well as major UK retailers' own brand products like spice jars.

Individual gobs of molten glass are fed into the machines where they are formed into finished containers. The two machines operate 24/7 and produce on average 160 million white flint bottles and jars each year.

"These new eight-section double gob machines represent the latest generation in servo controlled equipment," said Graham Lax, Head of Project Management at Beatson Clark.

"This investment is part of our commitment to continuous improvement for the future and will ensure that we can improve our production processes while maintaining and enhancing quality."

The new machines were installed by ECO Engineering of Brough in East Yorkshire while machine and mould cooling fans were installed by Integrated Air Systems Ltd.

MIR STEKLA

EXHIBITORS LINING UP FOR THE 2017 EVENT

The 19th edition of **Mir Stekla**, the International Exhibition for Glass Products, Manufacturing, Processing and Finishing Technology will be held from 5–8 June 2017 at Expocentre Fairgrounds, Moscow, Russia.

Organizers, Expocentre AO and the *StekloSouz United National Council of the Glass Industry Enterprises* (Russia), report that there were almost 8,000 visitors from 20 countries at the 2016 edition. 83% of the 189 exhibitors have confirmed for this year.

Federico Bassi, Partner and Sales Director, Bavelloni SpA, Italy said: "We consider the Russian market as very important and promising. Participation in Mir Stekla for several years allows us to strengthen our position in this market."

Exhibitors are leading Russian and international companies: *BDF industries, Brinolli Ermi 77, Buhler Technology, Caspian Flat Glass, Falorni Gianfranco, Glaston, Glass Service, Grenzebach Maschinenbau, Heye International, Imaca Bv, Luoyang Landglass, Motim Kadko Kft, Parkinson-Spencer, Salavatsteklo, Shanghai North Glass Technology, Shanghai Pony Technology, Sigma SRL, Stara Glass, Waltec Maschinen* and thers. Evgeny Mironov, Head of the Design Department, Vitrazhnye Tehnologii, said: "Mir Stekla is the centre of new ideas, products and technologies. Here come people who are not afraid of new projects and initiatives in the current economic environment."



BANGKOK GLASS

FLAT GLASS BUSINESS

One of the largest container glass producers in South East Asia, Thailand-based **Bangkok Glass**, is diversifying into the flat glass industry. The BHT 5 billion new float glass plant at Prachin Puri is currently under construction and likely to be completed by third quarter of the year. The 600 tons per day plant will produce high quality float, printed and speciality

glass. Slowdown and intense competition in domestic and regional container glass industry has prompted Bangkok Glass to invest in flat glass segment. According to the President of Bangkok Glass Pavin Bhirombhakdi, “We expect that in five years from now, we will generate 40% of the total revenue in our glass business from the float glass division. In contrast, the container

glass division will generate around 50% from the current 85%.” “Packaged products may no longer be the focus of our business. Glass containers are facing stiff competition in the country from alternate forms of packaging.”

Bangkok Glass partnered with Europe based *Glass Trösch Holding AG*, a specialist in value-added float glass for technology transfer to set up the float glass plant. Glas Trösch Group operates about 70 glass processing plants across Europe,

including four float glass lines. Bangkok Glass contributes about 8% of the revenue for its parent company, Boon Rawd Brewery. With the commissioning of float glass, Bangkok Glass expects to contribute to 13% of the revenue for Boon Rawd Brewery. Bangkok Glass and Boon Rawd Brewery have an off take agreement for about 50% production of Bangkok Glass. Container glass sales volume of Bangkok Glass dropped to 890,000 tons in 2016 from 980,000 tons in 2014.

MOMENTUM RECYCLING

NEW STATE-OF-THE-ART COLORADO FACILITY

Momentum Recycling's new facility marks the first bottle-to-bottle recycling plant in Colorado and is located near Northwest Parkway in unincorporated Boulder. The new Colorado facility is the Salt Lake City-based company's first facility outside of Utah, and will drive the glass recycling rate in Colorado to over three times its current level.

“We're excited to be opening this truly innovative facility, especially in Colorado, a state that has put such a significant focus on strong recycling practices,” said John Lair, President and CEO of Momentum Recycling. “This facility will produce high-quality recycled glass for use by local bottle manufacturers,

and help the state of Colorado move towards a goal of zero waste.”

Momentum Recycling currently recycles glass from communities all around Colorado including Boulder County, Larimer County and Denver County. In addition, Momentum Recycling has partnered with companies such as Waste Management, Eco Cycle, Alpine Disposal, Bestway Recycling, Iron Woman

Construction, Owens Illinois and CDPHE — Solid Waste Division, to help move Colorado towards a goal of better recycling practices and zero waste.

In 2013, in the US, 34% of all glass containers were recycled, equivalent to taking 210,000 cars off the road each year. However, these numbers are skewed by the high glass recycling rates in states with container deposit laws. States with container deposit legislation have an average glass container recycling rate of just over

63%, while non-deposit states (like Colorado) only reach about 24%.

In Colorado, over 320,000 tons of glass bottles and jars were thrown away in 2015, with only 20,000 tons recycled, which means only 6.25% of glass bottles and jars were being recycled in Colorado. Momentum Recycling's Colorado facility will recycle an additional 49,000 tons of bottle glass each year, thus increasing the glass recycling rate in Colorado from 6.25% to 21.65%.



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GERRESHEIMER

CEO APPOINTED

Dr Christian Fischer will join the Management Board of **Gerresheimer AG** as an ordinary member on 1 August 2017 before taking over as Chief Executive Officer on 1 September 2017. Dr Christian Fischer is currently President, Performance Chemicals, at BASF SE in Ludwigshafen, Germany. Uwe Röhrhoff, CEO of Gerresheimer AG, announced in November 2015 that he would not be available to serve on the Management Board beyond his current appointment. "In Dr Christian Fischer, we have gained an outstanding leader as CEO. He brings with him 24 years of industry experience and has demonstrated his entrepreneurial drive in various roles at BASF, both in Germany and abroad. Over the past few years, Gerresheimer has refined its strategic focus, made successful acquisitions and divestments, and established numerous operational initiatives – these will ensure a smooth and seamless transition," explained Dr Axel Herberg, Chairman of the Supervisory Board of Gerresheimer AG. "Gerresheimer AG is a highly successful, international company and a trusted partner to the pharma and healthcare industry. I am looking forward to my new role in this exciting company and market," added

Dr Christian Fischer. Uwe Röhrhoff will leave the Company on 31 August 2017. Following Dr Christian Fischer's induction in August 2017, Uwe Röhrhoff will continue to support his successor in an advisory capacity for a further three months.

Dr Christian Fischer was born in Furth im Wald, Germany, in 1964. From 1984 to 1988 he studied chemistry at the University of Regensburg, where he gained his doctorate in 1991. He then studied business administration in Mannheim from 1993 to 1996. In 2014, he was appointed an honorary professor at the Technical University of Munich (TUM). Dr Fischer has worked at BASF since 1993. Having started his career as a laboratory team leader, he has held various positions at the company, including Deputy Division Manager, Global Marketing Director, Sales Director and Group Vice President in different divisions in Ludwigshafen and Hong Kong. He was President, Advanced Materials & Systems Research and currently serves as President, Performance Chemicals, at BASF SE in Ludwigshafen.

PRIMARY PACKAGING PORTFOLIO NOW INCLUDES READY-TO-FILL VIALS

Gerresheimer partners with *Ompi, Stevanato Group*, to offer

standardized solutions to customers. Ready to fill packaging solutions for vials are based on Ompi EZ-fill packaging design. Ready to fill vials and cartridges will extend the broad Gerresheimer portfolio. Gerresheimer, a worldwide leader in primary packaging solutions for the pharmaceutical industry, will enhance its portfolio by adding Gx RTF vials. Ready-to-fill or ready-to-use vials are the state of the art solution to fulfil customer requirements for quality, flexibility and simplicity. To achieve this, Gerresheimer and Ompi have signed a mutual agreement to allow Gerresheimer to use the Ompi EZ-fill packaging technology. The new products will provide customers with more flexibility: either with small batches – initially at the clinical-trial stage – or with industrial production. "Our new portfolio will meet the growing demand for comprehensive solutions. Together with Ompi we will take a further step towards establishing one standardized platform for ready-to-fill vials, which make the customer process very easy and smooth," said Uwe Röhrhoff, CEO of Gerresheimer AG. "We're glad our leading technology has been adopted by Gerresheimer. Our solution, which has proved to be scalable, will benefit the customer with

GERRESHEIMER

more flexibility, increased quality and safety and quicker time to market," said Mauro Stocchi, General Manager Pharmaceutical Systems division at Stevanato Group.

Vials are the standard primary packaging for parenteral drugs. Gerresheimer offers vials in all sizes corresponding to international standards and pharmacopoeia requirements. The Gerresheimer offering includes solutions for biotech and other specialist pharma drugs. The new Gx RTF vial portfolio will be based on already established quality offerings for vials like PharmaPlus and Elite Glass. By adapting this knowledge to vials and combining it with the well-established Ompi EZ-fill packaging, this solution provides added value to customers, enabling them to source one identically packed vial from two suppliers. Ready-to-fill vials are washed and sterilized solutions provided in trays or in nests and tubs. The pharmaceutical customer can immediately fill the ready-to-fill vials without any further process. Gerresheimer has been producing RTF glass syringes (ready to fill) for more than 15 years already and has recently launched RTF COP syringes produced in Europe.

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LIBBEY

CFO APPOINTMENT

Libbey Inc., one of the largest glass tableware manufacturers in the world, has announced the appointment of James C. (Jim) Burmeister to the position of vice president, chief financial officer. Burmeister joined the company as an executive officer on 30 March 2017, and will have accountability for Libbey's worldwide finance organization and for implementing financial and operating strategies to support the Company's drive to improve its financial performance. Burmeister joins Libbey from The Anderson's,

Inc. in Maumee, Ohio, where he served as vice president, finance and treasurer, with responsibility for the treasury, investor relations, tax, sourcing, business development and continuous improvement organizations. Prior to joining The Andersons, Inc., he held roles of increasing responsibility in operations finance with *Owens Corning*, beginning in 2005 as director, finance of Owens Corning's cultured stone business and culminating in his role from 2013-2014 as vice president, finance of Owens

Corning's roofing and asphalt division. Earlier in his career, Burmeister served in a variety of roles with General Electric, including an assignment with GE's highly regarded Corporate Audit Staff, and with Rubbermaid in its supply chain function. A graduate of the US Naval Academy, Burmeister served as a captain in the Marine Corps from 1990-1995, including service in the Persian Gulf.

"We are pleased to welcome Jim to Libbey's senior management team," said William Foley, chairman and chief executive officer, Libbey Inc. "His extensive knowledge of operations and corporate finance,

along with his nearly 20 years of business leadership experience, make him highly qualified to take on the CFO role." "On behalf of the board of directors, I would also like to extend my sincere gratitude to Ronni Smith, who seamlessly assumed the interim CFO role three months ago," continued William Foley. "She has once again demonstrated that she is a strong and talented leader." With Burmeister's appointment, Ronni will resume her previous position as vice president, corporate controller.



HARBISONWALKER

NEW PLANT ANNOUNCED

HarbisonWalker International (HWI), the largest supplier of refractory products and services in the US, has announced that it is investing USD 30 million to construct a new, state-of-the-art monolithic refractories manufacturing facility. The new facility will be located along the Ohio River Valley in the northern Kentucky/southern Ohio region of the US.

The new facility will be one of the most technologically advanced refractories plants to be built in the US and will be operational by early 2018. Capacity is expected to be 80,000 metric tons per year. It will employ highly-trained technicians and staff in a team-based environment. The plant will feature a high degree of automation and technology, and will utilize lean techniques throughout its operations to maximize material flow efficiency and production. In addition, the facility will introduce advanced packaging technologies that are new to the North American market.

The strategic location of the new facility is a critical feature that will provide unparalleled distribution and logistics advantages. Its close proximity to accessible river, rail and highway transportation options will ensure efficient delivery of raw materials from nearby suppliers and finished products to customers.

"We are a US-based company and have a strong US-based manufacturing network. We have already made significant investments in individual plants, in locations such as South Shore, Kentucky and White Cloud, Michigan, as part of our plans to improve our manufacturing performance across the company. This new plant, with its state-of-the-art technological advancements, is the next step in our strategy to improve performance and better meet the needs of our customers," said Douglas Hall, Senior Vice President, Integrated Supply Chain, HarbisonWalker International. "Monolithics are a growth area, and the new plant will enable us to further elevate product quality and consistency. From a broader perspective, the new plant represents an overall strategy to reinforce our leadership position in refractories through significant investments in our people, processes and products," added Carol Jackson, Senior Vice President and General Manager, HarbisonWalker International.

"Leveraging new technologies and processes in the new plant will allow us to successfully address growing demand for monolithics by being a cost-effective producer of the highest quality products. These attributes – combined with the largest distribution network in North America, a total-solution product portfolio, and a reinvigorated approach to innovation – further strengthen our position as a leader in North American refractories," noted Jackson.

