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9

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Projects



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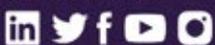
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Total area in million square meter

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Glaston closes deal for large Insulating Glass line to Portugal



Glaston Group has closed a deal for a large Bystronic glass B'JUMBO Insulating Glass (I.G.) line with Portuguese Maxividro, a glass processor serving the construction and architectural market. The total length of the B'JUMBO is over 100 meters and it is one of the largest I.G. lines Bystronic glass has ever built. The order is booked in Glaston's Q2/2019 order intake. The line will be delivered during the last quarter of 2019.

Founded in 1994, Maxividro has always been in the forefront of innovation with regular monitoring of equipment and technology playing an important role. In addition to its home market, Maxividro has since the beginning actively approached export markets, which nowadays represent over 50% of its sales to destinations such as Spain, Switzerland, UK, USA and Canada.

Bystronic glass' B'JUMBO FLEX 330 I.G. manufacturing line has a maximum dimension for insulating glass units with a height of 3.30 meters and length of 9.0 meters. The total length of the line is 101.6 meters. In addition to its maximum size, another customized feature is the synchronized spacer application that enables Maxividro to manufacture high quality both rectangular and shaped I.G. units in continuous production. Special glass to minimal frame panoramah!® windows, the most challenging client from Maxividro, will be produced on the new I.G. line.

"Today glass plays an important part in architectural projects. In addition to aesthetic values, the use of glass enables energy savings, noise reduction and increased safety, adding up to heightened comfort of the buildings", says Pekka Hytti, Senior Vice President, Region EMEA, Glaston Group.

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Automated application of Super Spacer® at AGC Interpane

From XXS to XXL: Productivity all along the line

XXL insulating glass units represent a demanding growth market which requires top class performances extending from the manufacturing to the logistics. AGC Interpane has been able to significantly increase the productivity and precision of an existing insulating glass line for the manufacture of oversized glazing through the automation of the spacer application.

The magic triangle of economically manufacturing insulating glazing, i.e. the trade-off between time, quality and costs, is frequently dominated in the industry by a high proportion of manual processing steps. "This is where you will find the most important lever for manufacturers of insulating glass to produce more quickly, economically and with consistent top quality", according to Joachim Stoss, Managing Director of the Edgetech Europe GmbH company that is based in Heinsberg. The wholly-owned subsidiary of the Quanex Building Products Corporation celebrates the 30 years anniversary of its Super Spacer® product this year, and is thus the pioneer of metal-free, warm edge spacer systems. Initially the development work mainly focused on the heat insulation properties and the durability of the edge seal. Flexible spacers retain the elasticity of the edge seal of insulating glass units and reduce mechanical stress on the glass edge caused by pumping movements and wind loads.

"Due to the growing importance of automation, other benefits of flexible spacers, which can be applied endlessly from the roll, become apparent," Joachim Stoss adds. The automated application of spacer systems such as Super Spacer® replaces work tasks that are frequently still performed manually, such as bending, filling of desiccant, butyl application, connecting rigid hollow profiles and placement of the frames.

Automation combats shortage of skilled workers

Demographic change in workforce is also having a marked influence upon the glass industry. According to the 2018 Labour Market Report of the Association of German Chambers of Industry and Commerce, 86 % of the processing companies in the glass, ceramic and stone sectors are very frequently in search of skilled workers due to the fact that older employees are retiring. 60 % of the companies feel the shortage

of skilled employees constitutes a risk for the development of their business. None of these things are new phenomena but the need to solve them is becoming increasingly urgent. The filling of new positions has also been a permanent issue in the region of Lower Bavaria, which is a hotspot of the European glass industry, for a number of years. If orders can no longer be completed, and the existing workforce is subject to ever greater strains, then more efficient production becomes a must. The manufacturing processes do not have to be completely turned upside down. Sometimes existing areas of potential can be opened up by applying relatively simple means, as AGC Interpane demonstrates at its Plattling site in Lower Bavaria. There they upgraded an existing insulating glass line through the addition of an applicator for the automated application of silicone-based spacers in 2017. This resulted in productivity increases of up to 50 %.

Easy workability is a huge advantage

AGC Interpane based in Plattling describes itself as a specialist for logistically complex cut-size and insulating glass orders. At first glance it sounds very basic, but in reality, it involves the constant showcasing of major global projects. The company in Plattling ranks among the illustrious circle of flat glass processors that are able to supply coated XXL insulating glass units of the highest quality. London's Embassy Gardens, featuring the spectacular Sky Pool, the extension of the Columbia Business School in New York, and Google's "Landscaper" in London, with a rooftop landscaped park and running track, are just three of the flagship projects that are now pending for which the company is producing giant panes of glass. Dimensions up to a size of 3,210 mm x 18,000 mm are possible.

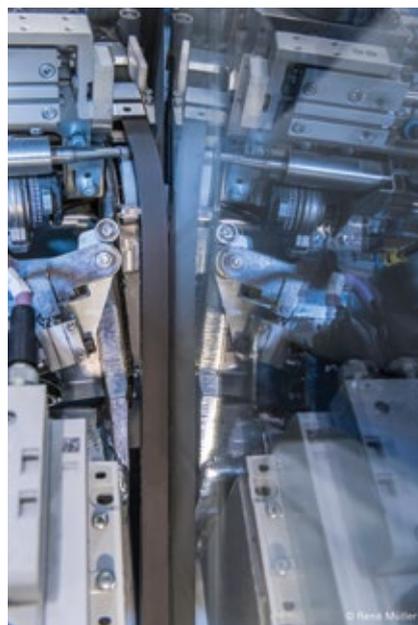
The production is tailored to ensure the greatest possible levels of flexibility. The fully-automated production line, which has been upgraded using the Super Spacer® application robot, produces the entire range of double and triple-glazing units. The dimensions are varying from 200 mm x 300 mm extending to the so-called "Giga Lites", i.e. oversized glazing, measuring 3,210 mm x 9,000 mm. However, Interpane can coat glazing units that are even greater in size, up to a length of 18 meters. Float glass, laminated glass, laminated safety glass or toughened glass are processed up to a maximum

thickness of the insulating glass unit of 115 mm. Super Spacer® T-Spacer™ Premium Plus with widths of between 10 mm and 20 mm is used as the spacer. The silicone-based spacers are set in parallel down to the last millimetre in a matter of seconds, thus guaranteeing a flawless and durable edge seal.

"We also process rigid spacer bars in some applications, but the advantages of automated Super Spacer® application are making a major impact, especially in the case of the large-format insulating glass units," explains Daniel Bruckelt, head of insulating glass production in Plattling. In addition to the time savings involved, this particularly applies to the minimal tolerances involved in the position and the precise manufacture of the corners. Also, desiccant debris, in the intracavity space can be ruled out because the desiccant is already integrated in Super Spacer® and does not need to be filled separately as would be the case with hollow box sections.

"Especially where our "Giga Lites" are concerned, the automated processability of the spacers and thus the quality and appearance of the finished products are very closely linked", adds Michael Elstner, Head of the IBC Consulting Centre. "Where demanding architecture projects are concerned the aesthetics of the edge seal is increasingly becoming an important evaluation criterion. Super Spacer® is virtually invisible due to its matte surface and low height."

And what will the future bring? No-one is yet able to predict the extent to which digitisation and Industry 4.0 will continue to have an impact upon such a highly specialised form of manufacture as employed by AGC Interpane in Plattling. "However, we are excellently prepared for this due to our state-of-the-art automation and high levels of flexibility", Michael Elstner reassures us.



Endless Super Spacer® application from the roll



Automation facilitates, precise, crimp-free and rectangular corners



Robot-controlled Super Spacer® application for XXL insulating glass units



Absolute parallelism of both spacers in triple glazing using Super Spacer®

Investments in Madayn industrial cities hit RO 6.57 billion in 2018



Hilal Al Hasani

The recent issuance of Royal Decrees promulgating laws of Foreign Capital Investment, Privatisation, Public-Private Partnership, and Bankruptcy, shall contribute to enhancing the competitiveness of the investment environment and encouraging investors and business owners from the Sultanate and abroad to localise their projects and subsequently support the national economy, emphasised Hilal bin Hamad Al Hasani, Chief Executive Officer of the Public Establishment for Industrial Estates – Madayn.

Growth Indicators

For the tenth year in a row and despite the economic status and variables at local, regional and global levels, Madayn has witnessed an important growth. Al Hasani informed that the growth rate that was seen in the total investments in Madayn's various industrial cities increased by 3.63% in 2018 compared to the same period in 2017. The cumulative value of investments in the various industrial cities has touched around RO 6.57 billion by the end of 2018, noting an increase of RO 230 million compared to the end of 2017. During the same period, the number of workforce rose to 60,070 with an Omanisation rate touching 35%. The number of investing projects in their various construction phases in 2018 has reached 2,211, of which 1519 are operating, 291 are under construction, and 401 projects have been allotted with space. The utilisation rate of the total space of the industrial cities has touched 53%.

Al Hasani informed that a total of 256 projects in their various phases have been localised in 2018, and

around 509,000 sqm of Madayn lands have been leased to the investors. In addition, 5264 job opportunities were provided in Madayn's different industrial cities with growth rate touching 10%.

Mubadrah

The CEO of Madayn pointed out that Oman Investment and Development Holding Company (Mubadrah) has established Al Rusayl Industrial City Company and has commenced its operations as of January 1st, 2019. Mubadrah has also established companies specialised in asset management and integrated services during the same period. Work is also underway to establish a marketing company.

Additionally, the properties of Shumookh Investment and Services, Shumookh Plastic Products and Industrial Innovation Centre, and the shares of Infoline Company, Majis Industrial Services, and Port of Salalah Development Company have been transferred from Madayn to Mubadrah.

Al Hasani emphasised that all that has been achieved so far represents the beginning of the role that will be played by Mubadrah as a major developer of Madayn. "Mubadrah is undertaking efforts to attract international developers and operators in accordance with best practices for the development of industrial cities. What's more, the role of Madayn will be linked to regulation and monitoring aspects," Al Hasani said.

He elaborated that Mubadrah represents the main pillar of Madayn's approach to strengthen Public-Private Partnership (PPP) but is not the only one. "The approach aims at attracting international developers to the new industrial cities across the





various Sultanate's governorates, in addition to granting development licenses to the Omani private sector for establishing its economic areas under Madayn. The approach also incorporates the launch of a project that aims at providing all government services to the developers and investors. It is worth mentioning that work is advanced at all levels of this approach," Al Hasani commented.

Madayn is also working to launch Masar Investment Window in all of its industrial cities in 2019. "Masar will represent a platform for all the services required by the investors. Work is already advanced in this initiative and a tender was floated for the engineering works to implement Masar offices," he added. It is worth to mention that the one-stop-station at Al Mazunah Free Zone has officially commenced its operations recently. Business owners and investors can now have access to a set of services related to investment activities which shall be completed within a period of not more than three hours.

Shumookh

Commenting on the major projects of Madayn's investment arm Shumookh Investment and Services, Al Hasani stated that the company has expanded significantly in recent years and has started to invest in various sectors. Shumookh has established a company specialised in heritage and tourism in cooperation with a group of international partners specialised in the development, maintenance and operation of various world heritage sites and recognised assets in UNESCO. The company is currently putting its final touches on several projects to develop a number of archaeological sites in the Sultanate and Zanzibar through PPP approach.

The CEO of Madayn also pointed out that Shumookh in cooperation with Nafith Logistics Services will develop and operate the access management system to the industrial cities pertaining to Madayn. This shall organise, manage



and monitor cargo vehicles as well as passenger vehicles coming to the industrial cities through the use of smart gates and trucks, which will consequently save time, speed up the process and enhance security in these cities.

Shumookh has also established a company to manage investment funds in cooperation with major investing companies in the industrial cities and their associated companies. This company aims mainly at investing in SMEs after conducting feasibility studies to determine the current and future directions of these enterprises. This shall allow these SMEs to grow and achieve profits during an investment period ranging from 4-6 years.

Industrial Academy

Madayn recently established Madayn Industrial Academy in cooperation with a number of partners with the objective of training and developing the competencies of the nationals. The academy will provide vocational and technical training programmes to train and qualify the Omani cadres and accordingly raise their productivity and readiness for the market as per the requirements of the factories and companies. This comes in continuity of Madayn's efforts to train the national cadres since 2011.

It is worth mentioning that Madayn has signed an



agreement with Petroleum Development Oman (PDO) to provide employment opportunities through training for employment, direct hire, redeployment and on-job training. Besides, Madayn has partnered with Nettur Technical Training Foundation in India to train the local faculties in Oman, identify the required relevant courses and equipment, develop vocational and technical training programmes to be run by the academy, set the curriculum and the content for conducting the training programmes and various certificate programmes, and evaluate the performance of the trainees through appropriate means. Madayn is set to sign a number of agreements in the coming period with partners with successful experiences from inside and outside the Sultanate to ensure the best results, and highest proficiency and efficiency levels of the national cadres in the industrial sector.

Social Responsibility

Al Hasani stressed the significance of the efforts undertaken by Madayn to support social responsibility initiatives. He informed that Madayn has recently completed the project of developing Madayn's social responsibility policy and strategy, which aims at organising all of Madayn's social practices within a specialised and unified pattern. Madayn has signed an agreement with a local consultancy firm specialised in preparing a study on social responsibility in order to develop a clear policy of CSR for all the companies and factories based in Madayn's industrial cities. The strategy will be announced in its final form during the coming period of 2019.

Madayn Supplier Certification System

Madayn has launched the Madayn Supplier Certification System on the Joint Supplier Registration System (JSRS), the Sultanate's industry-wide online supplier validation and certification platform. This comes within the efforts of Madayn to form an integrated system of electronic services that adds value to the investment environment, Al Hasani noted. In this regard, Madayn signed a MoU with Business Gateways International (businessgateways), which operates the JSRS platform, to develop and manage Madayn's Supplier Certification System.

Growth Indicators

Hilal Al Hasani said that Madayn's industrial cities are currently witnessing major projects with economic and social results in various governorates of the Sultanate. These industrial cities are recording growing indicators regarding the volume of investments, number of projects and workforce, and expansion of areas. "Oman Investment and Development Holding Company (Mubadrah) is

currently working on a number of value-adding projects to Al Rusayl Industrial City," Al Hasani said, adding: "These projects include the logistics project valued at around RO 1,600,000; new gates and entrances project with a value of RO 2,500,000; and the project of developing and incorporating services to expand the industrial city with a total value reaching RO 34,000,000. Furthermore, Mubadrah is also preparing to float a tender of B2 Phase to expand Al Rusayl Industrial City. The value of this tender is expected to touch RO 15,000,000."

Al Hasani informed that the total area of Al Rusayl Industrial City has come close to 11 million sqm by the end of 2018 and is home to 309 projects. The total volume of investments in this industrial city has touched approximately RO 372,554,229 and the number of national and foreign workforce has reached 21,881 during the same period.

