

Glass-Technology International


July/August • Year 34 • No. 4/2023

THE LEADING MAGAZINE FOR THE INTERNATIONAL FLAT GLASS INDUSTRY


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COSTS SPOTLIGHT
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AUTOMATION SOFTWARE

Ushering in Industry 4.0 at HEGLA-HANIC all in small, fast-working steps

With the advent of smart factories, the future of glass production is one that's fully digitized, networked and highly automated. Now, Heideck and HANIC identifies a solution for the production of heavy-duty industrial glass products - even if the big solution needs' come of age.

REVEALING OPTIC OPTIMIZATION

50

GTI 4/2023

ENERGY

IG production costs spotlight GLASTON'S energy-saving solutions

If faster hardly helped by the current crisis, energy remains the main raw material in Insulating Glass (IG) production. More rising bills have seen IG producers looking for ways to reduce costs in order to remain competitive - a challenge which, as today's team of GLASTON notes, can certainly be achieved with the correct, modern technology.

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TEMPERING

Introducing Temper Flex - the new PUJOL tempering oven

When it comes to manufacturing goals of the art form, P&O is now well-represented for both adaptability and innovation. The company's new Temper Flex oven, developed on the technological basis and long experience of TechnoEngineering, offers high thermal efficiency, low energy consumption, superior optical quality and advanced control systems for glass tempering.

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MACHINING

CMS Ypsos: EDIL VETRO'S innovative solution for design enthusiasts

Founded in 1952 by Hermann Carl Wittig has distinguished itself as a leading player in processing high-quality insulating glass units. The glass has experience that's seen it launching its product range in venture into the world of glass design.

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PARTNERSHIP

CUGHER and BOTTERO join forces to advance sustainability

Cugher is partner of Bottero in the development of the new Skin Eightyfour of Low Green Power.

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GREENHOUSES

Standardised measurement of hemispherical light transmission in greenhouse covering materials

With population growth and food shortages requiring cost-effective production, light transmission is crucial for greenhouse materials - jointly impacting crop growth and yield. The EN 12293 standard was replaced to measure light transmission from different angles of incidence. The IEC master standard is the reference of the standard, providing accurate measurements for growers and greenhouse horticulture in general.

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INDUSTRY TECH

Sandblasting revolutionized by FRATELLI PEZZA's MistralApp

Developed by FRATELLI PEZZA, the cutting-edge MicroApp boasts remote programming, ease of use and personalized outputs - just one more innovation to add to the company's highly technological automatic sandblasters and marking devices. In full compliance with Industry 4.0 standards.

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INDUSTRY EXPERTISE

Consultancy at GLASS COMPANY taken again to the next level

As a leader in the glass processing industry, GLASS COMPANY'S high quality solutions exhibit the advanced performances of LaserMik, SoftMik, FireMik and PlusMik - among other specialized machines. All provided tailored systems, including the respective parts, assembly plans, support for users for exact temperature and various customized features.

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PUBLISHING DIRECTOR: Arcangelo Altamura

EDITOR-IN-CHIEF: Marco Pinetti

ASSOCIATE EDITOR

Nicolaas François Fouché | nick.fouche@glassonline.com

CONTRIBUTORS

Alexander Roe, Jennifer Pressman, Alison David, Zoë Elaine Whitten

ADVERTISING

ITALY: Maurizio Lozza | maurizio.lozza@glassonline.com

WORLDWIDE: Luciano Molina | luciano.molina@glassonline.com

GRAPHIC DESIGN

Sonia Previato | sonia.previato@glassonline.com

Cristiano Guenzi

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issue	exhibition/conference	date	venue	deadlines	
2023				Editorial files: 30-01-2023 Deadline Adv files: 10-02-2023	
2023	1	BAU	17-22 April	MUNICH Germany	Editorial files: 03-03-2023 Deadline Adv files: 13-03-2023
		GLASSPRINT	25-26 April	DÜSSELDORF Germany	
		CHINA GLASS	6-9 May	SHANGHAI China	
2023	2	GLASS TEXPO	11-12 May	SAN ANTONIO (TX) USA	Editorial files: 03-04-2023 Deadline Adv files: 11-04-2023
		FIT SHOW	23-25 May	BIRMINGHAM UK	
		CONSTRUMAT	23-25 May	BARCELONA Spain	
2023	3	GPD - GLASS PERFORMANCE DAYS	14-16 June	TAMPERE Finland	Editorial files: 12-05-2023 Deadline Adv files: 19-05-2023
		GLASSTECH MEXICO	19-21 July	MEXICO CITY Mexico	
2023	4	VITRUM	5-8 September	MILAN Italy	Editorial files: 14-07-2023 Deadline Adv files: 24-07-2023
		ALL VITRUM EXHIBITORS ADVERTISING IN THIS ISSUE ALSO RECEIVE A FREE VITRUM PREVIEW ▶▶▶			
		GLOBAL GLASS SHOW	6-7 September	ABU DHABI UAE	
2023	5	GLASSPRO INDIA	14-16 September	MUMBAI India	Editorial files: 15-09-2023 Deadline Adv files: 22-09-2023
		GLASSBUILD AMERICA	31 October 2 November	ATLANTA (GA) USA	
		GLASSTECH CANADA	6-7 November	TORONTO Canada	
		REFRIGERA GLASS	7-9 November	BOLOGNA Italy	
2023	6	EURASIA GLASS	11-14 November	ISTANBUL Turkey	Editorial files: 13-10-2023 Deadline Adv files: 20-10-2023
		ZAK GLASS TECHNOLOGY	23-26 November	MUMBAI India	
		GLASSTECH ASIA	29 November 1 December	BANGKOK Thailand	
		GULF GLASS	4-7 December	DUBAI UAE	



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PAVILION 7P / STAND P08

VITRUM 2023
5-8 / 09 Milan

ITALMOLE

A history of new successes

Besides launching its new 'Alfa' cup wheels at Vitrum this year **ITALMOLE** will be showcasing its known product range, which spans over 30 lines. As for glass polishing wheels, the company represents the 'Made in Italy' ever since its founding in 1978 - serving both large industries and small glassworks today in an ongoing commitment to innovation that now includes its new photovoltaic plant. Right from the outset, Italmole has been rigorous in upholding the transparency, integrity and professionalism that now characterize its core values. With the same attention the company relentlessly pursues new technologies and innovations - all aimed at ensuring superior product quality.

Italmole was a pioneer in introducing its tool type to the world even as it has steadfastly maintained the artisanal spirit of the past in crafting its products. With a diverse range of over 30 different lines of polishing wheels, Italmole meets the demands of both large-scale industries and small glassworks - providing comprehensive services and personalized technical assistance for various needs and applications.

Indeed year upon year the company has solidified its presence in the national and global market through continuous research and collaboration with machine manufacturers. Over 2022 and 2023 it intended a significant portion of its investments to innovation - embracing a greener future with the installation of a new photovoltaic plant.

Vitrum 2023

At Vitrum this year Italmole will be showcasing a product range that, by now, is already well recognized worldwide. From the much-imitated peripheral BD wheels and BD2 engraving wheels to the famous Astra wheels that have gained no modest popularity over recent years - not to forget the complete range of arris wheels including Black, Red, AR1, AR2 and AB4. Last but not least, the lines of cup wheels for flat - denominated X and L respectively.

In addition to these offerings, Italmole will be unveiling a significant novelty, namely its new 'Alfa' cup wheel line - which has already yielded

excellent results and garnered great satisfaction.

The Alfa series is available in all grit sizes, with options that include a rigid plastic plate or the special Bavelloni J40 plate. It can also be customized for laminated glass applications.

The company remains determined to follow a path that embraces every challenge out there, fostering a collaborative environment among individuals who believe in both the importance of teamwork and the potential for synergy between tradition and innovation - all to achieve better results.

WWW.ITALMOLESRL.COM



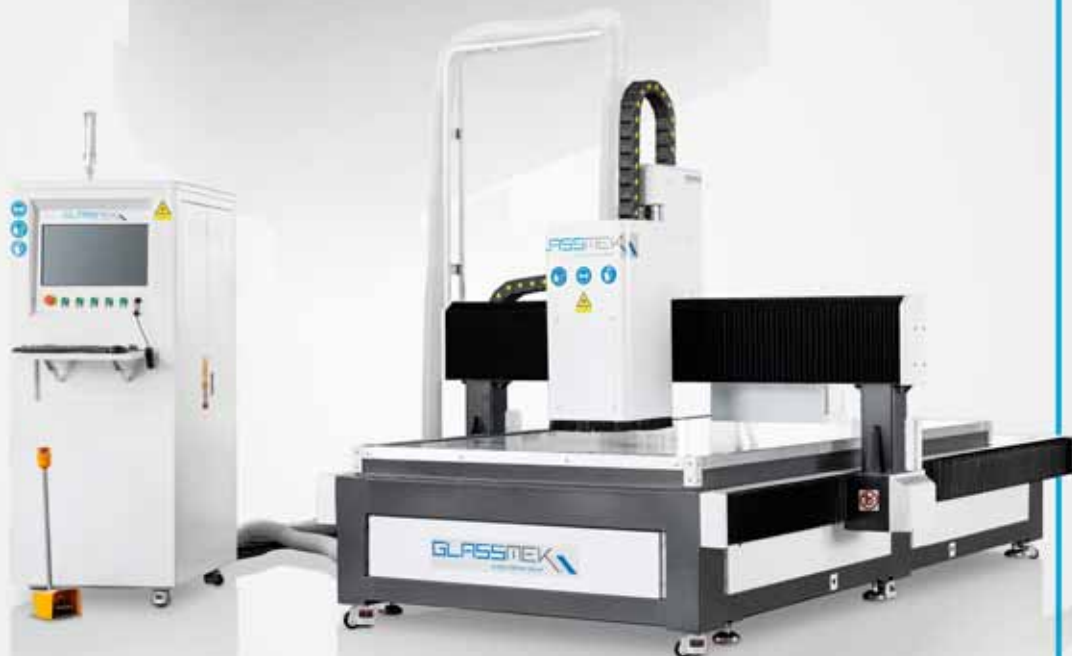
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LOVATI

New Lynx CNC options

Excellent technology, reliability, high quality and continuous assistance. Such are the strengths that render **LOVATI** recognizable as a serious, valuable partner throughout the world for the production of glass processing machines. A leader in the glass processing industry, Lovati has been manufacturing machines for more than 80 years with a wide range that spans from simple manual edgers to the most sophisticated CNC stations.

It also focuses on machine customization and absolute reliability: two great properties that have always been coveted among the company's core values. Speaking of customization, one its most appreciated CNCs, Lynx, comes equipped with twin electro spindles as well as two sliding tables. Here Lovati's project team has added two further options. Thanks to the supplementary C axis and aggregate groups, the machine can perform bevelling, V-grooving and sawing with extreme precision and speed. Also, by using nebulized cerium oxide, the CNC can perfectly polish the bevel.

The second option is that of the double automatic wheel dresser, fixed on the sliding table. The operation is automatically performed by the machine - always facilitating grinding excellence while saving operator time. Dressing stones can have different thicknesses, based on customer request.

Thanks to a special pen, the last option allows for writing and drawing on the glass sheet.

All Lovati machines are specially-designed to meet the requirements of heavy production owing to their superior performance and minimum maintenance required - both features that have them sold all over the world. Add to that the continuous assistance Lovati affords to customers while always providing spare parts in record time.

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- Start-up level for IG-SG production
- \approx 800 sqm/shift capacity
- Short recovery time of investment



- Professional level for IG-SG production
- Appropriate for mass production
- Low labour cost via automated machines



- Continuous line for multi processes
- Compatible for product tracking via ERP
- \approx 1000 sqm/shift capacity



- Continuous line for oversize panes
- Extendable panel press length via tandem press
- Heavy duty design for an overweight application

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KERAGLASS

Vision 800 chosen by Po.Lo Glass

Founded in 1983 in the enchanting town of Bedizzole (BS) by the visionary trio comprising Sandro Lorenzi, Giovanni and Davide Polonini, Po.Lo Glass has ascended to an eminent position within the realms of construction and furniture industries.

The company acquired basic machinery for glass processing in 1985, after which 1995 witnessed a revolutionary breakthrough with the advent of the first automated machines. Such prudent investments propelled Po.Lo Glass to the pinnacle of laminated glass production, which has remained the

company's key pursuit ever since. That said, when it came to glass tempering, Po.Lo Glass had consistently relied upon external producers - consequently encountering logistical intricacies, timing predicaments and occasional quality concerns.

The escalating demand for this specific process, coupled with the imperative to shorten delivery times, made it clear that in-house tempering was the best course of action. Said Sandro Lorenzi, a Managing Partner at Po.Lo Glass: "Numerous enterprises had already achieved remarkable outcomes collaborating with **KERAGLASS**, unequivocally extolling the excellence of their machinery. When embarking on a venture of such magnitude, recommendations assume paramount significance - and Keraglass had already established an illustrious reputation."

For the sheer excellence of the final product and the optimum quality of materials employed in the company's furnaces, Keraglass emerged as the undeniable choice. A guarantee of steadfast reliability and unwavering durability were key factors underlying this selection. With the aid of the company's intelligent supervision system and the comprehensive training provided by their accomplished team the furnace itself proved remarkably user-friendly.

One year on, the Vision furnace has provided Po.Lo Glass with unprecedented speed, a newfound agility and fresh ease in managing

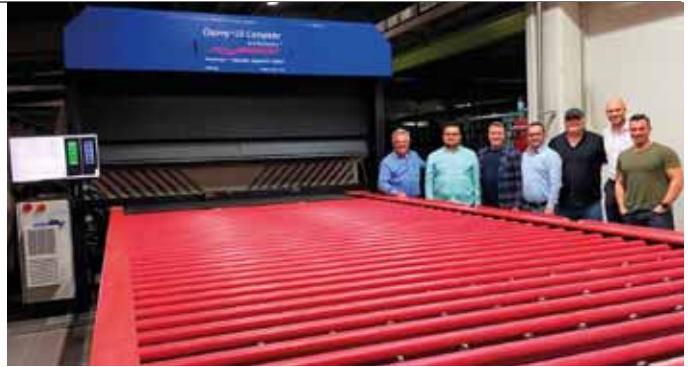
time-sensitive deliveries. "Without hesitation, I wholeheartedly endorse Keraglass for the exceptional quality of their furnaces, the flawless craftsmanship of the finished products and the unparalleled flexibility we've achieved in meeting the exacting demands of our esteemed clientele," says Lorenzi.

Thanks to the seamless integration of Keraglass' cutting-edge furnace, Po.Lo Glass has now emerged as a leader in the area of tempered glass processing.



CIRAYLAR

Investment in Osprey 10 Complete from LiteSentry-Softsolution



With more than 50 years of experience in glass technology and production, **CIRAYLAR** has become one of the largest producers in its region in the production capacities of float glass, heat-insulated double glass, tempered glass and laminated glass. When tempered glass is produced, it undergoes a rapid heating and cooling process, which creates compressive stress on the surface while the core remains in tension. However, if precise optical or aesthetic requirements are crucial, specialised glass types or additional processing steps may be necessary to achieve the desired level of performance. To meet these high-quality standards with tempered glass, the Turkish company has invested in a 2,440 millimetre horizontal Osprey 10 Complete from **LiteSentry-Softsolution**, which is the only system on the market that measures both optical distortion and anisotropy. In addition, each glass lite/batch is measured and the data is automatically recorded and stored in the software. Fahrettin Ciray, CEO of Ciraylar, said: "The Osprey systems allows us to control the tempering quality of our tempered glasses at all times reliably. This gives us security and it proves that we only deliver good quality glass according to our customers requirements and standards. With the report function we can provide our customers with detailed reports and prove the quality of production. We look forward to forwarding this benefit to our international customers."