GLASSPRINT 2017

ADVANCED SOLUTIONS FOR GLASS DECORATION

As Europe's only dedicated event for glass decoration, the seventh GlassPrint conference and exhibition returns to Düsseldorf, Germany on 29-30 November 2017.

Following an excellent response to the early-bird delegate and exhibitor registration offer that launched last month, the organisers anticipate the largest GlassPrint event yet, following on from GlassPrint 2015 that was deemed an outstanding success by a record audience of 200 glassmakers, decorators, end-users, suppliers and brand owners from 26 different countries in Europe, North America, Asia and the Middle East. Taking place at the easily accessible Radisson Blu Scandinavia Hotel in Düsseldorf, GlassPrint 2017 delegates will benefit from an extensive

conference programme that will see industry experts present detailed solutions for flat and hollow glass decoration, covering the latest advanced digital and screen technologies. Industry figureheads will provide keynote presentations and a specially selected panel of glass decoration experts will join together for the GlassPrint LIVE open forum to answer topical questions from the audience.

EARLY-BIRD DISCOUNTED OFFER

For a limited time only, delegates can still take advantage of discounted early-bird registration rates at www.glassprint.org. Early-bird exhibitor rates are also available for suppliers of equipment, consumables, technology and services in the accompanying table-top



GLASSPrint2017 CONFERENCE

area, where the latest developments in inks, pre-press technology, printing equipment and supplies will be presented to a captive audience of existing and potential customers.

In recognition of its importance on the global glass event calendar GlassPrint is powered by glasstec and sponsored by glassglobal.com, Deutsche Glastechnische Gesellschaft (DGG), SGCDpro and the SGIA. The event is co-organised by ESMA, the European Specialist Printing Manufacturers Association, and Chameleon

Business Media, publishers of Glass Worldwide and Specialist Printing Worldwide magazines. GlassPrint will be staged immediately after the Direct Container Print conference (www.dcp2017.org) that will introduce printers, packaging manufacturers and brand owners to the potential of direct to shape container decoration on plastics.

FURTHER INFORMATION:

Chameleon Business Media
Tel: + 44 1342 315032
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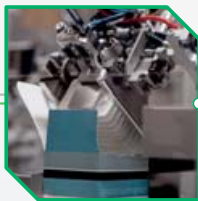
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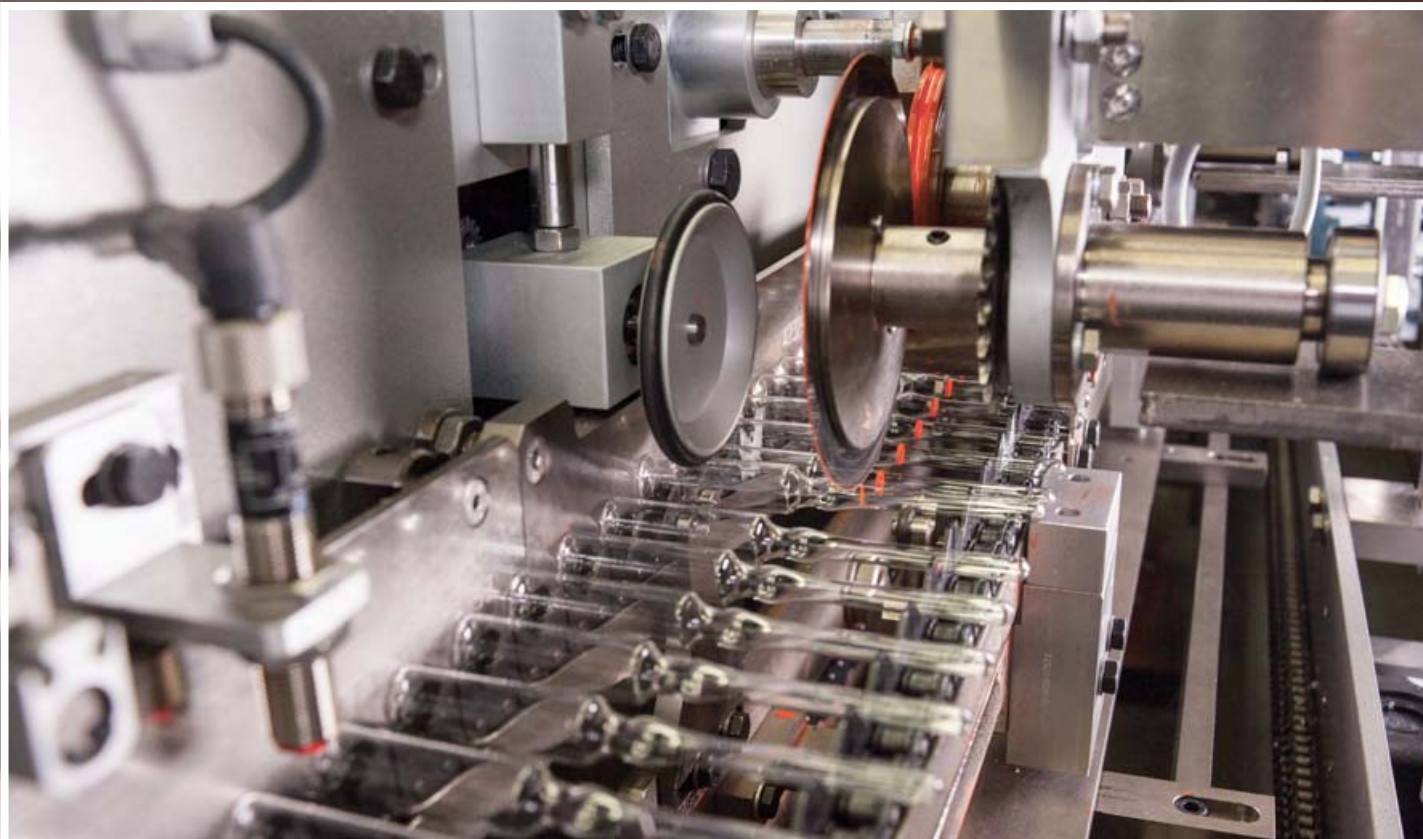
pharmaglass

PHARMAGLASS

SPAMI, world's leader in the designing and manufacturing of automatic glass converting tube lines dedicated to vials, syringes and cartridges since 1971, introduces the innovative SAM30 ampoule line addressing the real needs of glass tubing packaging manufacturers.

SPAMI SAM30:

The perfect solution for first-in-class glass ampoules manufacturing



Like all SPAMI manufacturing lines, the SAM30 is entirely manufactured in the SPAMI plant in Italy, from the tube-loading machine to the packaging module.

The high rate of automation, precision and process control gives an incomparable efficiency to the production guaranteeing the highest product quality, the complete operation control and the best efficiency to the customer.

In addition to all other cutting-edge features, the SAM30 includes the automatic inspection system NOVIS, suitable to measure all the glass container dimensions straight from the forming machine, supplying the operator with an indication of the line performance and the process efficiency. The automatic camera inspection is a primary tool to reach the machine optimum settings and to monitor the process efficiency, satisfying what the pharmaceutical companies consider as an essential prerequisite for their containers.

SAM30 is equipped with:

- Modulating burners for tip forming installed after the

high performance NOVIS Inspection System

- Self-Centering chucks, to guarantee shorter format change over time, and lower maintenance thanks to their improved lifetime
- After-forming line complete with cooling system, length and concavity inspection system
- Tear-off and glazing steam unit
- Score break unit
- Packaging line with an automatic turn table with five packing positions
- Aspiration module to remove discards of glass particles
- Color ring unit dedicated to serigraphy up to three rings
- Cutting unit, OPC unit and OPC check camera
- Print unit and drying color unit

Several sensors allow the complete control of each step of production, from tube loading to serigraphy process.

SPAMI annealing process offers multiple benefits, including an electric rotative oven with smaller footprint that grants a higher product handling stability through the entire phase. Compared to a traditional walking beam, the rotative oven allows

printing up to a few millimeter from the bottom of the ampoule.

The self-adjusting heat control system collects information from thermocouples installed in the oven and automatically manages the electric heating elements, ensuring the ideal thermal curve.

SAM30 is the perfect solution for first-in-class glass ampoules manufacturing, allowing a customizable approach to treatments and processes.

FEATURES AVAILABLE UPON REQUEST:

- Glass forming machine with 36 chucks
- Camera inspection for print and other desired cosmetic verification ■



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EXAMINING THE INDIAN CONTAINER GLASS INDUSTRY

Being the second largest country in Asia, India is also the second largest container glass market in the continent. With a population of 1.27 billion, a large section of its population below 30 years, rising disposable incomes and changing lifestyles, the country's container glass industry is expected to grow exponentially from its current levels over the next ten years.

Rajeev Jetley

Presently, with an installed capacity of nearly 10,500 tonnes per day, the total capacity in a country with a population of 1.27 billion seems inadequate, but considering that the capacity was a meagre 4,500 tonnes per day in 2010, the Indian container glass industry has made great strides over the past six years.

OVERVIEW OF INDUSTRY

With four large scale producers in addition to about a dozen mid-sized and 20 small scale companies, the industry is getting ready for one of the best periods in its history. Steady growth in the country's economy has led to a vast section of the population joining the middle class bandwagon every year. This factor along with rising disposable incomes, changing lifestyles, changing spending habits and rising urbanization has created much needed opportunities for the country's container glass producers to tap into the ever increasing demand for glass from food and beverages as well as the alcoholic and pharmaceutical segments.

CONTAINER GLASS CONSUMPTION PATTERNS

IMFL (Indian Made Foreign Liquor), Beer,



TABLE 1

End user Segment	Share in Container Glass market	Major Container Glass Producers in the segment
Liquor	47 %	HNGL, AGI Glasspac, Haldyn Glass, Sunrise Glass
Beer	19 %	HNGL, AGI Glasspac, Can Pack India
Packaged food	12 %	HNGL, Janta Glass, Enki Glass
Pharmaceuticals & Cosmetics	9 %	Piramal Glass, HNGL
Others (Including wine)	13 %	-

packaged food, pharmaceuticals and cosmetic segments are the largest container glass consumers in India, in that order.

IMFL accounts for about half the market share of the container glass industry in India. With a consumption of 310 million cases in 2015, the Indian IMFL industry is the third largest market in the world with an estimated size of 35 billion USD. The market has grown at a compounded annual growth rate (CAGR) of 9 percent in the last four years. This segment is expected to be the largest end user segment for the container glass industry in India



COUNTRY OUTLOOK

for a very long time.

The beer industry in India has grown at one of the fastest rates anywhere in the world. From 100 million cases a year in 2004, 200 million in 2010 and 300 million in 2015, the beer market has had a profound impact on the container glass industry. Some of the container glass manufacturing facilities (for example, Polish company Can Pack India) in the country have come up to serve the fastest growing segment for the container glass industry. Glass bottles account for more than 90 percent of beer packaging in India. There is hardly any competition from aluminium cans and PET bottles in this category.

The rest of the segments; packaged foods, pharmaceutical, cosmetics and others account for a combined 34 percent share of the country's container glass market. Among these categories, packaged foods and pharmaceuticals (including cosmetics) segments have been important growth drivers for the industry.

The Indian packaged food market has registered double-digit growth during the past few years. Rising consumer health-consciousness has proved to be a key influence in the development of the packaged food industry in India. Concerns about the hygiene of unpackaged foods were a significant factor in encouraging the uptake of packaged products, playing an

important role in the growth of the container glass industry in this segment.

The pharmaceutical industry, another important consumer of container glass, is in the midst of vast changes to accommodate demographic and economic shifts within the country. The producers are upgrading their manufacturing practices to match exacting global standards to produce world-class medicines. Also, pharmaceutical manufacturers are expected to embrace newer methods and more effective practices in packaging medicines. In the long run, glass containers are

expected to raise their share in this segment.

CONTAINER GLASS PRODUCERS

The Indian container glass manufacturing industry is comprised of four large and a dozen mid-scale container glass producers. In addition to these, there are about 20 small scale producers, most of which are based in the town of Firozabad in the state of Uttar Pradesh in North India.

THE BIG FOUR

Hindustan National Glass Limited, AGI Glasspac, Piramal

TABLE 2

Company	Location	Production Capacity (Tons Per Day)
HNG	Rishra, Rishikesh, Bhadurgarh, Neemrana, Nasik and Puducherry	3875
AGI Glasspac	Hyderabad and Bhongir	1600
Can Pack India	Aurangabad	800
Piramal Glass	Kosamaba and Jambasur	695
Haldyn Glass	Vadodra (Gujarat)	320
Mohan Meakin	Sahibabad (Uttar Pradesh)	240
Sunrise Glass	Surat (Gujarat)	220
Janta Glass	Vadodra (Gujarat)	220
Universal Glass	Sahibabad (Uttar Pradesh)	215
Pragati Glass	Kosamba (Gujarat)	170
Hyaline Glass	Madhya Pradesh	150
Vitrum Glass	Mumbai (Maharashtra)	130
Enki Glass Industry	Ankleshwar (Gujarat)	120
Firozabad based small scale units	Firozabad (Uttar Pradesh)	800
Cumulative capacity of rest of the small producers	-	700



TABLE 2

HNGL MANUFACTURING LOCATIONS AND CAPACITIES

Plant	State	Installed Capacity	Number of
Furnaces			
Bahadurgarh	Haryana (North India)	650 TPD	3
Rishikesh	Uttarakhand (North India)	400 TPD	2
Neemrana	Rajasthan (North West India)	200 TPD	1
Rishra	West Bengal (East India)	650 TPD	3
Nasik	Maharashtra (West India)	975 TPD	2
Puducherry	Tamil Nadu (South India)	350 TPD	1
Naidupeta	Andhra Pradesh (South India)	650 TPD	1

Glass and Can Pack India, an Indian subsidiary of polish packaging producer Can Pack, are the four largest container glass producers in the country. These four companies account for about 65 percent of the total capacity for the industry. HNGL has plants spread all across India, while AGI Glasspac, Piramal Glass and Can Pack's manufacturing facilities are located in the state of Andhra Pradesh (one facility in the newly created state of Telangana), Gujarat and Maharashtra, respectively.