The infrastructure project of Samail Industrial City, which is valued at RO 40 million, has been completed, Al Hasani noted. The road works have been implemented on a length of 46.290 km in two phases. The implemented infrastructure services include those related to rainwater, drainage, water, electricity, and telephone networks, a sewage plant with a capacity of 3600 m3 for phase one, and two water tanks each with a capacity of 2500 m3. It should be noted that the foundation stone for the administration and facility building in Samail Industrial City was recently laid. The cost of developing this project is estimated at around RO 4.5 million on a total building area of 16,000 sqm. The project will consist of 8 floors (ground + 7 floors) with a rental area touching 12,280 sqm, which will offer various services for the workforce in Samail Industrial City and neighbouring areas. It should be noted that the official inauguration of Samail Industrial City will take place in the coming period of 2019. Furthermore, the volume of investments in Samail Industrial City has touched RO 155,646,735 and the localised projects has reached 166 (existing, under construction, and those allotted with

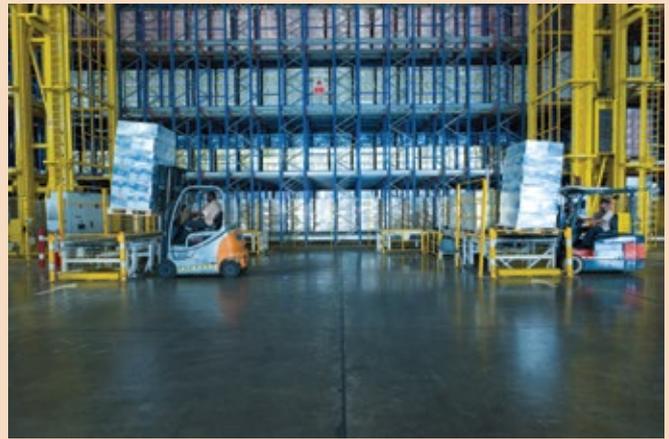


space) by the end of 2018. Moreover, the number of workforce in the industrial city has rose to 1327. The total area of the industrial city has reached 7,674,457 sqm.

As for Raysut Industrial City, Al Hasani commented that the expansion project (Raysut 2) has officially began. This project includes construction of roads, sidewalks, pedestrian paths, water networks, sewage networks and station in addition to fire extinguishing systems, street lighting, irrigation and landscaping works. By the end of 2018, the total volume of investments in Raysut has touched RO 422,368,159, and the number of projects has amounted to 202 projects (existing, under construction, and those allotted with space). The number of workforce has reached around 3358, and the total area has touched 3,810,479 sqm.

Al Hasani stated that the total cost of infrastructure development project in Sur Industrial City is RO 10 million. The project, which covers 2.4 million sqm, comprises design and construction of industrial, commercial, residential and educational infrastructure facilities, in addition to executing studies on environmental impacts and security requirements of the industrial city. "We are receiving many requests from investors and business owners who are willing to localise their projects to find a commercial port that meets their needs, especially that Sur Industrial City is strategically located on the Indian Ocean, and the nearest port to this city is Sohar Port which is more than 450 km away," he said. By the end of 2018, the total volume of investments in Sur Industrial City has touched RO 2,031,805,543. The number of projects has amounted to 134 projects (existing, under construction, and those allotted with space). Besides, the number of workforce has reached around 4074, and the total area has touched 36,100,000 sqm.

The Facility Building in Suhar Industrial City has been completed. Designed in a modern style, the building consists of 2321 sqm of space dedicated to restaurants and shopping points, and 5,900 sqm of office leasable space. The building will be officially inaugurated in the coming months of this year. By the end of 2018, the investments in Suhar Industrial City were valued at RO 2,140,716,569. The number of projects has amounted to 354 projects (existing, under construction, and those allotted with space), and the number of workforce has reached 17,860. It should be noted that the total area of Suhar Industrial City has touched 21,237,225 sqm and it has recently received an additional expansion of 8 million sqm.



The CEO of Madayn explained that there are currently several projects carried out by Madayn in Nizwa Industrial City. These include the supplementary works for phases 2 and 3, sewage plant, and consulting services for assessment and maintenance of the gas network. By the end of 2018, the volume of investments in Nizwa Industrial City has rose to RO 479,945,066, and the total area has touched 3,111,295 sqm. The number of projects has amounted to 141 projects (existing, under construction, and those allotted with space), and the number of workforce has reached 5450.

As for Al Buraimi Industrial City, the Board of Directors of Madayn has agreed to grant this industrial city additional investment incentives and advantages in order to encourage investors and business owners to develop their projects and benefit from the industrial city's features such as its strategic location close to several airports and international ports inside and outside the Sultanate. These additional incentives and advantages include the reduction of the annual rent of industrial, commercial, service and residential activities in addition to the fees of practicing these activities. These incentives and advantages aim at meeting the challenges that face investors and business owners at the current and future stages. Al Hasani pointed out that the volume of investments in Al Buraimi Industrial City has touched RO 219,614,674 and the total area has reached 5,561,156 sqm by the end of 2018. The number of projects has amounted to 461 projects (existing, under construction, and those allotted with space), and the number of workforce has reached 1860.

The tenders of buildings 6 and 7 in the Knowledge Oasis Muscat have been floated as a prelude to the commencement of the construction process, Al Hasani commented. In addition, an area has been allotted in KOM for the multi-level parking project. The land's coordinates are being determined in coordination with the investor. It is worth mentioning that by the end of 2018, the total volume of

investments in KOM has touched RO 276,501,165, and the total area of KOM has reached 778,602 sqm. The number of projects has amounted to 208 projects (existing, under construction, and those allotted with space), and the number of workforce has reached 5070.

Al Hasani emphasised that Al Mazunah Free Zone has witnessed a qualitative leap in the past period in terms of the provided services and incentives, as well as the growth seen in the indicators. “The volume of imported goods to the free zone has

touched nearly 150,000 tons by the end of the first half of 2019, noting an increase of nearly 100% compared to the same period last year. Besides, work is underway in the development of phase 2 of the free zone as the completion rate has reached 40%,” he said. He added that by the end of 2018, the total investment volume in Al Mazunah Free Zone has touched RO 106,346,453, and total area has reached 15,362,305 sqm. The number of projects rose to 236 projects (existing, under construction, and those allotted with space), and the number of workforce has reached 620.

CutPRO's Innovative Design Advancements Lead To Firm's Record Sales Of Cut Resistant Clothing

UK based CutPRO® Cut Resistant Clothing have seen record sales in recent months due to design advancements and its exceptional protection levels.

The glass industry has long been in need for cut resistant garments, designed to replace standard workwear, and simultaneously offering high-visibility reflective details to further aid safety.

CutPRO® garments are all made using Cut-Tex® PRO, a highly acclaimed cut resistant fabric made in Britain.

Both the raw fabric as well as the range of protective clothing are the result of valued input from senior safety professionals within the international glass industry.

It offers ANSI/ISEA 2016 Level A5 and EN 388:2016 Level E of blade cut resistance, as well as the highest levels of puncture and tear resistance, according to EN 388:2016.

Globally respected organisations have recently highlighted the severe risk of cut injuries within the glass industry:

“The main risks for professionals working in the glass manufacturing sector are cuts and lacerations and soft tissues puncture wounds. All of which are most commonly result of coming in contact with sharp glass, broken glass and even cutting tools.” (The International Labour Organization Encyclopaedia of Occupational Health and Safety).

“Manufacturers of glass products have a total “recordable” incidence rate of nonfatal occupational



injuries and illnesses of 13.2 cases per 100 full-time workers per year. This incidence rate is higher than corresponding rates for all manufacturing and all private industry.” (U.S. Department of Labour)

“Glass manufacturers have a total lost workday incidence rate of 6.5 cases per 100 workers per year. About 93% of the lost workday cases in the glass manufacturing sector results from injuries.” (International Labour Organization).

Robert Kaiser, CEO of CutPRO® and its parent company PPSS Group says: “The handling of flat glass involves the risk of serious personal injury. Serious accidents continue to happen especially in premises where glass is handled and processed. Appropriate protective clothing should be worn when glass is handled manually.”

He continues: “I strongly believe we can deem CutPRO® Cut Resistant Clothing as appropriate. It can effectively help reduce the risk of cut injuries, and it can be customised to reflect the customer’s unique operational risks, responsibilities, branding and design preferences.”

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ALPHACAN

INNOVATIVE PROFILES & SOLUTIONS



Exhibitor PR – Interview

Spokesperson: Eduardo Jiménez

Designation: Alphacan Export Sales Manager

Logo and product images: Please attach when returning this document.

1. What products will you be showcasing at the event?

We will showcase our range of U-PVC profile systems for windows and doors, a complete range of high-performance products driven by Italian style and design, dedicated to windows manufacturers, architects and designers, contractors, and real estate and construction companies,:

Our System MASTER is a casement window system, compact and modern, especially suitable for Gulf Region, Middle East, and Asian countries.

Sliding window systems such as IN'LINE and PFS Mini are versatile and offer multiple solutions for every kind of construction needs. The former allows the construction of in-line sliding windows and doors for wide openings, whereas the second is a compact system intended for smaller spaces.

System PERSIANA is an

external louvre shutter system, available with fixed and adjustable slats, which enables to darken and protect your home from the sunlight, and at the same time guarantees an adjustable ventilation and provides privacy.

Finally, we will also showcase our world premiere customized finishing MY DESIGN, on a window made with System IN'ALPHA70, which presents the best thermal and acoustic performance, and the latest trends about decoration. MY DESIGN is based on a new printing technology developed by ALPHACAN, and it allows customizing the interior design of your U-PVC windows, with any graphic, image and colour that you wish to show. From now, windows and doors suit perfectly

any interior decoration. The finishing that will be shown at the event –Tropical Leo Tiffany- is a graphic pattern signed by Italian design, an absolute novelty in the Middle East Region, which shows what this technology can achieve in design and decoration.

And, of course, all of our U-PVC systems are available on a wide range of lamination colours: 44 options divided in solid colours, wooden effect finishings or metallic textures. In addition, it is possible to add an external aluminium cladding which makes your windows suit any façade style and colour, with a metallic effect.

We will exhibit in partnership with the Italian windows manufacturer Tonini Serramenti, already



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present on the Emirates, which will be able to instantly give accurate counselling on finished windows. In addition, Tonini will showcase the exclusive finishing of the collection Fashion Tonini, a series of luxury windows decorated by hand with natural real leather and exclusive details.

2. And what value do these products bring to the Gulf construction industry?

We strongly believe that our products, driven by Italian design and creativity, represent new and interesting building solutions dedicated to a high-level market segment and, absolutely in line with the Saudi Arabia Saudi Vision 2030 program. More specifically, the possibilities of innovative decorations, such as customized unique designs, the use of various materials such as real wood, aluminum or leather, the total lamination of the U-PVC profiles, and many more aesthetical novelties which have been first launched or developed by Alphacan.

3. On that, can you share your outlook on the Gulf construction

industry:

a. Why is it important for you to do business in the region?

We do our job with passion and want to bring in the Gulf countries our products and solutions, in order to give the opportunity to interior designers, architects and contractors to create sublime and unique buildings, far from using ordinary and standard U-PVC systems with scarce and limited decoration possibilities.

b. What is unique about the Gulf industry compared to other regions?

We believe that Gulf industry reached a very high level of competency, magnificence, construction and architectural design and technique, as it can be seen on plenty of buildings recognized all over the world. We also value very positively the capacity of adopting new technologies and innovations from all around the world, in order to create the most developed urban environments on Earth, and in such short period of time.

4. Is there something you are

really looking forward to in the pipeline?

We aim to come across with local partners interested in our products and innovations, partners who share our vision on customized architecture and decoration, and who are driven by innovation and design.

5. Finally, how will it benefit customers to see you at the event?

We believe that all visitors will appreciate our Made in Italy creativity, finding in our booth something different, something unique, or even an inspiration for their projects, their homes, a new concept for the windows and the interior designs. We want to transmit our passion in what we do, and look forward to welcoming all visitors.

*For returning exhibitors

-What was the best part about your time at the event last year?

-Why did you choose to participate again for the event this year?

-What do you most look forward to at the event this year?



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Coated Glass...

When Performance Meets Design Aesthetics

Glass is an artistic building material that can be used to great effect for commercial and residential use, in windows, roofs, glazed façades and more. Glass façades create an architectural character that exists inside and outside of the building.

In the evolving world of glass, coated glass occupies a remarkable position. Besides the basic functionality of sun control, it contributes to architectural aesthetics and even energy conservation. Coated glass helps a building achieve a high standard of visual appeal besides reflecting a greater amount of heat than normal tinted float glass, making it less prone to thermal breakage.

Coated glass is basically ordinary float glass with a metallic coating that cuts off solar heat. This special metallic coating also provides a one-way mirror effect, preventing visibility from the outside and thus preserving privacy. Coated glass is used primarily for structural façade glazing.

Sphinx Glass produces Pyrolytic coated glass with superior quality, thanks for using the advanced manufacturing technology, backed up by PPG (Vitro) Industries as the primary know-how and technology provider, strict quality assurance and world class raw materials. The coating is fused to the glass at 610oC. And this is the secret of this product's durability; it can be easily handled like a standard square of glass. It can also be easily cut, heat strengthened or toughened. Reflective Coated glass is just clear or tinted glass that has a very thin layer of metal or metallic oxide on the surface. The reflective coating is applied during the float process. And since it is processed online, it works out to be cost-effective as well.

Coated glass, is mainly used to reduce glare by restricting or decreasing light transmission as well as for decorative glazing applications. It adds a sleek and elegant outdoor look, brightens indoor spaces and creates a striking statement of light and color. Coated glass also adds a level of privacy and prevents fading of furnishings, fabrics, carpeting and artwork by cutting down UV radiation. The thicker the glass is, the less light will pass through the window. The reflective coating reduces heat gain and glare from the outside while allowing visible light to enter. Sphinx Glass produces two reflective coatings; one with a silver tone Vistalite and the other in a gold tone Solarlite. And as coated glass can be clear or tinted glass; Vistalite comes in 2 different tints and Solarlite comes in 4 tints other than the clear.

All of Sphinx reflective coated range is subtly (and aesthetically) transparent, strikingly reflective and versatile (easily processed). It lets the light in with solar energy control and can be bent or cut into almost any shape. So, when it comes to design and architecture, the possibilities are endless as well as remarkable.

VISTALITE GLASS

Quietly neutral, with a hint of sheen

Vistalite subtly reflective color-enriched glass transmits generous levels of visible light and provides color neutrality, which amplifies and enriches the tint of the glass substrate underneath without a mirror-like appearance. More understated than traditional reflective glass, Vistalite glass is available in two distinct tints—Skyblue and Euro grey.



SOLARLITE GLASS

Stunning brilliance

The Solarlite family of coated glass was introduced in 2010 to the Egyptian Market to enhance the appearance of thousands of buildings and to the comfort of millions of inhabitants.

Solarlite glass can be glazed with the reflective coating positioned on either the first or second surface. The glass has improved performance and higher exterior visible-reflectivity with a metallic sheen when installed with the coating on the first surface. Combined in a 1-inch insulating glass unit with clear glass, Solarlite glass offers an expansive palette of appearance and performance options with solar heat gain coefficients (SHGCs) ranging from 0.34 to 0.14 and exterior reflectance of up to 37 percent.

When installed with the coating on the second surface, the glass has lower exterior visible reflectivity and maintains the substrate glass color. Combine Solarlite glass with Sphinx Glass on clear and tinted glasses, such as Euro grey, Euro bronze, Skyblue, Clear or Green, to produce an even greater range of aesthetic options.