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GRENZEBACH

Footprint in Asia expanded with new production site in India



GRENZEBACH, a leading company in the glass industry, head-quartered in Germany, is happy to announce reaching a new milestone: on June 15, 2023, the contract for the expansion of their site in Pune, India, was signed. The current sales and service branch will be merged with the new manufacturing site for the glass and gypsum industry at the Pune location.

The start of production at the new site in Pune is scheduled for October 2023. In the course of the expansion, the company will create about 30 new jobs in the first phase.

Investment in the Asian market

The Grenzebach Group will be investing around EUR 2M in the expansion, thereby reaffirming their trust in the Asian market and the economic region of India.

“We firmly believe in the Indian market and expect enormous potential for growth within the next five years,” said Dr Steven Althaus, CEO of Grenzebach Group.

Ralf Jäger, COO of the Group, added: “With the strengthening of our Indian location, we are making a statement for the Pune region, India and Asia.” The company expects sales potential for the glass and building materials sector of EUR 3M in the first two years, increasing subsequently. The initial investment costs should be amortised rather quickly, according to projections by the Grenzebach Group. Further investments like the purchase of the company premises and subsequent rebuilding measures to meet today’s sustainability and energy efficiency requirements are already planned.

Investment in the glass industry

The decision on investing in India coincides with the positive development of the market and the increased demand for glass products such as float and structural glass. The Indian government’s sustainability agenda is creating particularly strong demand for solar glass for the manufacture of photovoltaic modules.

Markus Gruber, Senior Vice President Business Unit Glass at Grenzebach, said, “Our location in India will enable us to support our Indian customers even better. It will also allow us to be closer to them in terms of service and order processing. In recent years, we have already worked successfully with our Indian customers and would like to strengthen this cooperation further with the new infrastructure.”

New production site

The new premises, with 4,500 square metres of floor space, are located in the Chakan Industrial Area, Pune District, about 30 kilometres from Pune’s city centre. The premises will include a modern production unit and office space for sales, design, software development and service. The manufacturing site will be used in the future for the assembly of conveyor equipment and labour-intensive welding work for annealing lehrs for the glass industry and dryers for the building materials industry.

Prasanna Hegde, MD Grenzebach India, emphasised the importance of the new production facility, saying: “The expansion, complementing our plant in Jiashan, China, will enable us to serve our glass and building materials customers in the Eastern Hemisphere even better - with equipment and machinery to German standards, in high quality, at local cost levels.”

The premises include a modern production unit and office space for sales, design, software development and service.

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AGC

One of the largest rooftop photovoltaic plants implemented in Spain

AGC Flat Glass Ibérica, in collaboration with Helexia España, recently announces the commissioning of a 4,600 kilowatts photovoltaic plant for self-consumption on an industrial site at the Port of Sagunto, Valencia. The plant has 8,800 photovoltaic modules covering 48,400 square metres of the rooftop, the equivalent of 10 football fields. With an annual production of 7 gigawatt hours, this project will help to avoid the emission of more than 800 tonnes of CO2 equivalent per year.

A global leader in the glass industry, **AGC** is at the forefront of developing products with the highest environmental quality and seeks to use technologies and manufacturing processes that minimise its impact. The Group considers Sustainability as a fundamental part of its Corporate Social Values and a prerequisite in all its activities. AGC aims to achieve carbon neutrality by 2050 and has set a transitional target of 30 percent reduction in GHG emissions and a 50 percent reduction in GHG emissions per unit of sales by 2030 (total of Scope 1, 2 and 3; reductions based on the levels of 2019) by using, among other things, energy efficiency solutions and increasing the share of renewable energy in the total energy consumption of its production facilities.

In line with this vision, AGC Flat Glass Ibérica, a subsidiary of AGC, has partnered with Helexia to take advantage of the photovoltaic potential of its largest industrial unit in Spain, which is dedicated to the production of float glass. The photovoltaic power plant, designed and implemented by Helexia España, has been efficiently installed onto the rooftop. Thanks to state-of-the-art components and optimized use of the energy produced, AGC will significantly reduce its dependence on conventional energy sources, strengthening its environmental commitment and reducing its costs. This is the second photovoltaic installation carried out by Helexia for an AGC plant in Spain. The first was a 210-kilowatt plant installed in 2020 at AGC's Pedragosa unit (Barcelona).

Active in Spain since 2019, Helexia has already commissioned 25 projects, five of which are located in the Valencian Community, and has a portfolio of more than 100 megawatt to be developed in the coming years throughout the country. Between now and 2027, the group will continue to invest more than EUR 1.5 billion to support its customers in their energy transition in Europe, with Spain being one of the priority markets.

"We are proud to collaborate with AGC for the development, construction and operation of this second and even more ambitious project in Spain. We are aware of AGC's commitment to a sustainable economy and today is an important step in accelerating its energy transition. Our mission is to support our clients in reaching their financial and environmental goals, helping them to consume less and better energy," said Etienne Le Pargneux, Country Director of Helexia Spain.

Davide Cappellino, President of AGC Architectural Glass Europe and Americas, said: "We are taking another important step towards climate neutrality. Together with our partner Helexia, we are tapping into the potential of using as much renewable electricity as possible, as part of AGC's roadmap towards glass production with lower carbon footprint."



WWW.AGC-GLASS.EU

FGC GROUP

Acquisition of NSG Group assets



FGC Group recently announced the completion of the acquisition of the Russian assets of **NSG GROUP**, including the Pilkington Glass Russia plant and STIS Group. The details of the deal were not disclosed by the parties.

Pilkington Glass Russia is represented by a glass factory in Ramenskoye, Moscow Region, with a nominal production capacity of 800 tonnes of glass per day. The STIS group of companies includes 8 production sites for the manufacture of double-glazed windows and specialised glass products - in Serpukhov, Vladimir, Saratov, Naberezhnye Chelny, Krasnodar, Stavropol, Voronezh and St Petersburg.

FGC GROUP is increasing its assets in the glass industry. In 2022, the company became the new owner of the glass businesses formerly owned by Guardian Industries. Since September last year they have been working under the new Larta Glass brand.

After the purchase of the Russian assets of NSG Corporation, the portfolio of FGC Group of Companies will include three flat glass plants and eight glass processing plants. The Pilkington Glass plant will operate under the Larta Glass brand, STIS Group will continue to develop in the market for the production of double-glazed windows under the current brand.

“The perimeter of the FGC group of companies includes high-tech enterprises, including Larta Glass plants,” said Vladimir Voronin, President of FGC Group of Companies. “With the acquisition of the assets of Pilkington Glass, we are strengthening our expertise and expanding our share of the glass market. In addition, the new assets will allow us to significantly increase productivity and diversify the range of glass products.”



WWW.NSG.COM

ADELIO LATTUADA

Relationship adding value: Fire Glass UK

ADELIO LATTUADA has recently completed the installation of a straight-line edging machine TLR 10 AV PC H85 at Fire Glass UK, the market leader in providing fire-rated glasses. For the installation, integration of the machine with the existing line and initial start-up, P.A.L. Glass Machinery's technician, Brendan Macveigh, was on site. Fire Glass UK recognized the need to invest in advanced technology to improve its production capabilities and offer unprecedented quality and efficiency and turned to Adelio Lattuada. In fact, the TLR 10 AV PC H85 installed at Fire Glass is equipped with automated features that increase the production flexibility, an intuitive touch-screen control panel and a completely automatic wheel setting management that meets the most stringent

industry standards.

With the TLR 10 AV PC H85, Fire Glass UK is poised to offer perfectly ground, aesthetically appealing glass and elevate its market positioning.

Adelio Lattuada has extended its gratitude to Fire Glass UK for choosing one of its edgers and agent P.A.L. Glass Machinery for its professionalism and assistance with this project.

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THERMOSEAL

System approach to unit manufacturing

Significantly, warm edge spacer bars like Thermobar and Thermoflex from THERMOSEAL Group have helped windows and doors meet the requirements of Part L of the Building Regulations, which have required ever-lowering U-values.

Thermobar and Thermoflex warm edge spacers are both certified by the Passive House Institute (PHI). Thermobar is certified with a pH_A rating (pH_A+ with hot melt) and Thermoflex is certified pH_A+. The certificate indicates that these spacers fulfil high energy efficiency and hygiene requirements for an 'Arctic Climate Region' and all other climate regions with lower requirements. Without the right training and support from your warm edge supplier, units are put at greater risk of failure, according to Thermoseal Group's Sales Director Mark Hickox.

"With a move from aluminium spacer to warm edge spacer, we saw a new phenomenon occur where people underfill with desiccant," he said. "It's not intentional. It's just that the people in production think they should fill a long and a short side, but what they're not taking into account is the fact that the internal dimensions of the spacer are different.

"The wall thickness is greater on the warm edge tube – and this goes for all warm edge spacers, not just Thermobar. To get the same lifespan

as when you were filling a long and a short before, you need to fill two longs and a short side with most warm edge spacer bars to arrive at the same amount of desiccant that you would have put in an aluminium unit. The airspace is just the same."

Mark points out that the moisture penetration through the edge sealant into the sealed unit is the same for Thermobar or aluminium spacer, which has been verified by Thermoseal's in-house laboratory.

"We have extensive testing equipment at our production facility at Wigan," Mark said, "which was set up so that we could not only understand the pressures on IGU component parts, but that we could fully guarantee our products in real world conditions.

"We tested our desiccant by putting it in our cycling cabinets. We

have one set up to do EN1279 Part 2, and a second one dedicated to high humidity cycling. This saturates units day after day, so we know exactly what is required of our products."

All of Thermoseal Group's desiccant is continually batch-tested and benchmarked against other market-leading molecular sieve desiccants, and every shipment is tested and delivered with a Certificate of Analysis.

The comprehensive testing checks: gas desorption (a premium desiccant will only absorb moisture vapour and not inert gases in the sealed unit); Delta-T results (generally, but not conclusively, an active desiccant will generate heat upon contact with moisture); initial moisture content (should be less than 1.7 percent); total and available moisture adsorption capacity (tested to revised to EN1279-4 standard); dust content (to check consistent bead size); and bulk density (to check volume).

"Desiccant is actually one of the cheapest components of an IG unit and also one of the things you can make the biggest shortfall on," Mark said. "You can have the best sealant in the world, but if you don't put something in there to absorb the moisture that will pass through it over the unit's lifetime, it's going to fail and it's really not worth cutting costs on it.

"We also test our desiccant in conjunction with the other components in a unit – such as Thermobar, sealant, corner keys and cloth tape – so if you buy the full system from Thermoseal Group, you can be assured that they are all compatible, without risk of failure."

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- **CMS ypsos:** CNC vertical machining center
- **CMS agil tr:** compact and versatile cutting table
- **CMS vertec mill:** CNC vertical drilling machine

SAINT-GOBAIN

Production of India's first low carbon glass begins

Addressing the need for low carbon building materials in the Indian Construction Industry, **SAINT-GOBAIN** India is launching the first production of a new glass with a low carbon footprint. The product should have an estimated carbon footprint reduction of approximately 40 percent compared to the existing Saint-Gobain Glass India products.

Such environmental performances could be reached thanks to the use of two-thirds of recycled content as raw material, natural gas and electricity from renewable energy sources. Production parameters will be recorded and used to obtain a verified EPD that should be published later this year, confirming the significant carbon footprint reduction. This achievement of Saint-Gobain is the culmination of a substantial R&D effort, the excellence of its industrial teams, and the persistent continuous efforts of achieving the Group's ambition of Net Zero by 2050.

This low carbon glass will retain all the technical, quality and aesthetic performance of regular glass, and will soon be integrated as a substrate option in the energy-efficient glass portfolio of Saint-Gobain Glass. This new low carbon substrate in Saint-Gobain Glass India offer will give a boost to the embodied carbon reduction of buildings alongside the operational energy efficiency performance.

The building industry currently accounts for almost 40 percent of global greenhouse gas emissions and is at the heart of the decarbonization challenge. As stated in the joint study conducted by Engineering consulting firm Arup and Saint-Gobain Glass in 2022 on façades, it is key to act jointly on both reducing operational and embodied carbon. Saint-Gobain Glass advanced Magnetron coating technology can already drastically reduce greenhouse gas emissions caused by artificial cooling and lighting for buildings during the use phase (operational carbon footprint). By associating energy efficiency performance together with lower embodied carbon in glass, one can contribute to a significant reduction in the whole-life carbon footprint of buildings, while continuing to provide the essential benefits of natural light, solar and thermal comfort for the occupants.

Commenting on this production launch in India, Mr A R Unnikrishnan, Managing Director of Saint-Gobain India - Glass Business, said: "It is not a coincidence that the production launch of India's first low carbon glass is taking place on 'World Environment Day.' It is a concerted effort

from Saint-Gobain to continue to sustainably contribute to the Indian Construction Industry.

"The building materials of the future need to be low carbon to achieve India's commitment as a country towards Net Zero by 2070. This product from Saint-Gobain will accelerate this vision and will actively contribute to Light and Sustainable Construction. In line with our purpose of Making the World a Better Home and achieving our Net Zero goal by 2050, decarbonizing the built environment with sustainable products that will have a lower embodied carbon footprint will be the way forward for us."

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OLDCASTLE BUILDINGENVELOPE

Acquisition of Syracuse Glass Company



Oldcastle BuildingEnvelope, Inc. (“OBE”) has announced that it has completed the acquisition of Syracuse Glass Company (“SGC”). Founded in 1909, SGC is the leading independent fabricator and distributor of architectural glass and aluminium products serving glazing contractors, manufacturers and glass retailers throughout Upstate New York, Eastern Pennsylvania and New England.

“Syracuse Glass Company has delivered high quality products and excellent customer service in its markets for more than a century,” said Bruno Biasiotta, Chief Executive Officer of Oldcastle BuildingEnvelope. “We are excited about the prospect of leveraging our collective cultures and capabilities to build on SGC’s great reputation. This acquisition will allow our teams to provide industry-leading glazing solutions to better serve our customers and partners and help them be successful. Our enhanced presence in the Northeast region of the US will enable OBE and SGC to capitalise on the market opportunity and grow our industry-leading market position.”

Headquartered in Syracuse, New York, SGC offers custom fabricated products, including tempered, laminated and insulating glass, shower enclosures, glass entrances and store-fronts, and custom aluminium entrances and store-fronts.

“Joining OBE will allow us to offer even more support, expertise and value-added product options to better serve our customers,” said John Dwyer, Chief Executive Officer of Syracuse Glass Company. “Our customers can continue to rely on the leading service levels and product quality they have come to expect from SGC. Partnering with OBE, we will remain our customers’ supplier of choice well into the future.”

“We are sincerely pleased to welcome the Syracuse Glass Company team and their culture of performance and teamwork to the OBE family and look forward to partnering with SGC in its next phase of growth,” added Biasiotta.

WWW.OBE.COM

LANDGLASS

Installing and maintaining the furnace door system

no less than 30 millimetres, and the distance between the lower furnace door frame and the upper surface of the ceramic roller conveyor shall be no less than 10 millimetres. Ensure that the cylinder-driven furnace door can be opened smoothly with no jerking. Ensure that when closing the tempering furnace door, the upper furnace door frame does not interfere with the roller and can be completely closed with the lower furnace door frame.

