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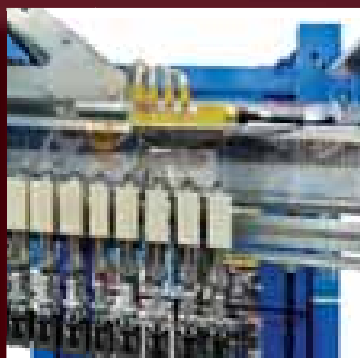
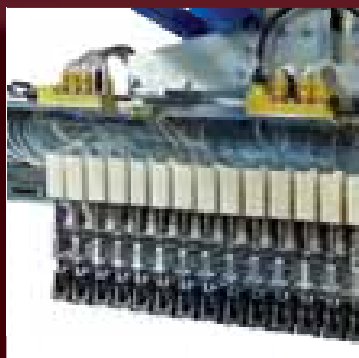
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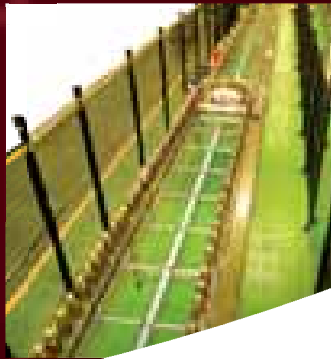
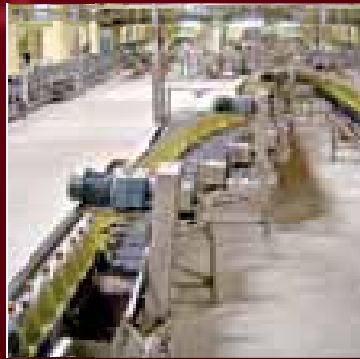
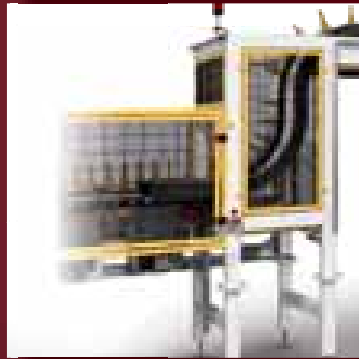
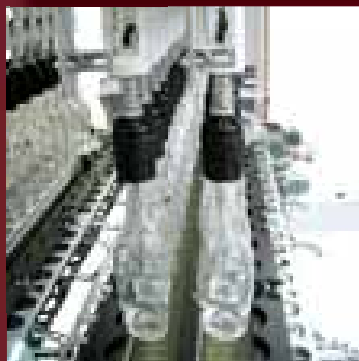
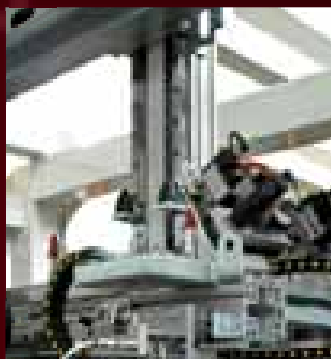
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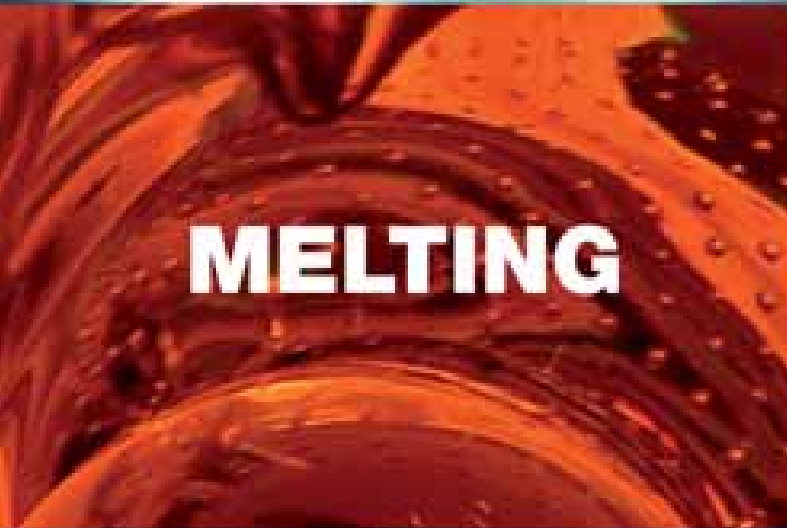
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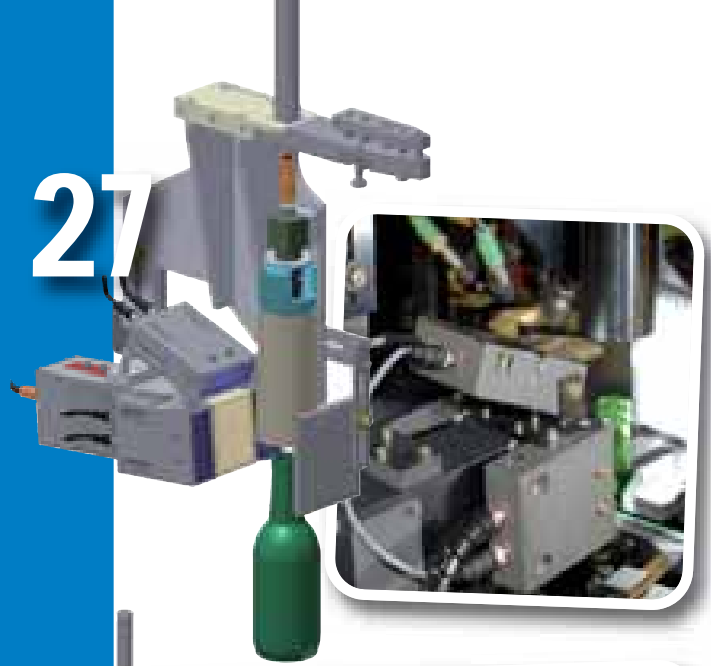
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STEBEN GLASS CLOSURE IN NOVEMBER

 Luxury glass manufacturer **Steuben Glass** has announced that it will cease production at the end of November, leaving 60 workers without a job. The *Corning Museum of Glass* will discontinue its Steuben line, and the flagship store in New York City will close.

“The difficult economy, declining sales and high expenses continue to have a negative impact on the company’s profitability,” said Mark Sammit, president of Steuben LLC, which is owned by Schottenstein.

Schottenstein, a family-controlled, private investment firm based in Ohio, purchased Steuben Glass from *Corning Inc.* in 2008 and renamed it Steuben Glass LLC. Even then, Steuben Glass was struggling as younger generations preferred to buy other luxury items, such as big-screen televisions.

The business lost almost USD 6 million in 2007, and, according to company spokesman Ron Sykes, Schottenstein was unable to reverse the slide and never saw a profit.

Sammit thanked Steuben employees for their efforts to save the company: “Our employees and Local 1000 worked in cooperation with the company to change the trend, but the efforts at restructuring and repositioning the brand were unsuccessful,” he said.

A deal made at the time of purchase may help some of those 60 employees – union workers – find jobs. In fact, as per a contract with Local 1000, if Steuben Glass failed within five years, the former Corning Inc. workers could bid on open jobs at Corning for which they were qualified.

Corning Inc. officials said they were sorry to hear the tradition of quality, luxury glass was coming to an end.

For a short time, collectors will be able to purchase Steuben Glass locally at the Corning Museum of Glass.

Corning has reached a deal with Schottenstein to repurchase the Steuben brand, meaning no other company can produce glass under the Steuben Glass label.


“We have no plans to use it, but we are preserving the brand for any uses down the road,” Dunning said.



FIBERGLASS

CERTAINTEED

FIBERGLASS SUSTAINABILITY APPEAL

 **CertainTeed** is making a significant change to its kraft-faced fiberglass insulation by incorporating paper certified under the Sustainable Forestry Initiative® (SFI®) standard, the world’s largest single international forest certification standard.

The certification indicates that the kraft paper in CertainTeed insulation products is sourced from responsible forestry practices, helping the company minimize its environmental impact. CertainTeed’s supplier partner, Exopack, earned the certification status from SFI after a comprehensive application process.

“The selection of kraft paper backed by SFI certification reinforces CertainTeed’s commitment to sustainability in all aspects of a product’s life cycle,” said Paul Valle, president of CertainTeed Insulation. “Fiberglass insulation is green by nature and has been a time-tested solution in boosting energy efficiency. Building professionals and homeowners now have a product that further reduces their impact on the environment.”


To achieve certification to the SFI standard, Exopack had to demonstrate that the majority of fiber used in the production of its product comes from companies certified under the SFI sourcing objectives. Specific procedures must be implemented so the flow of fiber through the manufacturing process is properly tracked and recorded. Regular internal audits, management reviews and annual audits, conducted by an independent organization, are all part of the requirements to maintain certification.

“We strongly support SFI’s mission in promoting sustainable forest management, including measures to protect water quality, biodiversity, wildlife habitat, species at risk and forests with exceptional conservation value,” said Paul Kearns, vice president of marketing for Exopack. “CertainTeed and Exopack are united in this effort to protect our natural resources.”

CertainTeed offers a comprehensive line of insulation products and equipment, including time-tested and trusted fiberglass insulation batts and rolls, fiberglass blow-in insulation, polyurethane spray foam, innovative vapor retarder technology and highly regarded HVAC products. The newest addition, Sustainable Insulation™, is created with the entire life cycle in mind for increased sustainability.

CGS

EXPLORING CONTEMPORARY GLASS AND INTERIORS

 The Contemporary Glass Society (CGS) presents 'Living with Glass'; a conference and exhibition that explores the use of glass in interiors. The conference is presented by speakers representing the best of international practice. Richard Meitner, Anna Dickinson, Simon Moore, Harry Cardross, Eva Menz, Heike Klussmann and Thorsten Klooster and Florian Lechner will explore installation and sculpture, tableware, architectural virtuosity, lighting and concrete, while a glass, light and sound performance completes the experience.

The exhibition will be held by the Vessel Gallery; a leading store-cum-gallery based in Notting Hill, London. On show will be a range of interior products, lighting, wall panels for domestic interiors all in the medium of glass. Thirteen glass artists were selected for the exhibition:

Stuart Akroyd, Nour El Huda Awad, Denise Basso, Scott Benefield, Vanessa Cutler, Jane Dörner, Hanne Enemark, Frances Federer, Heather Gillespie, Anthony Harris, Kate Maestri, Cathryn Shilling and Amanda J Simmons.

The exhibition runs from 29 September to 31 October 2011 at Vessel Gallery, London, while the conference is taking place 15-16 October 2011, at the Art Deco De La Warr Pavilion at Bexhill-on-Sea in East Sussex.

The Contemporary Glass Society is widely regarded as the foremost organization in the UK for promoting and encouraging cutting edge glass and glass-makers within the wider art world. Founded in 1997, CGS is a non-profit making limited company by guarantee, with dual objectives of encouraging excellence in glass as a creative medium and developing a greater awareness and appreciation of contemporary glass worldwide. CGS is aimed at those working in or interested in contemporary glass and has connections with over 1,000 artists, academics, suppliers, collectors, galleries and enthusiasts, and a current membership of 700. The 2011 conference is sponsored by commercial supplier *Creative Glass*.



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CMOG

50TH ANNUAL GLASS SEMINAR

 The 50th Annual Seminar on Glass at **The Corning Museum of Glass**, taking place 20-22 October 2011, explores the art, elegance, and ingenuity of the Mt. Washington Company and Pairpoint Corporation, and their contemporaries.

The Seminar will feature expert lecturers on glass, including Corning Museum of Glass staff, artists, and glass researchers. Participants will experience tours with curators, lively networking opportunities, and lectures inspired by the Museum's major 2011 exhibition,

Mt. Washington and Pairpoint: American Glass from the Gilded Age to the Roaring Twenties.

Lectures will include:

- The Mt. Washington and Pairpoint Glass Companies, 1837-1957, by Jane Shadel Spillman, Curator of American glass at The Corning Museum of Glass;
- Mt. Washington Glass in Context: The Taste for the Exotic in Late 19th Century Decorative Arts, by Alice Cooney Frelinghuysen, the Anthony W. and Lulu C. Wang Curator of American Decorative Arts at The Metropolitan Museum of Art;
- Imagination and Ingenuity in British Art Glass, 1880-1920, by Charles Hajdamach, former director of the Broadfield House Glass Museum in Stourbridge;
- Glitter, Sparkle, Display, and Excess: Gilded Age Architecture and Design, by Richard Guy Wilson, who holds the Commonwealth Professor's Chair in Architectural History at the University of Virginia;
- Smith Brothers Fine Decorated Glassware, by Kirk J. Nelson, executive director of the recently established New Bedford Museum of Glass in New Bedford, MA;
- Steuben Glass Works, Dorflinger Glass Works, and Pairpoint Manufacturing Company, Contemporaries, Competitors, and Much More, by Tom Dimitroff, an author and historian;
- Early Mt. Washington Glass, by Jeffrey S. Evans, president of Jeffrey S. Evans & Associates in Mt. Crawford, VA;
- Something Old and Something New: An Investigation of Some Glass Decorating Techniques Used in Early 20th Century American Factories, by William Gudenrath, resident adviser of The Studio and president of the Fellows of The Corning Museum of Glass.