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Technology license



China Glass 2019 Came to a Successful End

On May 25, the 30th China International Glass Industrial Technical Exhibition (China Glass 2019), organized by the Chinese Ceramic Society and contracted by Beijing Zhonggui Exhibition Co., Ltd., was brought to a successful conclusion. China Glass 2019 attracted 34329 visitors from 66 countries during the four days event, including 30279 domestic visitors and 4050 foreign visitors. During the exhibition, there are 9 visitor groups of over 1000 buyers to attend the event, who came from foreign industry organizations in multiple countries, such as Japan, South Korea, India and Vietnam, as well as various domestic glass industry organizations.

As the largest exhibition of the global glass industry in 2019, the exhibition area of China Glass 2019 reached 106,800 square meters, 33% higher than the previous one. 905 manufacturers from 28 countries and regions participated in this exhibition, including 665 domestic manufacturers and 240 foreign manufacturers. Foreign industry organizations including the Mechanical Engineering Industry Association (VDMA), Italian Glass Processing Machinery and Accessory Supplier's Association (GIMAV) and Dame Associates, Inc. organized their member companies to participate in China Glass 2019 in the form of nation pavilion from Germany, Italy and the USA.

Many distinguished guests at home and abroad were present at the event, including Mr. Qiao Longde, President of China Building Materials Federation, Mrs. Gao Ruiping, President of the Chinese Ceramic Society, Mr. Zhang Renwei, Former President of the Chinese Ceramic Society, Mr. Xu Yongmo, Chief Supervisor of the Chinese Ceramic Society, Mrs. Yao Yan, Deputy Chief Supervisor of the Chinese Ceramic Society, Mr. Chen Guoqing and Mr. Zhang Dongzhuang, Vice President of China Building Materials Federation,

Mr. Peng Shou, Mr. Jin Zhanping, Mr. Liu Jianhua and Mrs. Yan Bilan, Vice President of the Chinese Ceramic Society, Mr. Tan Fu, Secretary-General of Chinese Ceramic Society, Mr. Liu Jie, Executive Vice Secretary-General of the Chinese Ceramic Society, Mr. Chen Kexin, Vice Secretary-General of the Chinese Ceramic Society, Mr. Zhang Baiheng, Vice President of China Architectural and Industrial Glass Association, Mr. Meng Lingyan, President of China National Association for Glass Industry, Heads of Germany Federal Ministry for Economic Affairs and Energy, VDMA, Embassy of Italy, Italian Trade Commission, GIMAV and representative of manufacturers.

The event has 6 theme exhibition areas including international area, flat glass and glass products, integrated manufacturer, processing equipment, Raw and auxiliary materials and refractory materials, accessories and glass hardware. Many exhibitors display their innovative glass products, processing equipment and cutting-edge intelligent manufacturing technology. The exhibits related to intelligent manufacturing, green manufacturing and other new technologies, new products and equipment in the field of building energy conservation has become a hot spot for many visitors. Many manufacturers and research institutions released their latest products during the event. China Building Materials Academy displayed the core material of bio-optical identification chip used in fingerprint identification of smartphone. Triumph Group's exhibits such as the industrial robot, cadmium telluride power glass and ultra-thin electronic glass have attracted focus of many visitor at home and broad. The 8 meters of super arc-length curved tempered glass brought by North Glass has become the focus of attention in its first appearance on the stage of China Glass 2019. Land machine exhibition of automatic vacuum glass production line attracted many professional visitors to consult negotiations.



CHINA GLASS 2020

31st China International Glass Industrial Technical Exhibition

Shanghai New International Expo Centre

April 14-17, 2020

Organizer: The Chinese Ceramic Society

Supporter: Shanghai Ceramic Society

Contractor: Beijing Zhonggui Exhibition Co., Ltd.

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<http://www.chinaglass-expo.com>



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Mainstream Manufacturers of global glass industry were present in the event, including China Building Materials Academy, Triumph Group, China Glass Holdings, CSG Holding, China Yaohua, Jinjing Group, Shanghai SYP Glass, Kibing Group, Luoyang Float Glass Group, Hebei Yingxin, Ruitai Materials Technology, TAIWANGLASS, Xinyi Glass, SHANXI LIHU, Shahe Glass Group, North Glass, Mountain Glass, Land Glass, LiSEC, Glaston, Bystronic Glass, AGC, Von•Ardenne, Vesuvius, SEPR, Dip-tech, Benteler, Henry F. Teichmann, Buhler Leybold, Grenzebach Machinery, Five Stein, Pricision, Hegla, Bottero, Fenzi, Intermac.

China Glass 2019 is not only a platform for glass industry trade talks but also a platform for cross-boundary technology exchange and industry integration between construction and glass industry. The 2019 Forum on New Glass Technology and Application in Architecture was held during the event. Five speakers from Triumph Technology, China Academy of Building Research, Kommerling, Bystronic and PGT Innovations of the United States have delivered wonderful speeches. Topics include: application and development of glass in strategic emerging industries, efficient sealing system of insulating glass, technical requirements for energy-saving glass in near-zero-energy buildings, etc. More than 300 experts from architecture and glass industry enterprises and academic research institutions conducted in-depth exchanges and discussions on innovative practices in the field of ultra-low-energy buildings and glass deep processing.

16 seminars and product promotion meeting were held during the exhibition. The topics covered intelligent manufacturing in glass industry, environmental protection technology in glass production, energy-saving of furnace, application technology of coating, various innovative technologies and applications in glass processing, new products and technologies in glass printing, etc. According to the statistics of the on-site staff, the seminars attracted nearly 1,000 visitors to be present and the number of technical seminars and

audience reached a new high.

The organizer jointly organized the popular science show of glass art with Zhongjingnancheng Culture Development Co., Ltd. at the event. A delegation of advanced Materials Societies Consortium of China Association for Science and Technology visited the exhibition. The staff at the exhibition area explained and popularized the knowledge of dewaxing casting process of glass artworks to the members of the visiting group and visitors. Dozens of exquisite glass works of art explained the combination of humanity art with glass science and technology and attracted a large number of visitors to watch.

Since its establishment in 1986, China Glass exhibition has become one of the two major professional exhibitions in the global glass industry. With the trust and support of numerous domestic and foreign glass manufacturers, the China Glass exhibition has won its present status and international influence in global glass industry. To thank for the long-standing support of exhibitor from home and abroad, the organizer held an award ceremony of "Stand Together for 30 Years Join Hands to the Future" on May 22. 67 exhibitors received contribution award, including 35 received the "20 years contribution award", 18 received the "25 years contribution award" and 14 received the "30 years contribution award". VDMA and Gimav was also received their "Best Cooperation Award". China Glass 2019 has come to a successful conclusion. As the most influential professional exhibition in the global glass industry, the China Glass exhibition is always committed to providing business talk platform for global glass industry so as to enable the industry innovation and to contribute to the high-quality development of China's glass industry transformation and upgrading. China Glass 2020 will take stage at Shanghai New International Expo Centre on April 14-17, 2020, its booth sales work will start in the upcoming July. We long for our next gathering in Shanghai.

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Three times the expertise: The HEGLA Group focuses on performance in its exhibition at Vitrum

Under the trade fair slogan “Three times the expertise”, the HEGLA Group presentation at Vitrum 2019 in Milan will focus on solutions for the increasingly complex requirements for machine performance, digitalisation, and laser-supported product tracking and finishing. This focal area also represents the Group’s aims of continuous further development and growth. Alongside HEGLA Maschinenbau, the Group has now been home to HEGLA-HANIC, the software company, and the laser application specialist HEGLA boraident for almost one year. “Vitrum 2019 marks our first time exhibiting as a group, and each of our companies can benefit from the additional expertise of the others’ specialisms,” said HEGLA Managing Director Bernhard Hötger. “We also have some innovations and advanced developments to show and are looking forward to the trade fair with confidence.”

Among the exhibits in hall 5P, the RapidLam Shape model cutting system has excellent prospects of being the focus of visitor attention. In its basic version, the system can score models and free forms from LSG precisely, making them available for reproduction at any time – but the new version can do even more: equipped with a special laser

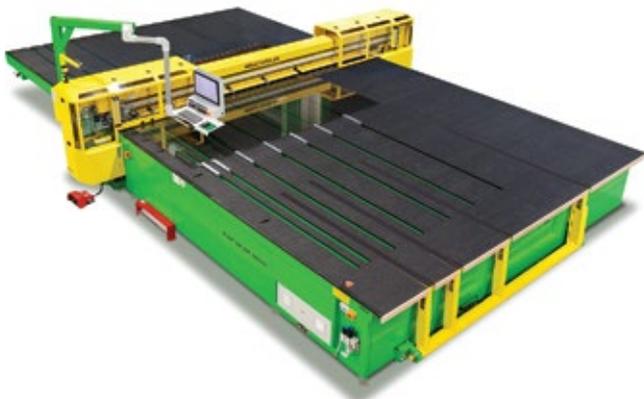
system, it shows just how far laser LSG film separation technology has come. The film is separated with precision, which makes it much easier for operators to break out the cut.

Trade fair visitors who would like to accelerate their LSG cutting should also take a look at the RapidLam Shape. As the current set of development tests shows, the system’s new heating technology significantly speeds up straight cuts. The machine can now heat up the film in a fraction of the previous time, and its performance is concentrated on the cutting contour to guarantee far higher edge quality than the results obtained using the conventional process.

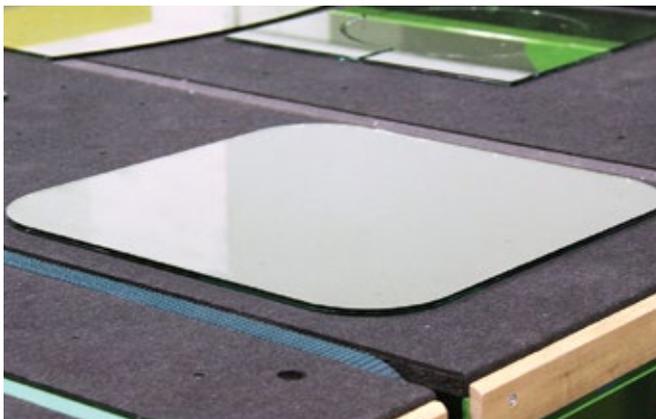
“Innovative laser technologies are an important key to increasing productivity and product quality. They also create product added value,” said HEGLA Managing Director Dr Heinrich Ostendarp.

Digitalisation and the smart factory are naturally the hot topics at HEGLA-HANIC in Bochum. Managing Director Dr Jan Schäpers primarily advises customers to implement such changes gradually and with thorough planning. “The processes, machines and interdependencies must first be analysed and digitally mapped in order to set the point of departure at the place where maximum benefits arise at the lowest cost.” The implementation of a cockpit would be a likely first step. The data from the various systems would be acquired, compiled, and displayed according to customer requirements in the cockpit, enabling the company to gain more profound insights, which it can then use to adjust work and machine processes and identify further areas with potential.

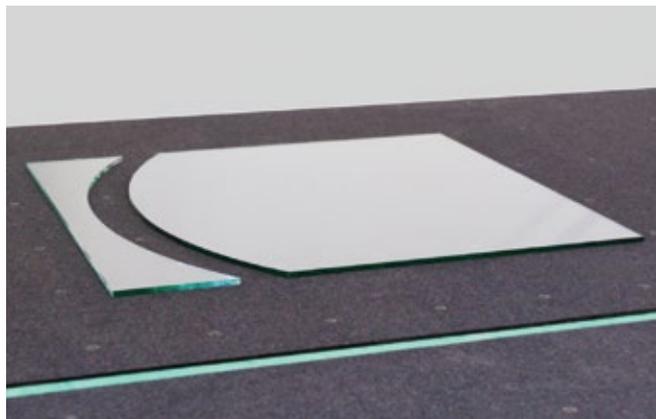
With a smaller-scale, fully functional exhibition model of the Laserbird, HEGLA boraident will be promoting glass finishing with laser technology.



Potential headline-grabber: The RapidLam Shape with a laser for LSG film separation, plus new heating technology for shorter cycle times when separating straight cuts.



In its basic version, RapidLam Shape scores free forms and models from LSG precisely and according to cutting plan specifications, making them available for reproduction at any time.



In its basic version, RapidLam Shape automatically scores free forms and models from LSG precisely and according to cutting plan specifications, making them available for reproduction at any time.

This system has many applications, such as functionalising the coating of a pane with invisible patterns as an effective means of preventing bird strikes. Among the other control apps, customers will also find an app for finishing panes to create RF-transparent glass. Demand for this feature is on the rise, especially in public buildings, hotels, and conference spaces. The Laserbird also offers a range of other functions, including removing the coating from the edges of glass pieces without scratching or damaging the surface. The demand for laser-assisted decoating continues to rise, especially in structural glazing applications- At Vitrum, HEGLA boraident will also be premiering a stand-alone laser system that has been developed exclusively for edge decoating to high aesthetic standards.

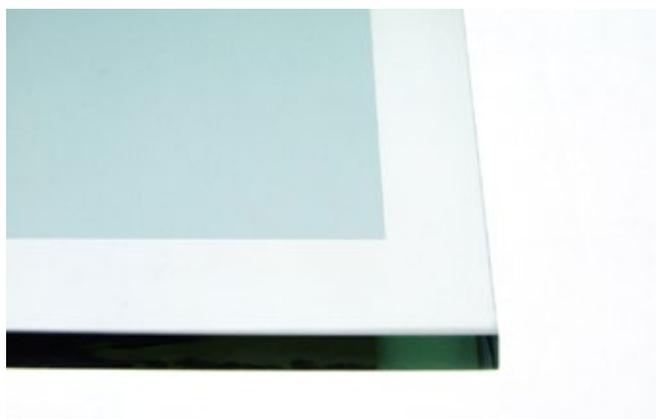
Laser marking is another key business area that

HEGLA boraident plans to showcase at the trade fair. Once applied to the glass, the mark is bonded with the pane for the entire product life cycle. Including a QR code in the mark allows the pane to be identified at all times – uniquely and reliably. When supplemented with a HANIC app or appropriate MES, the mark allows you to reliably trace the product’s manufacturing properties – and even produce a repeat order at the press of a button.

“We are looking forward to Vitrum and meeting with many customers, friends, interested parties, and old acquaintances,” said HEGLA Managing Directors Bernhard Hötger and Dr Heinrich Ostendarp. “The glass industry meets up in Milan every other year to discuss the latest trends. Alongside many professional encounters, there is also room for personal conversations.”



The Laserbird features modern, user-friendly and operator-friendly app control for flexibly finishing glass pieces to create bird protection glass or RF-transparent panes.



At Vitrum, HEGLA boraident will be showcasing a laser-supported solution for edge decoating to suit high aesthetic standards.

Glaston & Bystronic glass at VITRUM 2019: Showcasing solutions for better uptime, product quality and customer service



Digitalization is now more than just a passing trend. Glass processors who have connected to the power behind the data are showing concrete results. These are the pathfinders who want to get more information – easily and automatically – from their equipment and machinery. They've discovered this data holds the key to unlocking more effective ways to reach higher uptime, produce better product quality – and even serve customers better than ever before.