LANDGLASS recently offered advice to the industry about what to pay attention to when installing and maintaining the furnace door system of a glass tempering furnace. The furnace door system consists of a cylinder, a drive shaft, tension springs, pull rods and a furnace door. When the tempering furnace door system is in operation, the cylinder moves and drives the drive shaft to rotate. The drive shaft drives the pull rod up and down through the shifter fork. The pull rod then flips the furnace door to achieve the door opening and closing. When performing furnace door maintenance and installation, note that the distance between the upper furnace door frame and the upper surface of the ceramic roller conveyor shall be

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PTN 330

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- > Low maintenance
- > High reliability
- > Heavy-duty chassis
- > Obstacle detection system
- > AC technology
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- > Traffic management



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KURARAY EUROPE

Inclusion among Germany's most innovative companies

Glass interlayers with different refractive indices make inscriptions or images visible that would not be visible to the naked eye. According to German weekly magazine stern, it is often unknown global market leaders -so-called hidden champions- that secure prosperity in Germany with their inventive spirit. In light of this, the magazine has now taken a closer look, and together with the German Society for Consumer Studies (DtGV) and with the help of an objective, data-based methodology, it has identified the 500 most innovative SMEs in Germany.

The basis for the evaluation was formed by the 'patent performance' of the candidate companies -i.e. the number of patents granted and their relevance for the 'innovation activity of the economy'- in the period from October 1, 2021 to September 30, 2022. A prerequisite for the study is that the companies were not allowed to exceed a turnover of EUR one billion in order to be counted as an SME.

To obtain as realistic an assessment of the patents as possible, and their importance for the "innovation activity of the economy," they were evaluated on how often they are cited in other patents, or how often other patents were mentioned in them. The results were converted into a score value.

Each company was assigned to one of 30 industries - from drive technology to toolmaking. Interestingly, the companies could not apply for inclusion in the list. The methodology was decided solely by the independent DtGV Institute together with the 'stern' editorial team; and only the companies were evaluated; not their products.

Several of the patent families examined the **KURARAY** deal, for example, with the black outer edge area in automotive wind-shields. The common practice for many years has been to apply an opaque black coating to the wind-shield to protect the sealant and bond from UV light. Kuraray has been supplying the automotive industry with laminated

safety glass film for many years. The film manufacturer has now applied for a patent for a process by which the black ink can be printed directly onto a thin film that is bonded to the actual safety glass film. This process also supports the integration of further sensors in the wind-shield, which are necessary for driving autonomous vehicles.

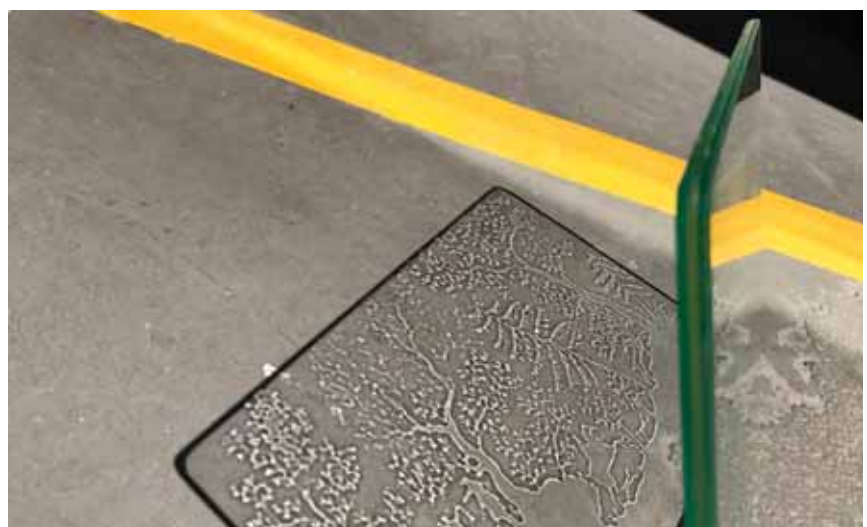
Another patent application deals with the 'invisible' integration of 'watermarks' for batch designations or proof of origin of laminated safety glass. For the end customer, it is very difficult or impossible to determine if the product is the original Kuraray product ordered.

Kuraray inventors found that interlayers made up of two separate films with different refractive indices can solve this problem. When illuminated from the edges or sides, patterns such as watermarks or product names can be made visible. This invention was also made possible by 3D printing, which played a key role in its development.

In the future, it should therefore be possible to have a reliable designation in the glass that rules out any errors and guarantees that the customer has received the correct product. It would also be conceivable to integrate large logos or symbols that are initially reserved (invisible) in daylight and only appear in the evening when illuminated, e.g. on shop windows.

All these inventions originate from the European research & development centre of Kuraray's "Advanced Interlayer Solutions Division," which produces interlayers for laminated safety glass. This division is part of the specialty chemicals group of Kuraray in Japan, which is involved in a very wide range of disciplines: solutions for architecture and construction, health and pharmaceuticals, printing, paints and electronics industries, as well as many other products used in our daily lives.

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ŞİŞECAM

Discussions begin to invest in ICRON

Şişecam has signed a letter of intent to become an investor in ICRON, a Turkish technology company that provides optimization platform services to numerous sectors for their strategic and operational decision-making needs.

ŞİŞECAM's ongoing discussions on its initial investment in the field of technology development reflect the company's eagerness and appetite in innovative, technological, digital and promising technology companies and projects. Differentiating with the smart technology usage and its competent human resources, Şişecam continues its uninterrupted growth by blending its unique experience gained during 88 years of corporate industrial history with its transformation efforts and promising investments.

While Şişecam continues to assess investment opportunities in different business areas to gain new strengths, the discussions initiated with ICRON represent a strategic step

for the company to further enhance its transformation and digitalization efforts with diverse skills and perspectives. Sisecam defines itself as a technology company breaking new grounds with its experience and capabilities in different fields. Developing technology for its operations and businesses has always been a part of Sisecam's working culture. In 2018 Şişecam started a holistic transformation project in order to get ready for the future. This transformation journey is defined as "the most advanced SAP re-platforming project" in the world. Şişecam is also the first company in Turkey to carry out a foreign trade transaction with blockchain technology.

Another pioneer initiative that Şişecam launched in line with its 'End-to-End Digital Treasury Management' target is the Digital Fraud Detection and Control System. Şişecam, the first company in Turkey to join the swift network by obtaining a corporate swift code, is also the winner of the Adam Smith Best Cyber Security Solution Award in 2021, one of the most prestigious awards in this field. The company also received the Alexander Hamilton Digital Transformation Award in 2022 for its success in managing digi- →



← tal transformation projects, finding, and integrating technology solutions to solve problems in operational processes.

If the negotiations reach an agreement, ICRON will become Şişecam's first investment in the field of technology development. This investment from Sisecam will support the growth of ICRON, a company with high potential in the world of decision optimization and provide gains by elevating the operational excellence and optimization approach within its current operations to a higher level. According to the letter of intent signed by Şişecam's CEO Gorkem Elverici and ICRON's CEO Gurer Unal in Barcelona at Gartner's Supply Chain Expo 2023, if the negotiations end with an agreement, the company will have an option right to increase its total stake in ICRON up to 50 percent by 2027.

ICRON steps into the 2023 Gartner Magic Quadrant for Supply Chain Solutions

Established in 1992, ICRON offers intelligent supply chain solutions that contribute to the sustainable, efficient and profita-

ble operations of global customers in various sectors. ICRON's algorithm-based, decision-centric software platform supports multiple decision makers, decision processes, and scenarios through various problem-solving techniques such as optimization, planning, machine learning, and artificial intelligence algorithms. Sisecam and ICRON have been collaborating since 1996 for Sisecam's supply chain related needs. ICRON has once again proven its capabilities by stepping into the 2023 Gartner's "Magic Quadrant for Supply Chain Planning Solutions", which was published in May 2023. Gartner is recognized as one of the most respected technological research and consulting organisations worldwide. This recognition further establishes ICRON's position as one of the top 20 companies in the global supply chain planning domain and demonstrates ICRON's capabilities since the report serves as a highly regarded and globally essential guide followed by supply chain decision-makers worldwide.

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AGC

First test of glass production using ammonia as fuel in furnace

AGC, a world-leading manufacturer of glass, chemicals, and high-tech materials, recently announced that it has recently succeeded in the world's first demonstration test of glass production using ammonia as fuel in an actual production furnace under the project entitled "Technology Development for the Utilization and Production of Ammonia as Fuel" ("the project") which is being undertaken as a commissioned project by New Energy and Industrial Technology Development Organization (NEDO). The project is a joint technology development effort with Taiyo Nippon Sanso Corporation, the National Institute of Advanced Industrial Science and Technology and National University Corporation Tohoku University. For this project, an actual test of ammonia combustion technology was conducted using an ammonia-oxygen burner with low NOx combustion technology developed by Taiyo Nippon Sanso at the glass melting furnace that produces architectural glass at the AGC Yokohama Technical Centre, and the effects on glass quality and furnace materials, and on control of flame temperature (temperature of flame burning at burner tip installed in furnace), furnace temperature (temperature of gas inside the furnace and inner wall surface), nitrogen oxide (NOx) emissions were verified.

In the future, the project plans to conduct demonstration tests under various conditions, as well as further scaled-up burner tests and demonstration tests at other AGC sites. By doing so, the aim is to fully introduce ammonia combustion technology into glass melting furnaces after assessing the scope of its application. In the future, the company will also consider expanding its application beyond glass to other materials, such as steel and aluminium, to widely help reduce GHG emissions in the production process of the materials industry.

This time, a pair of burners developed by Taiyo Nippon Sanso to prevent a rapid rise in flame temperature through multi-stage combustion were installed in the glass melting furnace (actual production furnace) used to produce architectural glass at the AGC Yokohama Technical Centre, and the world's first demonstration test using ammonia as fuel was conducted for two days from June 18 to 19th, 2023.



Glass melting furnace in which this demonstration test was conducted



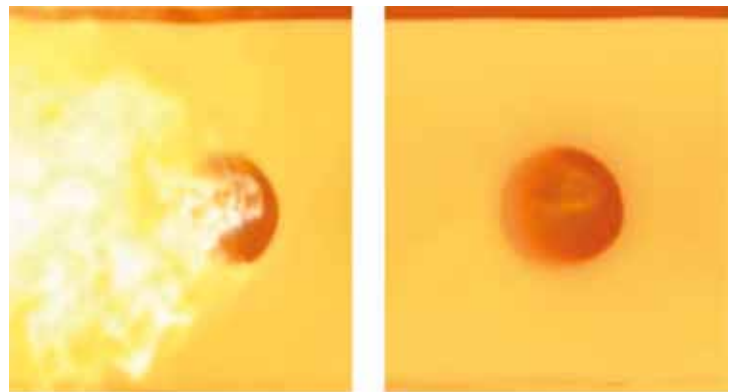
Storage tank for ammonia fuel

← In the demonstration test, compared with conventional combustion methods using heavy oil as fuel under various conditions, the effects on the quality of glass, furnace materials, and control of the flame temperature, furnace temperature, and NOx emissions were verified. In this test, the NOx concentration in the exhaust gas was found to be below the environmental criterion value while maintaining the required temperature of the glass melting furnace.

The plan for 2023 is to continue conducting technical verification using ammonia as fuel under various conditions, using the glass melting furnace that produces architectural glass at the AGC Yokohama Technical Center. After 2024, plans are to conduct scaled-up burner tests and demonstration tests using glass melting furnaces at other AGC sites. The goal is to fully introduce ammonia combustion technology in 2026 or later after determining the scope of its use.

The goal is to fully introduce ammonia combustion technology in 2026 or later after determining the scope of its use.

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Natural gas 100%

Ammonia 100%

(Ammonia flames are hard to see because of low brightness)

Inside a glass melting furnace burning with a specialized burner

GLASS TROESCH

New factory to be built in Stad Lommel, Belgium

Swiss Glas Trösch Group announced plans for the building of a new factory for float glass for architectural, building and solar panel industry in Stad Lommel, Belgium, on the 35-hectare brownfield of the former Philips Emgo factory.

The factory will offer 300 direct and about 1,000 indirect jobs. The investment is in the order of several hundreds of millions of Euros, first production is scheduled during 2025. The production volume will reach the equivalent of glazings for 300,000 housings a year.

As Donald Eshuis, project manager & CEO of Scheuten (part of **GLASS TROESCH** Group), stated: "In the framework of achieving the European sustainability targets, glass is an important component. The new continuous float factory will supply mainly to flat glass processors & end-users in Belgium and surrounding countries, thus resulting in a significant reduction of CO2 and carbon in transport."

The former Philips Emgo plant in Lommel has been chosen as location for the new state-of-the art float plant as an ideal combination of the presence of high quality sand (major raw material), availability of multi-modal transport facilities (water, road, train) and the availability of high skilled working force.

Glas Trösch Group was assisted in the search for the new float factory location by LRM (Limburg Regional Investment Company), VLAIO – Flanders Innovation & Entrepreneurship, Flanders Investment & Trade (FIT) and Stad Lommel

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SPARKLIKE

Case study - Jiangsu Jiacheng

Jiangsu Jiacheng Special Glass Manufacturing Co., Ltd. was founded in 2014 and since its establishment, Jiacheng has acted based on their core culture of “honesty, quality, trust and success”, on which the well-known “Jiacheng” brand has been built.

Jiacheng Glass main business is “high-end processing glass” as the theme of decoration manufacturing, the leading products for fire-resistant glass, bulletproof glass, insulating glass, laminated glass, curved tempered glass, tempered glass, frosted jade glass, low radiation glass and other full series of products.

The company has impressively passed China CCC certification, ISO9001 quality assurance system certification, Australian building material safety certification, American standard certification, and France Saint-Gobain (China) Club. One part of their quality assurance process is measuring their gas concentration of IGUs with SPARKLIKE devices, the only ones that can analyse the gas levels without breaking the glass.

Taking care of product safety and quality

In the beginning, Jiangsu Jiacheng was unsure how their glass would pass the test which hindered them from executing the quality checks. But after a short while, they listened to their company values of “honesty, quality, trust and success”, and made the decision of taking care of quality and product safety to meet the quality standards and customers’ needs and to have a competitive advantage.

Faming Lu, Sale VP of Jiangsu Jiacheng, said: “Like some other manufacturers, we did not dare to take the sample of argon gas filled IGU to present to our customer, not to mention let the customer do the K value test. These were all because we had no confidence in our own products, did not know whether they were qualified or not, and were afraid of showing timidity.”

After Jiacheng Glass had made measurements they got an update of their level glass production. Based on the results they started to make the required changes to meet the standards.

“Up to now, the customers are using your [Sparklike] equipment to randomly check and compare the argon gas concentration with different glass suppliers, our pass rate is the highest,” continued Lu.

Gas fill processes that exceed expectations

This is the outcome of taking quality control seriously and creating processes that exceed the expectations. Now the company knows where to improve and what is the current gas fill level of products which is something they are very proud of. They started as unknowing how their products would perform to a highest pass rate.

Lu said, “Because I bought your detector, as long as the IGU is filled with argon gas, we check the concentration to ensure the lowest argon concentration is 85 percent before shipping out from the factory. The Product Quality Ratio has been improved to 99.9 percent from lack of acknowledgement.”