The Seminar will also feature a special expert panel discussion, Focus on the Objects: Tips for Scholars, Collectors, and Connoisseurs, and optional tours of the Museum.

During the Seminar, the Museum will also unveil the 2011 Rakow Commission piece, Five Pods by artist Ann Gardner. The piece will be the first Rakow Commission in mosaic.

The Museum will offer the following lectures via live stream online. Participants can sign up for the live stream lectures at www.cmog.org/live:

- Imagination and Ingenuity in British Art Glass 1880-1920 at 2:30 p.m. on 20 October;
- Corning, The Crystal City, 1868-1915 at 11:30 a.m. on 21 October;
- 2011 Rakow Commission at 5:00 p.m. on 21 October.


The cost to attend the Seminar is USD 300 for non-members, USD 255 for Museum Members, and USD 175 for students. The cost to attend individual lectures is USD 30 per lecture for non-Members, USD 25 per lecture for Museum Members, and USD 20 per lecture for students. Live streamed online lectures are USD 10 per lecture.

The Corning Museum of Glass (www.cmog.org) is home to the world's most comprehensive and celebrated collection of glass, with more than 45,000 objects reflecting 3,500 years of glassmaking history. An independent, non-profit, educational institution, the Museum is dedicated to the art, history, science, research and exhibition of glass. The Museum is open from 9:00 a.m. to 5:00 p.m. every day and from 9:00 a.m. to 8:00 p.m. in the summer. Children and teens, 19 and under, receive free admission.

FIBERGLASS

PPG

FIBERGLASS JOINT VENTURE

 **PPG Industries** has signed a letter of intent with Harsha Exito Engineering Private Limited (India) to establish a 50-50 joint venture for the manufacture and sale of fiberglass reinforcement products. The transaction is subject to the completion of due diligence and the negotiation of definitive documentation.


"Over the next several months, PPG and Harsha will be working to finalize a fiberglass joint venture in the Indian state of Tamil Nadu to primarily serve the Indian market," said Thomas P. Kerr, PPG vice president, fiberglass. "We are encouraged by the prospect of continuing to expand PPG's global reach, particularly in emerging markets."

According to Kerr, the projected expansion of the Indian economy will help drive demand for fiberglass in such end-use applications as infrastructure, transportation and wind energy.

"PPG does not currently operate a fiberglass manufacturing facility in India, but we export fiberglass to the region to support our customers' operations there," Kerr said.

FUTRONIC

SIGNIFICANT INCREASE IN SALES

 In the fiscal year, which ended 31 March 2011, futronic GmbH generated sales revenues of around EUR 7.2 million. This represents an impressive increase of approximately 14% compared to the previous year for the German company.

The share of sales from projects for customers outside the glass industry rose to just under 30%. futronic is optimally placed to continue its steady growth trajectory as it enters the new financial period with its order books well filled. The company is currently on the lookout for several qualified staff.

The current order situation and the level of development and production capacity utilization in the next few months are excellent. Although the company is endeavouring to handle peak workloads with the help of temporary employment agencies in the short term, a firm commitment to growth has been promised for the medium term.

The sales growth achieved in the fiscal year, reflects the positive overall economic trend. The investment climate both in the container glass industry – futronic's core market – and in its fledgling industrial automation segment has improved tangibly. Parallel to this, the company has successfully extended its worldwide sales network in the last twelve months and presented its products and services at numerous international exhibitions.

About 50% of all orders from customers spanning a variety of market segments are received from abroad, with the majority of them being machinery for new plants or the modernization of existing equipment in the glass production industry.

The successful launch of the new FDU24S drive system plays an important role here. At the same time, futronic has recorded a significant increase in commissions from the mechanical and plant engineering sector, for instance in bulk solids handling: their share of total sales leapt from 11% in the corresponding period last year to 29% this year.

The trend in product business is similarly encouraging. The Opanski 2002, for example, has meanwhile gained a firm foothold in the market.

This warning system for oil separators based on radio technology was developed by futronic together with a partner and is sold through, and installed by, authorized distributors.

futronic GmbH is one of the world's top three suppliers in the field of complex automation solutions for plant and equipment manufacturers in the glass production industry. The company has grown considerably in recent years: a team of 61 staff currently support around 900 installations worldwide.



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BRITISH GLASS STEPPING UP LEGISLATION FOCUS WITH NEW ROLE



British Glass aims to step up lobbying on recycling and packaging issues, and has promoted Rebecca Cocking to the new role of head of container affairs.

Cocking was previously recycling manager at the organization, a position she held for six years. She started working at British Glass in 2000 and has played a key role in developing industry policy in relation to EU and UK recycling and waste legislation.

The new position will focus on legislation, publicity and lobbying activities to support the use and recycling of glass.

Cocking will be in charge of communications and liaisons with other trade bodies such as *FEVE*, Packflow, the Packaging Federation, as well as the provision of advice, data and information to the UK glass sector. She will be supported in the role by data analysis officer Lucinda Heneghan.

British Glass chief executive Dave Dalton said: "Rebecca is a well respected figure in the industry and has considerable experience and knowledge of the glass sector. I look forward to her expanding her influence in this new role."

EMHART GLASS

JOINT VENTURE IN CHINA WITH SANJIN



Emhart Glass, the leading global supplier of machinery and equipment to the glass manufacturing industry, is pleased to announce that it is entering into a joint venture with *Shandong Sanjin Glass Machinery Co. (Sanjin)*, based in Zibo in Shandong Province, China.

Sanjin is China's undisputed market leader for container glass machinery and equipment. Having become a privately held company in 2004, the firm has grown rapidly to achieve sales of CNY 371 million and around 1,200 employees by 2010.

The joint venture offers a perfect fit in terms of product portfolio. While Sanjin focuses on low-cost glass forming machines, forehearth, annealing lehrs and palletizers for the domestic market, Emhart Glass imports more advanced glass-forming and inspection machines.

Under the joint-venture deal, which is subject to approval by the Chinese authorities, Emhart Glass will acquire a 52% equity interest in Sanjin and subscribe to a capital increase bringing its final holding to 63%.

The new venture will operate independently of the Emhart Glass group, under the Sanjin brand name and management. Emhart Glass will provide additional management expertise and technology know-how.

"I'm delighted that we have finalized this joint-venture deal, which will be hugely beneficial for both parties," comments Martin Jetter, Emhart Glass' President. "Strategically, our aims are perfectly aligned, and our product ranges are highly complementary. We believe the combination of Sanjin's cost-effective equipment and our advanced technology will create a major new force and set new standards, for glass forming as well as for glass inspection, in this fast developing country. On a commercial level, China's continuing economic growth, coupled with international breweries choosing to site their production here, is driving strong demand for high-quality glass containers. We feel this joint venture is the ideal way for both companies to meet local demand for efficient, accurate glass production for the years to come."

PIEGARESE BUYS FIRST NIS MACHINE IN ITALY

Emhart Glass has announced the first purchase of one of its NIS container-forming machines by an Italian client, **Vetreria Cooperativa Piegarese**.

Vetreria Piegarese is located in Piegaro, close to Perugia in central Italy. The town of Piegaro has a tradition of glassmaking that dates back to the 13th century.

Piegarese itself was founded in 1960, when it boasted the town's mayor as its first president.

Today, Vetreria Piegarese has grown into a leading Italian glassmaker. The firm's modern plant has two furnaces and state-of-the-art parallel-motion AIS machines, which are used to produce a wide range of bottles and jars for products including waters, drinks, oils, tomato paste and vinegar.

In 2010, Vetreria Piegarese sought a replacement for its IS 8+8 tandem machine. Following careful research, they opted for a ten-section triple-gob NIS machine from Emhart Glass, customized for quad-gob production.

NIS was Vetreria Piegarese's preferred solution for improving productivity and reducing headcount. The use of NIS opens the way for easier and simpler triple-gob production of bottles for wine and olive oil, two key product groups for the firm. It will also allow quad-gob production for the first time.

NIS (Next Generation IS) was introduced by Emhart Glass in 2000, bringing customers quicker performance, reduced workout times and improved mould life – as well as enhanced energy consumption and reduced noise. Originally launched in a double-gob configuration, it has been available in a quad-gob form since 2005. In conjunction with Emhart Glass' FlexIS process control system, it represents the most advanced container-forming solution on the market.

"We're very proud and pleased that Piegarese has chosen NIS for this important addition to its plant," comments Emhart Glass' President. "I'm confident it will realize plenty of benefits as a result of this decision. For us, this deal is a major step into a very important national market, and we hope that other Italian glassmakers will soon be following in Piegarese's footsteps."

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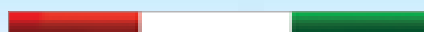
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DUROBOR

'PROCEDURE OF JUDICIAL REORGANIZATION' PERIOD GRANTED

 Following the petition filed by **Durobor** on 24 June 2011, the President of the Trade Court of Mons has officially granted Durobor the benefit of a 'procedure of judicial reorganization' for a period of six months, renewable if needed for maximum six months.

This will allow Durobor to pursue and finalize dis-


cussions already engaged with investors in a view to give the company a stronger financial surface and achieve the necessary new investments, essentially a new generation 100 tons furnace to replace the existing 2 x 60 tons furnaces.

Although the company has been demonstrating, in a difficult international economic environment, its ability to increase its sales by 8% in the first six months of 2011 versus same period in 2010, it is still behind the very ambitious budget originally planned for this year and the financial results are therefore under strain.

These measures will allow Durobor to strengthen its creativity and efficiency in a changing world.

PEOPLE & CAREERS

EMHART GLASS VICE PRESIDENT OF LOGISTICS AND MANUFACTURING

 **Emhart Glass**, the leading global supplier of machinery and equipment to the glass manufacturing industry, has appointed Christer Hermansson to the post of vice president of Logistics and Manufacturing (VP L&M), effective 16 May 2011.

Hermansson gained a Master of Engineering degree in electronics at the Institute of Technology in Lund, Sweden.

Before joining Emhart Glass he held the post of managing director at Partner Tech Vellinge AB, Sweden, a contract manufacturing company. He has broad technical and managerial skills gained from management positions in companies such as ABB, Schindler and Sanmina, as well as experience of working in China and other Asian countries.

As VP L&M, Hermansson will lead the functions of global sourcing, manufacturing and logistics within Emhart Glass, reporting directly to President Martin Jetter. He will also hold the post of MD of Emhart Glass Sweden AB. He will be based at

Emhart Glass' headquarters in Cham, while dividing his time between the group's L&M sites around the world.

"I'm delighted to welcome Christer to Emhart Glass as our new VP L&M," comments Martin Jetter. "He brings formidable operational skills and managerial experience to the job, and will play an essential role in developing the global supply chain and manufacturing base on which our future success depends. I'm looking forward to working with him, and I'm confident that his appointment, along with internal promotions, will further improve the efficiency and dynamism of our global organization."

Hermansson replaces Bertil Bjugård, who has decided to retire. Bjugård joined Emhart Glass in 1995 as general manager of the group's Swedish operations, following a long career in Swiss company Landis & Gyr (now Siemens Building Control). In 1998, he took over responsibility for Logistics and Manufacturing as VP L&M, a post he held until his retirement.

As VP L&M, Bjugård restructured Emhart Glass' manufacturing setup, enhancing its Hot End infrastructure and overseeing the development of two highly efficient Hot End manufacturing units in Sweden and Malaysia.




Christer Hermansson, Emhart Glass' new vice president of Logistics and Manufacturing

"I am sure all my colleagues will join me in thanking Bertil for his contribution to our success over the last 16 years," says Martin Jetter. "His hard work and dedication have given us some of the most advanced Hot End manufacturing facilities in the world, and his impressive achievements will now be built upon by Christer Hermansson. I wish Bertil all the best for a long and very happy retirement."

Emhart Glass, a division of Bucher Industries AG, is headquartered in Cham, Switzerland, with offices and manufacturing facilities located throughout the world. The company is a leading supplier of machines, controls, and parts to the glass container industry.

GERRESHEIMER

INCREASE IN PRODUCTION CAPACITY FOR COSMETICS SECTOR

 The **Gerresheimer** plant in Tettau (Germany) manufactures perfume flacons, crème pots, make-up bottles and other products for the cosmetics industry. The recently modernized glass melting furnace has a melting capacity of around 90 tons per day and a 55 square meter melting zone. This, plus an additional production line, has increased the plant's production capacity by around 50 million units to 650 units per year. It took 150 specialist personnel 46 days to build the new furnace. The investment has created around 30 new jobs.

"Our customers not only expect us to produce glass in first-rate quality, but also to be highly innovative and deliver excellent results. The new oxygen melting furnace is a milestone for us. Not only does it enable us to increase our production capacity, but also to set new standards of quality, productivity and environmental friendliness," said Bernd Hoerauf, CEO of Gerresheimer Tettau GmbH.