At VITRUM 2019, Glaston and Bystronic glass will be showing you more about the possibilities of these latest technologies. What easy steps can you take to tap into data from your equipment? Why does this translate into more uptime? How is it possible to produce better quality products? This data also enables you to stay on top of excellent customer service.

Putting digitalization into practice

The new version of Glaston FC Series incorporates high levels of automation and intelligent process control. Insight Assistant Pro gives the intelligent online process assistance, while Insight Reporting Pro allows to track all trends online and improve overall performance for long-term strategic planning. Another new feature is active edge

control technology, enabled by intelligent cooling profiling that automatically adapts to your glass size, eliminating issues with edge lift.

Glaston Jumbo Series offers the best heating control available for high-quality results. It also gives the extra capability to process Low-E glass in mixed sizes. The main highlight of the machine is its Fusion option, providing the capacity of a double-chamber furnace to match growing architectural glass demands.

Glaston ProL lamination line now comes equipped with the latest PVB cutting technology and a convection heating chamber offering glass processors extremely high flexibility. It is suitable for all types of glass, even printed and Low-E, and

A screenshot of the Glaston SIRU mobile application interface. The app is titled "glaston SIRU" and has the subtitle "Perform tempered glass fragmentation test automatically". The interface is divided into three main sections: a camera view on the left, a test results screen in the center, and a history log on the right. The camera view shows a grid overlay on a glass surface with a yellow box indicating the test area. The test results screen shows a large green "180" with "Cutter count" below it, and a range of "40-180" with "Optimal range" below it. The history log shows a list of test results with columns for "Cutter count" and "Coffered count". At the bottom of the app, there are two buttons: "Download on the App Store" and "GET IT ON Google Play".



can also laminate all glass sizes. Glaston Insight Reporting is now available for ProL to monitor furnace production data, energy consumption and maintenance needs online.

Satisfying the toughest warm edge demands

The advanced architectural glass TPS® (Thermo Plastic Spacer) technology of Bystronic glass provides processors with end products to satisfy the toughest warm edge demands. Insulating glass units made with TPS® improve energy efficiency in buildings, increase durability and reduce energy costs.

The entire production mix can be manufactured on one line on the various Bystronic glass TPS® insulating glass production lines. The insulating glass manufacturer can choose from the following system solutions for this purpose:

B'VARIO TPS® – the individually configurable IG

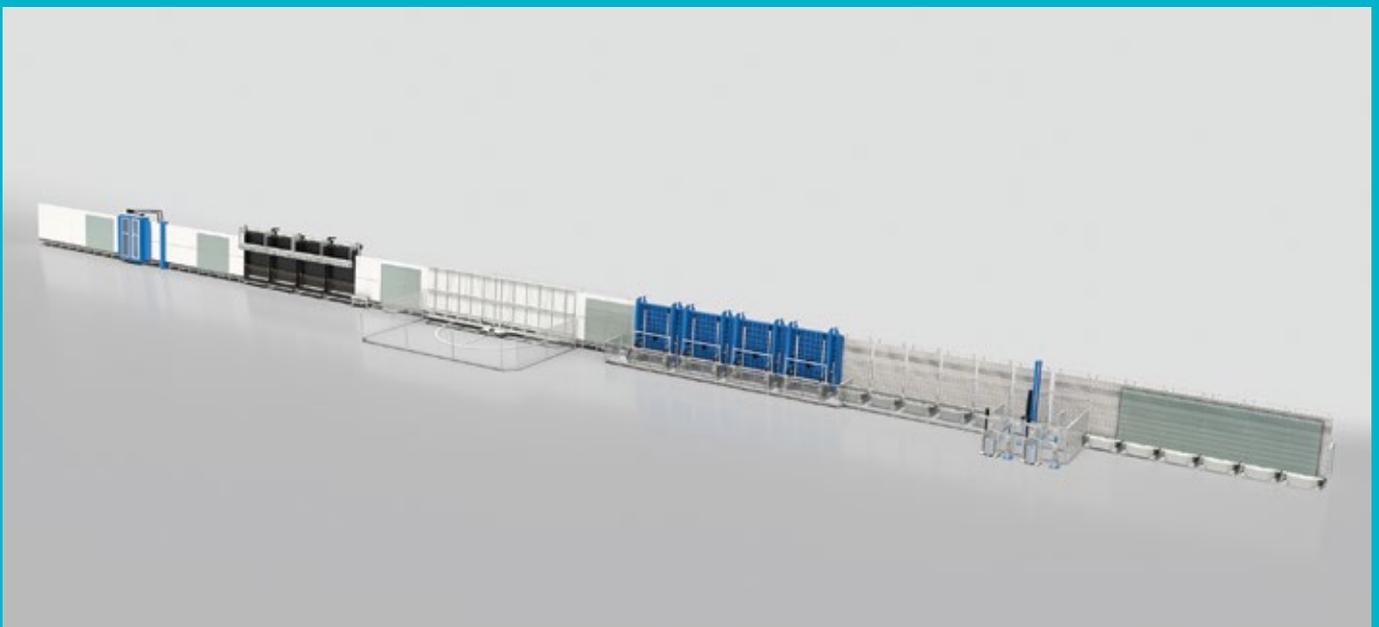
manufacturing line B'SPEED TPS® – the fast system solution with shortest cycle times
B'JUMBO TPS® – the IG line for glass sizes up to 9 m in length

Digital solutions for real life

With extensive investments and R&D, Glaston is heading towards automated processes and real-time customer support. At VITRUM 2019, we will be showing you how we're using artificial intelligence and augmented reality in glass processing and services.

See the power of Glaston Siru

Glaston's latest mobile application, Glaston Siru, allows anyone to perform the tempered glass fragmentation test quickly and easily with a mobile phone. No longer do you need to spend time counting cullets manually or risk making mistakes. Come see Glaston Siru in action – or download it now from the app stores.





with a built-in highly efficient filtration system, and allow to program up to 50 blasting areas on the glass plate, even of different type (normal, light, engraved and shading), as well as to create and keep in the memory up to 200 customized working programmes. The shading blasting feature is widely used in modern architecture works such as shower boxes, glass balustrades, partition walls etc. Preventive maintenance messages appear on the screen when it's necessary to check the status of an item and possibly replace it. The company also has an entry level automatic sandblaster on its product range, the ZEPHIR series, that allows to carry out normal, light and engraved sandblasting. The low price of the equipment, combined with the same reliability and quality level provided by the MISTRAL EV series, makes it the ideal solution for all those glassworks that basically need to sandblast the whole surface of the glass, for example to recover defect glass. But the Zephirs can also be used for decorative patterns. Both series are equipped with a revolutionary system to prevent the accumulation of static electricity within the cabin, a very common problem while blasting mirrors. This feature allows to remarkably reduce the rate of scrap pieces.

The Italian company FRATELLIPEZZA srl,

leader in the production of sandblasting systems for flat glass, with the well know automatic cabins of the MISTRAL EV and ZEPHIR series, will be present with a stand at the upcoming Vitrum exhibition, that will take place in Milan, Italy, from the 1st to the 4th of October. The company has recently invested considerable energy and resources in the development of a new line of glass marking equipment. These efforts resulted in the new series of fully automatic marking device called EASYMARKER, available in the two models Easymarker EV and Easymarker UP. The EASYMARKER EV it's suitable to be used in line with vertical machines (like washing machines, double glazing lines etc.), while on the contrary the EASYMARKER UP is to be used with horizontal machines (tempering lines, cutting tables etc.). The settings are extremely quick and intuitive and the marking operation can be activated via the touch screen, button or pedal. But the great novelty is the fact that the Easymarkers can be connected to other glass working machinery and receive an impulse to activate the marking operation in a totally automatic way, without the need of

having an operator constantly on site. With the EASYMARKER EV it's also possible to mark the edge of the glass. The product range includes a portable marking unit, called Marker 101T, that provides the same finish quality notwithstanding manual operation. Sandblast-marking on glass is finding increased application in the in the bathroom furnishing sector, as it offers original design solutions for mirrors and in particular for the push-buttons of lighted mirrors. Along with the marking equipments FRATELLIPEZZA will bring to Vitrum the sandblasting cabin MISTRAL 180EV. The cabins of the MISTRAL EV series are equipped





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FIERA MILANO

VIDRARIA MORTAGUA: REACHING INNOVATION TOGETHER WITH THE CONSTRUCTOR



Forel IG lines in Vidraria Mortagua

“The important thing is having a clear goal. It isn't always necessary to know how to reach this goal already when you start: first you choose the destination, and then you plot the route. Nonetheless, ambitious plans often come with hurdles that can't always be overcome alone. And this is where you need a partner, not just a supplier, that can put the initial vision into focus and transform the idea into a project”.

These are the words of José Pires, Chief Financial Officer of Vidraria Mortagua, one of the leading glass-processing companies in the Iberian peninsula. Founded thirty or so years ago by Nuno Morais, the current CEO of the company, and José Pires, Vidraria Mortagua has grown from a small artisanal business with around a dozen employees to become a structured industrial company with an 18,000 square metre production site, a workforce of over 100 and an annual turnover in excess of 10 million euros. The company produces laminated and insulating glass for both residential and commercial applications, in pane sizes up to and even beyond the Jumbo format. While the company distributes its products directly within



José Pires, CFO of Vidraria Mortagua

Portugal only, its clients supply a market extending throughout Europe. For over 20 years, Vidraria Mortagua has used Forel machinery for the production of insulating glass, edge processing and, more recently, laminated glass cutting.

“We purchased our first Forel double glass production line in the late 1990s, and it is still in operation today”, says Pires. “About ten years later, we added a second Forel line to cater for the growing number of orders. Our company then continued to grow steadily, and so we transferred to a larger new plant and increased the size of our workforce. But when the recession came in around 2010, we experienced a drop in business like everyone else at the time. We had only two paths ahead of us: we could either close down to save us from financial loss or risk new investments. We asked ourselves what we could do to stand apart from our competitors, and the answer was a project for a third double glass production line: a line capable of processing pane sizes up to 7 x 3.21 metres, using the Super Spacer flexible spacer. In addition to our third line's ability to produce impressive formats, it is also the first anywhere in the Iberian peninsula to use flexible spacer technology. The new plant became operational two years ago, and the response from the market has already been very positive: in 2019, we saw a substantial increase in the number of orders for insulating glass with the Super Spacer”.

One of the leading players in the impressive growth of Vidraria Mortagua has been Rogerio Moreira, who joined the company in the late 1990s and is now General Manager.

“When we decided to invest in the new flexible spacer”, explains Moreira, “we knew that we were trying something totally new in our field. We weighed up a number of different options, but in the end we chose the Forel TBB applicator, which offered the best performance with the Super Spacer product. Now that the necessary setting up stage is complete, the line is operating at full capacity. Adding this new line let us achieve the degree of flexibility we were looking for, and Vidraria Mortagua can now respond easily to both standard orders and more complex requests.”

The latest purchase by Mortagua was a Forel VC02 vertical laminated glass cutting line (the model exhibited at Glasstech 2018, ed).



Forel Flexible Profile Applicator in Vidraria Mortagua

“We have just finished a major project to optimise and rationalise our production plant” continues Moreira. “After we extended our production area (increasing it to its present size of 18,000 square metres), in 2017 we created specific, distinct areas for lamination, insulating glass production and laminated glass cutting. We needed to speed up process times in the cutting department in particular, where we had only performed horizontal cuts: and this was made possible by the installation of the Forel vertical cutting line. This line's precision and reliability, and its ability to process Jumbo format panes rapidly, gave our



Rogério Moreira, General Manager (on the left) and Nuno Morais, Ceo and Founder (on the right)

production capabilities a significant boost. In addition to this, Forel also built a made-to-measure automated magazine system for us, which feeds both the vertical and the horizontal cutting lines.”

“The future is automation” concludes José Pires. “We have to continue to set increasingly higher standards for quality using ever more advanced glass processing solutions, and this will only be possible through automation. To react to a market that is already very aggressive and changeable, Mortagua has set itself the goal of being flexible, of being organised amidst the disorganised nature of the world we operate in. This is why we base our choice

of suppliers not only on the quality of the product they offer, but also on how easily we can create a working relationship with their management. Companies with our vision and aspirations cannot make do with picking systems and machines out of a catalogue, but need a supplier that develops bespoke solutions. To be up to the task, the constructor must have a streamlined organisational structure that can react rapidly to our feedback and requests both before and after sale. A working group involving both the glass processor and the constructor must be created to work towards the common goal of creating a system that operates at its full potential, always. This is why Vidraria Mortagua does not have its own R&D department. Our innovation is in the machines we use.”



The Headquarters of Vidraria Mortagua

There's an unmistakable atmosphere of continuous innovation within Mortagua. As well as a well stocked machine pool, the company has also installed a state of the art photovoltaic generation system and a process water recycling system. There are also many new projects in the pipeline.

“By the end of 2019”, reveals Rogério, “we will have completed a new extension project to increase the size of our production site. In the meanwhile, we are finalising the purchase of a new 'High Speed' double glass production line. And, of course, it will be a Forel line.”



VITRUM 2019 IS JUST AROUND THE CORNER: RECORD NUMBERS AND INNOVATIONS



Zandonella Necca

Vitrum 2019 promises to be a sold-out event, with even more encouraging numbers than for the previous edition

“The numbers are overwhelmingly positive,” observes Vitrum President Dino Zandonella Necca; “the confirmed space for this edition is 8% higher than in 2017 and there has been a 5% rise in the number of exhibitors, including 41 new companies that have never exhibited here or are returning to Vitrum after two or more years of absence. These data are a reflection of the immense effort begun at the previous edition to construct a perfectly planned trade show experience based on the needs of industry professionals”.

An updated file is available on the Vitrum website listing the exhibitors who have confirmed their participation, each one with its own Specialized information: <https://www.vitrum-milano.com/wp-content/uploads/2019/05/Confirmed-Exhibitors-List-Vitrum-2019.pdf>

The 12 Vitrum Specialized logos – quintessential innovation for Vitrum 2019 – are extremely

popular with exhibitors, who have understood and embraced the strategic importance of the themed pathways in channeling visitor interest.

Expectations are also high surrounding the hosted buyers, the most numerous contingent of international Top Buyers in the show’s history, made possible through the support of the Ministry of Economic Development and ITA [Italian Trade Agency], boosting the sales opportunities for all exhibitors at the show.

The On-line Catalog of Exhibitors at Vitrum 2019 is also now available at http://en.expopage.net/portal/tradeshow.do?TS_ID=89& where specific searches can be conducted based on company name and keywords. The “Save in My Notebook” function that appears in all the exhibitor profiles makes it possible for visitors to save company names of interest for easier consultation and more efficient organization of their time at the show.

Industry professionals can request their free Vitrum admission pass on the following website: <http://ticketonline.fieramilano.it/vitrum/2019/operatori/index.jsp?lang=en&esp=VitrumSito>

“Among the many noteworthy innovations for the 2019 edition are the Start-Up Area, dedicated to technological and production innovations for the entire glass supply chain; and the Agents and Dealers Area, a space set aside for Agents, Representatives and International Manufacturers,” explains Vitrum Director Laura Biason. “The MatchMaking platform is active again this year, another means of facilitating and enhancing the opportunities for industry professionals to do business, make contacts and schedule meetings based on their categories of interest”, concludes Biason.