HINDUSTAN NATIONAL GLASS & INDUSTRIES LIMITED

Hindustan National Glass & Industries Limited (HNGL) is the largest container glass producer in the country with a pan India manufacturing presence. The company operates container glass manufacturing plants in all the strategic regions of the country. HNGL production facilities are located at Rishra (state of West Bengal), Bahadurgarh (state of Haryana), Rishikesh (state of Uttarakhand), Neemrana (state of Rajasthan), Nashik (state of Maharashtra), Naidupeta (state of Andhra Pradesh) and Puducherry (a union territory within the state of Tamil Nadu).

In a major expansion exercise in 2012, HNGL added two furnaces with a combined capacity of 1,300 tonnes per day. One furnace with a 650 tonnes per day capacity was installed at its Greenfield plant at Naidupeta in Andhra Pradesh, while the other came as a brownfield expansion

at the company's Nasik plant.

In 2011, HNGL had acquired German-based Agenda Glass AG, which has a 320 tonnes per day capacity plant at Gardelegen, making bottles for Jagermeister herbal liqueur and Gorbachev vodka, among other brands. The acquisition cost HNGL 50 million EUR. Last year, HNGL sold its Agenda Glass operations for 23 million EUR.

AGI GLASSPAC

AGI Glasspac is the second largest producer in the country. The company meets the packaging needs of food, pharmaceuticals, soft drinks, spirits, beer, wine and other industries. With two state of the art manufacturing facilities, one in Hyderabad and the other at Bhongir (state of Andhra Pradesh) both strategically located in South – Central India, the company has a major market share of container glass market in the Southern part of the country.

At their Hyderabad plant, AGI operates two furnaces with capacities of 350 metric tonnes and 250 metric tonnes. At its second manufacturing facility at

Bhongir in the state of Andhra Pradesh, the company operates two furnaces, each capable of 500 metric tonnes, which makes it the largest container glass plant in the country at a single location. With Hyderabad and Bhongir facilities put together, AGI has a capacity to produce 1,600 tonnes of container glass per day.

PIRAMAL GLASS

Gujarat-based Piramal Glass is the third largest producer in the country. With an installed capacity of 695 tonnes per day from its Indian operations, Piramal Glass is a global leader in delivering world-class packaging solutions for the perfume and pharmaceuticals businesses.

Piramal Glass has two major facilities at Kosamba and Jambusar in the West India state of Gujarat, both of which are strategically located near major seaports.

The Kosamba facility has a capacity of 340 tonnes per day of container glass from six furnaces – three each for pharmaceutical and cosmetics and perfumery. Piramal Glass's Jambusar facility has a designed capacity of 355 tonnes per day of container glass for pharmaceutical glass. It has one of the world's largest installed capacity for pharmaceutical packaging in amber glass.

Piramal Glass also operates container glass manufacturing facilities in USA and Sri Lanka. In USA, Piramal Glass's plants are located at Flat River, Missouri



COUNTRY OUTLOOK

and Williamstown, New Jersey. In Sri Lanka, Piramal Glass's facility is located at Horana. This facility has a capacity of 250 tonnes per day of container glass.

CAN PACK INDIA

Can Pack India a subsidiary of Polish packaging company Can Pack, which entered the Indian container glass market in 2012 by setting up a greenfield facility at Aurangabad in the state of Maharashtra. Aurangabad is

often called the beer capital of India, as the town houses seven breweries in total.

Can Pack India's container glass plant has a capacity of 800 tonnes per day of container glass from two furnaces and six production lines. In addition to container glass, Can Pack also produces aluminium cans for the beverage industry. Originally the company had set up an aluminium can manufacturing plant in India during the last decade.

Their parent company's expertise in the glass industry and market potential in India's container glass market encouraged Can Pack to set up container glass facilities in the country.

MID SCALE PRODUCERS

Nearly a dozen mid-scale producers (with estimated capacities in the range of 120 to 300 tonnes per day) accounts for about 30 percent of the country's container glass capacity. Spread all



across the country, these producers cater to niche segments in their respective territories.

The state of Gujarat, which has six of these mid-sized container glass producers, is fast emerging as one of the largest container glass producing centres in the country. Haldyn Glass (320 tonnes per day), Sunrise Glass (220 tonnes per day), Janta Glass (220 tonnes per day), Paragati Glass (170 tonnes per day) and Enki Glass Industry (130 tonnes per day) are some of the leading mid-scale container glass producers based in the state.

Other mid-scale producers are based in state of Uttar Pradesh, Maharashtra and in the central part of India in the state of Rajasthan.

FIROZABAD

The small town of Firozabad (250 kilometres from Delhi) is in state of Uttar Pradesh and has about ten small scale container glass producers. These producers cater to glass bottle requirements of small food and beverage producers.

Most of these producers use outdated technology for production and supply to companies where quality is not the utmost criteria. In recent years, glass producers have stressed the improvement of quality for container glass in the



town based on the initiatives of the Centre for the Development of glass industry (CDGI). CDGI has been set up as a joint venture project of the governments of India and Uttar Pradesh, the United Nations Development Program (UNDP) and the United Nations Industrial Development Organization (UNIDO).

Firozabad is known for its glass industry and has a long history of glass production. Currently, there about 300 small and very small glass manufacturing units

in the town. These units make bangles, glass beads, tableware glass and other gift-related glass products.. ■





Antonini GETS RECORD LEHR ORDER FROM O-I FOR MEXICO



Antonini S.r.l. has undertaken to supply the equivalent of forty standard lehrs to Owens-Illinois for its Mexican glassworks. The ex-works order was mostly for large decorating lehrs to be delivered over the next year and is the largest order in the company's history

ANTONINI SRL
Antonini Srl of Empoli, Italy have been making plant and equipment for the glass industry since 1946. Over those 70 years the company has grown to be a major player on the world market for annealing, decorating, tempering lehrs and accessories. They have had 1,600 installations in more than 80 countries. Recently

Antonini announced a massive order – the largest in its history – from Owens Illinois for the equivalent of forty standard lehr units to be supplied to glass manufacturers in Mexico.

Lorenzo Frediani, an engineer with Antonini.Srl explained some aspects of the deal:

LONG ESTABLISHED IN MEXICO

“It goes back a long way. We have been supplying lehrs to O-I all over the world – from New Zealand to Chile, as they say – and we were also a supplier to the IVC glassworks in Piedras Negras in Mexico. You will find Antonini lehrs up and down the country as we have been supplying Mexican glassworks for about twenty years, so we are well known and respected for the quality of our products.”

O-I has been involved with container glass in Mexico since 1909 (when Vidriera Monterrey opened the first glass factory in Mexico to produce container glass using an automated system licensed from Owens-Illinois) and they have recently acquired such companies as Vitro, and Antonini ‘s client at Piedras Negras, IVC .

SUCCESS BREEDS SUCCESS

The people at Vitro are very happy with the results they get with our lehrs so it is a good visiting-

card for Antonini. We had already been supplying annealing and decorating lehrs to IVC and when they decided to expand in Piedras Negras, we were in a good position to pitch for the order. We were highly thought of, the client was very satisfied with our products and services, and no doubt O-I were advised that on past performance, Antonini were among the top. Of course, reputation alone is never enough; we had to get all the details and calculations right in our negotiations with O-I, but eventually our bid was accepted. To the best of my knowledge, this is the biggest one-shot order in Anonini's history.

THE HARDWARE

Initially, we were to supply eleven long decorating lehrs (which are double the standard unit length of 25m). The extra length is needed because in decorating lehrs it is necessary to heat up the glass first – unlike the annealing lehrs where the lehr receives the bottles already hot. In addition, the temperatures reached are about 100° hotter, so the materials used in these lehrs have to be a higher quality to cope with the extra stress.

Along with these there was also an order for eight standard lehrs. This brought the total to the equivalent of thirty standard units. We were also negotiating with another



manufacturer, Vitro, for a further ten lehrs. While these discussions were in progress, Vitro was acquired by Owens-Illinois but this development did not interfere with the deal and so at the end of the day the final order from O-I was for the equivalent of forty standard units. The lehrs are fairly similar, so once the design of the first was established, the production times of the remainder are more or less the same.

EX-WORKS

Shipping the containers is the client's responsibility. The rate of delivery is coordinated with the installers on site so that shipments arrive regularly just as soon as they are needed and dead-time is minimized: the installers are never idle waiting for containers to arrive, and containers are never stacked up waiting to be unloaded. We ship out about one lehr every three weeks so the whole operation proceeds smoothly. Installation on site is done by a local firm that is already familiar with our products and procedures, so we don't anticipate any serious problems in that area. One of our technicians is also on hand to certify that the installation is in conformity with our technical requirements and legal obligations.

BUSINESS AS USUAL

Are there any particular difficulties on the production side for an order as large as that you got from O-I for Mexico?

Not really. We are a well-established company with a lot of experience. In recent years we have done quite well, our turnover has been growing steadily – from 25m in 2015 to 27m in 2016. So we are used to programming our work to suit our capacity and our production facilities. It's integral to a well-run business.

Outsize – the same only different

This is a big order but we are by no means over-extended by it. We don't have to deliver it all at once! You must remember that the delivery will be phased over a certain time span so that the client too can plan their side. We have our suppliers for components and subsystems and these operate according to a schedule worked out with us. The decorating lehrs for Mexico are large – twice the standard size – so we would count on building one large in place of two standard machines. It's as simple as that. We do have other clients and other orders to fill, so it's all in the day's work. We are very flexible as a company – it's one of our strong-points.

Big means more – on schedule

In some cases we are directly involved in shipment and reassembly on-site. For shipment in Italy or Europe we use containers or low-loaders. This contract is ex-works for overseas so everything has to go into containers. Transport and assembly is organized by the client. In fact, we build the lehrs completely at our factory and then dismantle and pack them into containers ready to be shipped. The lehrs are large but that just means each takes more containers than usual. We could pack about eight a day so that would mean one machine in a day and a half. It's all scheduled to minimize delays and uncertainty.

Room for more

Of course, there is always a chance that something will not go according to plan, but we pride ourselves on our ability to cope with such circumstances. There have been no unforeseen developments up to now. We could easily handle twice this volume if it were necessary.

Footnote:

Following on their success in Mexico, Antonini have also landed their first contract – for two machines in the late summer – in Bolivia, a new country for them.

A new country, a new contract with all its own unique aspects – very much business as usual.



MEXICO

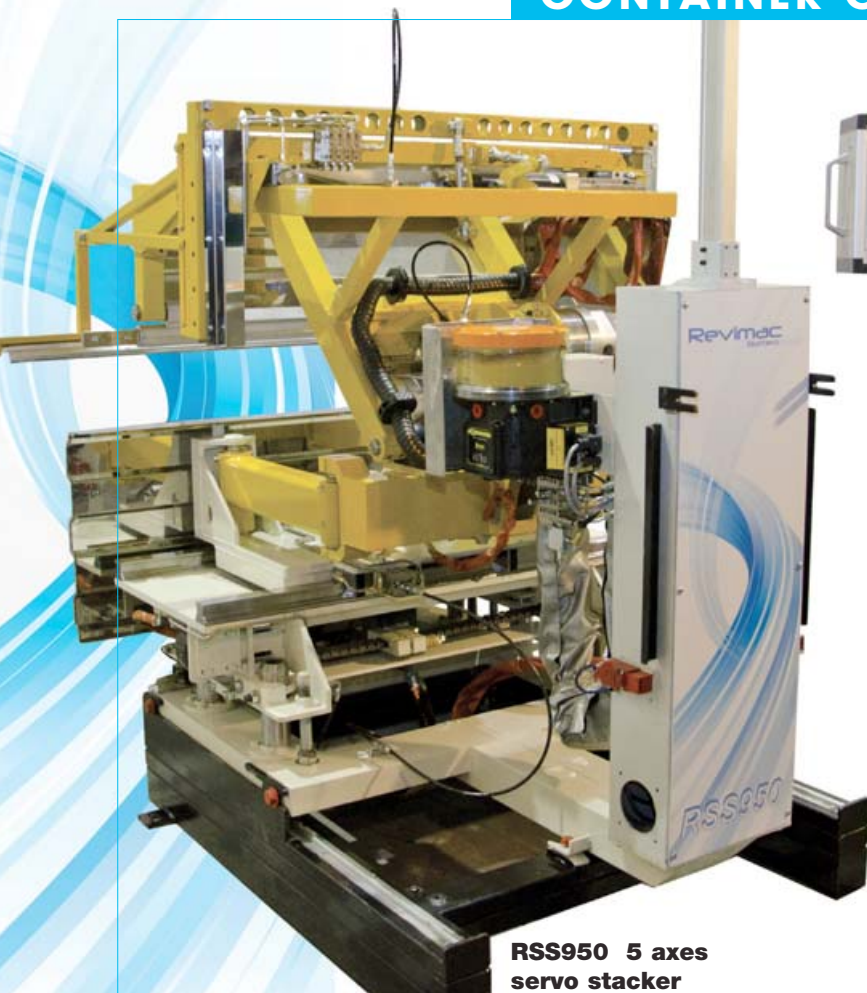
Mexico is one of our bigger markets and we supply other companies there besides O-I. Between old plants modernizing and new plants starting up, there is a growing need for new machinery and we expect to be as competitive as always. We know the territory and we know the people; but we can never rest on our laurels or take anything for granted. Each new job is a new challenge and gets our best shot. ■



ANTONINI SRL

www.antoninisrl.com

Via Medaglie d'Oro
della Resistenza, 2
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REVIMAC

serving global
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Thanks to its 28 years of supplying equipment to the hot end of global glassworks, Revimac has gained considerable experience in responding to - but also anticipating the needs of companies working in this difficult environment. In this article, Revimac gives us an overview of its most important products, aimed at guaranteeing both precision and high speed operations.