Quality promise to customers

At Jiacheng’s technical exchange conference in 2022, the company made a quality promise to their customers which covered for example product quality assurance, self-explosion warranty, delivery guarantee, after-sales service response time, and providing technical support to their customers. Additionally, Jiacheng Glass promised that all product quality standards are higher than the national 3C standards, and implement the enterprise quality standards as agreed in the contract.

At the end of the conference, Lu said, “No matter how chaotic the market is, don’t worry about it; the market is changing, but the quality remains the same.” Which is an important reminder to all operators in the glass industry.

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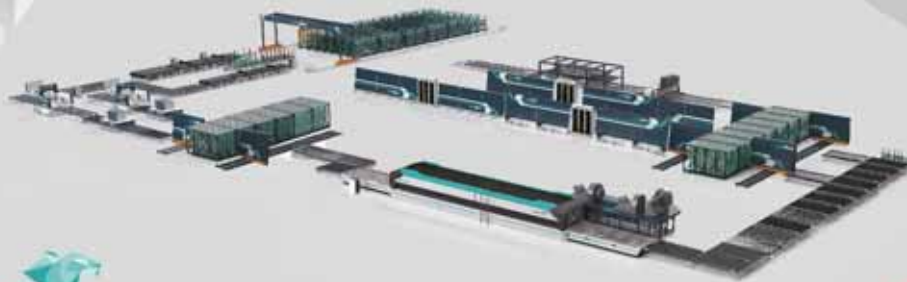
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New autoclaves for curved glass and windshield

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ITALMATIC, leader in the research, design and construction of autoclaves for various applications, has developed a new generation of advanced and innovative machines for the treatment of curved glass and windscreens. These autoclaves, the result of research, development and experience acquired over the years, have been designed with the aid of the most sophisticated structural and thermodynamic calculation programs, such as the new dynamic flow simulator C.F.D. (Computational Fluid Dynamics). In the design, particular attention was paid to energy saving – adopting innovative materials for thermal insulation, high efficiency motors controlled by inverters, heating systems (electric, diathermic oil or steam) with infinitesimal control, as well as new control systems capable of managing power and flow distribution, thus allowing significant reductions in operating costs. The machine can also be made with two doors, one on each side, to allow the automatic and/or manual introduction and unloading of the glass holder carriages, thereby speeding up the loading and unloading operations, especially for continuous production of both 24/24h and 7/7g. For a better internal chamber uniformity, according to the different loads and positioning of the glass under treatment, the motor fan units have been positioned in the upper part in direct contact with the heating and cooling exchangers. This innovation has

made it possible to work for defined areas within the chamber, managing each area according to the load and with the best uniformity. Orientation and modulation of the ventilation, with variation of the fluid transfer speed on the products, ensures that glass quality conforms to even the most restrictive market requirements. The control system, called ICS (Italmatic Control System), allows you to program, supervise and have complete traceability of production batches - both automatically and manually, in order to allow for analysis of all process cycles. The control system meets every industry 4.0 requirement and can also be interfaced with the company MES.



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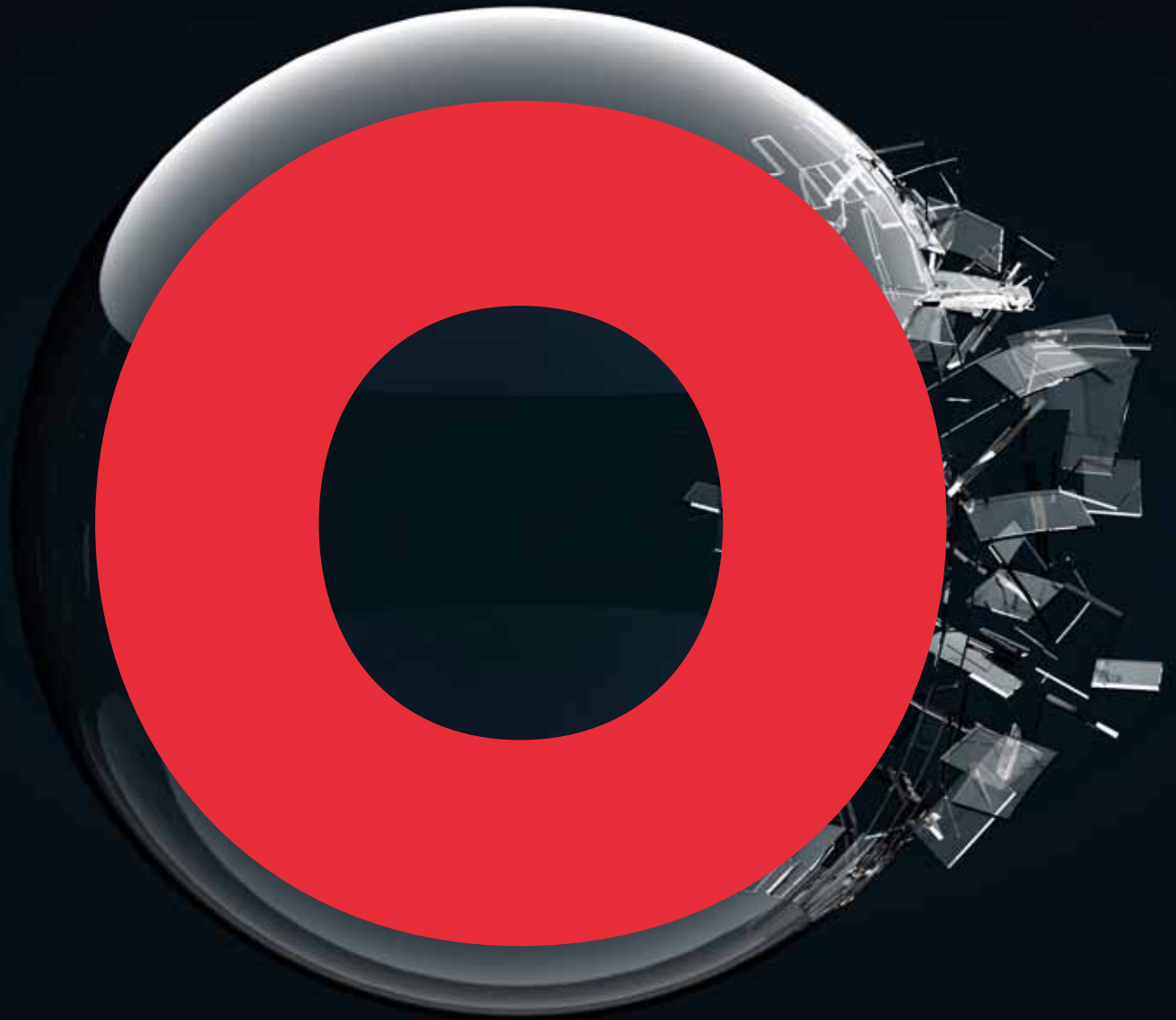
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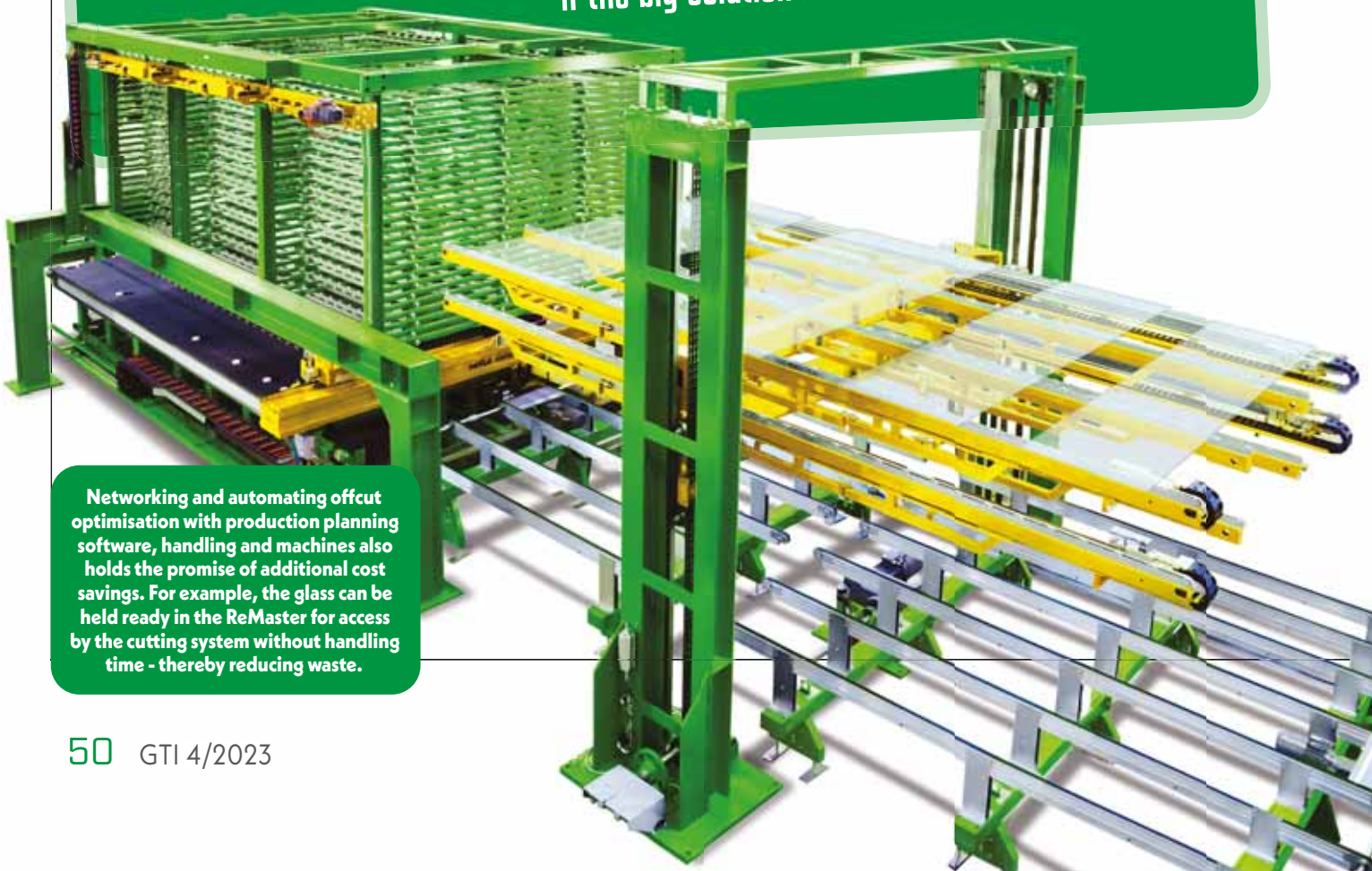
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Ushering in Industry 4.0 at HEGLA-HANIC all in small, fast-working steps

With the advent of smart factories, the future of glass processing is one that's fully-digitalised, networked and highly-automated. Here the team at HEGLA-HANIC identifies a key priority in the reduction of costs whilst improving or automating processes - even if the big solution needn't come all at once.



Networking and automating offcut optimisation with production planning software, handling and machines also holds the promise of additional cost savings. For example, the glass can be held ready in the ReMaster for access by the cutting system without handling time - thereby reducing waste.

Depending on the product portfolio and level of automation when handling, the use of dynamic continuous optimisation promises additional benefits. Optimisation is applied across multiple batches and is continuously adjusted for, say, remakes, new orders or prioritised orders.

Actual Batch 469



Following Batch 471



scan then this creates valuable production data - making it available for capacity and production planning.

REDUCE OFFCUT COSTS WITH DYNAMIC CONTINUOUS OPTIMISATION

Offcut optimization is certainly one of the perennial concerns of glass processing companies. But the increasing cost of glass today has made the topic even more relevant. Depending on the product portfolio and level of automation in handling, the use of dynamic continuous optimisation holds the promise of additional benefits. “With this approach, optimisation is applied to multiple batches and is continuously adjusted: for example, when panes are remade or new orders are created in the ERP,” explains Jan Schäpers. This increases the utilisation rate and reduces resource consump-

As Managing Director of HEGLA-HANIC Jan Schäpers said recently, when considering today’s much-needed advances in software and automation for the glass industry it often pays to take a closer look at individual steps.

WHERE IS PAPER BEING USED?

If prioritisation or analysis is difficult at the beginning, Schäpers recommends a topic for initial reflection that regularly proves its mettle: “Where are we still working with paper? Which processes are being controlled without software or manually triggered?” He goes on to explain why: “The work steps where information is transferred manually or by routing slip are more prone to error and typically slower

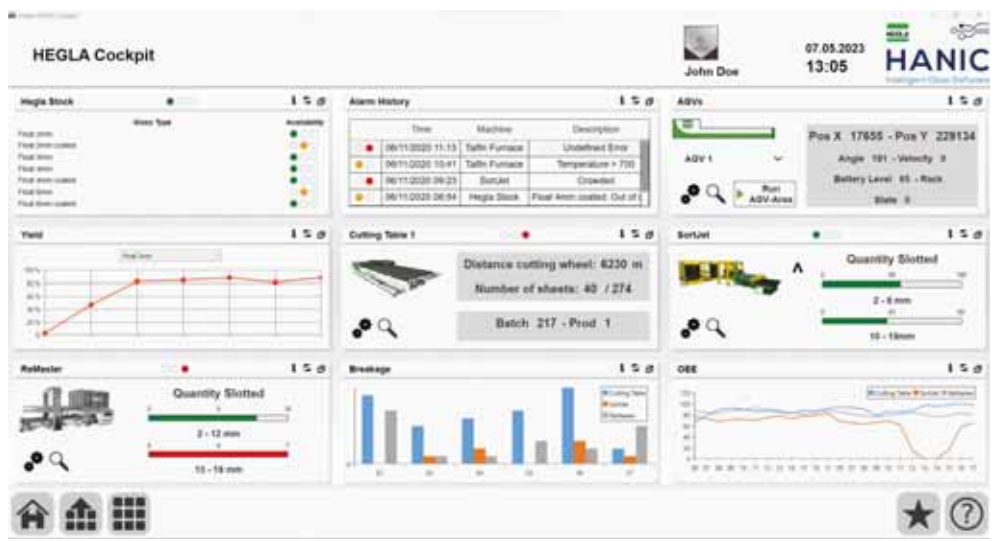
than system-controlled sequences.”

In the ideal case, the data required can be integrated into the MES and production planning software via an interface - or even better, be centrally-inputted there for all needs. Making the data automatically available from a central location excludes errors and enables companies to leverage their entire potential. If the technical effort required to compile the data is too great then transferring information via scan is a viable alternative. When a machine-readable sticker or laser marking is used for scanning then the process-

ing step can be documented for product traceability or evaluated for production planning at the same time.

Depending on the extent to which the company drives its data integration, the ID or marking code can be used to trigger processing steps without any risk of mix-ups. The data for processing a previously set-up pane are directly available to, say, a double edger. And information as to whether RF-transparent or bird protection glass is to be produced can be transferred to a laser processing system as well. If the end of a process is also acknowledged via

A cockpit displayed on monitors at central points in production can improve communication and transparently involve the employees, who understand sequences better and can see the interdependence of processes. Data selection can be configured freely and across departments.





A cockpit displayed on monitors at central points in production can improve communication and involve employees with transparency. They understand sequences better and can see how processes depend on each other. Data selection can be configured freely and across departments.

tion. Additional potential can be created by an automatic remnant system that is linked to the optimisation software and holds usable panes ready for access by the cutting system.