A series of in-depth Seminars and Workshops on key topics of general and specific interest to the world of glass further enhances the show, along with a pervasive cultural exhibit that will delight exhibitors and visitors alike with glass works by internationally famed artists.

Also on the calendar is the “What’s hot in glass processing” event, set to take place October 2nd at 2:30 pm in the brand-new Meeting Area in Pavilion 7 where companies will present their latest innovations and technologies to the Vitrum audience. Especially popular in 2017 and, given the list of 2019 participants, the event already promises to be a must-see showcase of innovations and growth opportunities.

This year Vitrum is also offering an Exhibitor Evening – an exclusive night of entertainment – and an opportunity to network and connect in a more casual setting designed for business and pleasure <https://www.vitrum-milano.com/en/news/new-calendar-open-in-front-of-you/>



Laura Biason

Bystronic glass at Glassbuild America 2019 in Atlanta



TPS® (Thermo Plastic Spacer) will once again be the focus of the Bystronic glass presentation at this year's Glassbuild America from 17 to 19 September 2019 in Atlanta. Bystronic glass is the inventor of this «warm edge» technology and launched this system in 1994. This is the Original with more than 100 installed TPS® I.G. manufacturing lines worldwide.

TPS® has also been the most successful insulating glass system in the USA in recent years and conquered the American residential insulating glass market. Bystronic glass once again reinforces its image as a market leader of future-oriented technologies for the efficient processing of architectural and automotive glass.

Especially in the residential insulating glass market, the



challenges for the glass producers are very high because they cannot process the manufactured insulating glass units so quickly due to the long curing process. The combination of Thermo Plastic Spacer TPS® and hotmelt sealing material offers the I.G. manufacturer a much faster curing process and thus much faster handling of the I.G. units after sealing. This leads to a simplified logistics of the finished I.G. units and a remarkable reduction of requested storage space.

A major advantage of TPS® is its production flexibility: the direct application of the thermo plastic spacer onto the glass lite significantly simplifies the processes for I.G. manufacturers.



The spacer width between the lites can be varied fully-automatically for each I.G. unit during the production process. The respectively required spacer – whether rectangular or shaped format – is always available and is applied as a bead out of a drum. The storage of different spacer profiles and connectors is no longer necessary. Separate production processes are no longer needed for sawing, bending, connecting, desiccant filling and butyl-coating.

Thus, the entire production mix can be manufactured on one line on the various Bystronic glass TPS® insulating glass production lines. The insulating glass manufacturer can choose from the following system solutions for this purpose:

- B'VARIO TPS® – the individually configurable I.G. manufacturing line
 - B'SPEED TPS® – the fast system solution with shortest cycle times
 - B'JUMBO TPS® – the I.G. line for max. glass sizes up to 9 m length
- The patented, gas-tight bevel joint of TPS® I.G. units has been proven a million times over and does not require any thermal-mechanical reworking. Irrespective of radii, small or large spaces between the lites, this seal always works and is the distinguishing feature of the TPS® edge seal.



Preferred Partner cooperation with HEGLA

Once again, Bystronic glass will emphasise its preferred partner cooperation with HEGLA at Glassbuild America 2019. HEGLA will present the Galactic, a shape cutting machine for float glass and a suitable sorting system.

Heinz Glas Dzialdowo starts operation of new regenerative end-fired furnace



The company Heinz Glas Dzialdowo sp. z o.o manufactures high-quality cosmetic bottles. Through extensive investments in all areas, the plant was repositioned to meet future requirements. The old recuperative melting plant with a melting capacity of 70 tpd – energetically, environmentally and in terms of efficiency no longer meeting the necessary standard – was replaced by a state-of-the-art SORG® end-fired furnace with a melting capacity of 150 tpd (with use of electricity expandable up to 180 tpd).

The SORG® end-fired furnace with STW working end is connected to six STF production lines, two of which equipped as SORG® coloring forehearth. The equipment for melting end and forehearth with SCADA system, including integrated cooling systems, was designed by SORG and corresponds to the latest technical standards. Regarding safety technology, the highest level according to DIN/EN

746-2 was implemented with redundant SORG® gas supply and safety control for melting end and forehearth. The new SORG® burner holders WSH, modular stirrers as well as the SORG CONTI-DRAIN® are also used.

The conversion of the furnace technology from a recuperative melting plant to a regenerative one meant a technology change. The completely different furnace concept required extensive construction measures as well as an intervention in the existing structure and was challenging for everyone involved. Thanks to the joint efforts of the employees of Heinz Glas Dzialdowo and the company SORG, the project was completed very successfully and on time. With the start of production, the glass quality met the high demands of Heinz Glas and the total energy consumption is lower than specified.

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MARCANTONELLI (ARTIGIANVETRO): “THE SORTING SYSTEM REVOLUTIONISED OUR WORK”



Artigianvetro is a company based in San Severino Marche (Italy), founded by Graziano Marcantonelli in 1985. Two 20-year-old glaziers, a van, 120 square meters but much enthusiasm and passion: these are the ingredients with which the company was established, today a well-known reality in the Italian glass sector, thanks to a quality production that includes structural, residential, commercial and interior glass panes. Artigianvetro has had several site changes since the first site, up to the current production plant. The latter is a real gem: a surface area of 4,000 square meters, completely independent from an energy point of view thanks to

a system of last generation photovoltaic panels. Today, Artigianvetro employs approximately twenty people, coordinated by the Marcantonelli family: in fact, the founder Graziano and his brother Daniele were joined over time by his wife Patrizia, and their sons Nicola and Noemi.

"Artigianvetro has grown one step at a time, with passion and dedication" says Graziano Marcantonelli. "The collaboration with Forel began in 1997, when we purchased the first flat plate coupling press. The quality demonstrated by the product, combined with the trust that was established with the supplier, took us a little at a time to choose Forel also for the following investments. Today we use an edging line and an arissing one, which feed our IG unit production line (all Forel): the last one allows the assembly of units with both rigid and flexible spacers, depending on the orders. However, we wanted to take a step forward through integrated logistics, a fundamental component for any modern glassworks. So, a year ago, we revolutionized our daily business with the purchase of the Forel Sorting System. After considering other options available in the market, we choose the SS for performance and efficiency: we automated the management of glass sheets, simplifying the work





of the operator and increasing productivity and safety".

Today the workflow in Artigianvetro begins with the cut and continues towards the edging line or towards the arrissing line, which runs parallel to the first one. However, up to a couple of years ago it was necessary to load the panes according to the production order, in order to then be able to assemble the insulating glass units, today this task is completely overcome. In fact, an automatic pane recognition system is installed on the line's infeed conveyor, which measures length, height, thickness and any low-emission coating. This reading allows the software to recognize the job order to which that pane belongs and assigns it a unique ID.

The pane, now "registered" with no possibility of misunderstanding, is then submitted to edging or arrissing, washed and arrives at the Sorting System. Composed of three shuttles and a series of vertical storage units, the Sorting System already knows the order of arrival of the pieces, picks them up and places them in the storage units. Then following the production program, the system will feed the insulating glass line.

Artigianvetro "second generation" Nicola Marcantonelli literally grew up in the glassworks. We ask him what the practical changes brought by this last investment were.

"The installation of the Sorting System, supported by the automatic piece recognition system, changed everything," says Nicola. "Before it was necessary to cut and sort the pieces having already in mind the order with which the insulating glass unit would have been made. In practice, there had to be a cutting/unloading-loading/processing plan from the very beginning. Today it is enough to cut the sheets and load them on one of the two lines: the system does the rest. A radical change. In addition to having increased the production speed and the



safety both for the operators and for the material, the current configuration allows a better management of the unexpected. If for some reason one of the panes of a certain order is not ready? The Sorting system allows me to postpone that order, place the other panes that are part of the order in the storage unit and proceed with another order. A management flexibility that is in no way comparable to the previous situation".

"If most of the systems we use today are Forel" concludes Graziano "is the result of a gradual process, started with one press, then with a sealing robot and continued with one investment at a time. We put our trust in Forel, we verified that their systems were operating as promised and that their Service (undoubtedly a feather in their cap) was able to take action to solve the problems that arose during operation. Today we can safely say that our trust has been well placed".



HEGLA Corp. New building: Ground-breaking ceremony for the first HEGLA production site outside Germany



Hegla: Jochen Hesselbach (LEWAG Holding AG Executive Board) giving his welcome speech at the ground-breaking ceremony for the new HEGLA Corp. site in Stockbridge.

On 1 August 2019, the ground-breaking ceremony was held for the new HEGLA production site in Stockbridge, Henry County, Georgia (USA).

In a jovial, buoyant atmosphere, the representatives of the LEWAG Holding AG Executive Board, Jochen Hesselbach, Frank Schürmann, and Andreas Wiegran, HEGLA Group CEO Bernhard Hötger, and HEGLA Corp. CEO Elmar Zeidler laid the cornerstone of the new production site while Mayor Anthony Ford, the entire HEGLA Corp. team, and other officials and people involved in the project looked on.

Strengthening HEGLA's presence in North America

Since the establishment of HEGLA in Germany in 1976, which was followed in 1995 by that of the HEGLA Corp. and a series of other sales and service branches, HEGLA has grown to become one of the world's leading providers of high-quality machines and systems for the flat glass industry. North America (USA, Canada, and Mexico) is HEGLA's biggest export market, and HEGLA Corp. recorded more than 35 million USD in sales in 2018. "HEGLA Corp. plays a huge role in our success, and they have proven their importance to the HEGLA Group as a whole. This has encouraged us to strengthen our presence in North America so that our customers here can enjoy more efficient access to our resources and the same reliability we provide throughout our

Group," declared Jochen Hesselbach, Chair of the LEWAG Holding AG Executive Board, in his welcome speech. Hesselbach went on to explain that the new US headquarters in Stockbridge would further improve the subsidiary's existing service network and customer contact, saying that the local production facility would allow HEGLA Corp. to assemble and commission machine components shipped over from Germany on site. "As the number of machines in the US market that are running every day increases, we are also seeing a boom in our service and spare parts business. Many of our customers expect HEGLA to be available 24/7, and we always strive to meet that expectation," Hesselbach explained.

SteelCo Buildings Inc. wins bid for new construction

The representatives of LEWAG Holding AG and the HEGLA Group wanted to find a location close to the current HEGLA Corp. headquarters in Forest Park. The local authorities in Stockbridge were very helpful in this search, promising to make the planning permit process as quick and easy as possible – a promise they more than delivered on. The general building commission has been awarded to SteelCo Buildings Inc., a firm known for the reliability and thoroughness it applies to its projects. Everyone is looking forward to a fruitful partnership that will enable them to complete the construction project together with SteelCo Buildings Inc.

Grand opening planned for May 2020

The building, which will have around 3,050 m² of office and warehouse space, is due to be completed by April 2020. The grand opening ceremony, which will include a live demonstration of the final assembly process for customers and interested visitors, will follow in May. "Over the course of the next 12 to 18 months, we hope to create around 30 new jobs at the site, thus bringing the HEGLA Corp. workforce up to almost 50 employees," explained Bernhard Hötger, CEO of the HEGLA Group. The aim will be to keep expanding the production site; hopefully doubling its size in a few years' time. "We would like to take this opportunity to thank everyone for their dedicated support – we wouldn't have been able to get this project off the ground so quickly without you," said Jochen Hesselbach at the conclusion of his speech.

“We look forward to watching our new HEGLA site grow.”



The atmosphere is buoyant as the ground is broken: Frank Schürmann (third from left) (LEWAG Holding AG Executive Board), Jochen Hesselbach (LEWAG Holding AG Executive Board) with his son, A. Hesselbach, Elmar Zeidler (HEGLA Corp. CEO), and Bernhard Hötger (HEGLA Group CEO).

Bernhard Hötger (HEGLA Group CEO), Frank Schürmann (LEWAG Holding AG Executive Board), and Elton Alexander (Stockbridge City Council).



(left to right) Elton Alexander (Stockbridge City Council), Elmar Zeidler (HEGLA Corp. CEO), David Linton (Henry County Dev. Auth.), Neat Robinson (Stockbridge City Council), Reggie Sylvain (Henry County Dev. Auth.) (Leah Brown (Henry County Dev. Auth.), Pierre Clement (Henry County Dev. Auth. Chairman), Anthony Ford (Mayor of Stockbridge), Nico Swart (Rödl & Partner).



Everyone looks forward to watching the new HEGLA Corp. site grow. Jochen Hesselbach (second from left) (LEWAG Holding AG Executive Board) with son,



Animation of the future HEGLA Corp. production site in Stockbridge, Henry County, Georgia (USA). Animation: SteelCo Building Inc.

GLASTON GROUP MAKES CHANGES TO THE EXECUTIVE MANAGEMENT GROUP

Glaston and Burghard Schneider have together agreed that Mr Schneider will leave the Group on 27 May 2019. Burghard Schneider has been responsible for the Bystronic glass business since 2014 and member of Glaston Group's Executive Management Group (EMG) as of 1 April 2019. Dietmar Walz, former Chief Sales Officer at Bystronic glass, will assume the position as President for the Bystronic glass business and member of the EMG.

“I want to thank Burghard for his contribution and for a very successful financial turnaround of Bystronic glass. We wish him success for the future. Dietmar, with his experience from the Bystronic glass management team and responsibility for sales and services globally, will be a good addition to our EMG” says President and CEO Arto Metsänen.

One of China's most successful providers of high-quality float glass turns to ISRA's FLOATSCAN Thin Superior system for quality assurance

Challenging accuracy: 100% inspection for ultra-thin glass – precise, fast, stable

Darmstadt/Herten (GER) / Huagang (CN) – Ultra-thin glass has to meet the highest quality standards due to its sophisticated application fields such as electronics and thin film photovoltaics. The Chinese glass manufacturer CTIEC chose ISRA's FLOATSCAN Thin Superior system to automate the quality control in their ultra-thin glass production. The result: maximum process quality and significantly reduced customer complaints within weeks.

Material thickness of 0.5 mm (generation size 8.5) and even below increases the quality impact of defects on ultra-thin glass tremendously. Incorporated in smartphones and tablets as well as flat-screen TVs and PC-monitors, the glass quality directly influences the performance and functionality of the screens. Furthermore, ultra-thin glass also serves as display cover glass, always being directly in the user's line of sight. In the photovoltaics industry, flawless ultra-thin glass plays a key role in the efficiency of thin film modules. To meet the demanding standards for these products, consistent 100% automatized defect detection of the glass substrate has imperative. Since a safe defect detection and a high accuracy in severity grading is crucial for efficient sorting of the quality without impacting the yield, ISRA has developed the FLOATSCAN-Thin Superior system. It combines 7 optical channels in the advanced Dynamic Moiré technology at a 30 micron resolution.

Perfect solution for process stability and accuracy

Being a satisfied ISRA customer for years, CTIEC turned to the Germany based market leader in surface inspection for the solution. "Immediate and correct assessment of the glass quality and effective support in adjusting the process for best results is what ISRA's FLOATSCAN-Thin Superior system provides for us. It perfectly matched our high requirements regarding accuracy and system stability," says Yu Jiahong, general manager at Anhui Huagang Photoelectricity Materials Technology Group Co., Ltd, a fully owned subsidiary of CTIEC. Beyond quality and process monitoring, the company uses the collected inspection data as documentation for tracking its products' quality evaluations. Information about individual products can be provided within seconds. All relevant defects like bubbles, stones, top or bottom tin, knots, and scratches are reliably detected. The system automatically classifies all findings in type, size, and position. The exact identification of defects enables continuous

process optimization, and the comprehensive defect data makes root cause analysis fast and easy.