The new glass melting tank is an oxygen furnace that operates with gas, electricity and oxygen. Each one of its ten burners can be individually adjusted. As a result of this advanced technology, Gerresheimer can even better meet the necessary high quality for the cosmetics market. An additional production line was also installed at the plant, bringing the current total to five. In the remodelling process, the so-called 'cold end', i.e. the testing and packaging equipment, was completely overhauled and adapted.

The new oxygen furnace satisfies all statutory requirements of exhaust gases and air purity, and it has a completely sealed melting basin to improve energy efficiency. In the process of capacity extension, the plant's own oxygen apparatus was correspondingly extended and adapted.

The Gerresheimer Group realizes revenues of around EUR 1 billion and has around 10,000 employees at 45 locations in Europe, North and South America and Asia.

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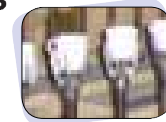
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VITRO TEXAS COURT GRANTS CHAPTER 15 RECOGNITION

 **Vitro S.A.B. de C.V.** has announced that on 21 July 2011 the United States Bankruptcy Court for the Northern District of Texas presiding over its Chapter 15 case entered an order granting recognition as a foreign main proceeding to Vitro SAB's voluntary reorganization concurso proceeding pending in Mexico. The Recognition Order extends the automatic stay under the US Bankruptcy Code to actions against Vitro SAB in any jurisdiction within the US by all its creditors, including holders of 2012, 2013 and 2017 notes issued by Vitro SAB. This ruling was made four days after the same judge had granted a preliminary injunction protecting *Vitro Packaging Mexico, S.A. de C.V.*

According to the order, "Section 1517(a) of the Bankruptcy Code provides that the court shall enter an order granting recognition if (1) the foreign proceeding for which recognition is sought is a foreign main proceeding or a foreign non main proceeding as defined in section 1502 of the Bankruptcy Code; (2) the foreign representative is a person or body; and (3) the petition meets the requirements of section 1515 of the Bankruptcy Code."

The order also notes that the parties do not dispute that the Voluntary Mexican Proceeding is a foreign main proceeding; those in objection, however, argue "that recognition should not be granted because the requirements of sections 1517(a)(2) and 1517(a)(3) have not been satisfied. The central issue before this Court presently is whether the debtor in the Mexican proceedings can name its own 'foreign representative,' required for the application for recognition under 11 USC § 1517."


Vitro argued that "under a proper construction of section 101(24), US bankruptcy courts should recognize a foreign debtor in possession (or its appointee) as a proper foreign representative, showing that in a concurso proceeding, unless the judge orders otherwise, a Mexican debtor retains the authority to manage its enterprise during the proceeding's conciliation stage, similar to a debtor in possession."

They were countered by arguments from objecting parties saying that: "only the examiner, conciliator or the sindaco appointed by the court in Mexico, may act as a foreign representative, and once an insolvency declaration has been entered, this task falls on the conciliator exclusively."

"This Court does not write on a clean slate on the issue. As demonstrated by Vitro in its briefing, in all of the other ancillary proceedings filed in U.S. Bankruptcy Courts in relation to Mexican concurso proceedings since the inception of Chapter 15, have found that recognition should be granted. Moreover, U.S. bankruptcy courts have granted recognition of concurso proceedings every single

FIBERGLASS

JOHNS MANVILLE EXPANSION OF FIBERGLASS PRODUCTION

 According to **Johns Manville (JM)**, its expanded furnace, scheduled to start up in the fourth quarter of 2012, will expand the production of selected products by as much as 40%.

"We feel confident that this major investment will continue to support our customers' plans for growth, and underscores JM's commitment to growing the composites industry," states Enno Henze, vice president and general manager for Engineered Products Europe/Asia, Johns Manville.

JM's products include ThermoFlow® chopped strands and StarRov® LFT Roving for thermoplastic compounds and, for thermosets, StarRov® Roving for continuous glass reinforcement and MultiStar® Roving for choppable glass strands.

Johns Manville, with headquarters in the US, is a manufacturer of products for building insulation, mechanical insulation, commercial roofing, and roof insulation, as well as fibres and non-wovens for commercial, industrial and residential applications.


time they have been asked to do so by a petitioner who was appointed by the Mexican debtor, without exception. The objecting parties argue that the person designated as the foreign representative would have a conflict of interest and would be called upon to investigate himself. This possibility is not a disqualification from service as the foreign representative under the statute."

Vitro SAB commenced its Chapter 15 case on 14 April 2011 seeking recognition in the US of the Mexican Proceeding, in furtherance of its restructuring plan for its global enterprise. The Recognition Order became effective upon entry and will continue in effect pending the outcome of the Mexican Proceeding.

"Vitro is now able to continue with its financial restructuring process, even if it should face further legal action with benefit of the protection granted by the Concurso Mercantil in Mexico and by Chapter 15 of the United States Bankruptcy Code," says Alejandro Sánchez Mújica, Vitro's general counsel.

Founded in 1909, Vitro, S.A.B. de C.V., is the leading glass manufacturer in Mexico, and one of the largest in the world, backed by more than 100 years of experience in the industry. Headquartered in Monterrey, Mexico, the company has subsidiaries in 10 countries throughout Europe and the Americas, through which it offers high quality products and reliable services that address the needs of two distinct businesses: containers and flat glass.

DURA TEMP DISTRIBUTOR FOR VIETNAM


 **Dura Temp**, supplier in hot ware handling solutions, has announced that it has appointed Trirex International Co. Ltd. as its Authorized Distributor for Vietnam. Trirex is also the Authorized Distributor for Dura Temp's products in Thailand. With the recent joint venture between Thailand's Berli Jucker Public Co. Ltd. (BJC) and *Owens Illinois* (O-I) in Vietnam, Dura Temp recognized the need to have a distributor for Vietnam located in South East Asia. This will ensure a more timely delivery and response to Vietnamese customers.

Dura Temp Corporation and Trirex International Co. Ltd. have worked together for over 11 years.

Since 1983, Dura Temp Corporation has provided the glass industry with superior hot glass handling materials and quick-change parts and assemblies, providing a variety of ware handling solutions for

container glass, tableware, and bending and tempering. Dura Temp's range of high temperature materials and products virtually eliminate damage to glass on account of thermal stress, oil absorption, and abrasion.

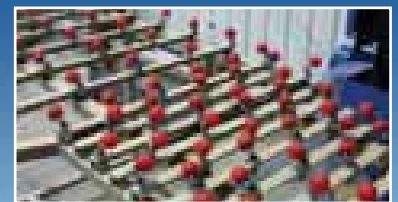
FIVES STEIN COMPLETE TIN BATH FOR AVIC

 **Fives Stein**, through its Chinese subsidiary *Fives Stein (Shanghai) Industrial Furnace Co.* and its Belgian subsidiary *Fives Stein Belgium*, is implementing a contract for the Chinese glassmaker **AVIC (Hainan) Special Glass Materials Co.**

This contract includes the design, supply and commissioning of a complete tin bath for a new float glass line with a maximum daily production capacity of 600 tons. This state-of-the-art line, dedicated to the production of solar glass and special glass, will be located in Hainan region. The start-up is scheduled by the end of this year.

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LUXE PACK MONACO 2011

THE SHOW FOR CREATIVE PACKAGING

 The 24th edition of **Luxe Pack Monaco**, described by its organizers as 'a unique opportunity for luxury brands decision makers to find a comprehensive offer of packaging solutions', will be held 19-21 October 2011 at the Grimaldi Forum, Monte Carlo.

Luxe Pack Monaco offers the most comprehensive range of packaging suppliers for the luxury industry of packaging trade shows, materials and know-how: glass, plastic, paper, cardboard, pumps, ribbons, boxes, samples labels, not to mention the designers, decorating techniques, finishing, and more.

The three-day show will include conferences and debates on current topics, led by renowned experts and entertainment areas for inspiration: design, luxury codes, trends, spirits pack revolution, sustainable trend, luxury Chinese development.


The 2011 edition promises to provide visitors with ingenious new packaging solutions, also with integrated sustainable development criteria. Thus, the displays and the 2011 Luxe Pack in green Award will be there to guide visitors, always looking for eco-designed solutions.

The Luxe Pack Trends Observer aims at decoding the launches of the year to identify areas of future development and will give indications of the current trends and helps brands in their future developments.

Luxe Pack Monaco will therefore bring together a panel of experts in packaging design and creation; joined this year by a sociologist and an expert in market research and forecasting.

VETROPACK MORAVIA GLASS

OPEN DAY

 **Vetropack Moravia Glass** organized an Open Day on Saturday, 13 August, which was held as part of the Moravian Slovakian Year Festival *Slovácký rok*. The glassworks is a traditional sponsor of this event and, during the Festival, also celebrated the 20th anniversary of the glassworks' incorporation into the Vetropack Group. A total of 1,800 people were able to observe the production of glass bottles and jars.


With its more than 450 employees, Vetropack Moravia Glass is one of the important employers in its region. The

history of the glassworks dates back to 1883 when new production in Kyjov expanded the successful glass empire of the Reich family. The Kyjov glassworks lasted through the period of the monarchy, the first Czechoslovak Republic, both World Wars, the totalitarian regime and the velvet revolution. Its new chapter began 20 years ago on 1 November 1991, with the merger of the companies Moravia Glass and Vetropack. This was one of the first privatizations after the velvet revolution. The name of the glassworks changed to Vetropack Moravia Glass, and the company became part of the international Vetropack Group, a leading European container glass producer.

Thanks to the strength of Vetropack, considerable investments have taken part, now making the glassworks one of the top European companies in terms of technology, and a leading container glass producer in the Czech Republic.

CORNING

EXPANSION OF CLEAN AIR PRODUCTS FACILITY

 **Corning** has announced that its board of directors has approved a capital expenditure plan of approximately USD 170 million to further increase the capacity of its clean air products plant in Shanghai, China.


The investment will be used to expand the *Corning Shanghai Company Limited* (CSCL) facility and to increase its capacity to manufacture emissions control substrates for light-duty (automotive) passenger vehicles. This expansion is expected to be complete and operational in the third quarter of 2013.

Mark Beck, senior vice president and general manager, Corning Environmental Technologies, said, "Global sales of automobiles, particularly in China and across Asia, are forecasted to grow steadily over the next several years, increasing demand for Corning's advanced substrates. Strict emissions regulations around the world are driving vehicles to use more substrates than before and to use advanced substrates. This significant investment will help us to meet the growing demand. It also demonstrates our commitment to improved service to our customers and to maintaining a leadership position in the emissions control industry."

"Corning has been investing in China for more than 25 years," said Eric S. Musser, chief executive officer of Corning Greater China. "Today's announcement, the third expansion of our automotive substrate facility, marks another important milestone in our commitment to China. As the first substrate manufacturer to enter China 10 years ago, we are proud that we continue to support China's automotive industry through a combination of strategic investments, innovative technologies, and values-based market leadership."

GGF

ANNUAL REPORT SHOWS STABILITY AND OPTIMISM

 The UK Glass and Glazing Federation (GGF) has released its Annual Report for 2010 showing a stable financial position against the current uncertainty in the UK and world economy.

The President of GGF, Phil Brown, commented, "Despite the fragile state of the UK economy, it was very encouraging to see that the Federation was able to recruit new companies to membership."

The Annual Report also highlights many of the campaigns and projects the GGF has been consistently working on since 2010, including technical and political issues such as Green Deal.

Nigel Rees, chief executive underlined the GGF's activity "Although Green Deal has taken up a great deal of time and effort, we have made huge strides in improv-

ing Government's understanding and awareness of the glass and glazing industry and its energy efficient products."

Within the Annual Report, the GGF also revealed its plans to conduct a Strategy Review covering activities, structure, governance and resource levels.

The outcome of this review is expected in 2012 and should map out a clear strategic direction for the GGF over the next five years.

The Annual Report 2010 also touches on the Federation's recent work to date and underlines the intentions to strive for new and better benefits to support all GGF members regardless of size, profile or market position.

Nigel Rees concluded, "Our members have helped us stay relatively strong throughout 2010 and we are therefore optimistic about the future, setting the standards with our technical expertise and continuing to be the voice of the industry in the political arena."

The best members in the industry deserve the best trade federation and we will ensure we retain this position."



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HEYE GLASS ELITE MEET AT FUTURE OF GLASS SYMPOSIUM

 The 5 and 6 September had the motto “The Future of Glass”, when more than 50 experts of the glass industry met up at the **Heye International Symposium**. The guest list consisted of representatives of the leading glass container manufacturers throughout the world, whether from the US, Mexico, China, India, Russia and, of course, Germany and Europe.


On the first day, the topic Future Trends was on the agenda. The futurologist Patrick W. Jordan gave a preview of the Super Trends for the 21st century, supplemented by quantitative forecast of the global glass market by Euromonitor. Based on these impressions, the speakers and the audience discussed strategies and opportunities for the container glass industry. After this look into the future, the evening was a journey into the past of glass manufacturing, at the industrial museum “*Gernheim Glassworks*”, where visitors watched a glassmaker manufacture a historic storage jar, used in the 19th century for preserving food.