TRANSPARENT INFORMATION

The large quantity of data made available as a consequence of digitalising and automating systems and process steps offers a starting point for getting employees even more involved and on board with regard to their daily tasks. First, collecting this information improves their knowledge of production. Second, it has often been shown that implementing a cockpit in a company improves communication and understanding

among employees. Depending on the data selection and storage mode, monitors in the production area display the current stock levels and indicate whether or not cutting or insulated glass production is still on schedule and which batches should be prioritised on a given day. If desired, an intuitive traffic light system with a target/actual comparison can provide information as to whether or not production is still in sync or action is required.

THE SHOP FLOOR AS THE SUM OF THE PARTS

Alongside the many small and medium options, the comprehensive networking and digitalisation of the ERP to production

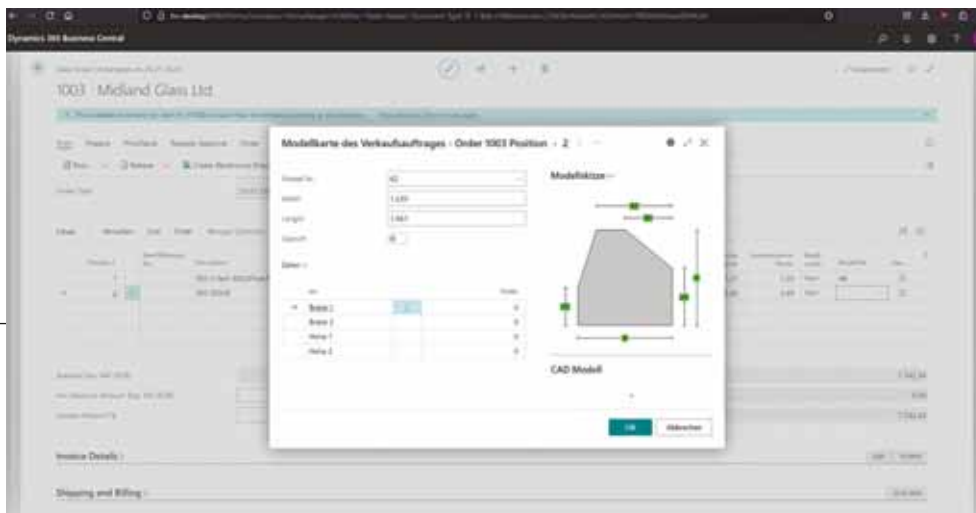
planning software and the machines ultimately offer further starting points. Here as well, Dr Schäpers recommends first looking at areas that are not directly integrated into a process or are manually controlled via paper. Depending on the portfolio, optimisation of the ordering process in the ERP can be worth considering in order to automatically import the customer order and run a plausibility check or request missing information. And depending on the configuration, the stock level is immediately checked and a control code for the various systems is generated. For some companies, triggering shipping document creation via automatic or manual scan at the system is ideal. The more the various

systems and departments communicate with each other directly or are controlled by software, the less prone the overall system is to errors and delays. "In recent years, the dynamics within the economy have shown that alongside the major goal of Industry 4.0, the smaller intermediate steps are also valuable when the aim is to improve processes, minimise errors or flexibly adjust to changing requirements," says Jan Schäpers.



HEGLA-HANIC GmbH
HEGLA
HANIC
 Intelligent Glass Software
 Berliner Straße 88-94
 44866 Bochum-Wattenscheid
 GERMANY
 Tel.: +49-2327-83690
 E-mail: info@hegla-hanic.de
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Comprehensive networking and digitalisation promises additional starting points such as an optimised order process that takes place either directly in the ERP or is networked with the customer and then imported with a plausibility check and without errors. If required, the back office can subsequently approve the orders.



Still playing its winning hand, **ROLLMAC** prepares to wow Vitrum attendees

Exhibiting at Vitrum this year, ROLLMAC will be showcasing its renowned Glassline 2600 and Colorglass 600 machines, both celebrated for their precision, reliability and durability. Of these, the former offers edge-coating with adjustable widths while the latter excels at enameling and design printing - just two of a complete technological portfolio that will be on display at the company stand.





Being the division of Gemata that specializes in float glass machinery manufacture, Rollmac will be exhibiting once again at Vitrum this September.

GLASSLINE

A complete system designed for edge-coating flat glass sheets, Glassline comprises an entry roller conveyor equipped with

an inner liftable rack with spheres, a coating head with a reverse engraved cylinder and an exit roller conveyor. Using the reverse cylinder mode, the machine ensures

excellent enamel distribution - offering uniform coverage and well-defined edges. Operators can easily adjust the edge width from five to 300 mm via the con-





trol panel. Worthy of note, the machine control PLC enables a frame setting with four parallel bands of varying widths - all on a single sheet.

A truly versatile system, it's capable of enameling sheets of any size - from

a minimum of 300 x 300 mm to large formats like 3200 x 6000 mm, thanks to an extractable support with spheres that handles the cantilevered portion of the sheet. This can either be installed individually or integrated into larger

enameling lines, thereby catering to building needs as it furnishes various glass sectors which include external architectural structures, interior walls and furniture components.

COLORGLASS

Colorglass is a single-roller machine specifically designed for enameling and design printing of glass sheets using an engraved cylinder. It offers a working width ranging from 600 to 2600 mm - making it suitable for processing various types of flat glass. Whether for small dimensions like tiles and decorative elements or such larger applications as facades and interior walls, Colorglass excels. A versatile technology, it features synchro and

reverse modes for specific design effects or general enameling. Noteworthy features include a quick colour change system as well as user-friendliness.

Aside from showcasing their machines, the Rollmac team will be available to present their complete technological portfolio - which includes Multiglass, Jumbo-glass, Micromix and Foam-mix foaming machines.



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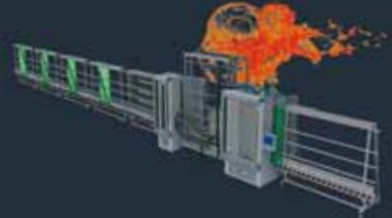
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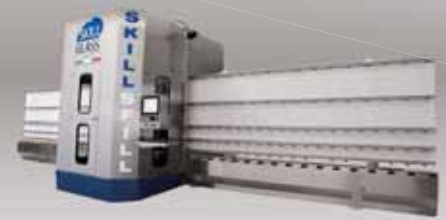
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SKILL SFILL

IG production costs spotlight **GLASTON**'s energy-saving solutions



A factor hardly helped by the current crisis, energy remains the main raw material in Insulating Glass (IG) production. Here rising bills have seen IG producers scouting for novel ways to reduce costs in order to remain competitive - a challenge which, as today's team at GLASTON notes, can certainly be achieved with the correct, modern technology.



The main driver in today's IG production is that of needing to reduce total cost of ownership (TCO). To achieve this, every step of the IG production process necessitates smart optimization to best mitigate wasted improvement opportunities showing up in monthly energy bills. Of these, the most important follow here:

GLASS WASHING AND DRYING

One of the most energy-intensive steps in IG production is that of glass washing and drying. Here the drying zone of Glaston's latest and most advanced washing and drying machine will be automatically powered off as soon as the glass plate has been dried and has left this section. If there is no glass to be washed or dried then the ventilation

flaps of the blower will be closed. This results in a reduction of up to 25 percent in washing machine energy consumption.

CONVEYOR SYSTEMS

Roller-driven conveyor systems are indeed more energy efficient than air-cushion technology. However, if we include the high risk of glass scratching during the process - especially with Low-E coated glass - then the costs of roller-driven conveyors will rise owing to frequent glass quality issues. Here Glaston's modern air-cushion conveyor technology will not compromise glass quality - thereby avoiding remakes or reputational risks.

COMPONENTS

In general, all component motors and drives

should be efficient and state-of-the-art. Moreover, by using shared drives in modern IG lines, you can ensure that the only conveyor units running are those carrying glass at any specific moment. All others will be motionless. This reduces electrical power consumption significantly.

TOP-LEVEL EFFICIENCY WITH TPS® TECHNOLOGY

When improving energy efficiency at a facility, a more radical technology update might be required. The most advantageous solution is the Thermo Plastic Spacer (TPS®) system. As the inventor, Glaston launched this technology in 1995. As such, the company now has an extensive, long-term experience with this system within the ar-

chitectural glass industry. With TPS®, IG manufacturers only need a single machine to produce the IG units - not several components. This solution eliminates the need for other production machines, including those for bending, sawing, connecting, filling and butyl coating. Together, these systems need more electrical power than just one TPS® Applicator.

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Lönnotinkatu 11
FI-00120
Helsinki
FINLAND
Tel. +358-10-500-500
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TUROMAS now Üveg equipment supplier for super-automated Latin American plant

TUROMAS was recently nominated by new Argentinean glass processor Üveg as equipment supplier for its new plant in Cordoba: two automatic glass cutting lines -monolithic and laminated- and a new storage system for jumbo glass, complete with scraps manager.

Located in the city of Cordoba, Argentina, Üveg has a 12,000 square metre plant on a 3.5 hectare site. It has a fully-automated infrastructure thanks to equipment from leading European brands and cutting-edge technology, just recently installed. Among the processes carried out in the plant are the tempering and lamination of jumbo glass, the production of DVH and TVH with argon gas and glass processing with such special coatings as TPF or Easy PRO.





With a track record of more than twenty years in the management of leading national factories, co-founder of Üveg Santiago Ürményi has a deep understanding of the challenges facing the sector. This solid experience has motivated him to seek innovative solutions to overcome common obstacles affecting efficiency, quality and growth in the glass industry. In 2015, he began a tour of 25 glass processing plants around the world, with the aim of designing a plant in

Argentina that would provide a service in line with the demands of the most demanding global markets. During his search, Santiago found in Turomas a reliable partner with which to keep up with the sector. Says Ürményi: “The choice of machines was a long and difficult process. We visited more than 20 plants in Europe to understand what was the best technology for us and after really understanding what we wanted we chose Turo-

mas. The installation process has been exceptional. People have come from Spain all the way to Argentina and, without a doubt, we have felt very comfortable with the team at all times. It has been a first class installation, with quality machinery and a really valuable imple-

mentation. Our production expectations are very high and we are working collaboratively with Turomas to perfect every detail and make sure the machinery is running at full capacity.” The machines installed by the Argentinian manufacturer consist of LA-06,



an intelligent glass storage system which has a double supply system for cutting by means of two MAM-06 tilting tables. The loader has a grid equipped with high precision and high power vacuum suction cups, designed to hold and transport glass panels safely. These machines feature advanced control technology, offering remarkable speed and precision that significantly reduces loading time and effectively increases productivity.

wTogether with the LA-06 warehouse, an external SG-06 automatic remnant warehouse has been installed, which allows remnants to be stored without

the risk of damage - knowing their exact location, their measurements and the type of glass for later use in optimisations. Turomas software has also been implemented with the StockGlass tools, which simplifies inventory management by collecting stock information in automated warehouses, as well as LinkGlass, which automates the production sequence - eliminating operator intervention in both work order selection and load scheduling.



TWO AUTOMATIC LINES

For the glass cutting process, two automatic lines have been installed. The first is a complete RUBI 516C float cutting line, equipped with linear motors and TX-6A au-

tomatic cut-off saw. The automatic cross-cutting system cuts the cross-cuts ("X" axis) by means of the combined action of a lower longitudinal breaking slide and the punctual upper clamping of the workpiece. It man-





ages to maintain high-edge quality at a constant rate - all to ensure a continuous flow of glass on the cutting line.

In addition to this line, the Turomas Cutting TV, the application that provides automatic visualisation of optimisations, has been added. At a glance, the operator has access to all the information needed for the cutting process. Here the screen shows parts, remnants and the processes required for each optimization. It automates the process, avoiding the use of paper, and allows the operator to customise fields and adjust parameters such as minimum remnant size and weight limit.

The second is a mixed LAM 504TX line for monolithic and laminated glass, which includes a second synchronised cutting bridge, namely LAM 304. The line incorporates

a specific Turomas Splitter software that allows balancing and automatic distribution of the transversals according to the specific needs of each optimization, thereby helping the operator in the decision making process. These technological solutions guarantee an efficient and precise process in glass cutting, making it possible to make the best use of resources while achieving high quality results.

Üveg has transcended local sales and expanded

its export reach - competing successfully with established companies in Chile, Brazil, Colombia, Mexico and Spain.

Says Santiago Ürményi: "Thanks to the investment we've made and the team we're building, Turomas has been able to sell important projects that are being planned for the end of 2022 to the beginning of 2023. As such, the company has been able to make the projection of its plant in important projects in

Argentina and the region a reality."

Turomas

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IoT

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ULTRA THIN GLASS AND SPECIALTY GLASS**



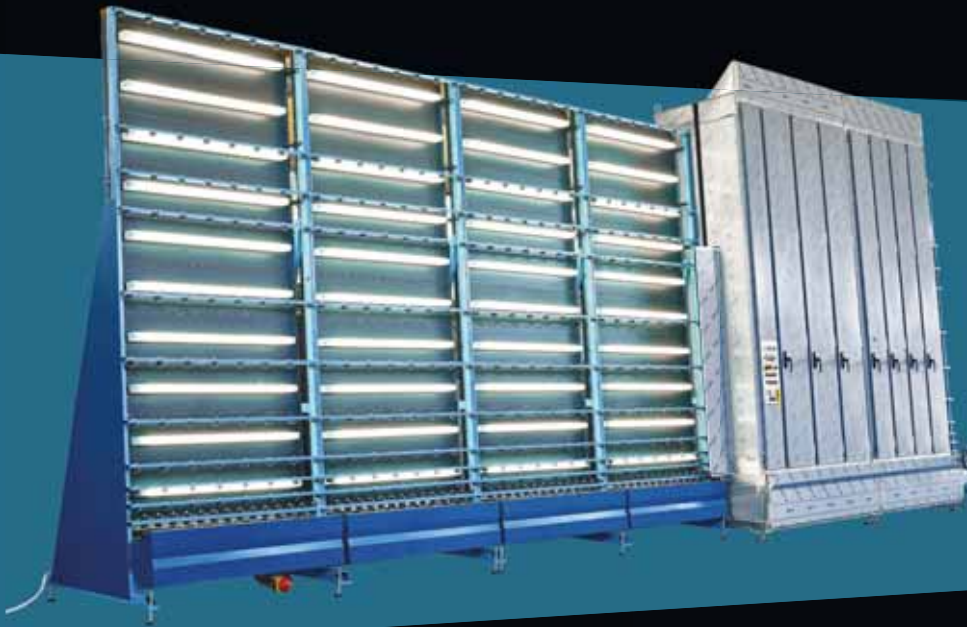
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- Two-part machine: washing and drying.
- Easy installation and transport thanks to its modular format.
- Equipped with 6 brushes for washing with high-performance hydraulic pumps. Pump impellers mounted only in stainless steel.
- Drying is provided by a 22 kW ventilation system.
- The brushes are driven by the inverter system with acceleration/deceleration to optimize the mechanical performance and reliability over time.
- The top is made of tubular AISI 304 scaffolding bearing and reinforced with stainless steel laser-cut sheets. This ensures high operating speed with greatly reduced vibration.
- Working speed from 1 to 5 mt/min

This is a vertical washing machine optimized for cleaning large glass sheets, especially suitable for heavy and continuous use. Thanks to its 6 brushes, it meets the standards for industrial cleaning, which are among the highest. Particularly suitable for on-line applications, it can also be combined with robotic systems. Made exclusively in closed top version, it allows to wash a glass minimum of L = 450 H = 250.