Precise defect detection and fastest deployment

ISRA combines multi-view imaging and the new patented Dynamic Moiré technology with new switchable high-power LED to achieve unmatched sensitivity to optical distortion and defect recognition capability. Moreover, the new Dynamic Moiré technology provides additional features that enable the monitoring of the optical power across the full glass ribbon and the capability to detect critical optical lines like reams, or cords and monitoring of the Zebra angle. The transmission channel offers precise core size measurements, and ISRA's patented cross darkfield illumination detect scratches and core bubbles of minimum size, while a reflection channel measures the defect depth and recognizes top and bottom tin. The simultaneous remote monitoring of inspection results in a control room, allows CTIEC to immediately benefit from the collected information. Within two months, the FLOATSCAN-Thin Superior system was fully operational and generated first positive results such as process improvements and easier and more reliable quality monitoring. The system's real-time feedback allows for optimizing the forming process and taking immediate action when repeating defects occur. With the combined advantages of comprehensive defect detection, sustainable process optimization, and quick deployment, ISRA's FLOATSCAN-Thin Superior realizes a fast amortization and an attractive return-on-investment time. CTIEC is already planning to continue the partnership with ISRA by ordering other solutions for thin glass inspection and also systems for other applications.



ISRA's FS-Thin Superior installed in-line at CTIEC.

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www.glassglobal.com is the leading portal for the international glass industry. Over 360,000 visitors/month use the portal as expert marketing channel, browse the portal to get updated information, execute researches or successfully trade equipment or glass.

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glasssglobal Consulting

Our team of glass production and market experts prepares general and customized glass market studies and marketing concepts, conducts price and competitor analyses, SWAT analyses and evaluation of investments, and develops sales strategies and bankable business plans e.g. for greenfield glass production plants.

glasssglobal Trading

The Trading platform is an international business area for all companies active in purchase and sale, covering all technologies. The key segments are dedicated to glass production and processing equipment and float resp. container glass trade.



Facilities encouraging collaboration for LUT University in Lappeenranta



Cor-Ten used in the façade respects days gone by.

LUT University (Lappeenranta-Lahti University of Technology LUT) is a science university specialising in technology and economic research and teaching. A university of applied science and a university of technology operate out of the same building in Lappeenranta. The main building dating from the 1970s serves as the heart of the institution and was regenerated in a refurbishment project carried out in 2016-2018.

“The building underwent a complete refurbishment with only the building frame left standing and the premises were both modified and extended at the same time. Refurbishment also applied to the façade,” says architect Piia Viitanen from Tampere-based architects Aihio Arkkitehdit. Piia Viitanen headed the design planning for the building.

Ruukki supplied the Cor-Ten rainscreen panels used in the façades of the refurbished main building at LUT University.

New respecting old
The building was refurbished to bring it into line with 21st century needs, which meant doing away with the labyrinthine, strictly 3-5 storey structure. The premises inside the building now vary in height and the building has been transformed from being dominated by corridors to more sophisticated premises. Facilities, natural meeting places for people in the same way as market squares in towns have been created inside the building. The building surroundings and nature were also brought into the building by creating open vistas towards Lake Saimaa, the unrivalled gem in the local landscape.

“Refurbishment can often lead to excellent results. In healthy buildings, refurbishment is both a more economical and ecological option than demolition and newbuild,” says Piia Viitanen.

For the sake of use not form
The building was designed for its users, with students and university staff participating in joint design meetings held every other week.

Piia Viitanen says that the main idea was to create an ecologically sustainable campus, where community spirit and functions support each other and foster creativity. This is also the ultimate purpose of an educational institution. A building is not just walls, roofs, floors and other structures, but also a forum that brings intelligent and talented people together to share information and to create new ideas.

“The practical criterion was that the premises must be multipurpose. For example, the laboratory premises were designed to be used both by students from the university of applied sciences and the technical university. Another example is that when the serving lines in the refectory are closed, the dining room can be put to other uses,” explains Piia Viitanen, giving practical examples of the multiple use of the building.

The materials and solutions used for the building give it an ecological label. Wood has been used in the building, the building is low energy, there are solar panels on the roof and some of the carpets have been woven from fishing nets abandoned at sea.

Cor-Ten connects old and new
The building façade was partly renovated leaving the original brick cladding visible. Cor-Ten rainscreen panels supplied by Ruukki were used as a new façade material, which was chosen from a number of different options. The idea was to give the building a bold individual look.

“Cor-Ten is a genuine and straightforward material and goes well with the building. By using it, we respected the building’s old brick cladding. Next to the old, we introduced new material which is very modern and makes no attempt to imitate old material and looks,” says Piia Viitanen.

Piia Viitanen thinks Cor-Ten is an

excellent material in refurbishment projects. It goes well with brick and concrete alike. It's also an ecological choice since it requires no surface treatment or maintenance during the course of time.

"Cor-Ten is my favourite material, it changes, acquires a patina, is beautiful and its details can be finely realised. It increases the value of a building," enthuses Piia Viitanen.

The tone indicated by Cor-Ten continues inside the building, since a team headed by Piia Viin was commissioned to design furnishings, in which copper reflects the spirit of Cor-Ten.

Time for planning not cramming in details

The Cor-Ten panels Ruukki supplied for the main building of LUT University flexed around 35 different details. Architect Piia Viitanen says that this was only possible through very smooth

collaboration.

"I'm very pleased with the support we received from Ruukki, it made our job easier," commends Piia Viitanen adding that:

"Best of all is that the users of the building are pleased. I've heard students mention about the superb premises they've got. I'm extremely glad at such direct comments."

Incorporate on-style colours into your home with on-trend steel windows



Ever popular for their industrial nature, steel windows and doors have quickly become part of home interior styles as internal partitions, shower screens, replacements for exterior walls among others.

Although mostly recognised for their solid black frames, steel windows, doors and their fixtures are available in a whole host of colours to complement your home.

You can incorporate brass, bronze or copper steel windows or doors to tie an industrial look together enabling new frames to match industrial accessories such as copper light fittings or

brass framed glass tables. Alternatively, if you are looking to bring the look of luxury materials into the mix, you can opt for pewter.

This colour is perfect for matching steel windows or doors with the current trend for Scandinavian style. Pewter steel windows or doors work well with "cosy" items, such as light grey sofas, fluffy cushions and blankets in muted tones.

You can also choose from a variety of handles in a range of metallic shades, such as bronze, brass, copper, chrome, pewter and gun metal; bringing current industrial trends into your home.

However, if metallic tones aren't the right style to complement your home's interior style, there are 15 powder coated colours which offer a different feel. In shades of cream, ivory, green or grey, there is a colour to suit every home. Choosing cream or ivory shades is a great way to allow steel windows and doors

to blend in with a muted interior scheme, such as soft aqua or terracotta colours, while deep greens and powerful greys provide the bold striking style of traditional steel windows with added personality.

So, when it comes to choosing steel windows and doors, you don't have to stick with black. Steel Window Association members offer a multitude of colour options available to suit every home and interior scheme.

Members of the Steel Window Association offer a UK-wide service for the repair and replacement of various types of old metal windows, doors and screens, as well as being able to manufacture new fenestration which fully meets the requirements of the building regulations. Choosing an SWA member to manufacture and install your steel windows and doors ensures that you are receiving the highest standard of fabrication, installation and customer service.

AGC Glass relies on ZIPPE Technology

AGC Glass Europe produces, processes, and distributes flat glass for the building industry, the automotive industry, and various other sectors (transport, solar power, and high-tech applications).

ZIPPE Industrieanlagen GmbH received the order for the turn-key supply of a new second float line. Apart from the batch plant, the scope of supply also included the cullet return as well as the steelwork. The concrete works were customer sided responsibilities.

Furthermore, ZIPPE was granted to supply the charging technology. Here it is the float charger type EO

2525 TH with a charging capacity of 280t/day per machine.

In total, four machines are installed at the furnace which have a total charging capacity of 1.120 t/day.

The plant control system is effected by a modern automatization technology with a highly reliable architecture. A redundant SPS control system and two SCADA-server guarantee a safe plant operation.

The furnace capacity is 850t/day.

The plant has been in operation since the 23rd of April, 2019.



A transparency first for Knauf insulation and Urbanscape in Europe



Our Urbanscape Rock Mineral Wool is the first material in Europe certified by the new European version of DECLARE — a product label that demands all product ‘ingredients’ and related risks must be transparently revealed.

The label previously only used an American version of ingredient codes, known as CAS registry numbers, to disclose the full composition of a product including any ‘Red List chemicals’ that may be potentially harmful to health.

In the US, our EcoSeal+, EcoBatt and JetStream Ultra were the first Mineral Wool solutions to be labelled

by DECLARE in 2013 and in 2017 we released a transparency catalogue for all our products in North America.

Now, for Europe, following more than two years of campaigning by the Knauf Insulation Green Solutions team, European Chemical Agency codes (EC codes through REACH regulation) are recognised by the DECLARE standard for product transparency.

“We are delighted that our Urbanscape solutions can now be DECLARE labelled because as a company we have consistently campaigned for a universal system of harmonisation that ensures chemical data about material compositions can transcend international borders and be used by everyone, everywhere,” says Jean-Pierre Pigeolet, our Products and Buildings Sustainability Manager.

Jean-Pierre was presenting the breakthrough at a special seminar

organised by sustainable building consultants ARP Astrance in Paris to discuss the issue of product transparency and health in buildings.

The move is also important because DECLARE is used through Green Building Rating Systems such as Living Building Challenge, WELL and LEED to demonstrate a product’s transparency.

“Our Urbanscape Green solutions are ideal for fulfilling criteria in these schemes. They are all growing in popularity because customers are becoming increasingly interested in how materials impact sustainability and the health of the people who use them,” says Jure Šumi, Business Development Director Green Solutions.

“We are also obviously delighted to be the first manufacturer in Europe to have our products certified by the new European version of DECLARE.”

Bird-Friendly Glass Legislation



As the problem of bird-to-building collisions becomes more widely known, an increasing number of states, cities and municipalities are adopting legislation that recommends, and in some cases, requires, bird-friendly materials be used on new construction and building renovations.

With an estimated 1 billion bird deaths annually from collisions, certain building materials can make a huge difference.

To help solve the problem of bird collisions, advocacy groups, standards organizations and product manufacturers are working with states, cities and municipalities. In recent years glass manufacturers have expanded their product lines to include bird-friendly options that satisfy aesthetic, performance and bird safety objectives.

Governments and advocacy groups have responded to the new glass solutions by introducing standards and laws that leverage these products. The proposed Bird-Safe Buildings Act, currently working its way through the U.S. House of Representatives, would require that “each public building constructed, acquired, or significantly altered by the General Services Administration (GSA) incorporate bird-safe building materials and design features, to the maximum extent possible.” If this legislation were to be enacted, it would have a dramatic effect on commercial building design at-large—and, in turn, decrease the amount of bird

deaths each year.

While this federal legislation is still pending, many states and cities throughout North America have passed their own laws that consider research and recommendations from industry experts. For example, San Jose modeled its guidelines and proposed legislation off the American Bird Conservatory (ABC) Bird-Friendly Building Design Guide Book’s guidelines for bird-safe glass.

Bird-safe glass typically is characterized by visual markers applied in a pattern, often acid-etched onto the glass. Standards developed by advocacy organizations and, by extension, new local laws, provide guidelines on the types and spacing of these markers, and suggest how much and where on the building bird-friendly glass should be used. One of the most common guidelines in North American bird-friendly standards is the “2” x 4” rule.” Research shows that most birds will not attempt to fly through spaces less than 2 inches high and 4 inches wide. Glass that meets this requirement can help deter up to 90% of bird collisions. Nine of the current 17 states, cities and municipalities that have enacted legislation or follow voluntary guidelines also follow the 2” x 4” rule, with some recommending an even more stringent 2” x 2” rule.

Expectations Take Flight

Although many building projects today don’t require bird-friendly building materials, many mandatory building codes started as voluntary programs.

For example, the entire state of California adopted statewide voluntary bird-safe building guidelines in 2011, and, since then, Oakland and San Francisco have turned these guidelines into mandatory legislation. Chicago was also ahead of the curve, creating a voluntary Bird-Safe Building Design

Guide in 2008. The rest of Cook County, Ill., adopted legislation later that same year that made these bird-friendly guidelines mandatory for new construction and building renovations.

Today, several cities and states continue to propose bird-safe building guidelines, including New York City, Washington, D.C. and Michigan.

A Bird’s Eye View

Regardless of whether your project is in one of the regions requiring bird-safe glass or not, it’s important to consider bird-friendly building strategies for any project. Environmental considerations, along with aesthetics and performance, are critical factors when designing with glass for any building. Fortunately, today’s bird-safe glass options can meet most environmental expectations while also creating distinctive aesthetics and improving energy efficiency.

For example, Vitro Architectural Glass and Walker Glass have partnered to produce Aviprotek E low-e coated acid-etched glass, featuring Vitro’s full line of Solarban® solar control low-e coatings and a range of design options: full-surface low-e glass achieves a muted finish on the building’s exterior façade, while decorative acid-etched low-e glass features vertical, horizontal or organic lines or various dot patterns to suit your aesthetic.

As design options continue to expand and legislation continues to gain traction, it’s within the realm of possibility that bird-friendly glass could someday become a federal requirement for all new construction. It is not only important to understand the many bird-safe options available to be prepared if federal legislation is passed, but also to help prevent up to 90 percent of bird collision deaths now.

SER Glass, Research Frontiers and Gauzy Ltd. bring high volume armored smart glass to Brazil



Brazilian glass fabricator SER Glass, Research Frontiers and Israeli material science company Gauzy Ltd. bring high volume armored smart glass and other smart window products to Brazil.

Research Frontiers Inc. and Israel-based material science company Gauzy Ltd. joined SER Company at a ceremony today in São Paulo, Brazil to commemorate SER becoming a licensee of Research Frontiers to produce SPD-SmartGlass for the Brazilian market with SPD light-control film manufactured by Gauzy. The parties also announced today that SER has placed one of the largest known initial orders for SPD light-control film to date. All SPD film used to create LCG® (light control glass) for SER will be produced by Gauzy in Germany with monthly shipments beginning next month.

(From right) Gauzy CEO Eyal Peso, SER Company CEO Fabio Santos, Research Frontiers CEO Joe Harary, and Gauzy Vice President of Sales Dan Schechter, at SER Company to commemorate SER becoming licensed for SPD-SmartGlass automotive and architectural variable tint smart windows for Brazil.

SPD-Smart light control film, invented and patented by Research Frontiers, is a key component in SPD-SmartGlass products. This film,

using specially engineered nanoparticles, allows users to instantly, precisely and uniformly control the shading of glass or plastic products, either manually or automatically. Products using Research Frontiers' smart glass technology are being used in tens of thousands of cars, aircraft, yachts, trains, homes, offices, museums and other buildings.