The second day was marked by success stories of customers and discussions on technical solutions for the production process, with the aim of finding ways to produce container glass even more efficient and more sustainable. Solutions for assortment production, the new press duration control as well as innovative camera-based inspection systems were discussed.

The programme was rounded off by a visit to the city of Hamelin, home of the famous Pied Piper of Hamelin, followed by boat trip on the river Weser. Guests at the symposium appreciated the balanced programme and talked of one of the best industry-related event in recent years. Due to the very positive feedback **Heye International** will continue these events in the future.

VETROPACK

POSITIVE PERFORMANCE IN A STILL DIFFICULT ECONOMIC ENVIRONMENT

 In the first half of the financial year, the **Vetropack Group** generated consolidated gross revenue of CHF 306.7 million (first half of 2010: CHF 331.8 million). Consolidated EBIT totalled CHF 42.8 million (first half of 2010: CHF 42.6 million), and consolidated net profit for the first half of the year rose to CHF 25.7 million (first half of 2010: CHF 19.6 million). The cash flow margin reached a strong 21.0% (first half of 2010: 19.3%) of gross revenue.

In the first half of the financial year, the prevailing economic factors were the strong Swiss franc and a market with no clear signs of a sustainable upturn in demand. In this environment, the Vetropack Group generated consolidated gross revenue of CHF 306.7 million (first half of 2010: CHF 331.8 million), down 7.6% year-on-year. However, after currency adjustments, an increase of 2.7% was attained.

Demand stabilized at the previous year's level and only showed restrained growth in individual countries. Ukraine's newly introduced alcohol tax significantly curbed consumption and, thus, demand. The Vetropack Group's sales volume totalled 2.16 billion units of glass packaging (first half of 2010: 2.20 billion). The strategically important export markets were expanded further. The export share increased to 41.4% (first half of 2010: 39.9%).

Despite the ongoing negative currency effects, the consolidated EBIT remained virtually stable at CHF 42.8 million (first half of 2010: CHF 42.6 million). As a result of the essential price changes and the optimization of the product mix, the EBIT margin reached 14.0% (first half of 2010: 12.8%).

Consolidated net profit for the first half of the year rose by 31.1% to CHF 25.7 million (first half of 2010: CHF 19.6 million). The improved margin structure and the reduction in exchange rate losses as compared with the previous year were key factors in this positive development. Cash flow remained at the same level as the previous year, at CHF 64.3 million (first half of 2010: CHF 64.0 million). The cash flow margin remained strong at 21.0% (first half of 2010: 19.3%) of gross revenue.

There are still no signs of a significant improvement in the economic environment for the second half of 2011. Furthermore, demand is not expected to rise significantly in Western or Central Europe this year.

It remains difficult to predict the development of the exchange rate and its impact on results. Based on the present currency trend, EBIT and net profit are expected to languish behind the previous year's values.

MSC & SGCC: INTRODUCING INNOVATIVE CONTACTLESS GAUGING



Pascal Leroux

MSC & SGCC - PRODUCT MANAGER - MULTI-CONTROL MACHINES

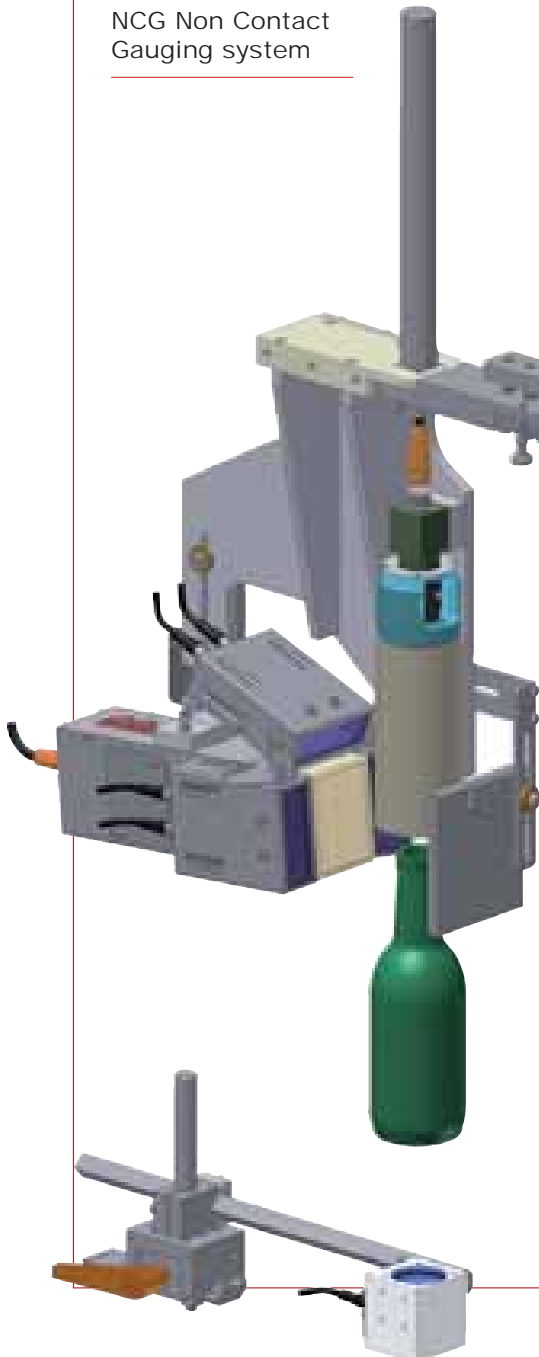
Dimensional control of neck and finish without contact is explained to us in this article from MSC & SGCC, presenting its innovative NCG (Non

Contact Gauging) solution. The NCG does not require tooling management (no stock, no maintenance exchange), which directly reduces the cost of ownership, while enabling the latest generation of rotating machines to work at their full capacity.

DIMENSIONAL CONTROL OF NECK AND FINISH

In the present state of technology, the dimensional control of the neck and finish, commonly named plug function, is based on a mechanical system with contact. This mechanical technology requires high-level maintenance due to the current production speed. For instance, with a cruise speed of more than 250 BPM, MSC & SGCC's recommendation would be to completely refurbish the plug assembly every two years. The con-

NCG Non Contact Gauging system



trol principle using plastic gauges implies a complex and expensive tooling management for glassmakers. Moreover, the contact between the plastic and the glass container represents a true risk for article breakage and contamination.

Today, the best way to avoid these constraints is to choose a non-contact gauging principle and this is the reason why MSC & SGCC is presenting its innovative NCG (Non Contact Gauging) solution.

NON-CONTACT GAUGING

The NCG is the new available gauging measure operating without contact with cameras. Recent technology applied to a concept used in our machines for 20 years enables us to provide the market with a reliable and efficient system. The NCG is designed to measure: the internal diameter of the neck, the external diameter of the finish, the dip and saddle, the offset finish and the bent neck. It is currently operating on beer, soft drink and penicillin articles. The next step is to provide an innovative solution for glassmakers' specific needs on corked wines bottles, 'champenoise' method and wide mouth jars.

MSC & SGCC can implement the NCG solution on most worldwide rotating machines. This system is designed to be installed on a rotating station and works with two cameras, one horizontal and the other vertical, associated with continuous LED light sources.

BOC – THE VERTICAL CAMERA

The BOC measures the internal diameter of the neck. Thanks to the vertical camera combined with the light source located below the sliding plate, the system is able to take eight independent pictures of the neck up to 50-millimetre depth. After calibrating the NCG, on each picture we measure 256 diameters that we compare with a reference image in order to check the minimum, the maximum and the distort-



NCG distortion defect detected

tion. Our numerous trials have revealed an accuracy of 5/100 millimetre.

The operator just fills out his article file with all the thresholds defined by the Quality Control.

The BOC can also be used on penicillin ISO finish to measure the external diameter.

DIMBAG – THE HORIZONTAL CAMERA

The DIMBAG measures finishes up to TO38, the external diameter, the dip & saddle, the offset finish and the bent neck.

Based upon an innovative lighting principle, the three light sources and their dedicated screen improve the contrast of the finish and neck edges. The system takes a sequence of eight different triggered pictures equally distributed around the article. The management of this process enables to have a high efficiency of the repeatability.

According to his needs, the operator can set up the DIMBAG to measure the following items:

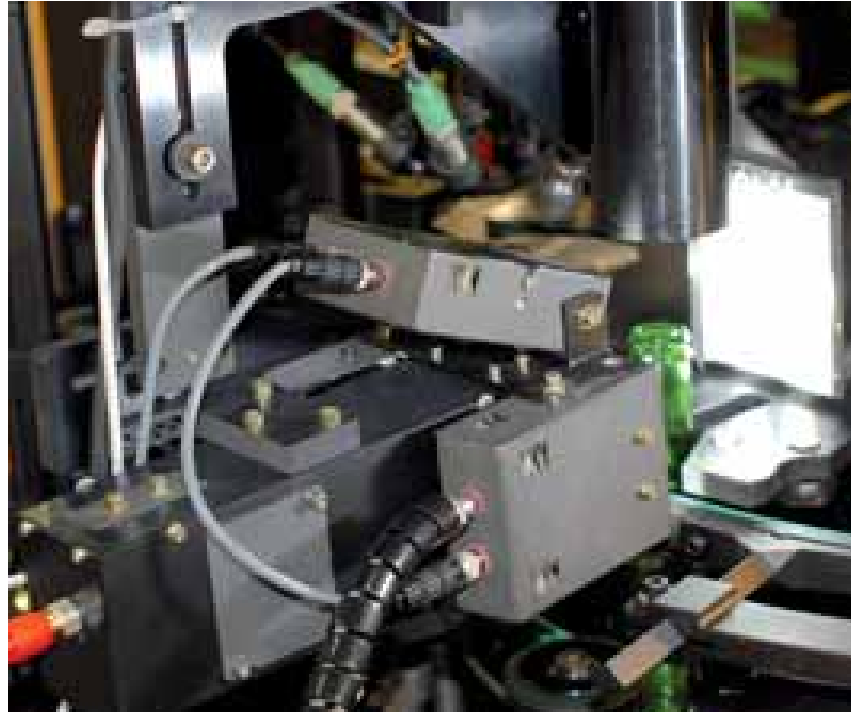
- up to eight control areas of external diameter with an accuracy of

1/10 millimetre. We can programme several control algorithms to inspect the minimum, maximum and average external diameter, as well as internal and external thread. As the solution works with a lateral camera, it becomes possible to measure areas (threads, beads) that were not accessible with the mechanical solution;

- thanks to the high resolution of the eight pictures on the finish area, we can measure the average slope on the finish surface, as well as the standard deviation of the slope with an accuracy of 5/10 millimetre. The unfilled finish can be measured only if it is located on the external edge of the finish;
- by learning the height of the bottle, we search for under height and over height containers with an accuracy of 2/10 millimetre;
- the NCG detects the offset finish by comparing the centre of the finish with the neck axis;
- by using a special algorithm on the long neck containers, we measure the offset of the neck axis with reference verticality. It becomes related to the bent neck detection.

PROVIDED BENEFITS

By replacing a system limited to a 'go - no go' verdict, the NCG delivers exhaustive measures for each article enabling glassmakers



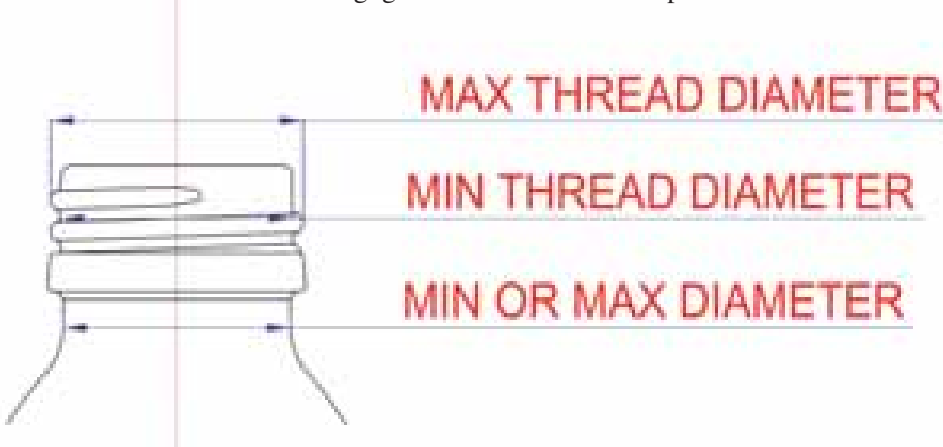
NCG device

to regulate their process. It is no longer a device that only rejects defective bottles; thanks to measures, the system will display trends informing the operator at the hot-end area to react before reaching the threshold limit.

The NCG replaces an intrusive mechanical device by a contactless solution complying with HACCP standards. At the same time, there is no more tooling management (no stock, no maintenance exchange), therefore directly reducing cost of ownership.