Revimac makes n. 500! Giorgio Mazzer, Managing Director of Vetri Speciali Spa, receives a plaque of appreciation from Gilberto Volpato, Sales Director of Revimac Srl, at the inauguration of the new Gardolo glass factory, where the 500th Revimac stacker has been installed.

Also present at the informal ceremony were Mr. Camarin, General Manager and Mr. Pastore, Technical Manager of Vetri Speciali Spa, as well as M0Marco Tecchio, CEO of Bottero Spa

CONTAINER GLASS MANUFACTURING



**RSS100 3-axes
servo stacker**

Thanks to its 28 years of supplying equipment to the hot end of global glassworks, Revimac has gained considerable experience in responding to - but also anticipating the needs of companies working in this difficult environment. In this article, Revimac gives us an overview of its most important products, aimed at guaranteeing both precision and high speed operations.

Revimac, part of the Bottero group of companies, boasts 28 years' experience with global major glass container manufacturers, supplying a wide range of machinery and equipment for the hot-end area.

Over the years, Revimac has supplied over 1,400 ware transfers, stackers, cross conveyors and other machines to more than 40 countries around the world.

A number of improvements have been introduced in terms of design to cope with market demand.

Revimac has implemented the control of three- and five-axes in its range of servo-stackers specifically for high speed production lines and the handling of very unstable glassware.

The RSS-100 3-Axes servo stacker has been in use at top glass manufacturers worldwide for many years, for very high

speed loading of bottles.

The powerful control of the three axes of the machine, along with its reliable and unique mechanical design, enable to load one complete machine cycle, with peaks up to 18 cycles per minute.

ROBOTIC STACKER OPERATIONS

The RSS-950 5-axes servo stacker and RSS-930 3-axes servo stacker are part of the most recent generation of Robot machines working with "Scara-Cartesian" hybrid geometry on X-Y-Z axes and A-B axes for the "steady bar".

Their control features a user-friendly touchscreen interface that allows the operator to easily change the loading profile adapting it to the different jobs to be run. A self-learning function has been implemented in the software control to reduce the intervention of the operator with regards to setting the pushing and steady bar curve profile.

Moreover, thanks to the innovative "Grab Mode" function (available for the five-axes stacker only) the glass ware is lifted by the steady bar and loaded directly onto the annealing lehr belt, greatly reducing the risk of containers falling, and, at the same time, avoiding bottom scratches.

In the field experience shows that the average speed of the five-axes stacker is nine cycles per minute and can be increased up to 15 cycles per minute with the three-axes stacker.

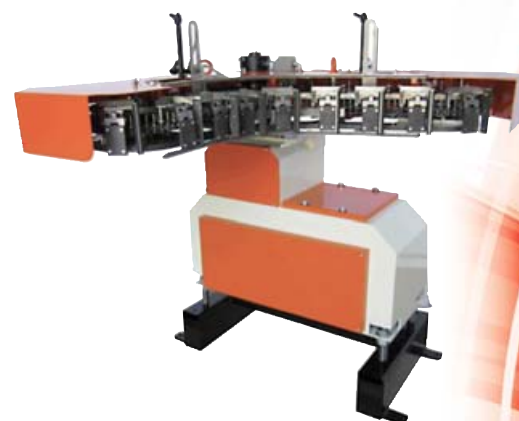
Three- and five-axes stackers are available with Stand Alone control that enables their installation to serve any type of IS machine independently from their control system.

Finally, through ADSL and router with a Firewall, the Revimac service staff is also available 24/7, with the possibility of connecting to the machine software for remote-service, pro-

gramme upgrades and remote control of the stacker.

HIGH SPEED WARE TRANSFER

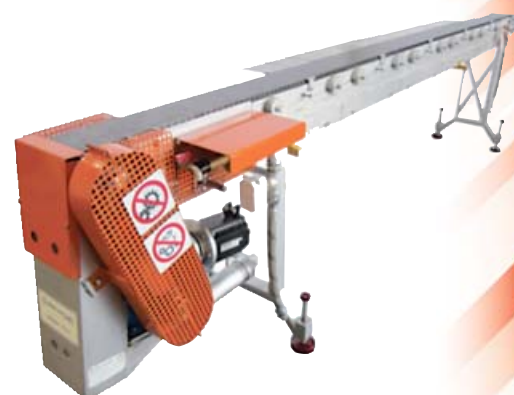
Revimac Ware transfer 700 series, featuring the new angle transfer profile, is particularly suitable to be installed on high speed lines (up to 700 bpm).



The new paddle assembly, split in two different parts, makes changeover to suit different jobs requirements extremely easy and fast.

Revimac's new version of ware transfer is also suitable to handle standard bottles (such as those for beer) and small wares (such as for cosmetics), by quick plug & play insert of dedicated paddles without changing the upper wheel.

Revimac Cross conveyors are equipped with an innovative design of tubular steel conveyor beam with built-in water cooling system, to avoid any risk of thermal dilatation or deformation of its frame.



HOT TREATMENT HOODS

Last but not least, the new Revimac MK4 series of Hot Treatment Hoods features a robust design totally in stainless steel, protecting against any possible attack from aggressive chemical products, easy maintenance, complete PLC control of temperature that guarantees perfect thickness of the coating with minimum chemical consumption, even on high speed lines (700bpm). ■



**Hot Treatment Hood
HTH 200 High Speed**



**RSS930 3 axes
servo stacker**

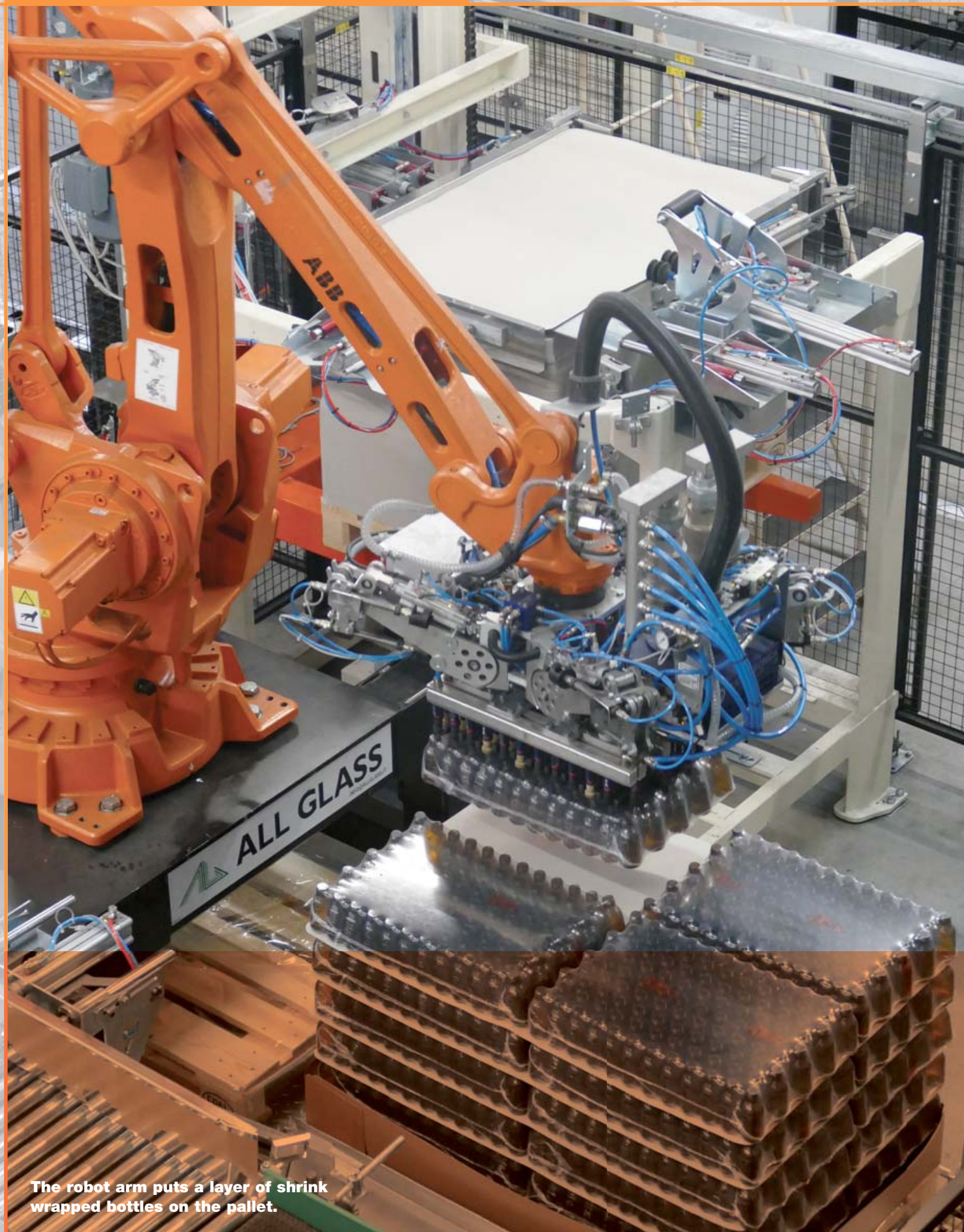
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Bottero Group**

Via Mario Carraro, 19
36075 Montecchio Maggiore (VI) - Italy
Tel.: 0444-493494
Fax: 0444-495523

www.revimac.com

INDUSTRIAL AUTOMATION



The robot arm puts a layer of shrink wrapped bottles on the pallet.

GERRESHEIMER

The company has optimized cold-end operations at its pharmaceutical glass production plants with state-of-the-art packing robots

“Innovative automated processes are safeguarding the future of our plants and improving the quality of our products,” said Dr. Jürgen Unruh, General Manager at Gerresheimer Essen. He added that the installation of packing robots at the Essen facility serves as an example for the other production plants in the Gerresheimer Group.

Pharmaceutical packaging products, such as the glass bottles manufactured by Gerresheimer, have to satisfy stringent requirements and be low in germs and particles. The extremely high temperatures in the glass mould-

ing process initially kill all the germs. To prevent recontamination, the bottles go straight from the annealing oven to the clean room, where various mechanical and optical inspection systems are used to identify and sort out defective bottles. After the final inspection, the bottles in the clean room are shrink wrapped in the required pack size with safe pack technology to ensure that they are hermetically sealed in a germ-free environment.

The shrink wrapped packs then have to be packaged and palletized to prevent transportation damage. In the past, production plant personnel working in

shifts loaded the transport pallets. This kind of work involves a great deal of effort and concentration because it takes place at high speeds. Gerresheimer decided to automate the process in order to eliminate the resulting pallet packing errors.

OVER 1000 PACKING FORMATS

All the necessary information for the palletisation process is contained in the order number. The products are shrink wrapped with safe pack technology in a clean room environment according to the customer's specifications on packing format. There

Every year, Gerresheimer's pharmaceutical industry customers order several hundreds of millions of glass pharmaceutical packaging products manufactured at the company's plants in Essen and Lohr. Packing robots were recently introduced to improve the efficiency and reliability of packing operations before the pharmaceutical glass products are delivered to customers.

INDUSTRIAL AUTOMATION

are currently around 1500 different packing formats, 1000 of which can be implemented by the safe pack machine. In the future, a 100 percent reliable camera system will perform continuous visual inspections to ensure that the packing formats, stability and quality are correct.