Merging automation with efficiency: bringing **Biesse** out at its best

Still excelling at innovative glass cutting solutions that meet specific production needs -also with optional features prioritising safety- Biesse's Genius CT-Next tables integrate seamlessly - ensuring reliability, productivity and precision while the company's Optic scanner enhances efficiency and its tool magazine allows diverse cuts.





Biesse has always been attentive to the development of new solutions in line with market trends. With a view to increasing automation and efficiency in materials processing the company has

created solutions for cutting both laminated and float glass over the last decade. Indeed the Genius CT-Next range was developed to respond to changes in the production process while maintaining high standards

for quality and customization. Here the three-axis cutting tables will cut float glass sheets along straight and contoured lines - perfectly-suited for integration with loading systems and breakout tables in small and medium-sized businesses.

THE NEW CUTTING TABLE OFFERS:

- Unprecedented reliability over time
- Machining productivity with top-class components
- Seamless integration into production lines with dependent loading and unloading systems
- Ease of use

GENIUS CT-NEXT

Genius CT-Next is a ready-to-use solution that guarantees high quality, performance and precision - thanks to the planarity of the work table with the base anchored to the floor. PC-controlled axle speed management and





high quality electronic and mechanical components all guarantee flexible and dynamic machining.

The operating head is fitted with an optic scanner that automatically detects the positioning of the sheet on the work table, which has a felt cover with integrated belts (retractable thanks to a 2-way drive). Precise, high-quality cuts are achieved by controlling the pressure with a proportional valve connected to a display on the head. The optic scanner automatically detects the position of the sheet without operator intervention, thereby increasing both efficiency and productivity.

The base of the machine consists of an extremely sturdy, fixed (non-tilting) steel structure with integrated belts. The six-position automatic tool magazine is patented Intermac technol-

ogy that enables up to three different cut types (straight, curved and open curved) on the same sheet - using an optimum tool for each cut to significantly improve the quality of the final result.

Genius CT-Next can carry out low emissivity removal (Low-E) thanks to optional devices purposefully-designed for specific production requirements. This

compact solution can finally be integrated with production lines with dependent loading and unloading systems. Operator safety is guaranteed by mechanical and electrical protection barriers.



ABOUT Biesse S.p.A.

Biesse is an international company that produces integrated lines and machines for machining wood, glass, stone, plastic, composite materials and the materials of the future. Founded in Italy in 1969 and listed on the Euronext STAR segment of the Italian Stock Exchange, the company aids the business evolution of its clients in the furniture, housing & construction, automotive and aerospace sectors. Today, about 80 percent of its consolidated turnover is achieved abroad thanks to an ever-growing worldwide network with four production campuses and over 30 showrooms through which the company is able to reach more than 160 countries. With the expertise of its 4,200 employees, Biesse encourages the imagination of sector-leading companies and prestigious names in Italian and international design - bringing out the potential of any material.



Biesse SpA



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Introducing Temper Flex - the new **PUJOL** tempering oven

With more than 110 years of experience, Hornos Industriales Pujol, S.A. has built its high reputation in the thermal engineering industry - continuously demonstrating great adaptability and a high capacity for innovation in the manufacture of top-level furnaces. Hitherto in the glass sector it has stood out for its reputation in the manufacture of furnaces and integral systems for glass lamination, glass bending and systems for process execution: Heat Soak Test.

EXPERIENCE IN ADVANCED ENGINEERING

Pujol once again shows off this unique capacity for adaptation and continuous innovation and a few

months after the acquisition of the glass division of the Italian company Teknokilns, announces the market launch of its new Temper Flex oven - a tempering solution unique and innovative glass product developed on the technological basis and long experience of Teknokilns Engineering, but above all providing the approach that glass professionals demand today on their global vision of the business related to the importance of maintaining the lowest possible energy costs continuously, perfect optical quality of the resulting products, all combined with its day-to-day challenges in terms of flexibility of products that are increasingly technical and complicated to process, such as soft-coated glasses - selective, increasingly sensitive, complex and necessitating an adaptability to a demand that's

typically very unstable and fluctuating.

ENERGY FACTORS

Temper Flex stands out for its high thermal efficiency and low energy consumption. Above all that's thanks to the fact that advanced engineering has been worked on in-depth that allows the heating chamber to have a higher degree of insulation but with half the thickness of the other manufacturers and models on the market, this is due to the use of high tech materials. Not yet widely introduced to the traditional industry but very present in other areas such as aerospace, this reduction in total thickness ensures Temper Flex ovens can be equipped with roll-

ers with a smaller diameter than others on the market. The pitch between axes are thereby reduced - offering optimum planimetry. Secondly, in terms of the design of the Thermal-Heating Systems set, it's worth noting how an advanced system of high-performance matrix panels has been incorporated into the upper part which, together with the integrated design of the resistances, provides both high thermal efficiency by using a high diameter Kanthal rod with a high power W/cm² which offers a high transfer and heating speed. Also, because this engineering and unique design prevents



When it comes to manufacturing state of the art furnaces, PUJOL is now well-renowned for both adaptability and innovation. The company's new Temper Flex oven, developed on the technological basis and long experience of Teknokilns Engineering, offers high thermal efficiency, low energy consumption, superior optical quality and advanced control systems for glass tempering.

mechanical deformation of the resistances, it offers a useful 12-year life span of the heating equipment and a five-year warranty on its heating equipment. Regarding the lower heating solution, unlike many other solutions on the market that use metal floors, Temper Flex equips a singular solution on the market that makes it conspicuously innovative with spectacular results after more than five years in the hands of Teknokilns Engineering. The lower heating system of the chamber is designed and equipped with a system of ceramic modules with embedded resistances of high density and thermal transfer as well as high mechanical resistance with a final layer of a non-stick glass



coating that helps to uniformly transmit the heat on the rollers and glass - a solution with lower energy consumption and greater speed and energy efficiency than traditional systems that protect inferior resistances based upon metal sheets on the screed. In the long run this offers lower energy consumption and lower maintenance costs - both in terms of sheet replacement and cleaning maintenance times when

there is a break in the oven.

RAISING THE BAR WITH QUALITY

Final optical quality of the glasses is another differentiating factor between Temper Flex and many other solutions, especially in oven solutions with widths that exceed 2.2 m. Here the answer lies in the distance between the rollers inside the heating chamber of the oven. Temper Flex uses unique

thermal insulation solutions that allow for the use of diameter rollers that are smaller than those of today's industry standard. Consequently, with the smaller roller diameter, the reduced distance between them, and a greater number of support rollers, distortion is minimized to impressively low levels. Optionally and as a reinforcement to the radiation system mounted as standard, in the Temper Flex - IR models the oven can be configured with the inclusion of a high-efficiency convection system based on the blowing of preheated air at 500°C inside the heating chamber. This system, which incorporates the Temper Flex - Proconv Series, provides greater flexibility, speed and quality while allowing the tempering of all types of layered glass: low emissive, selective and coefficient 0.01.

COST SAVING

Throughout the tempering process, Temper Flex takes maximum care of the quality of the finished product and its possible effects on the final quality of the product obtained. As such, much effort has also been invested in optimizing highly elaborate engineering in the tempering section - equipping it with an efficient sectional ventilation system that helps both to reduce the generation of anisotropies in the

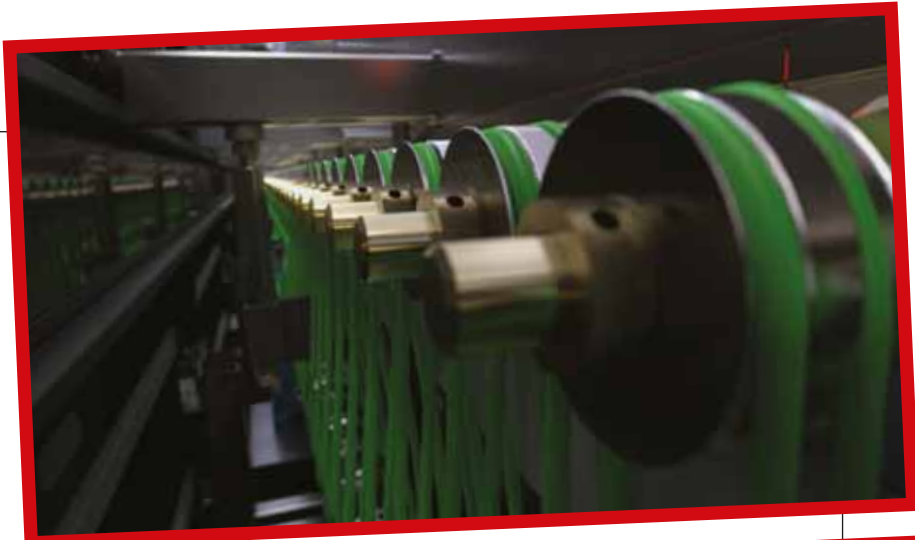
glass and to increase and maintain optimal planimetry, especially in glass with lengths in excess of 2.5 m. Not only. Thanks to this technical solution, Temper Flex allows the use of a single turbine to complete the tempering process more efficiently and with a higher quality of planimetry - giving the added benefit of making it possible to reduce the total length of the oven and, above all, to reduce costs both in the contracted electrical power needs and in the cost of the electrical installation by installing alternating current motors that offer lower maintenance costs than direct current motors offered by various other manufacturers.

PROGRAMMING

Regarding the solution of regulation and control of the process, Temper Flex is equipped with easy and intuitive programming - using a supervision system that facilitates process management for the oven operator. By way of a large 55" screen, the tempera-

ture of all sections of the oven is controlled and the thermal profile of its interior is defined. The temperatures of the glass are through a scanner on the surface of the glass when it leaves the oven and access to the registration and storage of process data, which allows the operator to track each finished workload as well as create the desired recipe base according to different new glass types that are being processed together with the load provisions. Temper Flex also incorporates the Pujol e-Connect system as standard - thereby facilitating remote and secure process traceability, as well as

remote assistance and production control. In sum, Temper Flex is a solution that offers low production cost, low maintenance, high quality of tempered products and high production flexibility.



Hornos Industriales Pujol, S.A



Pujol

Hornos Industriales Pujol, S.A
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- Ready for industry 4.0



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DAILY NEWS

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CMS Ypsos: EDIL VETRO's Innovative solution for design enthusiasts

CMS **YPSOS**

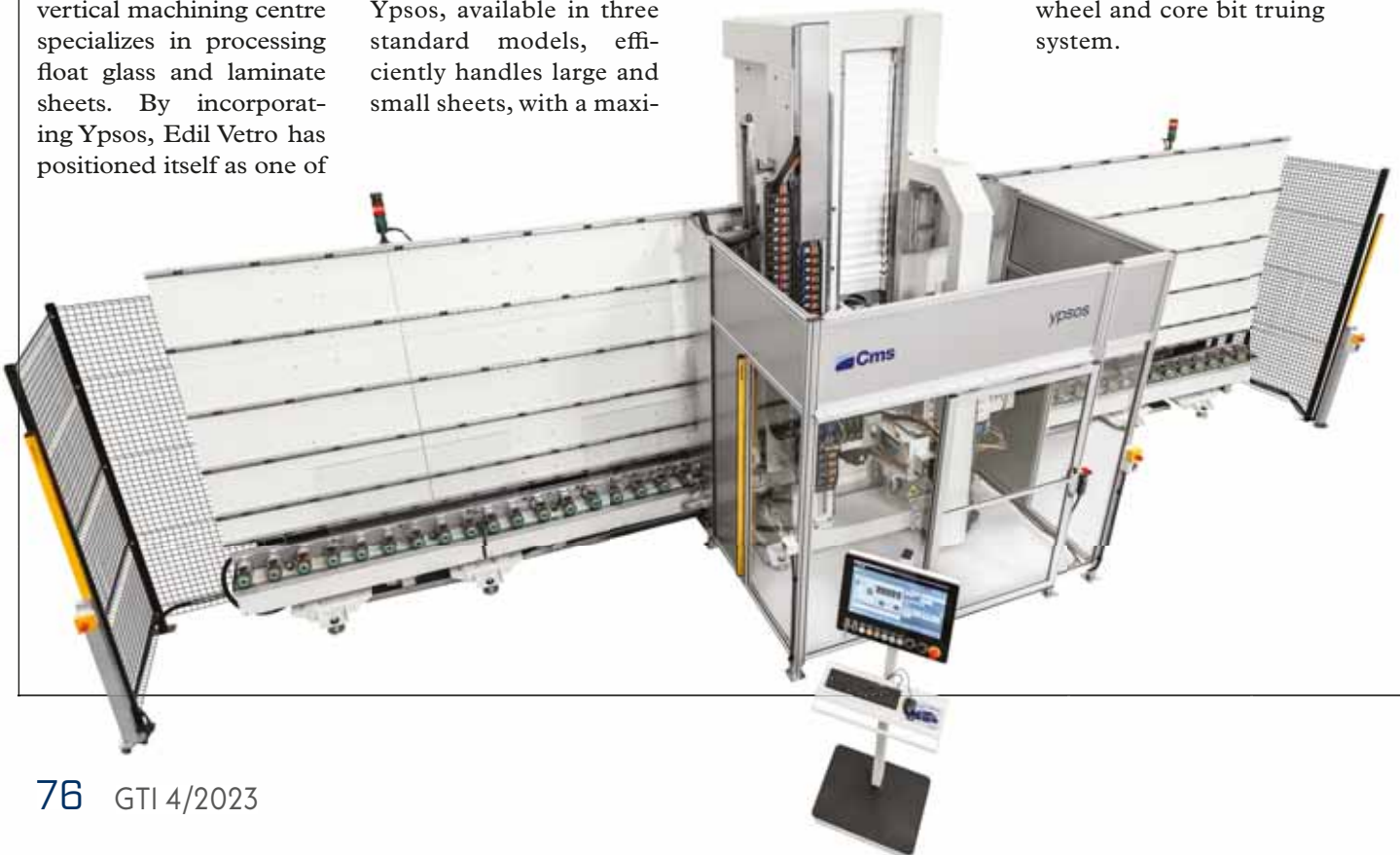
In a strategic move to expand the company's presence in the glass design market, Edil Vetro has integrated the CMS Ypsos into its production line. This cutting-edge vertical machining centre specializes in processing float glass and laminate sheets. By incorporating Ypsos, Edil Vetro has positioned itself as one of

the select few companies both in Italy and globally that's equipped to handle oversized glass processing - which often requires complex operations and customization based on architectural specifications.

Ypsos, available in three standard models, efficiently handles large and small sheets, with a maxi-

mum size of 6000 x 3300 mm (as well as other sizes upon request). It excels at seaming, polishing, industrial grinding, milling and co-axial drilling operations. For enhanced productivity, Ypsos can be equipped

with a second spindle and two rotary magazines (each with 13 positions) to accommodate tools up to 50 mm thick - utilizing ISO40 tool holder cones. Additionally, it offers the option of a fully-automated grinding wheel and core bit truing system.



Founded in 1993 by Tommaso Sabatino, EDIL VETRO has distinguished itself as a lead player in the glass processing industry. Specializing in insulating glass for windows and doors, the glass fabrication plant has experienced a consistent growth that's seen it broadening its product range to venture into the world of glass design.