Moreover, the mechanical system is often the main limitation for cruising speed, and the NCG enables the latest generation of rotating machines to work at their full capacity. The NCG keeps the same accuracy even at higher speed. Thanks to the DIMBAG horizontal camera, we offer new inspection possibilities in zones such as threads and beads, which were so far unreachable.

As for the whole range of MSC & SGCC machines, NCG benefits from an easily accessible article file database where the operator, within a few basic operations, can download or save a setup sparing precious time and money. ■



NCG threads measurement



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golden anniversary



Fonderie Valdelsane: Valerie Anne Scott
**50 YEARS
OF SPECIALIZATION
IN MADE TO
MEASURE PRODUCTS**

THE COMPANY - THEN AND NOW

With its 50 years of history, Fonderie Valdelsane, based in the traditional glassmaking area of Italy – Tuscany – is proud of its origins. Founded as a family-run company with three partners: Gerbi, Cioni and Fasi, the company still remains so with second and third generations of two of the three founding families – Gerbi and Cioni – still running the company now.

Development and investments were and are a strong commitment of the company and its owners, which has, over the years, moved more and more on to automation and technology to improve its production, of course, but also to make the workplace a better environment for its workers. This is clear to see if we consider that many of the personnel at the company remain there for most of their working life.

Company production is based on the two metals used in glassmaking moulds. The diverse types of metals are chosen depending, not only on the end product with respect to quality and working life of the moulds, but also on the process that the same materials and moulds must undergo.

Of course, the choice also depends greatly on the quality, quantity and speed of bottles to be manufactured since cast iron does not enable to reach the extreme seeds that can be reached with bronze, since the heat conduction of the latter is certainly higher than the former.

And this is why cast iron makes up for 90 per cent of Fonderie Valdelsane's present production, but future ideas are to concentrate more on bronze, as we will see later in this article.

PRODUCTION

Of course it is easy to say that there are only two main products – but this is not really true. Both cast

Fifty years of history. This is the first thing that springs to mind when speaking about Fonderie Valdelsane. And speaking to Roberto Gerbi, President of the Board of Directors and second generation of the founders of Fonderie Valdelsane, it is clear that the traditions of investments and developments are strong.

Founded in 1961 by three partners: Gerbi, Cioni and Fusi, the company started its activities in the sector dedicated to special metals and has, since then, continued to develop and expand to become the foundry that it now is. With the second and third generations of two of the original families of the founders now in the company – Gerbi and Cioni – Fonderie Valdelsane is continuing to invest, expand and develop in its speciality – foundry materials in cast iron and bronze for glassmaking moulds.

iron and bronze have many different types, according to their applications and to the company they are destined for. Because Fonderie Valdelsane works with both small

glassworks and large international groups, these two 'basic' products can diversify considerably, leading to 12 different types of cast iron and five types of bronze. All these

50 YEARS OF ACTIVITY



From left: Roberto Gerbi and Marcello Cioni, two of the founders of Fonderie Valdelsane

At the recent celebrations for its Golden Anniversary, Fonderie Valdelsane invited its entire workforce – 55 people – to a three-day event on the island of Ischia, just off the Gulf of Naples.

“At the beginning was the magic of shaping metal using the ancient art of shaping elements with fire. We then went on to harness this ‘magic’ improving control during which the science of processes came about and technologies developed and grew.”

“Courage to develop ideas and process automation brought about significant changes in the way of working and passion, resulting not just in products but also in services. These were and are developed hand in hand with the ability to listen and change the needs and demands of clients into solutions that work.”

“We at Fonderie Valdelsane want to consider this important anniversary as just one stage of the journey we have undertaken. We have tenacity and pas-



From left: Stefano Gerbi and Gianluca Pacciani, two of the third generation in the company



sion and we still have much to give and learn, and to continue the tradition of our company.”

“We are strong with the knowledge that we have, with our work, contributed to the success of our clients.”

different types of metal are decided with or by clients as per their need of quality, speed, working life of the same moulds. The larger glass groups, with their own in-house laboratories and technical offices, require specific combinations, of course. When we speak about large groups, we can name *Owens-Illinois*, *Saint-*

Gobain, *Ardagh*, *Vetropack*, and many more.

Fonderie Valdelsane can provide its own complete service and consultancy to all types and sizes of glassworks, with regards to the suitable metal, processes, machinery, and so on, to ensure the clients the highest possible quality of end product. And Roberto Gerbi

informed us that the company has been ISO 9001 certified since 1994, and recognized as an authorized research laboratory since 1995. The company is also recognized as a reference name for the quality of its products. And speaking about production also means personnel. We have already mentioned that many workers at the company prefer to



stay on until retirement, and Roberto Gerbi was extremely proud to tell us that a recently-retired worker had actually been with the company for 42 years!

At present, there are 55 regular

employees at the company, as well as a number of close collaborators, and, to celebrate the Golden Anniversary – 50 years of activity – all were taken for three days to Ischia, a small island off the gulf

of Naples, with all expenses paid by Fonderie Valdelsane, thus confirming the excellent relationship the company has with its workers.

EXPORTS AND MARKETS

Fonderie Valdelsane exports 75 per cent of its production to more than 22 countries – both directly, as a raw material, as well as when used as the product to make the moulds exported by mould manufacturers. In this latter situation, Fonderie Valdelsane's products are processed in Italy by other companies who acquire the material, and then exported all over the world.

With regards to markets, the European Union comes first and foremost, but the company is also concentrating on intensifying sales Eastern Europe, South America, North Africa and the far East, thanks to the developments taking place in those areas right now. Exports to other continents are





more difficulty due to long transport times and, of course, the high customs duties in some areas of the world. And with glassmakers needing their moulds in incredibly short time, this can become difficult.

But when quality is a fundamental characteristic, this is where Fonderie Valdelsane is chosen. Being recognized and certified for its high quality, the company is generally a step ahead of international competition where quantity, speed and quality are concerned.

And being specialized is another extremely positive feature of Fonderie Valdelsane. As Roberto Gerbi says: "I believe that specialization – and particularly with regards to production and process – is the strongpoint of our company."

INVESTMENTS, BOTH ONGOING AND IN THE FUTURE

Speaking about the last few years is not easy for any company. The

global crisis has hit hard in all sectors and glass and its connected sectors were involved of course.

"2009 was a difficult year for us, of course, but the positive results of 2010 gave us the possibility to make a comeback and compensate the difficult times of 2009. Production increased about 16 per cent, which eventually took us to the same levels as those in 2008!"

"In 2011, this positive trend is continuing and we will reach higher levels."

"We have never stopped investing because our belief is that a company that does not invest can never develop and grow. This year is no exception to the investment trend as we will be here during August – the traditional month of holidays for Italy – to install two new furnaces and a new processing machinery for synthetic powders – with modernization, automation and performance in mind."

"We also have quite ambitious

investment plans for the near future as we will be investing in automation with regards to bronze, which, at present, is mostly manual."

"These investments will also involve higher production and, therefore, more personnel. We are also putting the finishing touches to a building of 1,600 square metres, which will take us to having a total covered area of about 8,000 square metres. And who knows? The future could bring even more expansion!" ■

Fonderie Valdelsane
S.p.A.

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UV INK CODING

Thanks to the latest development from **Beatson Clark**, clients are, says the UK glass-maker, guaranteed even more assurance of high quality products.

Thanks to a continuous plant of investments and improvements, Beatson is now extending the use of *Ultra Violet Inkjet Coding* equipment to all production lines.

Philip Lamb, head of quality at Beatson Clark, commented: "Through our business strategy of continual improvements, this is the next phase to make certain our quality assurance is second to none.

The new equipment will ensure every container has the date and time placed on it, which will mean we have 100% traceability back to each and every container manufactured.

The key benefit of using the *Markem Imaje Inkjet* coder is that it uses Ultra Violet ink, which is not seen by the naked eye. Therefore this coding will not interfere with a customer's own coding and can be placed anywhere on the container – from the shoulder to the foot – even where the label is to be applied."

UK-based Markem Imaje completed installation of this new state-of-the-art equipment at the end of July.



CUTTING, FINISHING, DRILLING, GRINDING AND ENGRAVING

With over 40 years of experience in the manufacture of machinery for the glass industry, **Batisti Meccanica**, based in central Italy, describes its production line as reliable and highly productive. Batisti's machinery ranges from drills, automatic saws, flattening and cutting machines, marking machines, lathes, and grinding machines.

Founded in 1960 as a precision mechanical factory for second stage (cold processing) and manufacturing of automatic machinery, the company has, over the years, dedicated its activities to the design and construction of manual and automatic machines for the processing of hollow and flat glass, as well as crystal.

Each and every product manufactured by Batisti is made following careful and attentive designs. Clients' needs and demands are analyzed in order to provide efficient and profitable results.

Essential concepts are the quality of materials, high-

tech research, and projects that simplify the management and maintenance of the machines.

Batisti products cover diverse processes of glass and crystal, using both manual and automatic machines.

The functions of the machines include: cutting, finishing, drilling, grinding and engraving. The company also has machines designed and manufactured as per special client requests.

Innovation and the creation of new machinery is continuous. Repairs and updates to the older machines are carried out by Batisti's skilled workers, directly at the factory or at clients' premises.

All machines manufactured by Batisti are studied, designed and constructed as per detailed indications from its clients. The shapes of glass items have become more and more complex over time and Batisti has followed all these needs, creating accurate, high-speed and easy to use machines.

The same machines are suitable for many different products, such as vases, lamps, glasses, tableware, etc., in crystal, soda lime, simple glass and also for the processing of particular types of glass such as Pyrex, composite materials, marble, stone, and much more.

www.batisti.it



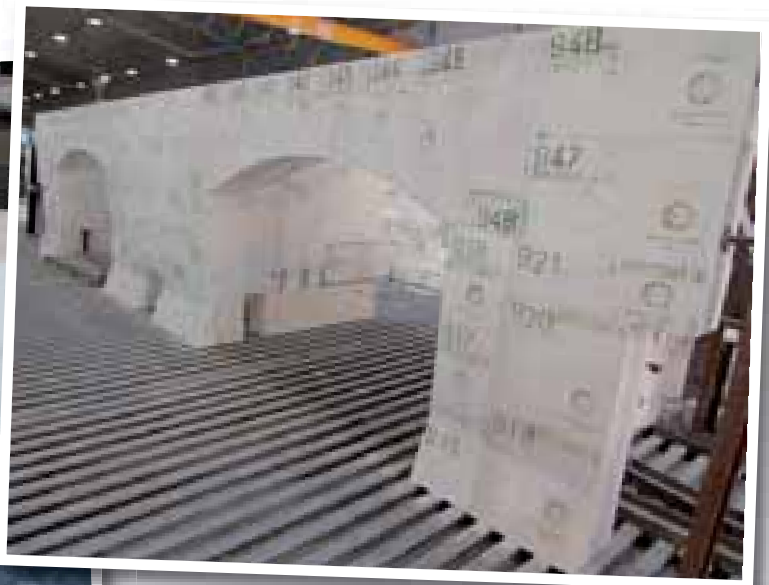
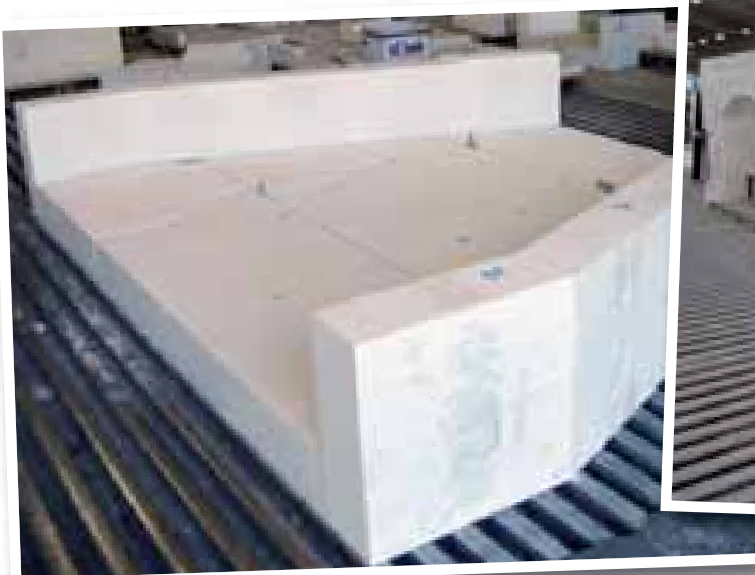


CONTINUOUS DEVELOPMENT IN REFRACTORY PRODUCTION

The main aim of development of **MOTIM Fused Cast Refractories Ltd.** is, and has always been, meeting the demand for larger sized melting furnaces, which is that of manufacturing large sized and complicated shapes in premium quality. At the same time, the same emphasis is also given to smaller sized furnaces or those used for producing special glass.

With regards to development, the Hungarian company also depends on comments and feedback from designers and users, so as to define their future expectations with regards to fused cast products. This feedback is then used by MOTIM in its development programmes to respond to needs and demands as they arise.

www.motim.hu





George Ord, managing director of IIT

INNOVATIVE MILLING TECHNOLOGY

UK-based **International Innovative Technologies Ltd.** (IIT), has developed new grinding technology that combines low energy consumption with a compact size and powerful grinding force.