AUTOMATIC PACKAGING

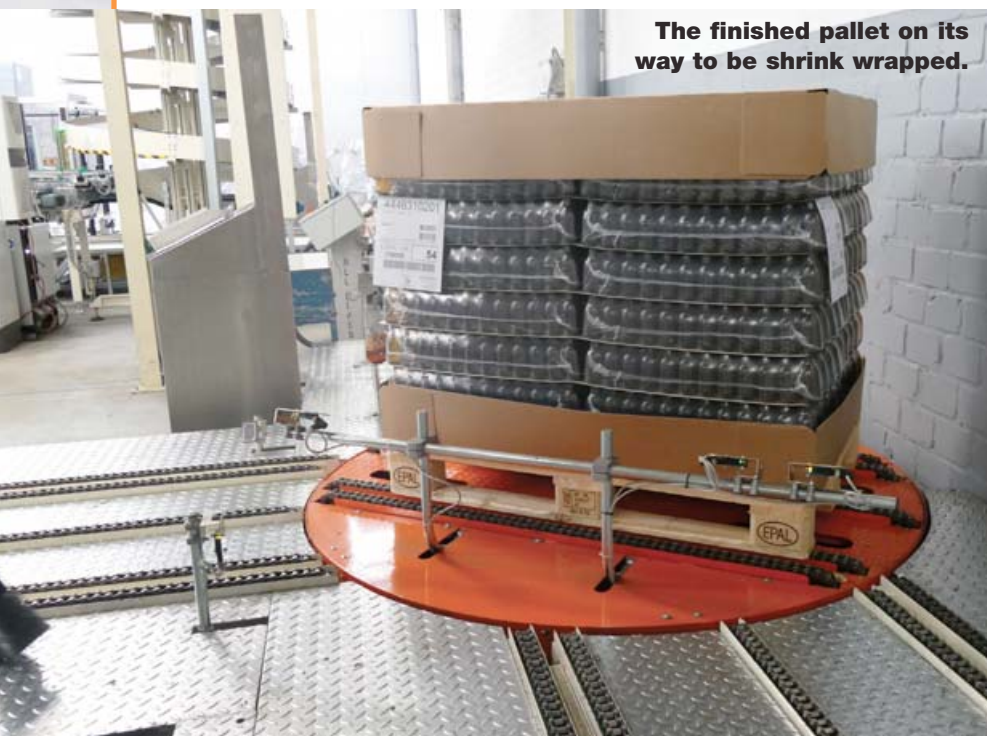
The shrink wrapped packs are transported by conveyor belt from the clean room to the packing robots. At the removal station a robot takes a pack off the conveyor belt and places it on the pallet as per the packing instruction. An operator can use a touch screen to adjust the position of the packs. When one pallet layer is finished, and before the next layer is placed on top, the packing robot adds a protective interim layer. When the pallet is ready it is taken to the holding area in front of the turntable, and the next pallet is loaded. The pallet labels are affixed manually by an operator, who also releases the pallets for delivery. The final stage of the

process is the shrink wrapping of the pallets.

ABOUT GERRESHEIMER

Gerresheimer is a leading global partner to the pharma and healthcare industries. The company's special glass and plastic products contribute to health and well-being. Gerresheimer is a global organization with about 10,000 employees and manufacturing operations in the local markets, close to customers.

Adjusting the position of the packs with the touchscreen.



The finished pallet on its way to be shrink wrapped.

With plants in Europe, North and South America and Asia Gerresheimer generates revenues in excess of 1.4 billion Euros. The comprehensive product portfolio includes pharmaceutical packaging products as well as convenient and safe drug delivery systems such as insulin pens, inhalers, pre-fillable syringes, vials, ampoules, bottles and containers for liquid and solid pharmaceuticals with closure and safety systems, plus cosmetic packaging products. ■

GERRESHEIMER

GERRESHEIMER AG

Klaus-Bungert-Straße 4
40468 Düsseldorf
Germany

Tel: +49 - 211 - 618100

Fax: +49 - 211 - 6181295

E-mail: info@gerresheimer.com

www.gerresheimer.com



Merkad

QUALITY AND COMMITMENT FOR EVERY PROJECT



Merkad is a leading, globally known glass tableware mould manufacturer that has been producing high quality moulds for world famous glass manufacturers since 1986. The company is celebrating their 30th anniversary and have been continuously growing with dedication and concentration on quality in every step of the production process throughout those 30 years.

ANNIVERSARY



Merkad has recently moved operations to a new 3,500 square meter plant located in Istanbul, Esenyurt, 30 minutes from the Ataturk International airport. In the new location the company has invested in high technology machines, clever automation and

increased their capacity for high quality mould manufacturing, helping to serve customers with faster delivery and top quality.

A CONSISTENT FOCUS ON QUALITY

Merkad pays great attention to keep the quality of its prod-

ucts at an international level and makes serious efforts to obtain further success of its brand, which has secured a special place in the glass industry. As a result of these efforts, Merkad was awarded the ISO 9001 Quality Assurance System Certificate in 2009.





THOROUGH DESIGN AND EVALUATION

Merkad engineering is a perfect partner for their client's most challenging projects. The company's experienced design team assists customers with innovative suggestions in product and mould equipment design. Starting with

a design article and ending with a complete set of mould construction schematics, the company is committed to create and deliver designs efficiently to achieve successful glass production. Probable problems, which may occur during production, are simulated using advanced software programs.

Throughout the process the engineering team works on every facet of design, determining cooling profiles of plungers and moulds, identifying exhaust holes in fixed blow moulds, calculating parison design for press and blow moulds, obtaining homogeneity, glass thickness and ovality on spinning moulds and reverse engineering projects by laser scanning on any surface. After the mould design details have been finalized by Merkad, the company provides 2D and 3D files to the client for approval.

Merkad's customers have the advantage of working with high accuracy mould equipment that has a longer lifespan than its competitors and without the need of extra processing during glass production.

PRODUCTS

Merkad provides the highest quality mould equipment



ANNIVERSARY



for glassware manufacturers at competitive prices in line with customer requirements, such as moulds, plungers, plunger coolers, plunger rings, bottom plates etc. for press machines, press and blow machines, spinning machines and their Stemware Line. They also offer neck ring holders for press and blow machines, mould holders for press machines in 2 parts and 3 parts, mould holders for press and blow machines and burners for burn off machines.

STERLING PRODUCTION VALUES

Merkad's production department is fully equipped with

state-of-the-art CNC high-speed machining centers, CNC lathe and electrical discharge machines, a fully automated PTA welding machine and the most sophisticated CAD/CAM system for flexibility in manufacturing high-quality mould equipment.

Merkad's process expertise starts with highly trained personnel, utilizing a CAD/CAM system capable of interacting over the internet with individual customers.

Another process that Merkad's production planning team also utilizes is ERP software in order to track jobs all the way through the production process. The production department keeps

computerized schedules to keep ahead of each process and obtain current updates for all phases of production. This process enables the company to give the best accurate production and delivery time to its customers. ■

MERKAD
MAKINA KALIP SAN. ve TIC. LTD. STI.

MERKAD MAKINA LTD.

34517 Esenyurt/Istanbul - Turkey
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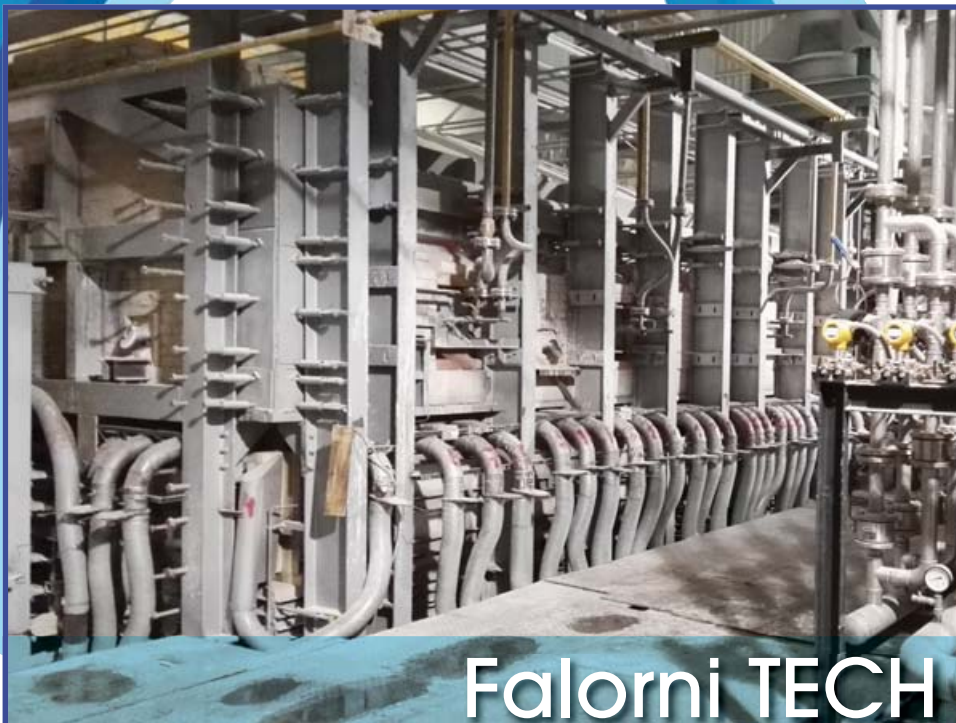
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Falorni TECH

BUILDING YOUR BUSINESS IS OUR BUSINESS

A year and a half after the launch of Falorni TECH Division, we returned to Tuscany to meet Riccardo Scarselli, General Manager of Falorni TECH. We

have drawn up an initial review of its progress and of the new even more ambitious projects.

Mr. Scarselli, 2017 has just begun. How was the last year and what is the spirit for the new one?

2016 was very positive both in terms of orders and turnover, and we are working to make the following years equally positive. The company is growing because we are continuing to invest heavily in innovation to improve our technical performance. Our aim is to become an ideal player in supplying turnkey glass plants, from the preliminary study, through all the intermediate stages, to final commissioning. I can affirm that Falorni TECH is now able

to supply cutting-edge solutions which perfectly meet our customers' needs for quality and delivery schedule. Other aspect we're working on is company communication to increase awareness about our tailored solutions and services. As well as being present at major events - such Glassman South America, China Glass, MIR Stekla - we have launched a new website and joined social media: we live in a web driven age and a consistent brand story also involves them.

Falorni TECH is growing a lot like other European compa-

nies: which are the companies that you consider as direct competitors?

We continuously challenge ourselves in order to constantly improve and achieve the highest levels of quality by setting new technological standards. We don't want to compare ourselves to our competitors, figures are not our priority: we want to earn the confidence of our customers through our experience but it is fundamental that words match with deeds because customers are our own best sales people. Let me say that companies in the hollow glass field are

all highly competitive but the value that Falorni TECH adds is our reliability. When we say that **BUILDING YOUR BUSINESS IS OUR BUSINESS** it is because confidence plays a crucial role in our field and it is on our reliability that we must build relationships with customers. That's why besides the team in Italy, we have set up a network of representative agents to guarantee our "physical" presence in all the countries in which we have projects in progress.

In our last meeting we spoke about an important project in Turkey (complete rebuilding and modernisation of a glass wool furnace and production forehearths in the Çorlu factory of the Turkish group ODE Yalitim) and the partnership with INTCO. What has changed and what results have been produced in these twelve months?

The ODE project has been completed as specified, within the agreed time, thanks also to the collaboration with INTCO, which has confirmed our expectations as a strategic and reliable partner. It has contributed in strengthening our presence in

Turkey, a country that we know very well and with which we have a long-standing trade relationship and where, moreover, we have another very important project close to completion about which we will have more to say in the near future. Besides, we have strengthened our presence in Italy and Europe and expanded our position in Central and South America. What I can say for now is that opportunities for Falorni TECH in the eastern Mediterranean and Middle East have grown strongly and we are planning to strengthen our position into what will become one of our target market.

Coming back to Falorni TECH's core business - furnaces - but more specifically, let's talk about oxygen furnaces.

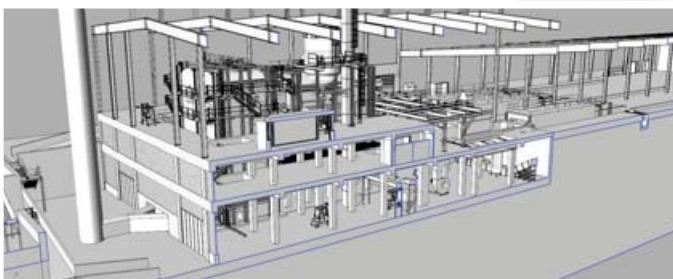
We all know that glass production is an activity that needs high amounts of energy per unit of product and that melting is the most energy hungry phase. We believe that oxygen furnaces will soon become protagonists in the field and this also applies for medium sized container glass plants. There are two main reasons for this result: first, the cost of the investment and the increased flex-

ibility it provides; second: the savings on fuel with the consequent reduction of emission of NOx. We are focused on the environment, not only because of our business ethics but also because customers have become much more demanding on this issue. Our experience in designing and constructing industrial furnaces combined with continuous refinement of projects, has enabled us to develop reliable high-technology low Nox emission solutions including oxy-fuel melting, and also to develop low NOx emission retro-fit systems for existing furnaces (LN REGEN burner technology and OXY SWING system) to guarantee productivity and reduce costs without any risk to the production process. But, obviously, Falorni TECH is also in a position to supply all the conventional technology so as to satisfy fully the requirements of all glassworks. ■



**FALORNI
GIANFRANCO SRL /
FALORNI TECH**

Viale Iv Novembre 15
50053 Empoli (FI) - Italy
Tel.: 0571-922333
Fax: 0571-920816
E-mail: info@falornitech.com
www.falornitech.com



**GLASS ENGINEERING
& CONTRACTING**

COMPANY PRESENTATION

Juniper Glass SUPPLYING GLASS PACKAGING TO ETHIOPIAN AND REGIONAL MARKETS



Juniper Glass will be a progressive glass bottle manufacturing company with an initial planned capacity of 200 million glass bottles per year, for supply to Ethiopian and regional markets. The factory will be situated in Debre Birhan, a fast-growing city approximately 130km from Addis Ababa.