Fabio Santos, President and CEO of SER, noted: "SER has brought many high-quality products to our customers in Brazil and Latin America, especially in the aftermarket for armored glass for automotive applications, and has now entered the architectural market. We specialize in high-quality, high-end products for the most discerning customers. SPD-SmartGlass offers the innovation and performance that our customers demand, and can increase the functionality of armored glass by reducing noise and temperatures inside the vehicle by up to 10°C, and increasing both comfort and security. Demand is quite high and we currently have a six month backlog of orders for our armored glass and we will be incorporating the SPD functionality right away in the glass we are producing for our best customers. We also plan to quickly expand into other markets and product areas for SPD-SmartGlass."

Gauzy announced in February that it was building a new state-of-the-art factory line in Stuttgart Germany to produce SPD light-control film for the entire industry. This factory has the capacity to produce 1 million square meters of SPD film annually. SER is one of the first customers to receive Gauzy's German-made SPD film, and to become an SPD Certified Partner of Gauzy's, as part of its Partnership Program for glass fabricators worldwide.

Eyal Peso, President and CEO of Gauzy Ltd. noted: "Our core business philosophy is to work with the finest glass fabricators in the world, with a commitment to providing them with the best materials and training. SER successfully

completed our robust training program and became a certified laminator for our high-performing films. We are proud to align with this industry leader, and see Gauzy's LCG® (Light Control Glass) technology integrated into SER's expanding product line. We look forward to many successes between SER, Gauzy, and Research Frontiers

Joseph M. Harary, President and CEO of Research Frontiers added: "We are quite enthusiastic about the high sales volumes from this relationship between SER and Gauzy, as well as the focused use of SPD-SmartGlass in the Brazilian market. Armored glass is prevalent here in Brazil, and the use of SPD-SmartGlass technology will enhance the security of vehicles and their occupants by adding tinting that blocks over 99.5% of light instantly and on demand, reduces heat, and provides unprecedented control, and better acoustics and privacy inside the vehicle."

The markets for SPD-Smart film are already well-established. Research Frontiers has licensed over 40 chemical, film, and glass companies which are selling products for the automotive, aircraft, marine, train, museum, train and consumer electronics industries. Gauzy's established and growing network of over 55 glass fabricators worldwide brings additional synergies, infrastructure, and growth opportunities to the smart glass industry.

Research Frontiers patented SPD-SmartGlass technology is the same best-selling smart window technology that can be found on various car models from Daimler, McLaren Automotive, and other auto makers.

The MAGIC SKY CONTROL feature, which is now in use on tens of thousands of Mercedes-Benz SLs, SLC/SLKs, Maybach and S-Class models around the world, and more recently on four announced McLaren models, uses patented SPD-SmartGlass technology developed by Research Frontiers to turn the roof transparent by electrically aligning tiny particles in a thin film within the glass.

With the touch of a button, drivers and passengers can instantly change the tint of their roof to help keep out harsh sunlight and heat, and create an

open-air feeling even when the sunroof is closed.

Glass or plastic using Research Frontiers' patented SPD-SmartGlass technology effectively blocks UV and infrared rays in both clear and darkly tinted modes, helping keep the cabin cooler, and protecting passengers and interiors while also enhancing security inside the vehicle. These benefits become even more important when a car uses large surface areas of glass, especially in warm climates.

Some of the other benefits of SPD-SmartGlass include significant heat reduction inside the vehicle (by up to 18°F/10°C), UV protection, glare control, reduced noise and reduced fuel consumption. Independent calculations also show that use of SPD-SmartGlass can reduce CO2 emissions by four grams per kilometer, and increase the driving range of electric vehicles by approximately 5.5 percent.

Shortly after its introduction into serial production in the automotive industry, SPD-SmartGlass has become standard equipment on many different aircraft, and is also used in residential and commercial architectural applications, in trains, yachts and other marine vehicles, in display applications, and to protect light-sensitive artwork and documents in major museums around the world.

Gauzy is currently focused on LCG® (Light Control Glass) technology, including Liquid Crystal formulations and SPD-SmartGlass emulsions. The company has a dedicated R&D team that focuses on each technology, multiple laboratories, and two on-site production lines with custom machinery for high quality products with on time delivery in Tel Aviv, Israel and Germany.

Through strategic partnerships with certified partners, Gauzy's distribution network ranges over 40 countries. Gauzy's technology offers diverse applications to the glass industry including solar/energy control, shading, privacy, and transparent displays. Gauzy LCG® is featured in notable projects worldwide, including automotive collaborations with leading OEMs and Tier 1 suppliers, hotels, corporate offices, luxury residences, retail chains and consumer electronics.



JAMES O'CALLAGHAN, WINNER OF THE 2019 JORMA VITKALA AWARD OF MERIT

At the Glass Performance Days (GPD) event in 2017, the Jorma Vitkala Award of Merit was introduced to recognize outstanding individual contributions to the glass industry. This award was presented to Jorma Vitkala himself as the first-ever recipient at GPD's 25th Anniversary event. Every two years, this award will now be granted during each GPD opening ceremony to a new recipient who has been selected through an international nomination procedure.

One of the highlights of the GPD opening ceremony, held last Wednesday June 26th in Tampere, was the announcement of the recipient for the 2019 JORMA VITKALA AWARD OF MERIT.

Arto Metsänen, CEO & President of Glaston, and Jean-Paul Hautekeer, Global Marketing Director at Dow and chairman of the nomination committee, maintained the suspense for some minutes on the stage of the GPD conference, to explain why this award was created and its selection process before revealing the final top 10 candidates.

With a great deal of emotion, James O'Callaghan, co-Founder and Senior Director at EOC, was asked onto the stage to receive the award, presented by Jorma Vitkala, who is chairing his last GPD Conference.

"James's impressive leadership and influence in Architectural Glass is undeniable since he and Brian Eckersley founded EOC in 2004, with a shared vision of a structural design practice that truly integrates engineering and architecture. While James is now a serial collector of awards in the engineering and architectural space, this recognition of the entire Global Glass Industry has a special meaning for him" said Jorma Vitkala.

"Continued innovative progress and bold new solutions will keep the applications of glass at the forefront for designers, industries and research institutions, and provide us with effective competitiveness in the choices of materials and solutions for building, automotive and interior decorating. This award is our special tribute to leading contributors in the development of the glass industry and James is a real personification of the GPD spirit." added Arto Metsänen.

“As well as the winner, the nominees who made it into the top 10 were also revealed. These leaders are seen as some of the key influencers of our glass industry by the press and the public in 2019 through this award nomination process” concluded Jean-Paul Hautekeer “Congratulations to all of them, they all should be proud of their achievements”.

James Carpenter	Carpenter Design Associates
Tim Macfarlane	Glass Ltd
G�rard Savineau	Consultant (Former Solutia)
Valerie L. Block	Kuraray
Graham Dodd	ARUP
Francis Serruys	Saint-Gobain
Julia Schimmelpennigh	Eastman
Norbert Wruk	NSG
Larry Carbary	DOW

Last but not least, we would like to thank the international press and the sponsors that supported the award and contributed during the process. As always, GPD is all about collaboration so it is great that this award was also realized with the same mindset.

Our sincere thanks go to:

Jorma Vitkala	Glaston
Horst Mertes	Fene Tech
Katy Devlin	Glass Magazine
Maja Weller	Evguard
Matthias Rehberger	Glasswelt
Katarina Rehar	Glassonweb.com
Robert Miklus	Formator Ltd
Klaus Muehlhans	A+W Software
Werner Wagner	Sika
Reinhold Kober	GFF Magazine
Nick Beaumont	IGS Magazine
Luc Moyersons	Everlam
Christoph Troska	Kuraray
Wim Stevels	Eastman
Patrick Flannery	Glass Canada
Marco Groothoff	Glas in Beeld
Bettina Heuter	Glassglobal Group
Debra Levy	Glass.com
Jean-Paul Hautekeer	Dow

As the planning for the next GPD 2021 conference starts, the same process will be applied for this award moving forward.



Large-area air-lux soundproof windows guarantee a noise-free summer



Soundproof windows help to reduce noise. With the patented air-lux sealing system, 100% soundproof windows are now also possible with large-surface sliding and lowering windows as well as pivot doors.

Especially in the summer months, many people in urban areas suffer from additional noise. In the cities, the streets are built and renovated, the neighbors mow their lawns and celebrate a barbecue and the fair-weather drivers chase their convertibles and sports cars through the streets. Soundproof windows help to reduce noise. With the patented air-lux sealing system, 100% soundproof windows are now also possible with large-surface sliding and lowering windows as well as pivot doors.

Urbane Noise Emissions

Construction site and traffic noise is omnipresent in certain urban areas. A truck generates up to 90 dB, a pneumatic hammer up to 100 dB. In addition, more and more people are driving and the roads are

often overcrowded. During rush hours in particular, loud engine noise dominates on busy roads, e.g. from stationary vehicles, and aircraft noise also rises steadily with the increase in air traffic.

How is noise generated? And what are decibels (dB)?

Noises are caused by vibrations and propagate in the air as sound waves. The strength of the sound - the volume - can be measured. The measured variable is called sound pressure, the displayed measured value is the sound pressure level and is given in decibels (dB).

The average conversation volume is between 20 and 60 dB. Loud noises like those of a passing car start at 60-80 decibels. Power saws, passing trucks or angle grinders make strong noise between 80 and 100 dB. This is perceived as extremely unpleasant and sometimes even painful.



Active seal: By pressing the button, air is generated in the frame and pumped into the seal. The seal presses against the slide profile and closes the gap between slide and fixed frame absolutely tight.



Inactive seal: Press the button again to open. The air escapes and the seal returns to its original rolled position.

Noise - annoying and harmful

According to the renowned New Scientist magazine, persistent background noise leads to sleep disorders or even hearing loss such as hearing loss and tinnitus. The British magazine reports that long-term exposure to traffic noise alone is responsible for up to three percent of all fatal heart attacks in Europe, with reference to the World Health Organization WHO (New Scientist, No. 2618, p. 8).

Especially in big cities the increasing noise pollution is an indispensable topic. Your own home, however, should be regarded as a quiet zone where you can separate yourself from the noise of the environment. With soundproof windows you can protect yourself from unwanted noises of everyday life. But what are soundproof windows anyway? And how does air-lux's air sealing system differ from other window systems?

Soundproof windows and insulating glazing against noise
The most important

characteristic of soundproof windows is that they protect against disturbing external noise. There is no such thing as a soundproof window, because a wide variety of products and materials are marketed under this title. A basic distinction is made between six sound insulation classes. These achieve sound insulation of 25 to well over 50 dB.

While in practice windows with sound insulation classes 2 to a maximum of 4 are usually installed, windows with sound insulation class 6 are recommended for houses in close proximity to a busy road or in the vicinity of an airport. Classes 5 and 6, however, are only reached straight through box windows - a type of window consisting of two complete, independent windows that stand one behind the other with a gap of up to 20 cm.



The opening function of the pivot doors is new, what remains is our unique air sealing system.



We also guarantee 100% tightness of the pivot door.

Thanks to the high tightness of the air-lux system we achieve

up to sound insulation class 4. Contact us and learn more about it.

In order to guarantee noise protection, the right glazing also helps. An insulating glazing consists of two float glass panes, which are connected to each other via an edge seal airtight to the surroundings. This creates an air layer in the space between the panes as an insulating cushion which achieves an optimum insulation value at a pane spacing of 15 mm.

If the space between the panes is filled with inert gases (argon, krypton, xenon), the thermal insulation properties of insulating glazing are increased. The edge seal can be made of stainless steel, aluminium or plastic. Inside, the spacer is provided with hygroscopic materials which absorb the moisture of the penetrating and sealed air. In addition, multi-pane glazing helps to achieve higher sound insulation values.

Best sealing values thanks to patented air-lux air seal air-lux is the only sliding window system that functions by an air seal built into the frame and running around the window. With this patented sealing system, air is generated in the frame and pumped into the seal. The sealing hose fills with air and closes the gap between the sliding window and the fixed frame 100% tight.

Thus, the air-lux air seal guarantees excellent building physics values and pleasant living comfort despite a noisy environment. More about the air-lux air seal >

In contrast to systems with sealing lips or brushes, the invisible, maintenance-free air-lux sealing technology enables friction-free movement of the sliding sashes. No compromise has to be made between tightness and running characteristics - a big difference to existing window seals. Since the air-lux ring seal is circumferential and in one piece, there are also no weak points in the corner areas as is the case with brushes.

Combined with triple insulating glazing, the patented air-lux air seal achieves best test values for tightness and sound insulation. Read more >

Unique soundproofing in high-rise construction
You're flirting with a penthouse? In a big city with a lot of asphalt and dense high buildings, the only way for sound waves to get to the top is through the air. That's why sliding windows were rarely used in high-rise buildings. Sealing sliding windows was considered problematic.

The reason for this is the lack of contact pressure of the seal. For this reason, the air-lux sealing concept is also an innovation for high-rise construction, because instead of moving the heavy sliding element to generate the required contact pressure, we move the seal.

So if you want to enjoy the vision and the view and fulfil your dream of urbanity, think of us! With the patented sliding window from air-lux you enjoy the view you want and the peace you need.

Glass waste shows road to recycling waste



Chris Holcroft, Glass Technology Services

Thanks to scientists based in South Yorkshire and 27 European partners working together on a £9million project, glass is helping to build a new highway to sustainability.

Researchers at Glass Technology Services, and its sister company British Glass which represents the UK's £1.6bn glass manufacturing sector, are leading on the glass element of a project which aims to work out ways to completely recycle – or close the loop - on all types of waste from the construction industry including glass, wood, ceramics, plastic and rubber.

Together with the construction company Acciona and other industry and research partners in Spain (Tecnalia), Turkey (TCMA) and Sweden (RISE CBI), they have shown that glass construction waste can be transformed into valuable reusable raw materials. One application blends finely ground waste glass - which cannot be reused in a glass furnace - with other industrial waste to produce

an 'eco cement'.

Eco cement has been used to build roads and made into pre-cast concrete blocks and other shapes for building homes and roads.

Glass in concrete blocks Using waste materials such as the finely ground glass has multiple benefits, improving the performance of the cement, reducing the energy requirements of cement manufacturing, and preventing waste materials from ending up in landfill. Currently the EU produces 1.5million tonnes of architectural glass waste annually. Less than a third is recycled: the rest either goes to landfill or is used as backfill on construction sites.

Chris Holcroft, senior technologist and technology development lead for Glass Technology Services, said: "This is an exciting project with a huge amount of potential for sustainable building. The more glass we can save from landfill the better it is for the environment."

In this project Glass Technology Services specialised in early work looking at the available materials, while the partner teams then successfully demonstrated the new cement production in a laboratory, in a pilot study, and on an industrial scale. The finished products are

now being tested at a number of case study sites.

This activity is part of the FISSAC project funded by the EU's H2020 programme. FISSAC stands for 'Fostering Industrial Symbiosis For a Sustainable Resource Intensive Industry Across the Extended Construction Value Chain'.

FISSAC, a group of stakeholders at all levels of the construction and demolition value chain, is developing a pioneering approach to bringing industries to work together to avoid waste – known as industrial symbiosis. Glass Technology Services and British Glass are key members of FISSAC.