SUPERVISORY CONTROL AND DATA ACQUISITION

The distinguishing feature of CMS Ypsos is its advanced SCADA (Supervisory Control and

Data Acquisition) software, which is designed to optimize the efficiency of the numeric control and user interface. The software enables comprehensive monitoring and supervision of the machine's key compo-





nents through dedicated synoptic views. Here the operator simply needs to specify the required processing tasks, whereupon Ypsos will take care of selecting the appropriate tool. In case of a missing or worn-out tool, it promptly alerts the operator.

LEVERAGING SMART TECHNOLOGY

CMS' collaboration epitomizes a 'smart' approach

ABOUT CMS

CMS Glass Technology is an industry leader in curved and flat glass working, offering technologically advanced solutions such as numerically controlled machining centres, cutting tables and water-jet cutting systems. Owing to its tradition and experience, CMS Glass Technology today is a dominant player in this division - producing innovative solutions tailored for both architecture and interior decoration.

to technology, driven by a shared commitment to delivering excellence with passion. This mindset plays a pivotal role in achieving success in the

industry. Indeed all CMS machines can be integrated with CMS Connect, an IoT app that optimizes daily machine operations - enhancing both plant efficiency and availability. This platform visualizes, analyzes and monitors data emitted by the connected machines in real-time. The gathered data becomes invaluable information for boosting machine productivity, reducing operational and maintenance costs and minimizing energy

expenses. Thanks to the SMART approach, CMS service has significantly streamlined problem analysis and resolution, thereby ensuring faster and more efficient customer support.



CMS GLASS TECHNOLOGY



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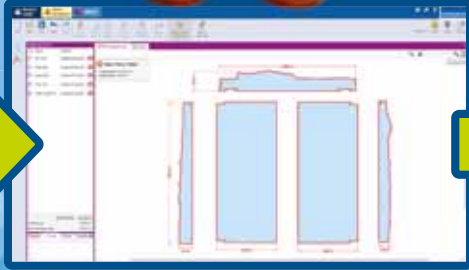
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Skill Pro: a masterpiece of SKILL GLASS expertise

Skill Glass has become a leading name in crafting and designing high-tech numerical control machines for flat sheet glass processing. These machines, complemented by dedicated software and modern design, boast both simplicity and speed. Headquartered in Schio (VI), Italy, the company focuses on innovative, top-quality and user-friendly solutions. Skill Glass' expertise shines through in vertical processing - optimizing space usage for the glass industry. Ideal for architectural and structural glass production, the company's machines

possess remarkable features and advantages in the vertical glass processing sector. Its founding is rooted in the rich experience of Beniamino Dal Santo, that from over 30 years designs and creates glass processing machinery. Today the Skill Glass brand offers a diverse range of large machines suitable for standalone use and integration into various systems. This includes vertical CNC centres, drilling and milling machines as well as machines for grinding and polishing - even tailor-made solutions. One exceptional product is Skill Pro, a numerically controlled vertical machining line combining a 9-axis

With its innovative, user-friendly solutions that optimize space, SKILL GLASS specializes in high-tech numerical control machines for flat sheet glass processing. Here Skill PRO, E-D 101, Drill 1600FF and Drill 101FF all offer exceptional productivity and precision, just as Skill Sfill expertly arrisses, grinds and polishes glass panes.

grinder (Skill Sfill) and a 6-axis drilling and milling machine (Drill 101FF). This unique setup enables multiple processes within a single system - maximizing pro-

ductivity whilst maintaining precision under numerical control. The line accommodates the processing of flat glass sheets, even in 'oversized' dimensions of 12000 x 3300mm. Here, thanks to Skill Glass' versatile solution, the handling of large slabs becomes both swift and efficient.





KEY ADVANTAGES INCLUDE

- Swift grinding and polishing with two simultaneous heads
- Processing range from 3 to 22mm
- User-friendly software for programming
- Automatic glass dimension reading
- Arrissing of out-of-square pieces
- High-powered spindles
- Faster tool changers
- Maximum guaranteed accuracy
- Excellent polishing quality

VERTICAL CNC CENTRES

E-D 101, a vertical CNC centre, excels at grinding, milling, drilling and polishing rectangular and shaped flat sheet glass. This versatile machine combines vertical drilling and milling technology with vertical grinding features - allowing diverse processes at high speeds and precision. The dual working heads process long sides simultaneously - saving time during grinding and polishing. Tool magazines with 10/12

positions per head are positioned in vertical columns near the working head for swift automatic tool changes. E-D 101 works with 150 mm diamond wheel grinders - suitable for sheet glass- including laminated or treated glass. Polishing is effective on large surfaces with 150 mm wheels and small inserts either 30 or 50 mm in diameter. Opposite heads ensure speedy and precise drilling, with countersinking

using individual diamond-tipped tools or accessories mounted on the drill bits. The vacuum belt system offers significant advantages, guaranteeing drilling and milling without limitations and so enabling continuous operation without wasting time - a significant improvement over suction cups carriage solutions that instead necessitate waiting for finished pieces to unload before loading new ones.



DRILLING AND MILLING

Drill 1600FF represents a five-axis CNC drilling and milling marvel - meticulously designed to produce holes, inserts and counter-sinks on rectangular flat sheet glass with a thickness that ranges from three to 20 mm. This ingenious machine boasts five axes, X Y V Z W, and two electro-spindles acting as opposite drilling heads - creating a very precise, double-sided drilling system. Meanwhile, Drill 101FF stands as a six-axis CNC drilling and milling wonder - expertly engineered for continuous drilling and milling on both rectangular and shaped flat sheet glass. Thanks to its ingenious vacuum belts system it ensures remarkably high-speed cycles - providing unrestricted drilling and milling capabilities, unlike other systems that



face limitations due to suction cups, prohibiting holes or notches. These vertical drilling and milling centres execute operations with optimum speed and precision - all under the seamless

control of numerical management and supported by the convenience of double tool change. Milling on this machine is a swift, straightforward process -

leveraging multiple tools to accomplish precise insert milling and grinding within seconds. The machine also enables delicate polishing of small inserts - employing 50 or 30 mm grinders.





GRINDING, ARRISING AND POLISHING

Skill Sfill is a vertical centre that specializes in the art of arrising, grinding and polishing straight and shaped glass panes. This masterpiece boasts nine axes and two electrospindles mounted in par-

allel - empowering simultaneous processing with two heads. Edging and utilizing diamond wheels with a 150 mm diameter prove jointly efficient on both straight and shaped glass - including laminated or treated varieties. Remarkably, Skill Sfill works with unaided precision, ac-

commodating pieces of varying heights, widths and thicknesses without requiring operator intervention. The numerical control manages the entire process - expertly achieving top-quality polishing through several passes and varying pressures of the polishing wheels on the glass.

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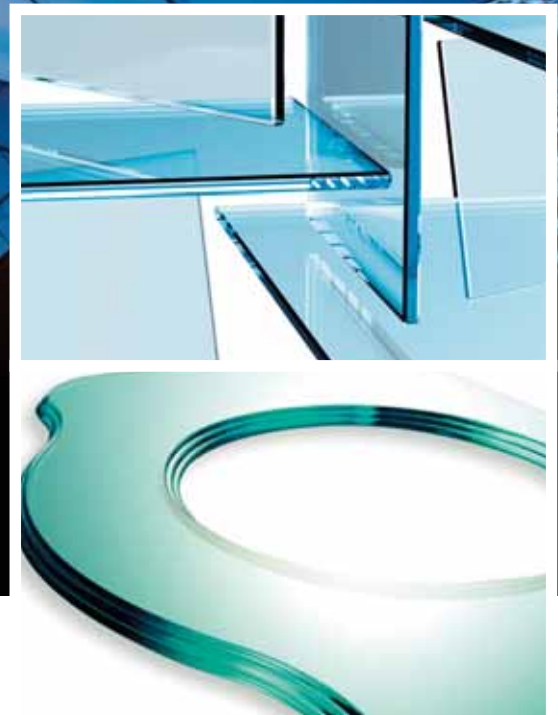
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Carbon-free STRATO® EVA highlights SATINAL's green commitments

A sustainable line for Safety Glass products, STRATO® EVA blends mechanical properties with aesthetics while inspiring innovative architectural solutions through interlayers that will provide thermal and solar advantages for all-glass structures. Here SATINAL's ISCC Plus certified supply chain ensures high environmental standards, renewable energy use, waste reduction and a low carbon footprint - all to offer optimum quality solutions that can meet ambitious eco-friendly targets.

STRATO® EVA Carbon Free is an exceptional range of products, entirely manufactured in Italy, that has the ambitious aim of fostering sustainability within the Safety Glass Industry. Such innovative offerings have been meticulously crafted by blending mechanical and structural properties - all exhibiting aesthetic characteristics that render them a

source of inspiration for new architectural solutions.

MERGING MODERNITY WITH DESIGN EXCELLENCE

The thermal and solar attributes of STRATO® EVA interlayers yield a final composite material that's exceptionally-suited for shaping architectural masterpieces made entirely of glass. Today glass has become syn-

onymous with modernity. By introducing the concept of transparency into urban landscapes, it's now possible to facilitate the seamless fusion of art and engineering - paving the way for fresh creativity in terms of new living options. Here, in stimulating innovation, existing structures can be rejuvenated through the integration of cement, steel, or wood with safety glasses. Here the dematerialisation

of boundaries between interior and exterior spaces plays a pivotal role in maximising the inflow of natural light as it alleviates thermal discomfort for building occupants. While glass presents an enduring challenge, this sees both art and engineering coalesce harmoniously - a dual challenge that's embraced in equal measure by Satinal, particularly in STRATO® CARBON FREE, a true catalyst



for industry innovation that also advances sustainability.

ISCC PLUS CERTIFICATION

To further express its commitment to environmental responsibility, Satinal has obtained the esteemed ISCC Plus certification. A trusted standard specifically devised for the Circular Economy, it serves as a voluntary addition for industries not governed by specific regulations yet

fervently desirous to certify their endeavours and achievements in greenhouse gas reduction. ISCC Plus fulfils the objectives of Carbon Free initiatives by verifying company adherence to environmental standards while offering meticulous traceability throughout their supply chains.

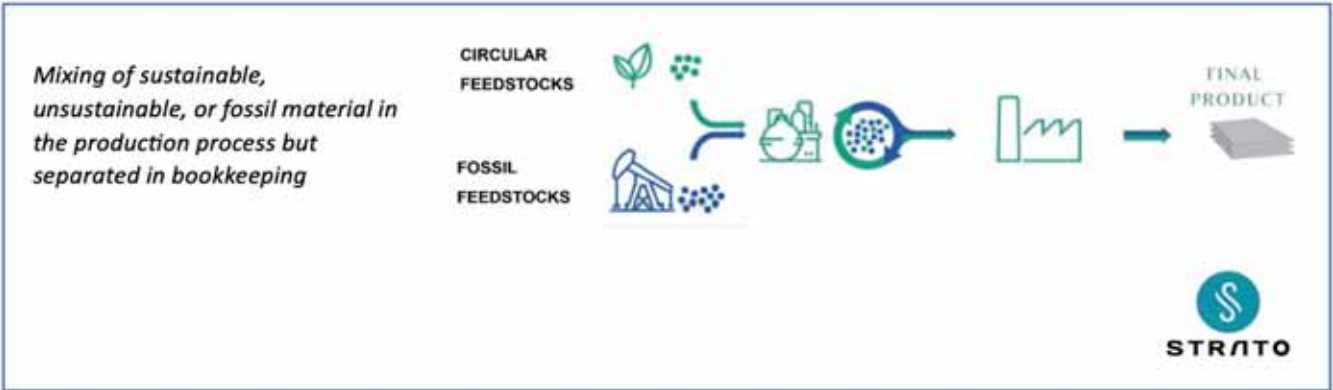
STANDING OUT FROM THE CROWD

One conspicuous point of distinction is the 100 per-

cent use of renewable energy sourced from the crystalline waters that flow down from the peaks of the Trentino Mountains. As Satinal's headquarters are strategically situated near Como, Italy, the company is proud of its homemade approach to production. Another noteworthy aspect pertains to waste management. The unique production technology employed by Satinal in manufacturing STRATO® EVA ensures a waste-free process that results from

years of both experience and methodological development.

The supply chain, too, is a critical aspect evaluated by the company's ISCC Plus certification, employing the Mass Balance Approach to gauge Carbon Footprint (CFP) levels. Given the blending of chemically-recycled or bio-based feedstocks in the manufacturing complex, it is often impractical and economically unfeasible to physically segregate recycled content.



STRATO® recently underwent a comprehensive analysis aimed at assessing the environmental profile of its product range, specifically regarding STRATO® EVA CO2 impact, by considering the life cycle of all materials and secondary products involved. This assessment was conducted in accordance with internationally-recognized reference stand-

ards for life cycle analysis, namely ISO 14040:2006 and ISO 14044:2006 respectively. The resultant findings unequivocally confirmed that the STRATO® EVA Carbon Free range is a pre-eminent European carbon-neutral product range. STRATO® earned the prestigious ISCC PLUS certification with an extraordinary score of 1.13 [kg CO2

eq], signifying a remarkable achievement as compared with its best potential competitor, which arrives at 4.5 [kg CO2 eq].

At 1.13, the environmental profile of STRATO® serves as a benchmark for devising a roadmap towards realising zero-carbon aims by 2050. Here the current objective is to provide customers with a sustainable op-

tion - ensuring responsible consumption while taking the global impact of climate change into account.

STRATO® EVA FILM PRODUCTION

Satinal SpA is distinguished for being the first EVA film production site in Italy, representing a prominent European hub for the supply of 100 percent

STRATO® EVA Carbon Free product range

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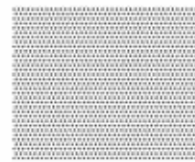
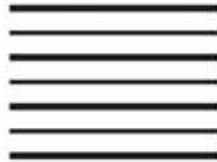
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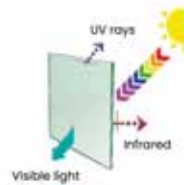
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VITRUM

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CUGHER and BOTTERO join forces to advance sustainability

Cugher is partner of Bottero in the development of the new 3Sun Gigafactory of Enel Green Power

In a collaboration between Bottero and Cugher, two companies that share a common innovative approach to developing cutting-edge glass processing technologies, an extraordinary chapter in the history of the solar industry is currently underway.

3SUN GIGAFACTORY

The inauguration of the 3Sun Gigafactory in Catania (Sicily) back in 2011 marked a significant milestone. Spanning an impressive 240,000 square metres, already at the time it stood as the largest solar panel production facility in Italy and one of the largest in Eu-

rope - boasting capacity at a whopping 160 MW. Initially established as a joint venture between Enel Green Power, Sharp and STMicroelectronics, the foremost Italian energy services provider Enel acquired the remaining shares from its partners in 2015 - thus becoming sole shareholder of the factory. That year alone, the factory produced a remarkable five million panels.

DISTINGUISHED EXCELLENCE

By 2018, the plant had earned the distinction of being the most advanced and automated photovoltaic factory worldwide. Operating

tirelessly in a continuous cycle, 24 hours a day, 365 days a year, it set new benchmarks in efficiency and productivity. Then in 2022, the visionary Tango project emerged as a result of a financial agreement between Enel Green Power and the European Commission. The project entails an extension of the Gigafactory, scheduled for completion no later than 2024, and a tenfold increase in production capacity to a staggering 13 GW per year. The extraordinary factory will focus on the production of double-sided photovoltaic modules - showcasing exceptional performance. The official inauguration of the construction site took place on February 6. The Tango project stands as a testament





both to Italy's technological prowess and to its unwavering commitment to renewable energy. By enabling the generation of 5.5 TWh of electricity, it will contribute significantly toward reducing carbon dioxide emissions by an astounding 25 million tons.