Consol Glass is the leading glass packaging manufacturer in Sub-Saharan Africa, with operations in South Africa, Kenya, and Nigeria. Consol Glass exports glass packaging to more than 17 African countries. Employing some 1,800 employees, Consol brings significant expertise to the glass packaging industry. The

company is perfectly positioned to partner with customers and deliver meaningful, relevant glass packaging solutions across a range of different markets.

Roha is a greenfield investment company that develops new businesses in Africa. The company invests in areas of “latent demand”, allowing it to build fast-growing, profitable businesses by addressing proven demand with existing world-class technology and business models. Roha brings all elements of industrial project development under one roof – starting with detailed feasibility studies and business plans, and spanning management recruiting, capital structuring,

hands-on project leadership, and commercial ramp-up.

ETHIOPIAN MERGER AND REGULATORY APPROVALS

Juniper Glass has received all regulatory approvals necessary to conclude the final investments in its USD 70 million greenfield container glass factory.

Juniper is working closely with leading global glass engineers and equipment suppliers to build a state-of-the-art factory, which will use the latest available technology in glass manufacturing. The new factory, which is under construction, will have the capacity to produce 60,000 tonnes of glass annually, approximately 200

A recently announced new company – Juniper Glass – is being established thanks to Consol Glass, the largest glass packaging company in Sub-Saharan Africa. The new company will have a state-of-the-art factory, equipped with the latest available technology in glass manufacturing. The new factory, which is under construction, will have the capacity to produce 60,000 tonnes of glass annually, approximately 200 million glass bottles.



million glass bottles. Juniper has agreed with most major bottlers in Ethiopia to allocate the majority of this capacity to replace imports. In addition, Juniper has also evaluated opportunities with international customers to export bottles into neighbouring countries. Juniper Glass is expected to be operational within 18 months and, with a strong consortium of partners and full funding in place, the project design has firmly positioned Juniper for growth, with designs allowing for further expansion on relative short notice in future.

The consortium behind Juniper includes Consol Glass, the largest glass packaging company in

Sub-Saharan Africa, with manufacturing facilities in South Africa, Nigeria, and Kenya. Consol Glass is a recognised leader in glass packaging manufacturing and with their expertise and support Juniper will be able to supply container glass to highest quality standards.

DYNAMIC ENVIRONMENT

“Ethiopia provides a dynamic environment for Africa’s industrial growth,” said CEO of Consol Glass, Mike Arnold, “and the Ethiopian market is gaining momentum. We have been evaluating opportunities in Ethiopia for a number of years and are excited about our partnership with Juniper and Roha,”

the Africa-focussed greenfield investment company.

Commenting on the deal, CEO of Juniper, Brooks Washington, said, “Our partnership with Consol, together with the support from the Development Bank of Ethiopia, will help us to realise our mission and meet the growing demand for high-quality glass bottles. Perhaps more significantly, it will contribute to Ethiopia’s economic development by innovating, building human capacity and leveraging technology.”

Earlier, the Development Bank of Ethiopia announced it had approved a loan of ETB 565 million (approximately USD 25 million) for the project, which was developed by Roha. With final investment approval from Ethiopia’s Trade Competition and Consumer Protection Agency, Juniper is fully-funded and will start operating as soon as the factory is completed.

“We are grateful for the support of the various government entities who have played a role in getting us to where we are, including the Debre Birhan Municipality, Amhara National Regional State, and Federal agencies,” Washington added.

COMPANY PRESENTATION

ETHIOPIA – A HIGH-POTENTIAL CONSUMER MARKET

International agencies are describing Ethiopia as a high-potential consumer market, with an expanding middle class and rapid urbanisation. As Africa's second most populated country with more than 90 million people, the beverage industry is poised to become a thriving sector of the economy. Juniper Glass will be positioned to supply Ethiopian customers, export to regional markets and continue to expand as demand increases.

A business strongly focused on social impact, Juniper Glass will contribute significantly to the development of the Debre Birhan community. There are plans to partner with higher education institutions in the area to design courses for students who are interested in careers within Juniper Glass and other industries. Various community projects, including in health and education, will also receive support.

“Developing a new business sector, manufacturing a great product and meeting consumer demand will have positive implications on return on investment,” explained Washington. “More than that, the impact on human lives and on the economy is what's truly exciting. This includes job creation, poverty reduction and the development of skills that will directly impact Ethiopia's growth story.” ■



JuniperGlass

**JUNIPER GLASS
INDUSTRIES SC.**

Nega City Mall, Josef Tito Street
Kebele 17/18, Addis Ababa, Ethiopia
Tel: +251 15 57 13 29
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E-mail: sales@o-bjc.com • www.o-bjcmalaysia.com



O-I BJC Glass Malaysia is a leading glass container manufacturer in Southeast Asia. The company was incorporated on 15th May 1961. Over the years, it expanded from a one furnace operation to 3 furnaces operating producing different size containers and jars for the diverse customers.

O-I BJC Glass Malaysia is owned by Owens-Illinois Incorporated (O-I), world largest glass containers manufacturer and Berti Jucker Public Co. Ltd (BJC), Thailand's leading company.

O-I BJC Glass Malaysia offers the solution to packaging with three furnaces at optimum speed and efficiency. With three furnaces and jars have helped enhanced the reputation for working at optimum speed and efficiency. It is renowned for working at optimum speed and efficiency. It is renowned for working at optimum speed and efficiency. It is renowned for working at optimum speed and efficiency.



As for the Glass Making Process, O-I BJC Glass Malaysia has different services:

The Glass Recipe
O-I BJC Glass Malaysia uses all natural raw materials: sand, limestone, soda ash and recycled glass (cullet). The glass recipe or batch mixture. Once combined, the glass is transferred to the furnace for melting.

Melting
The furnace heats the batch mixture to about 1,500 Celsius or 2,700 degree Fahrenheit, creating molten glass.

The 'Gob'
The molten glass is conditioned from the furnace to a uniform temperature and out into 'gobs'. Each gob is a single glass container.

Forming
Gobs are diverted into forming machines and pressed into glass containers.

Annealing
Formed containers pass through the lehr, which reheats and gradually cools to a uniform temperature and out into 'gobs'. This conditioning step strengthens the glass and helps prevent breakages.

Inspection
Each glass container undergoes inspection to ensure the highest quality. Defective containers are rejected as cullet.

Packaging & Shipping
Glass containers are stored on pallets with corner protectors and gradually cooled to a uniform temperature and out into 'gobs'. The pallets are strapped and shrink-wrapped to ensure stability in shipping it out.



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ORGANIZER:

Q151 A151 Srl

SALES OFFICE:

Smartenergy Srl
Via Antonio Gramsci 57
20032 Cormano, Milan (Italy)
Tel.: +39-02-66306866
Fax: +39-02-66305510

CONTACT US:

LUCIANO MOLINA
Sales - International
luciano.molina@glassonline.com

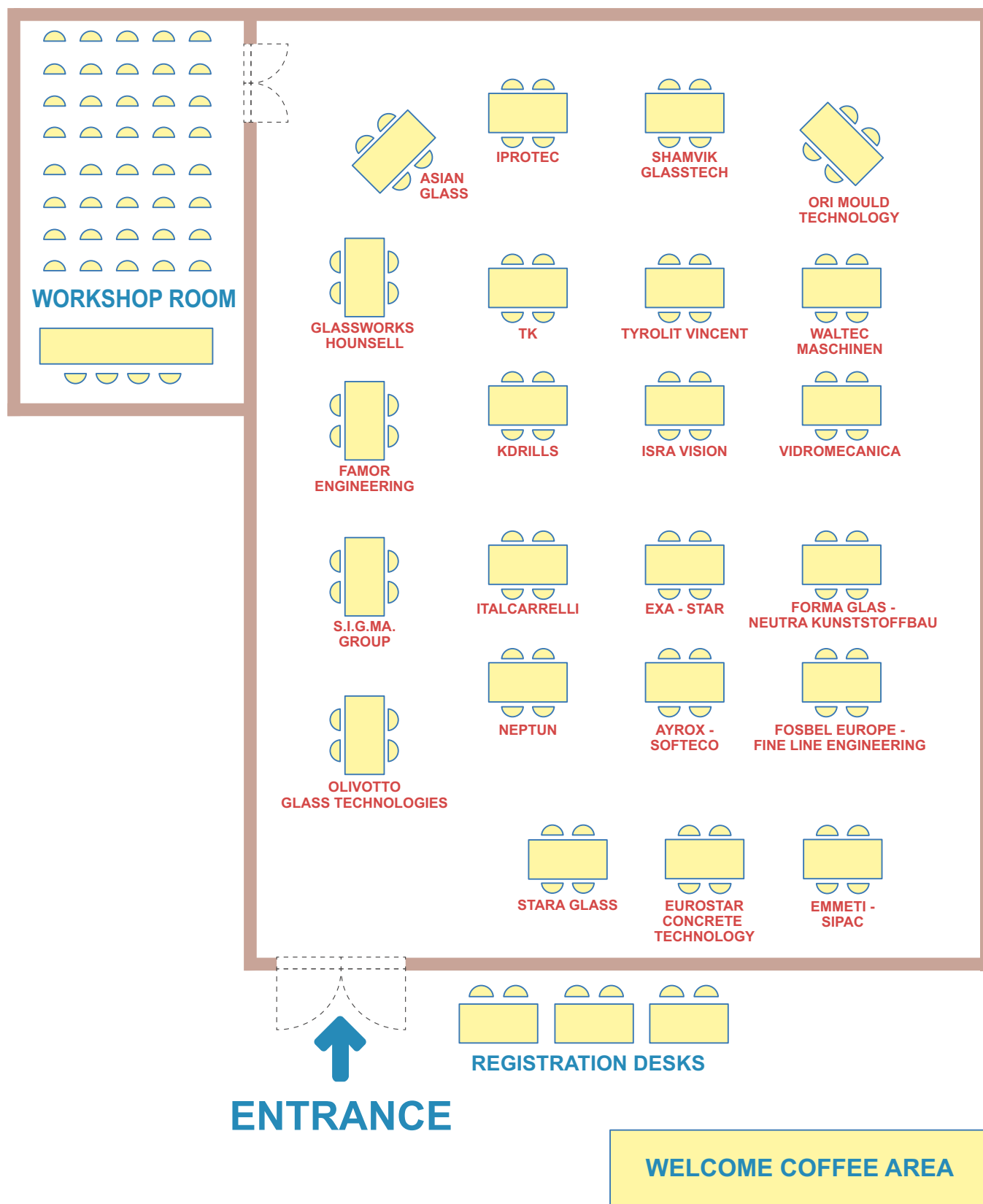
JESSICA GIULIETTI
Sales - International
jessica.giulietti@glassonline.com

MAURIZIO LOZZA
Sales - Italy
maurizio.lozza@glassonline.com

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BUSINESS MEETING AREA MAP



AYROX srl

Ayrox has over 25 years' experience in the glass industry. We provide quality control instruments complying with the international norms for architectural and automotive glass. We offer calibration, repair and maintenance service in our



own laboratory for a wide range of optical quality control instruments. Additionally to improving quality and optimising production, Ayrox commercialises production accessories for laminated and tempered glass such as silicone and silicone free vacuum rings and aramid fibre tapes. At Iran glass we will present the latest Auto-Gasp II surface stress measurement instrument.



Avenue De Fré 98 bte 7
1180 Brussels - Belgium
☎ +32 - 2 - 3756198
✉ +32 - 2 - 3720351
✉ deals@ayrox.com

www.ayrox.com



EMMETI Spa

Established in 1982, Emmeti is one of the leading suppliers of palletizers and depalletizers to the global glass market. The synergy between Emmeti and its associated company Sipac allows to offer a complete range of palletizing, depalletiz-



EMMETI

Via G. Galilei 29 - 42027
Montecchio Emilia (RE) - Italy
☎ +39 - 0522 - 861911
✉ +39 - 0522 - 861912
✉ emmeti@emmeti-spa.it

www.emmeti-spa.it

ing and conveying lines – either semi or fully automatic, sweeping or gripping, high or low level solutions. Emmeti can also design, in conjunction with Sipac, complete cold end and packaging lines manufactured, assembled and tested entirely at its own plant. Customers deal with one supplier only for the integration of all the equipments.