As a result, as well as being suitable for the conventional grinding of a wide range of minerals and materials, the highly efficient and versatile milling system also has the capability to economically convert waste glass into fine powders for a range of recycling applications.

The new *M-Series* powder mill from IIT comprises a technically advanced modular design capable of fine grinding soft, medium and hard materials (to 9.5 on the Mohs scale) to 90% passing 45 microns and below.

IIT has successfully used the new technology for the successful milling of glass waste to 50-75 microns to demonstrate the feasibility and cost effective production of powdered glass product for potential use in recycling applications such as a fluxing agent in brick manufacture and in filtration applications.

Compact and powerful, the centrifugal grinding mechanism of the m-series is extremely energy efficient with the vertical material flow path and special roller assembly ensuring that the force produced is translated into maximum particle grinding power.

As a result, rather than rely on air-flow to carry the feed materials through the mill and into contact with the grinding media, the new IIT mill utilizes natural centrifugal and gravitational forces to maximum effect.

As a result, extremely low electrical energy input is required relative to particle size and volume of powder output, with specific energy consumption typically between 5kWh/T and 10kWh/T.

Multi-stage grinding is achieved through the incorporation of a number of grinding modules in series with particle size controlled both by the number of modules and rotational roller speed applied.

The development of the new com-

compact milling technology means that fine grinding solutions need no longer be restricted to traditional power hungry mills that absorb precious factory floorspace.

On the contrary, with traditional mill size and energy costs of converting granular materials into a fine powder no longer an inhibiting factor, volume powder milling applications can now be easily integrated into previously inaccessible locations.

In the glass industry work has also been carried out to show how the economic fine grinding of glass waste can also be successfully utilized for commercial applications.

Historically, the unfavourable economics associated with the fine milling of glass waste in conventional grinding systems such as ball mills has largely ruled out potential applications in the brick manufacturing industry and in filtration processes.

As part of its work on the economic, practical and technical challenges associated with the recycling of glass waste, the UK's Waste & Resources Action Programme (*WRAP*) has identified the considerable potential for powdered glass to act as a fluxing agent in the manufacture of bricks.

This work has shown how the addition of powdered glass can successfully reduce the firing temperatures required during brick manufacture – particularly when used with those types of firing clays that demand the highest energy levels.

However, IIT has successfully undertaken the milling of glass waste to 50-75 microns to demonstrate the feasibility and cost effective production of powdered glass product.

WRAP has estimated that the UK domestic window replacement sector generates around 90,000 tonnes of glass every year. Until now, all of that glass has gone straight into landfill and these figures are expected to rise to between 160,000 and 250,000 tonnes per year over the next 10 years.

The ability to economically mill and recycle glass powder could therefore significantly reduce waste management costs associated with landfill disposal of waste glass and at the same time provide a completely new income stream from this commercial application.

In addition, similar opportunities for powdered glass are also provided in water filtration and sports turf applications – both of which have also been researched and developed by *WRAP*.



The IIT M-Series grinding mill

www.iituk.com



FROM FOUR- TO SIX-AXES BALL-GATHERER ROBOTS

Novaxion has announced the 10th ball-gatherer robot delivery from the beginning of this year. This important delivery was made possible thanks to the development of new models of the most recent six-axes robot named *R6X2-R30iA*.

According to the French company, the user-friendly gathering software has been improved, thus offering more possibilities and an option for Chinese language. The speed of the robot has been increased by 20%, therefore increasing production speed by 20% too, while quality remains of the highest standards.

Since its creation in 2004, Novaxion has developed a complete range of ball-gatherer robots, from four-axes robots to six-axes robots.

The company's partnership with the world leader of industrial robotics *FANUC* allows it to offer its clients a guarantee of two years with a stock of always-available spare parts and worldwide after-sales service.

More than 130 robots are up and running in glass-works all over the world, with the highest satisfaction of their users.



All Novaxion's production can now be seen at the company's new website:

www.novaxion-robots.com

Welcome to

The logo for glassOnline, featuring the word 'glass' in a bold, sans-serif font, followed by 'Online' in a blue, italicized font. A blue sphere is positioned between the 's' and 'O'. A white swoosh underline is beneath the text.

The glass world data bank!

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Tecno5:

PRINTING EXCELLENCE WITH CUSTOMIZED SOLUTIONS

Innovation aimed at customer satisfaction – this is the main aim of Tecno5 – which manufactures a complete range of machinery and accessories for hollow glass screen printing. Combining research with the use of the most advanced technologies and the engineering know-how of its highly qualified personnel, the company has continued to grow, with present production now exported worldwide.

Tecno5 is a leader in the construction and commercialization of machines and accessories for multicolour printing on glass items. Established in 1986, Tecno5 is a growing and expanding company: now exporting 90 per cent of its total production to over 45 countries worldwide. There are currently more than 300 Tecno5 machines installed around the world.

The company designs, manufactures and installs a wide range of machines, from basic four-colour

manual to fully automatic eight-colour machines specialized in direct screen printing on all kinds of shaped glass containers: from classic tableware to the most sophisticated spirit and cosmetic bottles.

Tecno5 also produces a complete line of complementary equipment, such as Lehr loaders, feeding tables, ink heating system, conveyors and others.

The successful business story of Tecno5 is founded on its 'customer care' policy: from the analysis of needs of its users to the design and construction of customized solutions. Tecno5's numerous automatic and semi-automatic machines offer each single user the possibility to print on all glass forms using diverse methods and colours. Tecno5 offers not only first class customer service but also prompt worldwide assis-

tance that cover all aspects of the printing process.

SERVICES

In the last 25 years, Tecno5 has obtained a leading position in the market of direct screen printing on hollow glass items. Its automatic and semiautomatic machines offer each and every single user the possibility to print on all glass forms by means of various methods and colours: all kinds of cylindrical, conical and other shaped bottles, tumblers, mugs, goblets, ashtrays, bowls and jars.

Tecno5 works in the international market directly or by means of an agent network. The company aims at total customer satisfaction not only by selling its machines, but also by providing its clients with a series of high quality services:

- fast worldwide technical assistance provided by expert engineers;
- customer training: personalized training programmes regarding machine functioning;
- periodical check ups.
- All Tecno5's machines can be

periodically inspected by expert engineers to maintain their original performance;

- the supply of a wide range of complementary equipment such as Lehr loaders, feeding tables, ink heating systems, conveyors and many others;
- direct contact with clients to ensure better response to their requirements.

PRODUCTS

Tecno5 is a supplier not only of machinery, but also of a wide range of accessories used in hollow glass decoration:

Machinery:

- Universal – *RX9011FE* (eight-colour machine)
- Containers – *RB 46/R* (six colours)
- Tableware – *RC 693* (six colours)
- Semi-automatic machines – *RM 694* (six colours); *RM 494* (four colours); and *RM 4200* (four colours)
- Flat containers – *LM 20/30* (2-3 colours).

Accessories:

- Feeding tables
- Colour heaters

- Conveyors
- Optical pre-positioning
- Elliptical printing
- Conical printing
- Flat printing
- Reciprocal squeegees
- Push bars
- Centring devices
- Handle orientation

MACHINES

Universal

The RX 9011-FE currently represents the top of the line of Tecno5's production range, completing and expanding the possibilities offered by the RX 9000, semi-electronic model which is highly appreciated by the market.

In the RX9011-FE, on the other hand, printing is carried out by synchronized rotation movements of the items and translation of the screen realized by two independent sets of brushless motors.

The advantages of this latter solutions are relevant from all points of view and can be summarized as follows:

- dramatic reduction in job changeover time, since there are

Universal - RX9000FT



- fewer parts (gears) to be changed and set up;
- reduced number of decorating fixtures (no need for complete sets of gears for each diameter);
- more precise printing due to the fact that an exact diameter is set up without the need for approximation for gear dimensions;
- possibility of four-colour UV with pre-positioning machine;
- reduction of the noise level and simplified maintenance to ensure constant high precision performance.

The machine is equipped with control board with touch-screen control panel, PC computing capabilities, which enable reliable storage of set-up and data production, and high compatibility with production management software.

Independent machine controls are applied near each printing station, which are prearranged for the easy installation of different printing tools.

The RX9011-FE includes tools and accessories and is prearranged for the installation of a wide range of optional tools for various applica-

tions, including Tecno5's laser pre-positioning system, fixtures for printing on flat, conical and elliptical surfaces.

CONTAINERS

RB 46/R

The RB 46/R is an automatic screen printing machine suitable for high-speed, precise printing on cylindrical and conical glass containers and tableware.

The technical solution of a directly linked main rotary table to a heavy-duty indexer provides maximum reliability and performance even in the most demanding conditions of operation.

The mechanical link and synchronization between the action of the screen and the rotation of the product is obtained by steel racks and gears, which combine productivity and simplicity of operation and maintenance.

Easy to use: PLC unit installed in the main control board separated from the machine frame; handy control panel, movable from station to station for safe and accurate machine operation; micrometrical

adjustment of the screen frames; equipped for cylindrical printing and prearranged for the installation of conical and body/neck printing; automatic system for independent squeegees and supplementary screen lifting; independent screen-frame connections and heating units with double temperature control system.

The machine includes a counter-squeegee device for colour recovery, as well as outfits and accessories.

All protective casing and doors comply to EC safety standards.

TABLEWARE

RC 693

The RC 963 is a six-colour automatic machine targeted to clients specialized in tableware decoration. Thanks to a special loading tool, the RC 963 can switch from high speed for printing on cylindrical and conical glass tableware items, to bottles too.

The printing cycle based, on the indexing motion system and the over-dimensioned, reliable mechanisms, makes the RC 963 suitable for continuous operations and a long, trouble-free operational life.

The machine, which is equipped with a hydraulic lifting system and handle orientation tools for printing on mugs and cups, includes a countersinking system to firmly hold the ware all along the machine cycle, ensuring high precision colour-to-colour registration.

Fast job changeover system with pre-setting bench enables to reduce machine set-up time.

Prepared for the use of different tools and accessories, the RC series protection casings and doors comply to EC safety standards.

SEMI-AUTOMATIC MACHINES

RM 696 – RM 496

The recently reengineered RM series includes six- and four-colour manual or semi-automatic screen printing machines suitable for high printing precision on cylindrical and conical glass tableware.



RB 46/R



RM 696 – RM 496

Thanks to both manual loading and unloading, the RM series can print on the most peculiar shapes, while the possibility to add different production tools makes the machine adaptable to clients' needs. The machines are prearranged for the installation of the automatic unloading system and various machine tools and accessories.

Indexing motion system, over-dimensioned mechanism and sturdy assembly guarantee maximum reliability, accurate printing and a long, trouble-free operational life.

RM 4200

The RM 4200 is a four-colour semi-automatic screen printing machine for high printing precision on cylindrical and conical glass tableware with diameters of up to 200 millimetres.

Manual loading and unloading enable the machine to print on the most peculiar shapes, and the possibility to add different production tools makes the machine adaptable to clients' needs.

The RM 4200 can be equipped with an automatic unloading

system and various machine tools and accessories.

Indexing motion system, over-dimensioned mechanism and sturdy assembly assure that these machines will guarantee maximum reliability, accurate printing and long trouble free operations.

FLAT-CONTAINERS

LM 20/30

The LM series of two- and three-colour semi-automatic LINEAR screen printing machines are specifically designed to decorate on flat surfaces and on polygonal items. Designed and built for continuous operations, the LM series combines ease of operations with printing precision and accuracy.

The loading system is realized by means of a sliding twister for vertical or horizontal ware positioning.

Prepared to be equipped with a wide range of tools and accessories, it has many options suitable for different applications, such as a semi-automatic loading system with conveyor and spacer device, with the possibility of automation by means of the optional feeding table.

ACCESSORIES

Feeding tables

The feeding table is an essential optional device for high productivity machines, which demand a constant input of often bulky and heavy bottles.



Feeding Table



Colour heater



Push-Bar



Centering device on loading station



Conveyor



Handle Orientation

This unit can be loaded manually or by an automatic de-palletizer. Moreover, by means of internal sensors, the machine guarantees that the correct number of bottles reach the machine conveyor, thus avoiding discontinuity in the printing process and scratches on the bottle surface.

Colour heaters

Printing quality is highly influenced by enamel viscosity, which is a direct function of its temperature. The electronically controlled Colour Heater maintains large quantities of thermoplastic colour at the desired temperature, allowing to maintain constant printing quality before

and after the screen-refilling phase.

The unit is available for four, six and eight separate thermostatic units.

Push bars

Automatic Push Bar, designed to transfer the printed items from the machine conveyor to the lehr. The unit can be designed in a single- or double-body arrangement, in order to enable loading of the lehr from two different printing machines, minimizing space, energy and work force utilization load.

Furthermore, the optional 'anti-strike' feature, ensures safe handling for the most unstable bottles, and gives the possibility to leave

free areas on the lehr, thus avoiding a 'domino' effect in the case of fallen bottles.