FISSAC is currently building a software tool which shows where waste construction material is available, what type, and the environmental impact of possible ways of reusing it. The database will help cut costs for manufacturers, support them in complying with environmental regulations, encourage cross-sector resource efficiency, and help the industry with cleaner production strategies.



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Touring Germany as project partner for "Smart-haus"



Hydro Building Systems Germany GmbH is a leading player when it comes to living trends of the future.

With its WICONA brand, the company is participating as a partner in the latest "Smart-Haus" project by the Schwäbisch Hall Building Society. Three WICONA systems are installed in the 25 m² compact abode. WICLINE 75 TOP, the window built to Passivhaus standards, WICSTYLE 75 evo front door and the ARTLINE XL sliding door system.

Up until the end of October 2019, the Smart-Haus is making a guest appearance in 17 selected towns and cities in Germany and will stop off at a co-operative bank for three days in each place. The house was designed by Berlin architects Simon Becker and Andreas Rauch. Its concept represents the integration of the three megatrends – Smart Living, Tiny Houses and Sustainability – with state-of-the-art technology.

The Smart-Haus is a functionally designed wood construction system made from sustainable materials, with a living and sleeping area, bathroom and

kitchen. Despite its small surface area of 25 m², a great deal of intelligent technology has gone in to the Smart-Haus. A total of 20 brand-name manufacturers have supplied products for the Smart-Haus. The different solutions are interlinked and can be centrally controlled. This will illustrate to visitors how smart technology makes it possible for them to achieve greater comfort, security and energy efficiency in their own homes.

Dr. Werner Jager, Director of Technology and Marketing at WICONA, comments on the motivation of the Ulm-based systems company to be involved in the project: "Smart-Haus offers us multiple opportunities: We can present our systems to end customers in a technically ambitious, future-orientated environment. The intelligent features in the individual WICONA products, their attractive appearance and high functionality can be directly experienced by visitors to the Smart-Haus. And we can also highlight our cause – the sustainability of our products: Reduction of CO₂ during manufacture, environmentally friendly materials and certified materials cycles.

In addition, our fabrication customers benefit from the increased brand awareness that can be generated in this way and the subsequently increased demand. Using the Schwäbisch Hall communication channels, we are speaking to up to 7 million savers in Germany."

In the Smart-Haus, WICONA is

presenting three high-tech innovations in windows, doors and sliding modules:

WICLINE 75 TOP is a window system built to Passivhaus standards, which combines attractive design, ease of fabrication and long-lasting quality with high energy efficiency in a single component. With its intelligent compound material, the ETC Intelligence® thermal break zone enables U_f values of up to 0.79 W/(m²K) to be achieved – without insulation inserts!

Visitors enter the Smart-Haus via the WICSTYLE 75 evo front door. With its smooth rebated cover profile, it doesn't just deliver on looks, but its seamless design "shrugs off" dirt and makes it particularly easy to clean. The flush structure ensures a harmonious, smooth appearance. Its key technical feature is the integrated motor, which automatically opens or closes the front door – via your smartphone, even from the outside.

The occupant can bring nature into the Smart-Haus with ARTLINE XL, the high-quality, thermally insulated sliding door system with a frame depth of 150 mm. ARTLINE XL boasts an almost frameless appearance: An extremely slim interlocking profile (26 or 38 mm) contributes to the minimalist impression of the ARTLINE XL. This makes the sliding doors appear to recede, allows light and air to freely enter and visually "magnifies" the living space outwards. Radio magnetic contacts control the locking status of the sliding door.



Windoorex Middle East 2019

received overwhelming response

The 10th Anniversary of WindoorEX Middle East Exhibition concluded successfully on 16 March 2019 with 286 exhibitors and brands presented current window, door, façade, aluminum, glass industry products and innovations. 9511 visitors from 17 countries and regions joined at this 3-day event.

Top brands from the region were featured for the first time at 2019 edition. The event's diversity has always been its strength; the three days showcased of exciting product displays, networking activities and demonstrations of new products and equipments. Participants were satisfied by 91%, particularly with the comprehensive range of products on display and

the high quality of trade visitors.

Windoorex Middle East 2019 established further strength its positioning as a solid and reliable platform to meet quality buyers in a trade-business environment in the Middle East.

The Biggest

With total 10,000.sqm exhibition space

2019 edition was the most successful edition with a 36% increase in total space due to 3 important reasons:

- With a history of previous successful years, WindoorEX Middle East has become a regional leading expo in the fenestration industry, and a





- Being staged at Egypt International Exhibitions Centre (EIEC) - a world class exhibitions centre - which gives us the chance to accommodate more exhibitors and visitors.

The show brought together the manufacturers, suppliers and wholesalers of glass , façade systems, aluminum composite panels, PVC profiles, doors, hardware, glass processing equipment & production technology, aluminum processing machinery, rollers & shutters, paints, Sun Protection, Shading & Closing Systems, accessories, sealants, abrasives,

In conclusion the WindoorEX Middle East 2019 was a qualitative better show that attracted a better target audience than before.

WindoorEX Middle East 2020 will be held during March 2020, at Egypt international Exhibition Centre in New Cairo city, Egypt. For details, please send e-mail to marketing@arabiangerman.com or visit <https://www.windoorex.com/>

most favorable showcase for manufacturers and suppliers from home and abroad to cater the requirements of the region's booming construction sector and enhance brand value in the Middle East.

- Egypt market is brimming with opportunity, evidenced by the plan to spend USD \$169 BN at construction industry, and respectively glass, aluminum, doors and windows usage which was reflected on previous years' success of WindoorEX Middle East Exhibition.



المعرض الدولي الحادي عشر

للزجاج، الألومنيوم، U-PVC،
الواجهات، الأبواب والنوافذ



The **11th** International Exhibition For

**Glass, Aluminum, U-PVC,
Facades, Doors & Windows**

February 27-29, 2020

Egypt International Exhibitions Center,
Cairo - Egypt

Arabian German Exhibitions & Publishing Ltd.

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Glass Expo²⁰²⁰

Middle East

New Glass Expo

Brand in the Middle East by 2020

AGEX and Middle East Glass Magazine launch a new Glass Middle East Expo, set to take place in February 2020 in Egypt.

Glass Middle East Expo 2020, the international exhibition for glass, glass processing and technology. It will be the meeting point for regional and international brands bringing a range of products, technologies related to flat glass, tempered glass, laminated glass, safety glass, hollow glass, automotive glass and raw materials that cater to the growing demands of this region.

Egypt is a well-known exporter of glass and with no existing platform to gather international and local professionals since long time, that it is natural to launch an event for this industry. The glass sector has a great opportunity to be expanded in Egypt in the near future.

The growth in Egyptian glass industry reached 10 percent in 2018 which exceeds the international rate, which is 4 percent. Glass industry in Africa is limited to three countries which are Egypt, Algeria and South Africa.

"**Glass Middle East Expo 2020** is also add value to fit the full spectrum of the industry by representing it alongside with our event Windoorex Middle East – the 11th International exhibition for facades, aluminum, door and windows" Commented Mr. Ahmed Megahed – Chairman of AGEX.

The three-day exhibition will provide an ideal opportunity for suppliers to present their, machinery, products and services to business owners and decision makers within the market.

With more than 10 years of combined industry involvement, Glass Middle East Magazine and AGEX have accumulated a robust network of 60,000+ contacts worldwide. With the organizers' experience and resources, more than 100 exhibitors and 7000 attendees are expected for this inaugural





event. Glass Middle East Expo provides a perfect opportunity to do business and network with global and regional manufacturers, suppliers, installers, glazier, specifiers, developers, architects, engineers, agents, distributors and investors.

For more information, send e-mail to marketing@arabiangerman.com

The Venue:

Egypt's International Exhibition Center , since its inauguration in October 2017, it Provides the most advanced and innovative supporting features to all of our clients and maintaining a diverse and rich calendar of local & international events. To attract international visitors and exhibitors

About the organizers:

Arabian German Exhibitions s.a.e (AGEX) was established in 2004, and since then we are proud to have been behind the success of a large number of national and regional events.

AGEX is a multi-dimensional company dedicated to organizing International exhibitions & Conferences. Being ideally the most effective platform doing



business in the Middle East and Gulf Area we help promote more exposure to top regional buyers and decision-makers looking to do business together.

About Middle East Glass Magazine:

Middle East Glass Magazine is the first pan-Middle East business publication covering the glass industry.

It's the only international magazine for professionals involved in the glass industry, serving the Middle East and Africa region it keeps abreast of new technology, new products, company life and all innovations in the world of glass. Middle East Glass Magazine continues to lead the way with new products and innovative ideas.

Powered By:



Glass Expo ²⁰²⁰

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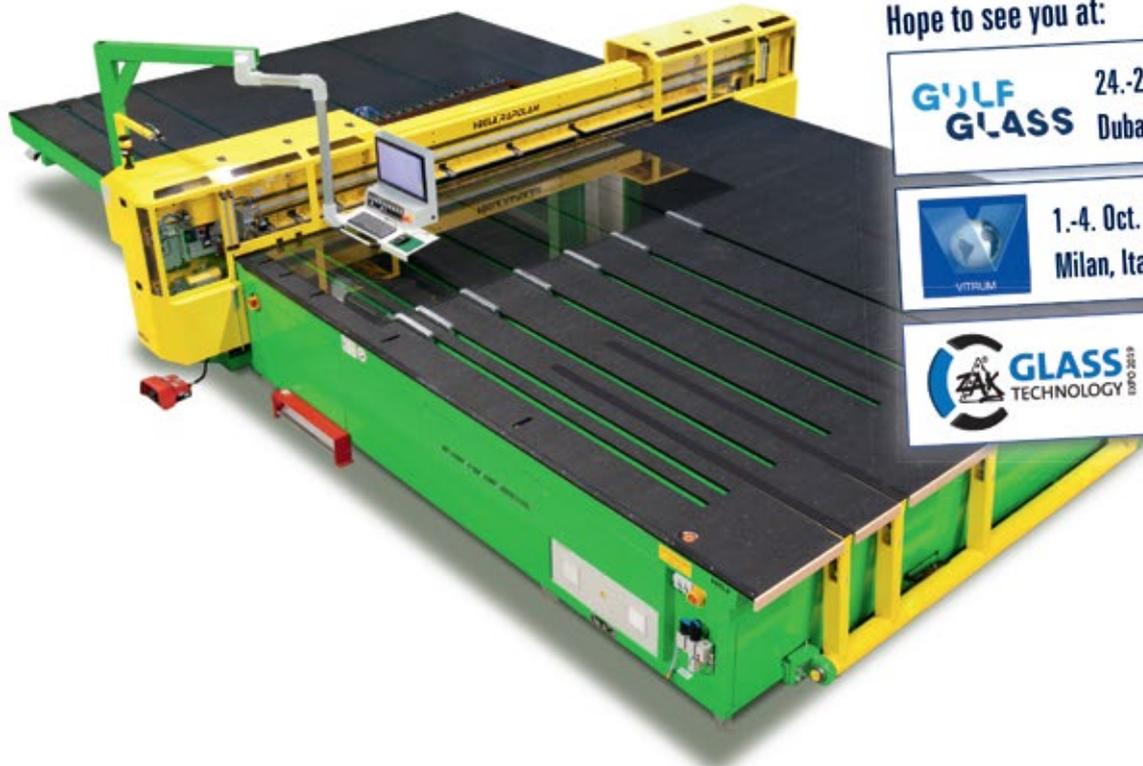
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glass technology

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Hope to see you at:

**GULF
GLASS**

24.-26. Sept. 2019
Dubai, UAE



1.-4. Oct. 2019
Milan, Italy



**GLASS
TECHNOLOGY**

12.-15. Dec. 2019
New Delhi, India

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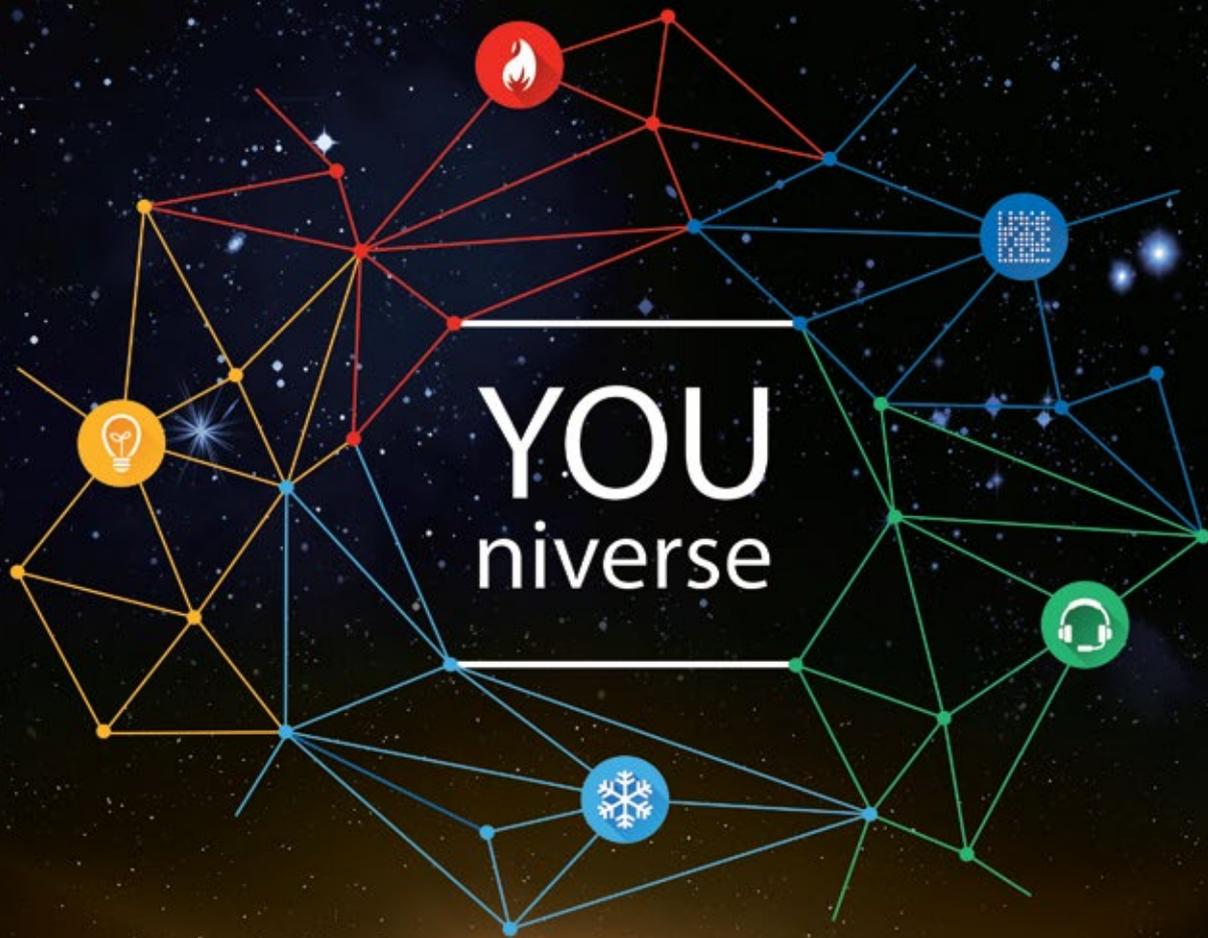


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