EUROSTAR CONCRETE TECHNOLOGY SpA



Via delle Industrie 49
33050 Pavia di Udine (UD) - Italy
☎ +39 - 0432 - 655270
☎ +39 - 0432 - 655166
✉ ectmix@ectmix.com
www.ectmix.com



Eurostar has been manufacturing planetary mixers and relative accessories since 1999, while key staff has 30 years of experience. Planetary mixers bring new a mixing concept into the glass industry: ingenious design, revolutionary lay-out, combined mixing star/blade movements and high speed place this mixer close to the top in terms of performance, homogeneity and cycle time. Pertinent data available from Philips Lighting test certificate.

EXA Srl

EXA has a great experience in the glass equipment field and mainly in the screen printing equipment. This makes EXA the right partner not only for the supply of state-of-the-art equipment, but also for the technical and technological support about the screen process.

EXA and STAR signed a strong partnership to design, manufacture and supply Silk Screen Printing Solutions. EXA and STAR are able to supply screen printing machines and complete lines that meet the requirements of all the market segments (with semi-automatic to fully automatic printers) in the various manufacturing domains (household appliance, architectural and automotive glass).

EXA grant to the customers an high level after sales service through their skilled technicians.



Via Meucci 17
26010 Offanengo (CR) - Italy
☎ +39 - 0373 - 330331
☎ +39 - 0373 - 243072
✉ info@exa-engineering.com
www.exa-engineering.com



FAMOR ENGINEERING S.r.l

Famor is a machine manufacturer, specialized in the Glass forming machines and equipment for the hollow glass sector. On demand of the glassworks, we develop and design solution, since several years. Established in 1977 in Italy, as a precision parts workshop, is nowadays a worldwide active network of glass specialists. All the processes for the hot forming are offered such as press and press & blow spinning injection pressing. We supply complete production lines including installation and production start-up. Latest developments are: press & blow machine for very large articles, called "SMART FORMING", and special fire polishing for perfume bottles with tracking burners and high speed rotating stirring mechanism for platinum feeders.



FAMOR

Via Avigliana 3
10040 Rivalta di Torino (TO) - Italy
☎ +39 - 011 - 9528691
☎ +39 - 011 - 952629
✉ info@famorengr.com

www.famorengr.com

FINE LINE ENGINEERING

Fine Line Engineering is an industrial engineering and services company established to provide its eminent technical and engineering services to glass manufacturing industries, equipment suppliers in the glass market & energy industries.

A team with extensive and dynamic professional as well as practical experience of glass manufacturing and turnkey glass plant installation is our core strength, giving us the competitive edge in the industry to serve and support its unique requirements in all aspects.

Our main vision and approach is to serve and support our clients, providing them with best opportunities by introducing innovative and up-to-date equipment and new technology in glass market in collaboration with our leading suppliers.



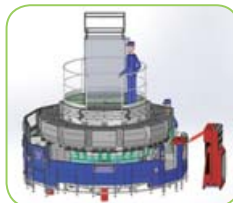
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ENGINEERING**

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RAK Free Trade Zone
325777 Ras al Khaimah
United Arab Emirates
☎ +971 - 7204 - 6267
☎ +971 - 7204 - 1010
✉ Farhan.ashraf@finelinefz.com

www.finelinefz.com

FORMA GLAS GmbH

Forma Glas is an innovative manufacturer of glass production machines for stemware, tumblers and press articles from Austria. With more than 120 years of experience, we build individual machines and complete production plants. Production lines for: stemware production; tumbler production; vases and bowls; ophthalmical lenses; car headlights; thermos flasks; laboratory glass articles; lamp bulbs; press glass lines. Glass processing machines: blowing machines IBS with 8 up to 32 stations;



Salzburgerstraße 1
5145 Neukirchen an der Enknach
Austria
☎ +43 - 77 - 2920299
✉ +43 - 77 - 2920290
✉ info@formaglass.com

www.formaglass.com

presses type RPH with 8 up to 20 stations and with 6 up to 16 stations, hydraulic or servo; double stations presses up to 14 double stations (RPH 14/2); presses for the production of technical glass (car headlights).

Cold processing machines: automatic cracking-off, grinding and polishing machine type ASA with 13, 26 or 39 stations for the finishing in standard cut-off process or laser cutting; washing and drying belt; fire polishing machine; tableware inspection machine.

FOSBEL Europe GmbH

Repair and Maintenance of Float & Container Glass Furnaces, Refractory Repair & Installation, Inspection, Complete Furnace Maintenance, Checker Cleaning, "CERAMIC WELDING" (Oxythermie), On-Line Repairs (Hot Bottom Repair), Crown Overcoating.



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✉ +49 - 203 - 39650999
✉ Fosbel.GmbH@Fosbel.com

www.Fosbel.com



GLASSWORKS HOUNSELL



Park Lane - B63 2QS Halesowen
United Kingdom

☎ +44 - 1384 - 560666

☎ +44 - 1384 - 561363

✉ sales@glassworkshounsell.co.uk

www.glassworkshounsell.co.uk

The addition of raw materials to the melting process can impact production efficiency, operating costs and profitability. Therefore Key considerations for charging systems are furnace and glass types, raw materials, melting profiles, product and required quality, personnel and energy availability.

Glassworks Hounsell possesses more than 50 years of industry experience as a provider for batch charging technology. We offer all types of Chargers for all furnace types with a wide range of standard and bespoke solutions to match all your requirements and have supplied more than 1200 worldwide. We also offer SnO2 electric melting solutions for highest quality glasses - so put our experience to work for you!

IPROTEC GmbH



Iprotec is specialized in the development, design, planning, manufacture, assembly and commissioning of machines and systems that we design optimally under holistic consideration of the customer's specific environment and as long lasting partner of Schott Zwiesel, with the greatest possible expertise.

Our portfolio for glass industry:

Gob feeder - Platinum feeder - Blowing machines - Press machines - Fire polishing and stretching machines - Transport and handling systems - Packing systems - Lehr stacker systems - Lehr unloading systems - Laser filament cutting for foil rejection - Rim polishing machines - Automatic inspection machines



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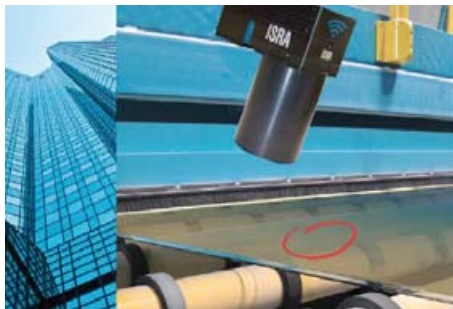
✉ info@iprotec-gmbh.com

www.iprotec-gmbh.com



ISRA VISION

ISRA VISION has the most complete product portfolio in the world for optical glass inspection systems, used by thousands of companies to inspect every production step in the glass manufacturing industry. System layouts are specifically adapted to the specified requirements of virtually any glass type, including float glass, automotive glass, thin and cover glass. All systems provide perfect surface inspection, improving process and maximizing yield.



ISRA VISION

Dr. Shariati, Opp. Kolahdouz Ave.,
Farhang Bldg.,
No. 1564, 5th Fl. Unit 14
1913964595 Tehran - Iran
☎ +98 - 21 - 22647737
✉ +98 - 21 - 22616168
✉ info.iran@isravision.com

www.isravision.com

ITALCARRELLI S.p.A.

Italcarelli® is a world leader in the design and construction of special machineries and solutions for the storage and handling of goods. Along many years of experience on the field, the company has acquired a remarkable knowledge of the glass sector and, thanks to investments in the research of innovative solutions, the company is providing its own products to all the most important glass manufacturing companies all over the world.

ITALCARRELLI®

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✉ info@italcarrelli.eu

www.italcarrelli.eu



Range of products:

- Platform glass transporters
- In-loader glass transporters
- Multi-directional side-loaders
- Special equipment for glass handling
- Machines to handle packed glass inside closed top containers

KDRILLS Srl

Kdrills was born in 1997.

Kdrills manufactures:

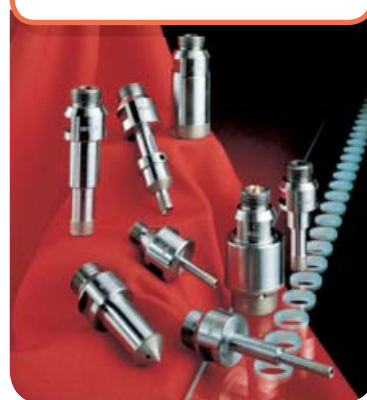
- Diamond drills 1mm/3mm thickness for CNC machines and manual drills machines;
- Segmented routers for cutting glass and stone (specially for CNC machinery);
- Diamond wheels to profile and polish the edge of the glass, marble and stone slabs;
- Diamond cup wheels for straight line machinery & double edg.mac.
- All type of wheels, segmented, continuous band for any type glass and stone machinery.

Our office will be happy to prepare any proposal and give all the technical assistance for data: advancement speed, removal glass, RPM.



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✉ sales@kdrills.it

www.kdrills.it



NEPTUN Srl

Neptun was founded by Stefano Bavelloni, with the direct involvement of the Bavelloni family.

Thanks to proven ability and strong roots, combined with a modern innovative approach, Neptun has quickly become a prominent player in the flat glass processing sector.

Straight-line edgers, mitring machines, bevellers, vertical NC working centers, horizontal and vertical washing machines now also with integrated corner cutting: all conceived to deliver expertise and affordable high technology to the glass industry.



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☎ +39 - 02 - 96979011
☎ +39 - 02 - 96754375
✉ info@neptunglass.com

www.neptunglass.com



NEUTRA KUNSTSTOFFBAU GmbH

Neutra Kunststoffbau GmbH is a mid-sized manufacturer of technology for the chemical surface finishing of glass and metal as well as acidic wastewater and waste air treatment.

Neutra is a world market leader in the field of acid polishing equipment for glass industry.

The Neutra Chemical Safety System (CSS) ensures special protection for personnel when handling equipment by preventing contact with chemicals.

Neutra designs and manufactures prototype systems for various applications from flat glass anti-reflexion coating to customised systems for electroplating through to custom-made products for biogas plants. Also part of the business is to build tanks and buffer units for swimming pool technology and solar systems for over 25 years.



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www.glassonline.com

OLIVOTTO GLASS TECHNOLOGIES SpA

Olivotto Glass Technologies is the World Leader in the supply of machineries and production technologies for hollow glass.

We develop, design, manufacture and supply the following machineries and services: O'90 press & blow machines, blow-blow machines, High-Tech presses, High-Speed Spinning machines, Glass Tubing lines, Burn-off, Stretching, Stretching/



Burn-off and Welding Stretching machines for stemware production, Glass brick and Glass Insulators lines, Pitchers and jugs dedicated press and blow machines, Large Containers machines. Overhauling for all the above machines, Engineering and services for turn-key projects. Last entry: complete plants for the production of Glass Wool and Rock Wool and stemware automatic packaging line.



viale Gandhi 22
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☎ +39 - 011 - 9343511
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✉ info@olivotto.it

www.olivotto.it



ORI Mould Technology (Suzhou) Co., Ltd



ORI Mould Technology (Suzhou) Co., Ltd is one of the biggest glass mould maker in China, owns 2 plants with more than 400 employees. As the first high-tech enterprise in China glass mould industry, we concentrate on the glass mould's R&D and manufacture since compa-

ny's establishment, supplying all kinds of glass container moulds & glass tableware moulds all around the world.

ORI Mould has 5 unique features in the Asian glass mould industry: patented resin-sand foundry system; ROBO plasma welding machines; German Volumaster 3000 volume machine; advanced high-speed machine centers; 3D to 2D mould design system.

ORI Mould aims at meeting customer's requirement through quality concentration, to realize "Better Moulds, Better Glass".



No 9 Yinhe Road, High-tech Industrial Park, Southeast Development Zone
215500 Changshu, Jiangsu China

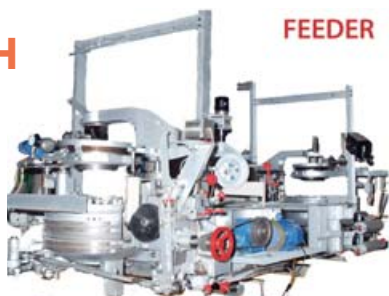
☎ +86 - 0512 - 52302555
☎ +86 - 0512 - 52302555
✉ wmb@ori-mould.com

www.ori-mould.com

SHAMVIK GLASSTECH

SHAMVIK GLASSTECH is pioneer in India for manufacturing of I.S. Machines, Feeders, related parts and electronics equipments since 1973.

SHAMVIK had technical & financial collaboration with Maul Technology, USA from 1973 to 1993 and acquired technology.