Centring devices

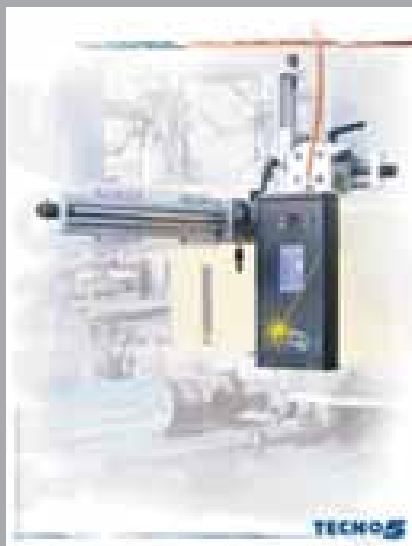
This unit allows the positioning of the decoration with regards to the notch on the container bottom.

It is mounted on the loading station so that all decoration stations can be used for printing.

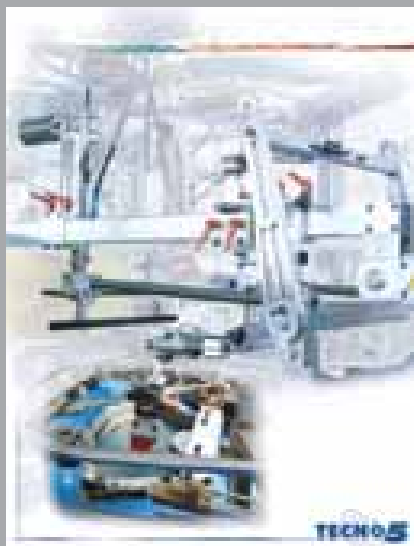
The composition of the unit depends on the type of machine: electronic or mechanic.

Conveyors

Tecno5 realizes conveyor systems as per client demands and pro-



Optical Pre-Positioning



Conical Printing



Elliptical Printing

jects. The conveyers are realized with high quality materials, which ensure life-long reliable service.

The sections can be electronically connected to the machine to maintain constant spacing between the items regardless of the production speed.

Handle orientation

The Handle Orientation Unit is an ancillary device used to orientate the printing of ware with handles, and is installed on the ware holders of all the machine's printing stations, working in the first printing station.

This unit is made up of a standard part and a changeable part, which varies according to the shape of the ware.

Optical pre-positioning

By applying laser technology, decoration can be realized in a precisely defined position on containers. The electronic device replaces the traditional mechanical equipment used for positioning, which is subject to wear and needs to be realized specifically for each item.

The laser technology applied to this unit enables to detect several

types of reading: side notches, relief printing, hollow printing, dot codes and mat windows.

The unit is equipped with a touch screen display for easy set up and control of self-learning functions.

The unit support allows for rapid and micrometric regulations: thus ensuring the accurate holding of any position, without limiting the size of containers or machine productivity.

Conical printing

The conical printing unit enables the decoration of conical surfaces and replaces the standard screen holder of the machine.

It is made up of two parts: the frame holder, which enables to rotate the screen to the conic centre, and the rack holder for item drive.

The unit can be used with traditional carriages for simultaneous decoration on both cylindrical and conical surfaces.

Elliptical printing

This unit, applied to electronic machines only, enables to carry out printing on elliptical surfaces.

The unit is comprehensive of

three sub-units, which are performing the following steps: positioning, support and overturning.

Flat printing

Designed to print on flat surfaces, keeping both container and frame steady and moving the squeegee along the bottle axis.

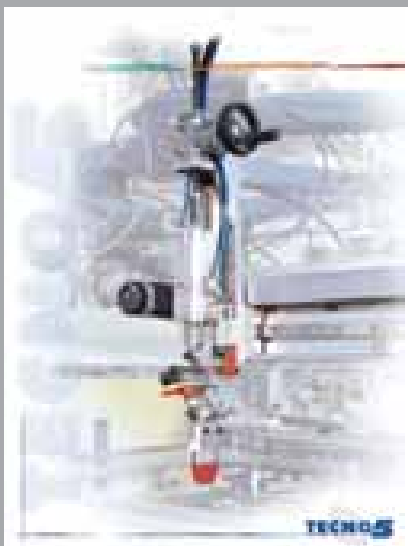
The squeegee is controlled by an electric motor on a slide guide.

The electric control ensures repetitiveness of movement and the speed and acceleration of the squeegees, while length and position of the printing direction are set by two sensors which can be easily mechanically adjusted; the printing direction can be both bottom to neck and vice-versa.

The unit can be mounted on any decoration station: on electronic machines, the same item can be printed using different technologies in the same cycle.

Reciprocal squeegee

This very useful optional ensures the homogeneous dispersion of the enamel onto the screen, avoiding the build up of dry material on the sides of the screen. The reciprocating action of the supplementary squeegee ensures the application of enamel even in cases where the printing surface is very large. ■



Flat Printing



Reciprocal Squeegee

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FEVE:

WHAT DO CONSUMERS THINK ABOUT FOOD AND DRINKS PACKAGING?

Almost three quarters of European consumers (74 per cent) recommend glass as a food and drinks packaging material for many reasons - the top of which are taste preservation, health and safety, environment friendliness.

There is a mismatch between consumers preference to have certain products packed in glass, and their use, which strongly points to the lack of consumer choice on offer in the market place. Consumers therefore claim the right to have more products packed in glass.

Michael Delle Selve - Communications and Operations Manager

FEVE - THE EUROPEAN CONTAINER GLASS FEDERATION

THE RESULTS OF INSITES EUROPEAN SURVEY

Study scope and reach

The survey was conducted in 17 European countries: the United Kingdom, the Netherlands, Germany, France, Poland, Austria, Czech Republic, Belgium, Hungary, Portugal, Spain, Italy, Greece, Turkey, Slovakia, Sweden, Switzerland) by the independent market research institute InSites Consulting.

In each country, around 500 consumers, aged between 18 and 55, were interviewed (Figure 1). The results are representative for the total population of each country. The survey was a follow-up of the previous one conducted in 2008 by the same research institute.

KEY OUTCOMES FROM THE SURVEY

Consumers prefer glass packaging to all other materials

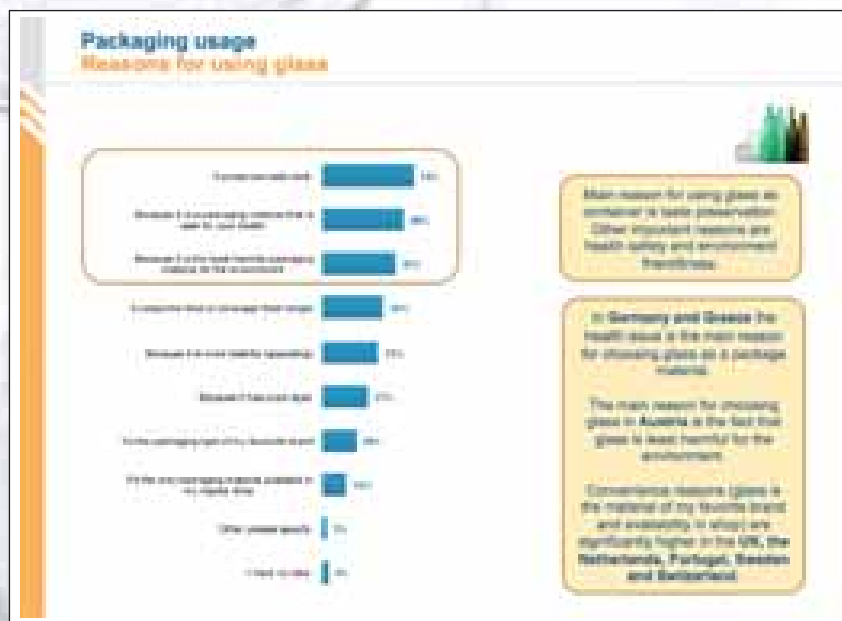
This survey confirms that the vast majority of European consumers highly prefer glass to other packaging materials. Seventy-four per cent of consumers would recommend glass as a better packaging option.

Taste, health and the environment are the three top reasons consumers prefer glass. Main perceived qualities of glass are taste preservation, health safety and environment friendliness.

Fifty-four per cent of European consumers think glass best preserves taste. Forty-eight per cent prefer glass to other materials for health and safety reasons: in fact, consumers perceive glass as having the lowest interaction with the content. Forty-three per cent prefer glass because it is environment-friendly. These drivers for using glass are stable compared to 2008 (Figure 2).



1. About 500 consumers were interviewed in each country



2. Reasons for using glass

Premium quality most associated with products packed in glass

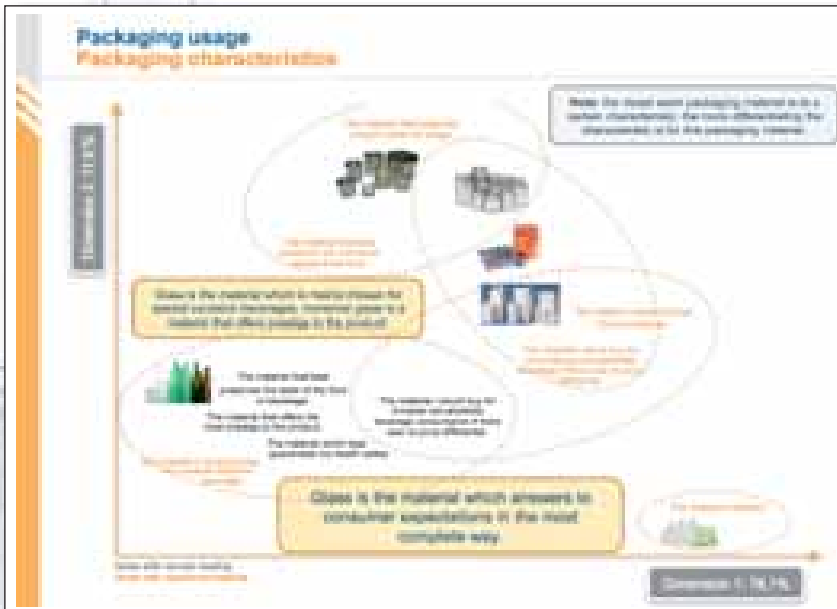
The survey shows that glass is the perfect packaging material to cater to the needs of today's consumers. Trends towards a growing demand for high quality, pure and natural products, such as organic and bio food and drinks, provide opportunities for glass which best answers to the preservation of

these products. Sixty-nine per cent of European consumers choose glass because it best preserves the taste of the food or drink it contains and the material is a clear choice for special occasions. Both are important given the increased interest of consumers for great tasting gastronomy and turning even day-to-day consumption moments into something special.

SURVEYS



3. Glass is a multi-cultural material and each national associates it with a desirable characteristic



4. Glass is the material that responds to consumer expectations in the most complete way

Consumers want more glass

The survey shows that, while for some categories such as wine or alcoholic beverages, the market offer and demand is in sync, while this is not the case for other categories.

For alcoholic beverages, 70 per cent consider glass as being the best option for spirits. For water, 39 per cent of consumers want mineral waters packed in glass presumably to keep the purity and minerals intact for longer, but only 11 per cent buy it in glass, probably because of lack of choice.

Forty per cent of consumers want their juices in glass, while for soft drinks the figure is 37 per cent and, for dairy products, 39 per cent would prefer their milk in glass, and 35 per cent want their yoghurts in glass, but only 6 per cent can buy it in glass.

Thus the majority of European consumers would prefer to buy these products in glass. (Figure 3).

This, however, develops into a mismatch when we look at the use of glass, since many consumers have difficulty in finding their favourite products in glass at their supermarkets and shops.

Glass packaging industry - growth potential in water, fruit juices and dairy products

The survey shows that there is certainly growth potential for the glass packaging industry in the mineral waters market, juices, soft drinks, milk and yoghurts to meet consumer demand.

Glass is the material that responds to consumers' expectations in the most complete way (Figure 4). ■

FEVE - FED. EUROPEENNE DU VERRE D'EMBALLAGE

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Amcor:

BECOMING ONE OF THE WORLD'S TOP GLOBAL PACKAGING COMPANIES

Amcor is a global leader in responsible global packaging solutions supplying a broad range of plastic (rigid & flexible), fibre, metal and glass packaging products to enhance the products consumers use in everyday life. Amcor also provides packaging related services that help customers succeed through collaboration and innovation driven by art and science. This article gives us some ideas of how his company has developed over the years, with a series of specialized products for the pharma and cosmetic markets.

global packaging

Courtesy of Amcor

AMCOR GLASS AT PRESENT

Located near the Barossa Valley north of Adelaide, Australia, Amcor's Glass Packaging plant commenced production in May 2002. The plant incorporates two of the largest dedicated glass manufacturing furnaces in the world.

Servicing the wine industry of Australia and New Zealand, Amcor produces approximately 1.01 million wine bottles a day, which is consistent with the plant's annual production capacity in excess of 400 million bottles.

To serve the premium wine segment of the industry, Amcor produces a select range of bottle shapes and colours, supplying bottles to more than 15 wine companies, including major wine producing groups as well as independent bottling contractors who provide wine

bottling services to smaller wine producers.

The company's new glass furnace technology has enabled it to reduce the weight of some wine bottles by almost 10 per cent, enabling wine producers wanting to reduce their carbon footprint through reduced freight weight, with savings of 57 kilos per pallet just in reduced glass weight.



Courtesy of Amcor

GLASS RECYCLING

Amcor Glass is a leader in environment responsibility and recycling. In 1999, it became one of the first members of the National Packaging Covenant in Australia. The Covenant aims to reduce the

impact of packaging products on the environment. The company is also a strong supporter of the Beverage Industry Recycling Council and the Buy Recycling Business Alliance. Amcor's Environment Policy requires that environmental responsibility is integrated into work practices, training and decision-making.

As testament to its environment responsibilities, Amcor Glass has secured the vast majority of South Australia's recycling glass. The plant uses 40 per cent recycled glass, or cullet, as raw material in the final glass-bottle manufacturing process.

The plant also recycles all in-house water, resulting in significant savings in water consumption.

An extensive tree-planting programme of local native species has been undertaken to minimize the visual impact of the new plant in the area.

OTHER GLOBAL BUSINESSES

With regards to global manufacturing, Amcor is also a vertically-integrated supplier of glass tubing packaging solutions and services, with capabilities that range from glass vials and ampoules to glass tubes for conversion into vials and pre-filled syringes.

Amcor has switched to automatic tube feeder systems as part of



Courtesy of Amcor

PRODUCTION METHODS AND EQUIPMENT

Statistical process control at the point of manufacturing:

- allows shop floor employees to make real-time decisions about the process
- reduces variability and scrap
- scientifically improves productivity
- uncovers hidden process and product relationships

Vision inspection systems:

- installed on all Amcor lines, inspecting 100 per cent of production
- perform crack detection, ensuring non-contamination of products
- reduce the chance of crashes on the filling lines
- provide systematic check for dimensional and cosmetic requirements to meet global pharmaceutical glass standards and quality levels

Product capability reporting:

- finished product measurement systems offline at each plant using Vimec
- supports product release requirement for each client
- allows for "dock to stock" shipments to approved client
- supports compliance requirements as specified within approved quality agreements

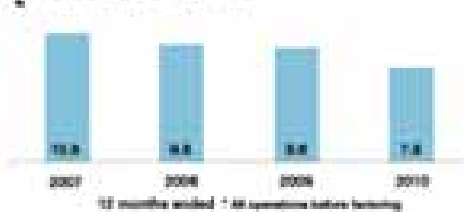
Glass laboratory technical services:

- analytical testing
- documentation: US and Canada DMF, COA, COC, Pre-Audit Questionnaires
- technical support
- ongoing upgrades to the analytical laboratory
- technical support onsite at our five Northern American production facilities

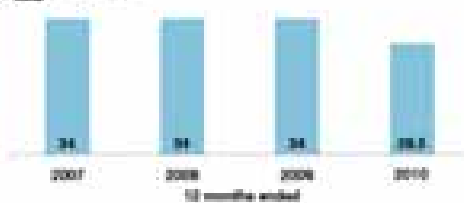
Amcor's fully compliant integrated quality systems are as follows:

- ISO 9001:2000
- ISO 14001
- OSHAS 18001
- pursuing ISO 15378 certification for 'Primary packaging materials for medicinal products'
- Class 100,000 packaging rooms

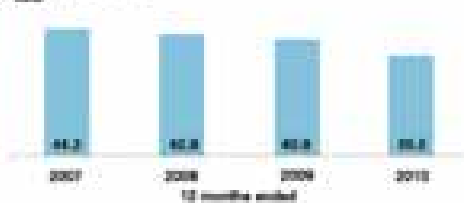
Average Working Capital to Sales*



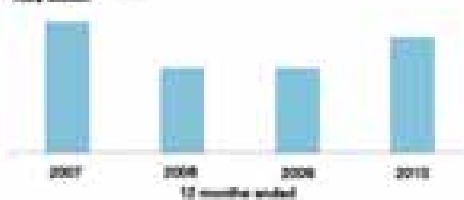
Dividend Per Share (cents)



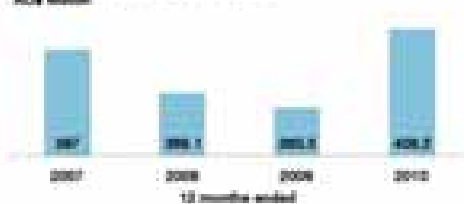
Earnings Per Share (cents)



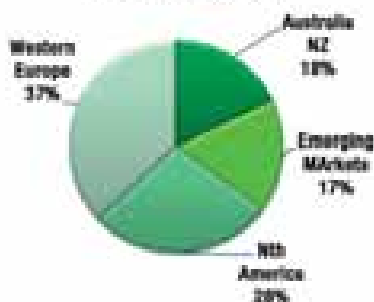
Operating Cash Flow (A\$ million)



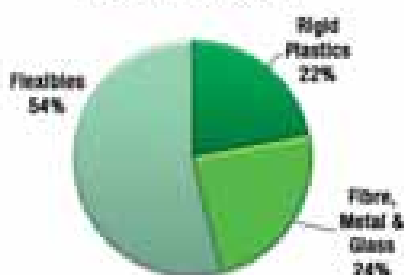
Profit After Tax Before Significant Items (A\$ million)



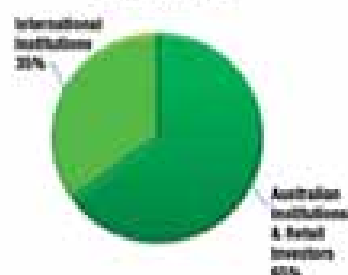
Proforma FY10 Sales



Proforma FY10 Sales



Shareholders





Courtesy of Amcor



Courtesy of Amcor

its effort to fully automate the converting process. Automatic tube loaders save time and improve operating efficiencies by reducing the amount of glass handling for operators and eliminating steps in the production process.

With state-of-the-art Danner and Vello drawing processes, the company's range of glass tubing is particularly suited for vials, ampoules, bottles, disposable medical products and pre-filled syringes. Properties include excellent mechanical strength and thermal properties with maximum workability in customer transformation processes.

Vials

Amcor is a fully-integrated tubing manufacturer supplying clear and amber vials to the pharmaceutical, scientific and cosmetic markets.

The company manufactures its vials using Type I33 expansion

glass tubing: a low expansion, low sodium formulation that is commonly known as Pyrex-like, and ASTM designates it as Class "A" borosilicate.

As this type of glass withstands temperature ranges from extreme heat to extreme cold, it is ideal for terminal sterilization, autoclaving, depyrogenation and lyophilization. The low sodium formulation, combined with the "Wheaton Process 33-EP" passes requirements from European, Japanese and US pharmacopoeias for hydrolytic resistance.

Ampoules

Glass ampoules are the ideal packaging material for fluid preparation. Amcor specializes in the production of drinkable and injectable ampoules (two-point and at bottom), as well as blood collection tubes and test tubes with a capacity of 1-30ml.

Being temper-proof, transparent, impermeable to gas and resistant to any interaction between container and contents, total production safety is guaranteed through these essential properties. ■

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Bangkok Glass: RESPONDING TO THE DEMAND FOR HIGH-QUALITY GLASS CONTAINERS

Founded as a joint venture over 35 years ago, Bangkok Glass has since expanded and developed, becoming an enterprise with five plants, and a total production capacity of 3,500 tons of glass per day. With production ranging from registered to standard designs, and social awareness a true commitment, the company has become a leading glass container manufacturer in its region – Thailand and Asia.



Bangkok Glass Industry Co., Ltd. is one of the most advanced manufacturers of glass containers in Asia. The company uses high-tech and advanced machinery to manufacture glass containers for international pharmaceutical, beverage and food production industries.

Main commitment of the company is to maintain international standards of quality, services, organization and administration. This has enabled the plants in Pathumthani and Rayong to obtain ISO 9002 and ISO 14000 certification from SGS Thailand.

Bangkok Glass is a joint venture formed by:

- Boon Rawd Brewery (major shareholder of the company since 1981);
- Saint-Gobain Oberland Glass;
- Industrial utilizers of glass containers;
- Other minor shareholders.

The company was founded by a group of pharmaceutical industrialists in 1974 with an investment of THB 140 million registered capital. The first plant was built in the Pathumthani province and started operations in the early 1980 with one furnace at the capacity of 135 tons per day, equivalent to 800,000 bottles per day. The company has gradually expanded its operations and its registered capital is now THB 1,300 million.

There are five plants currently operating, one located in the Pathumthani province (five furnaces), one in the Rayong province (three furnaces), one in Khon Kaen province (two furnaces), one in Prachinburi (one furnace), and the fifth plant in the province of Ayutthaya (one furnace).

The present combined production capacity of all five plants is approximately 3,500 tons per day, equivalent to 17 million bottles, and responding to the demand of glass container users in both domestic and international markets.

BANGKOK GLASS PLANTS

Pathumthani

The first furnace was started up in 1980 and, at present, the plant has five furnaces and 16 production lines, and a capacity of 1,310 tonnes per day, equal to 4-7 million bottles, and has 1,537 employees.

Rayong

This plant has three furnaces and 10 production lines with a daily capacity of 920 tons per day – 3-5 million bottles and has 564 regular employees.

Khon Kaen

Khon Kaen Glass Industry Company Limited was founded in 2006, as a joint venture of Khon Kaen Brewery and Bangkok Glass, with a registered capital of THB 600 million, and a shareholding proportion of 49 and 51 per cent respectively. Its first furnace started operations in 2007, and the plant now has two furnaces and five production lines, with a daily capacity of 735 tons, equal to 50 million bottles per month, with 150 employees.

Prachinburi

Prachinburi Glass Industry Company Limited was founded in 2007. The plant has one furnace and two production lines, with a capacity of 180 tons per day, equivalent to 30 million bottles per month, and has 150 employees.

Prachinburi Glass is the joint venture of Bangkok Glass and C.T. Pharmaceutical Industry Co., Ltd.

Ayutthaya

Ayutthaya Glass Industry Company Limited, founded in 2008, has one furnace and three production lines. Capacity at the plant is 320 tons per day,





equivalent to one million bottles, with 150 employees.

PRODUCTION

Production of the company ranges from registered to standard designs, for sectors such as:

- Standard:
 - medical bottles;
 - insecticide bottles;
 - standard glass bottles;
 - food jars;
- Registered design:
 - beer and liquor;
 - soft drinks and non-carbonated beverage industry;
 - food industry;
 - pharmaceutical industry;
 - insecticide;
 - energy drinks;
 - others.

SOCIAL AWARENESS

All forms of food and drink packages, made of paper, plastic foam, aluminium and glass, are designed for consumer convenience. After being used, these packages are discarded as garbage and have, today, become a social problem. One solution is to recycle them as is being done with glass: glass is durable; used glass containers can be melted and remoulded, and will still retain all of their original properties.

For these reasons, glass has always been widely used in the past, at present and will be in the future. Using cullet in glass manufacturing processes helps save energy, conserving natural resources and alleviating garbage problems. It also reduces trade deficit caused by chemical import. Besides, its colourful and attractive appearance, glass is an excellent material for preserving product quality and is friendly to both the environment and consumers. Glass can be re-used in the following ways:

- Recycling: glass products are environment-friendly. They can be recycled or re-used in manufacturing new products for an

unlimited number of times while retaining 100 per cent of its original properties. Glass is made from natural materials such as silica sand, limestone, dolomite and soda ash including other imported chemicals. To recycle used glass containers will therefore reduce the use of natural resources and trade deficit resulting from chemical import. For every 10 per cent of an increased use of cullet in manufacturing new products, two to three per cent of energy consumption can be saved during the glass melting process. This energy conservation will, in turn, reduce the level of pollutant emission produced by the melting process. The garbage problem in Thailand can be partially solved if discarded glass packages are sorted out and recycled.

- Refill: for soft drinks and many other products, used bottles can be cleaned and refilled. This contributes to a reduction in production and packaging cost which will eventually benefit the consumers.
- Re-use: many glass containers can be used for other purposes after their original contents have been consumed to maximize container usefulness, e.g. coffee bottles can be re-used to store salt or sugar, etc. ■



BANGKOK GLASS INDUSTRY CO., LTD.

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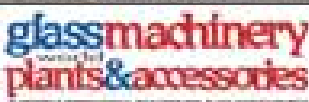
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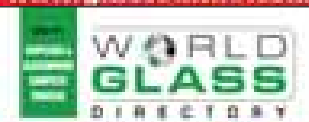
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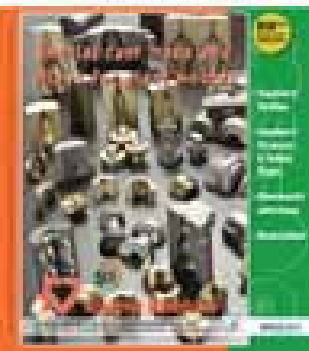
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