Shamvik Glasstech

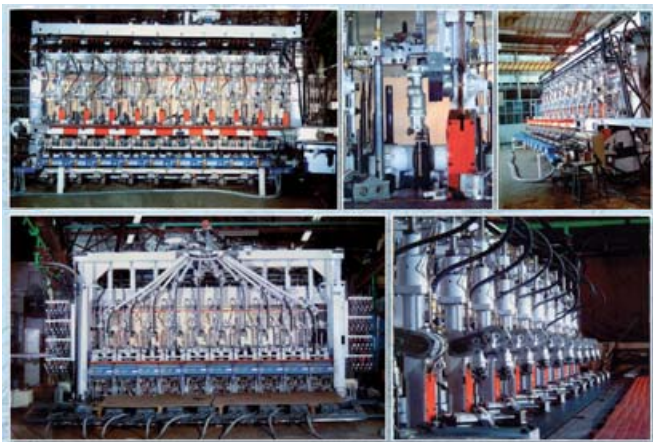
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400 080 Mumbai, Maharashtra India

☎ +91 - 22 - 21646527 ~ 29

☎ +91 - 22 - 21641711

✉ sales@shamvikglass.com

www.shamvikglass.com



Since then, our untiring R & D and innovation in products helped us to achieve optimum results, high standards of quality and customer services.

Besides Indian market, our I.S. Machines 6, 8 & 10 sections with SG, DG, TG feeding & Tandem m/cs. are highly trusted all over the world.

SHAMVIK has so far manufactured 180 plus new IS m/cs. & Feeders. We are specialized in Variables: 4 1/4", 5", 5 1/2" & 6 1/4" cc for SG & DG & 85mm & 4 1/4" cc for TG I.S. M/c. & also Delivery Equipments.

S.I.G.M.A. GROUP



S.I.G.M.A. Srl
Via delle Grigne 12/A
22070 Locate Varesino (CO)
Italy

☎ +39 - 0331 - 823195

☎ +39 - 0331 - 823198

✉ sigmaref@tin.it

www.sigmaref.it

S.I.G.M.A. GROUP, specialized in the production of refractory materials for the glass industry since 1990, supplies the full high quality range of materials for furnaces.

Thanks to two manufacturing facilities and continuous investments in state-of-the-art production equipment, S.I.G.M.A. GROUP is a leader in Europe in terms of capacity, prices and lead times of shaped pieces. Considering the growing demand of a faster and easier way of acquiring products S.I.G.M.A. GROUP has recently developed an e-commerce Refractory Shop to meet every need, both programmed and urgent, as well update its Customers with regards to product availability, special offers and technical innovations.



SIPAC SpA

SIPAC designs and produces bottle and package conveying systems, accumulating solutions, elevators, lowerators, lane dividers, optical detection system for no-round or special container orientation and other package transportation systems. Sipac and Emmeti, together, can provide full service engineering, manufacturing and commissioning of production lines, as well as any type of revamping lines, in order to best suit the customers' demands. Along with the systems designed and produced by Emmeti, Sipac can incorporate equipments from sub-suppliers for turnkey projects.



SIPAC

Via Berettinazza 25
43100 Parma - Italy
☎ +39 - 0521 - 611811
☎ +39 - 0521 - 611850
✉ sipac@sipac.pr.it
www.sipac.pr.it

SOFTECO Oy

Softeco was founded in 1984, and since 1988 it has been active in the safety glass industry. Strong with over 30 years' experience, Softeco offers consultancy in safety glass production and quality control. We arrange complete testing services and official test reports as well as applications to the granting authority and delivery of approvals for European ECE R43, Chinese CCC and American DOT. We also manufacture soldering machines and soldering testing equipment. In addition to this, Softeco specializes in PVB treatment equipment and more particularly in the PVB shaping and stretching technology. We also have PVB roll handling systems for different needs.



softerco

Itämerenkatu 5
00180 Helsinki - Finland
✉ salla.suomi@softerco.com
www.softerco.com



STAR - ICAP GROUP



STAR has been working in the glass industry in the last 25 years building skills through the use of the most advanced technologies to support its customers in the achievements of their targets.

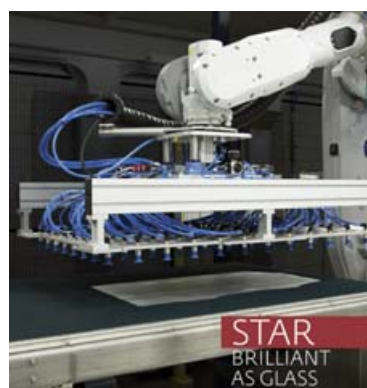
Thanks to a long worldwide experience STAR has developed the capacity to provide turn-key solutions for the largest multinational groups such as AGC, Carlex, Eurokera, Fuyao, NSG, PGW, Saint-Gobain.

STAR guarantees high standards thanks to a team of professional engineers with extensive industrial knowledge and lengthy experience in its areas: laminated and tempered glass processes, printing lines (in partnership with EXA) automotive glass value add and cold end float lines.



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04100 Latina - Italy
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✉ info@icapgroup.it

www.icapgroup.it



STARA GLASS SpA

- EPC
- Turn-key Installations
- Manufacturing plants
- Engineering:
- Design for glass furnaces
- Hybrid systems for heat recovery
- Supply:
- Supply of refractory
- Supply of facilities and equipment
- Automation and process control
- Research and development:
- NOx Reduction
- Combustion optimization
- Flue gas recirculation
- Services:
- Construction and demolition of furnaces
- Heating up and hot maintenance
- Combustion optimization and endoscopies
- Commissioning and start-up
- After sales:
- Spare Parts
- Customer Care
- Custom Training



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✉ staraglass@hydragroup.it

www.staraglass.com

TK Srl



Tk Italy. Pure Italian Technology

For 20 years Tk has been designing and manufacturing tempering, laminating, Heat Soaking and chemical tempering ovens. Thanks to our know-how achieved through years of cooperation with customers, we can say that our furnaces have the lowest energy consumption among those available on the market.

Our range:

- flat and curved tempering machines and chemical temper oven;
- EVA laminating furnaces and EVA/PVB laminating lines with and without autoclave;
- Heat Soaking ovens;
- bending ovens and lines;
- furnaces for artistic fusion.



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www.tkitaly.com

TYROLIT VINCENT Srl



Tyrolit is one of the world's largest producers of innovative solutions in grinding, dressing, cutting, sawing, drilling and polishing. The company, founded in 1919 and member of the Swarovski Group, employs over 4.250 people, 101 employees are in Research & Development at 27 production locations. Tyrolit Vincent Srl, based in Italy, is a leader manufacturer of diamond tools for the glass industry in any application; automotive glass, architectural and furniture glass, household appliance and optic glass. With our wealth of glass process know-how we are able to provide sustained solutions in line with our customers' demanding, technical and economic expectations.



Via dell'Elettronica 6
36016 Thiene (VI) - Italy
☎ +39 - 0445 - 359911
☎ +39 - 0445 - 370842
✉ glass@tyrolit.com

www.tyrolit.com



VIDROMECHANICA, LDA.

Vidromecanica manufactures equipment for the glass industry. Development, design & manufacture of machinery and development of the control system for the glass production lines is handled by its specialist. Tailor-made high performance machines are developed in close cooperation with customers and glass industry businesses.



Rua Central n° 22 - Garcia
2430-017 Marinha Grande
Portugal

☎ +351 - 244 - 555060

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✉ vidromecanica@vidromecanica.com

www.vidromecanica.com

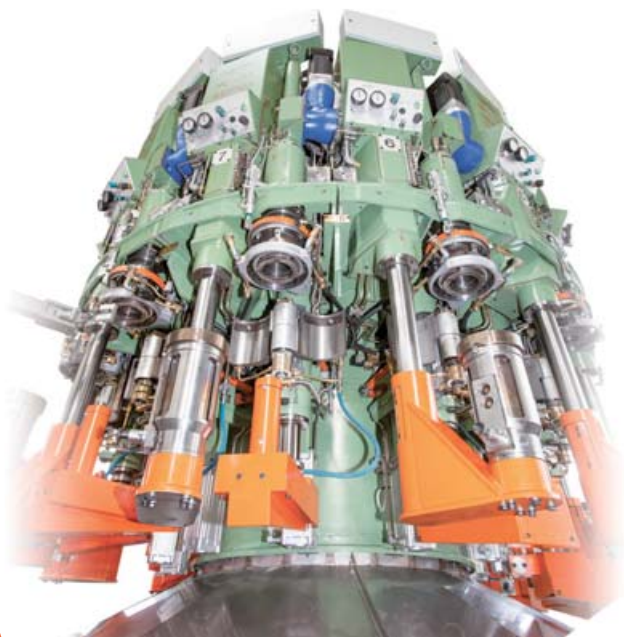
Vidromecanica's main equipment are:

- Annealing and decorating lehrs
- Belt tempering lines for tableware
- Spindles toughening lines for stemware
- Chemical tempering machines
- Special glass thermal treatment ovens
- Moulds pre-heating kilns
- Stackers
- Hot-end coating hoods
- Cold-end coating spraying systems
- Scraper conveyors
- Cullet crushers
- Cullet processing plants



WALTEC Maschinen GmbH

**We design, construct, manufacture and supply
MACHINES FOR THE GLASS INDUSTRY.**



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☎ +49 - 9260 - 9901-99

✉ info@waltec.de

www.waltec.de

Production programme:
fully automatic production
lines with PLC/CNC
electronic control for
tableware,
spinning articles,
stemware, press-blow
articles, blow-blow articles,
toughening/tempering,
microwave and
technical articles, washing
machine glasses, cold light

reflectors, glass insulators,
glass blocks.

- Quadruple Gob lines
- Triple Gob lines
- Double Gob lines
- Single Gob lines
- Spinning lines
- Stemware lines
- Press-Blow lines
- Blow-Blow lines
- Toughening/Tempering lines

Company Workshops

8th May 2017

FLAT GLASS SESSION

11.00 - 11.15

INTRODUCTION ON GLASS QUALITY CONTROL

AYROX

Normative and economic reasons for quality control, Quality assurance, daily quality control, overview of some instruments.

11.20 - 11.35

HOW TO IMPROVE YOUR PRODUCTION QUALITY WITH "SURFACE INSPECTION SYSTEMS"

ISRA VISION

ISRA VISION has the most complete product portfolio in the world for optical glass inspection systems, used by thousands of companies to inspect every production step in the glass manufacturing industry. System layouts are specifically adapted to the specified requirements of virtually any glass type, including float glass, automotive glass, thin and cover glass. All systems provide perfect surface inspection, improving process and maximizing yield. Highest quality and maximum productivity with minimized production costs.

11.40 - 11.55

NEW PRODUCTION TRENDS: MODULAR CNC UNITS

NEPTUN

Neptun presents the alternative to the traditional multifunctional centers. The innovative division of the work phases into CNC units which are independent the one from the other but completely integrated in the production flow, allows you to reach new targets in efficiency and production costs.

12.00 - 12.15

TYROLIT PREMIUM GRINDING TOOLS SINCE 1919

TYROLIT VINCENT

TYROLIT is one of the world's largest producers of innovative solutions in grinding, dressing, cutting, sawing, drilling and polishing. The company, founded in 1919 and member of the Swarovski Group, employs over 4.250 people, 101 employees are in Research & Development at 27 production locations. TYROLIT VINCENT SRL is the headquarter for the Stone, Ceramic and Glass Division and is one of the main production sites, with focus and investments in the manufacturing of high tech tools. All projects for Glass are developed in Italy by the R&D department and carefully followed by the technical and marketing team all over the world.

Tyrolit has thus become a trusted partner for all tools for glass processing: automotive glass, architectural and furniture glass, household appliance and optic glass. With our wealth of process know-how we are able to provide sustained solutions in line with our customers' demanding, technical and economic expectations.

HOLLOW GLASS SESSION

14.30 - 14.45

S.I.G.MA. BONDED HIGH ALUMINA A 95 V: THE BEST ALTERNATIVE TO FUSED CAST A-B ALUMINA FOR ALL GLASS CONTACT APPLICATIONS FOR OPERATING TEMPERATURES UP TO 1300°C

S.I.G.MA.

S.I.G.MA. Group has developed a bonded high alumina material (trademark A 95 V) with a corrosion resistance higher than fused cast α - β alumina and better than the other bonded materials tested at typical forehearth working temperatures (recommended up to 1300°C).

This performance is confirmed by 11 comparative tests carried out in cooperation with our in-house laboratory and derives from an exclusive manufacturing process which grants:

- high level of alumina: 97-99%
- 100% crystalline structure α - Al_2O_3 (No β - Al_2O_3 , No 3-4% of Na_2O)
- very low level of glassy phase

The first channel blocks were supplied in 1997 and from then more than 2,000 tons have been supplied.

S.I.G.MA. high alumina channels are in operation all over the world.

14.50 - 15.05

LASER FILAMENT CUTTING

IPROTEC

The laser filament cutting process for separating the mold is a new age in high quality table ware production due to highest quality and stability of the process. For the new process you don't need a grinding for rim post processing and due to this no water for cooling and washing. You always put clean and dry glasses into your cartons.

Another big benefit is, that the machine is quite small, so you need less space in production and we can offer to you a combination with a full automatic inspection inside the Laser filament cutting machine. So you can guarantee a high quality level over your whole production.

Colombia Glass

The Glass Industry Event for Colombia, Venezuela, Ecuador, Peru and Panama

2017

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