MAKING COLLECTIVE INTELLIGENCE COUNT

Leveraging its expertise in glass handling, Cugher has proudly announced

its participation in this groundbreaking initiative. As a partner of Bottero, it will play a vital role in constructing the five new production lines at the Gigafactory in a collaboration that firmly establishes the company's position within the solar sector. Managing Director Barbara Mazza expresses confidence in the market's trust in the technologies being leveraged, highlighting the engineering team's remarkable flexibility in

finding ideal solutions for each sector. In 2022 the photovoltaic sector accounted for 60 percent of global growth in renewable energy. Recognizing the growing trend toward renewable energy sources, Cugher aims to contribute to this transformation by providing machinery for handling and screen printing to photovoltaic panel production companies. The company's flagship products include conveyors, stackers, print-

ing machines and corner conveyors tailored to different formats and thicknesses. With exceptional synchronization and automation of all components, these offerings ensure high production and quality levels - in line with current industry standards. Here, by embracing the opportunities presented by solar energy, Cugher reaffirms its commitment to fostering a more sustainable world.



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Vitrum 2023 showcases **MAPPI's** focus on diverse needs and trends

As with any key trade show around glass, Vitrum offers valuable insights into the industry. Here, as ever, MAPPI excels at listening to the market as it interprets trends with both larger and smaller solutions. The company's latest innovation, MTH, optimises energy whilst handling large sheets - even as it invests in Edge Computing for data security and efficiency in collaboration with Siemens

Trade shows present a singular opportunity to assess the market. On that score Vitrum has always been crucial for comprehending the glass industry's trajectory. Here Mappi has adeptly incorporated 'active listening' to the market among its core strengths. A peek into the company's booth reveals two prominent trends, namely 'ever larger' and



'ever smaller,' which we will examine now in depth. While glass tempering defies standardisation, the ideal furnace for the future glass industry must handle large-sized sheets - akin to those used in skyscraper facades. It should operate continuously, even at low loads - all while effortlessly handling the diverse glass types that are available on the market.

HEATING

MTH, Mappi's latest innovation, accomplishes precisely this. With a loading platform reaching 3300x6000 mm it upholds the kind of quality, innovation in solutions, reliability and flexibility that's now synonymous with Mappi machines. The loading platform

heating system optimises energy consumption - directing it precisely wherever glass sheets are present and facilitating efficient operations, even when below full capacity. This optimization delivers substantial energy savings, making a meaningful impact - day after day, year after year.

DATA SECURITY AND PROCESSING

The second trend, 'ever smaller,' focuses on data security and process efficiency, given the indispensable role of software in tempering furnaces. The furnace itself, integrated with electronics, becomes an essential part of the management system. Demonstrating its commitment to customer



security, Mappi invests in Edge Computing in order to process data closer to its source to enable real-time operations at higher speeds and volumes while ensuring heightened data security. This facilitates faster processing which, coupled with artificial intelligence, empowers predictive checks on the machine - optimising assistance and reliability. Cloud-based data remains

instrumental for inter-system, or ERP, exchanges.

A PRIZED COLLABORATION

In this area Mappi continues its fruitful collaboration with Siemens. At Vitrum 2023, the company will be showcasing practical applications on a real machine. Also, in partnership with Siemens, it will host a Masterclass on the potential of Edge computing in industrial applications.



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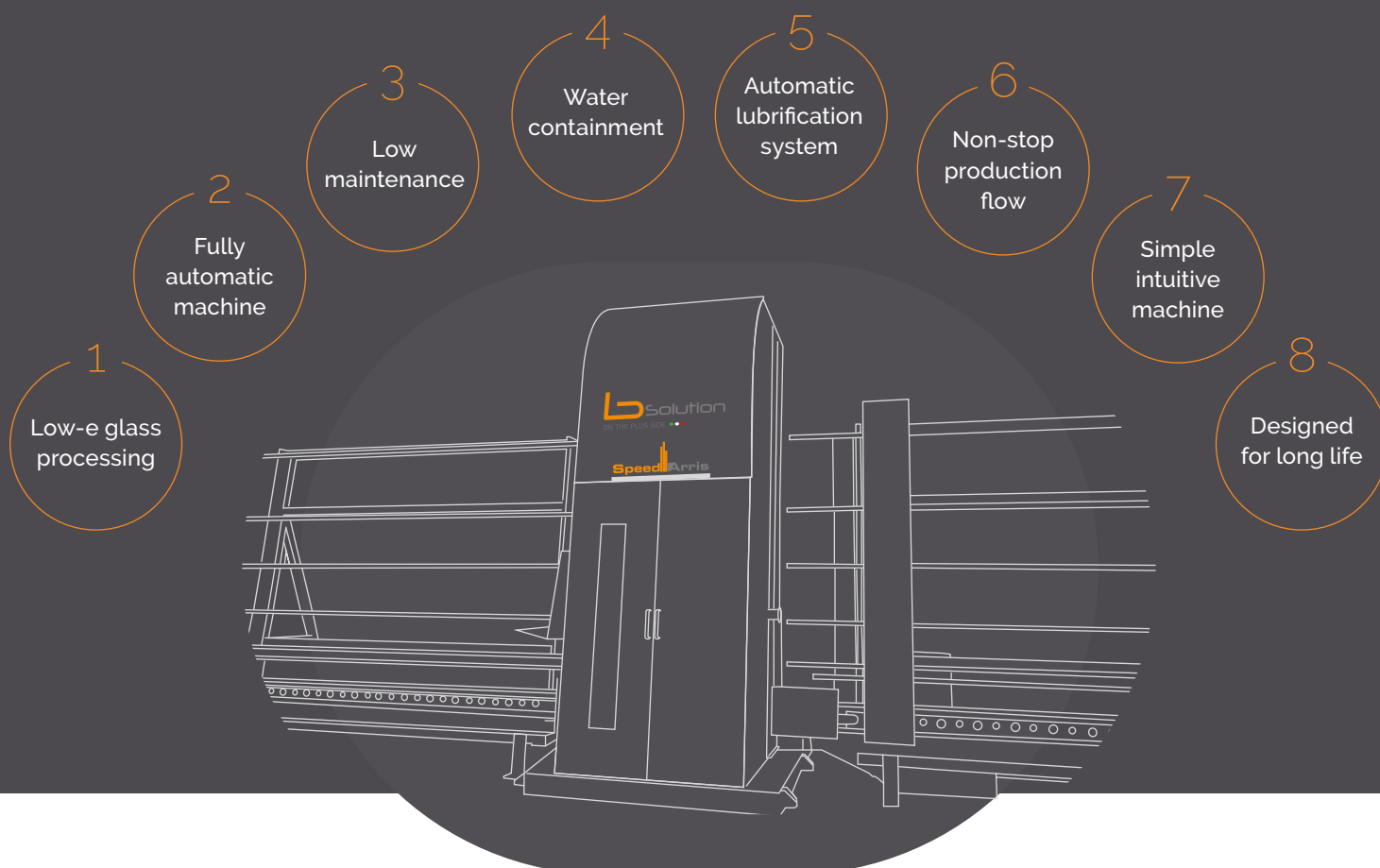
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Optimal water treatment: **VITROSEP's** guide to essential considerations

Selecting water treatment for a glass fabrication plant requires careful consideration that includes prioritizing filtration technology, safe chemicals and pH control - all just as important as choosing an experienced partner, assessing running costs and ensuring coolant compatibility. Here VITROSEP offers solutions that will address precisely these factors - ensuring quality, efficiency and affordability.

When selecting a water treatment system for any glass fabrication plant it's crucial to consider various factors to ensure clean and

contaminant-free water for all industrial operations. To assist in this decision-making process, Vitrosep has drawn up a list of key points that companies





should consider when choosing a water treatment solution.

- Select the right technology: opt for a water treatment system that can effectively separate particles of all sizes - ensuring a true closed circuit and superior filtration.
- Be mindful of harmful chemicals: choose systems that use safe chemicals - avoiding substances that could be detrimental to human health, the environment and machinery. Prioritizing eco-friendly options promotes sustainability while minimizing negative impacts.
- Consider pH regulation: Ensure that the chosen system does not require constant monitoring and adjustment of pH levels, as this could compromise glass quality. Maintaining the correct pH range is essential for preserving the desired finishing.
- Get an experienced engineering team on board: A water treatment system is more than just a kit to assemble; it requires seamless integration into the

installation and integration.

- Evaluate running costs: While the initial price is important, long-term affordability and efficiency should also be considered. Assess consumables, chemicals and maintenance requirements to optimize operational efficiency and cost-effectiveness.
- Select an experienced

partner: team up with a reputable water treatment provider that has a proven track record in the field. An experienced partner can meet specific industry needs and offer valuable insights and tailored solutions.

- Ensure coolant compatibility: The ability to incorporate coolant into a water treatment system can provide numerous benefits, enhancing machinery performance and glass grinding quality. Ensure that the chosen system allows for coolant usage to maximize these advantages.

WHY VITROSEP

Vitrosep offers water treatment solutions that address exactly these critical factors.

The company's patented technology enables effective particle separation in a true closed circuit. As such, it prioritizes the use of safe chemicals - eliminating risks to human health, the environment and machinery. The company's system eliminates the need for pH regulation - thereby ensuring the quality of finished glass. With over 30 years of experience in the glass industry, Vitrosep's dedicated engineering team will seamlessly integrate its solutions into any production line. Moreover, its solutions come with exceptionally low running costs while promoting long-term affordability. While coolant usage is not mandatory, it is the preferred choice for 99 percent of the company's satisfied customers.

VITRUM 2023

Attendees to Vitrum, Milan, are invited to visit the company's booth where a committed team will be ready to assist with making informed decisions.



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1204CM Tenack knitted sleeve

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GREENHOUSES

Standardised measurement of hemispherical light transmission in greenhouse covering materials



With population growth and food shortages requiring cost-effective food production, light transmission is crucial for greenhouse materials – jointly impacting crop growth and yield. The NEN 2675 standard was revised to measure light transmission from different angles of incidence. The H-LT meter exceeds the requirements of the standard, providing accurate measurements for growers and greenhouse horticulture in general.

The food shortage crisis combined with the increasing population indices are serious incentives to find more economical ways to produce food. Light transmission is crucial for greenhouse covering materials. Indeed, the amount of light available to a crop in a greenhouse is directly related to the growth and development of the crop concerned, and therefore to the yield for the grower. For crops such as tomatoes, for example, a mere one percent increase in light transmission results in approximately 0.7 to one percent extra production. Measuring the hemispherical light transmission serves as the most representative method of measuring the optical properties of clear materials used in greenhouses and other agricultural clear structures. The NEN 2675 standard was devised for the determination of optical proper-

ties of greenhouse covering materials and screens, and it was revised in 2018 after the NEN 2675:1990 iteration of the standard was deemed outdated and unsuitable for determining the optical properties of coated or diffused screens in horticultural applications.

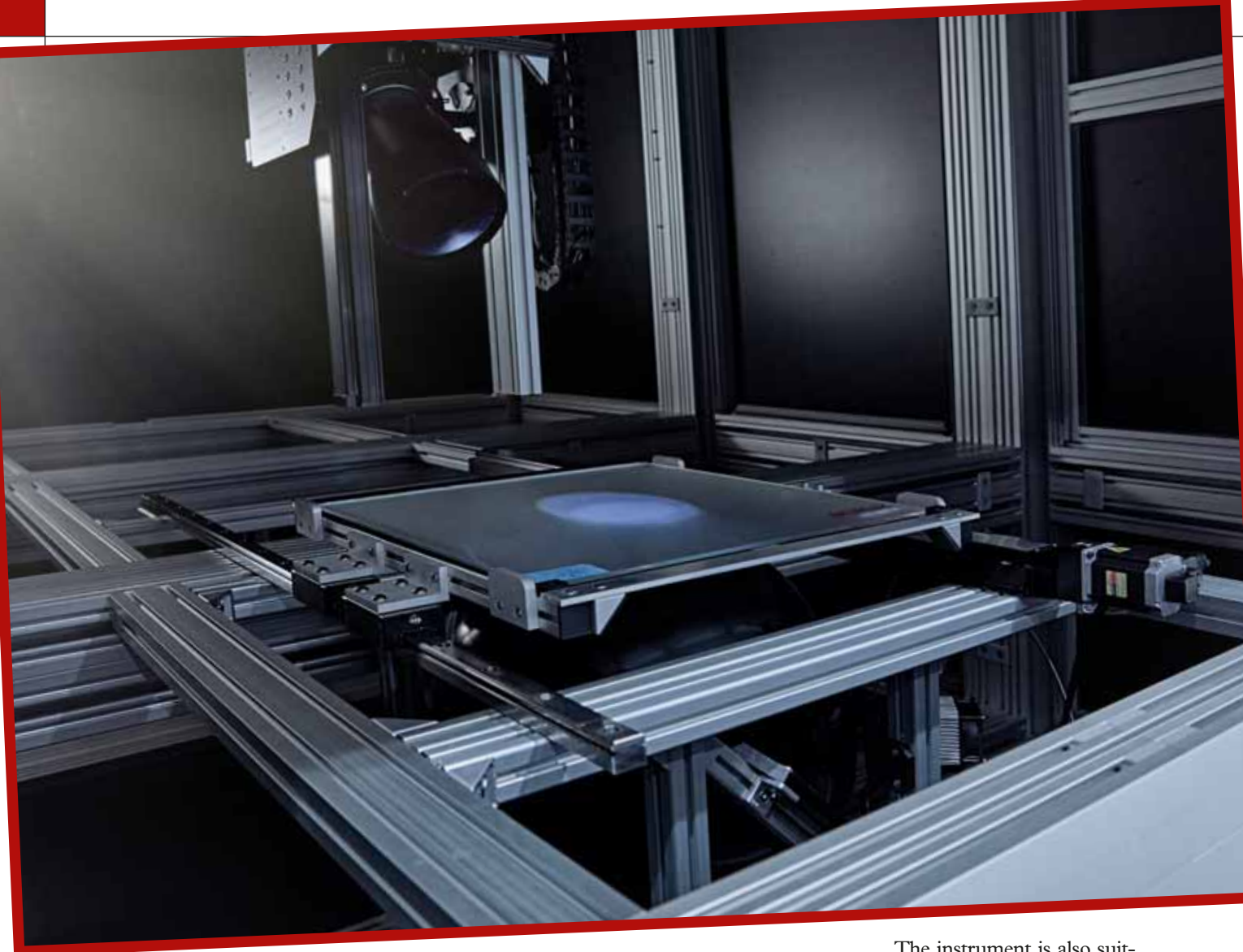
LIGHT TRANSMISSION MEASURING PARAMETERS

Previously, the instruments commercially available only measured the perpendicular light transmission. However, to better mimic real solar radiation, the updated

NEN 2675:2018 standard requires that light transmission measurement should be taken from different angles of incidence, mirroring the movement of the sun. In response to this requirement, the Wageningen University & Research (WUR) Business Unit Greenhouse Horticulture developed an academic prototype for hemispherical light transmission measurement in conformity with the brand new NEN 2675:2018 standard.

Until now, such a device was primarily accessible for research purposes through WUR. To bridge this market gap, WUR granted specialized engineering company Admesy a license to design and manufacture a standardized hemispherical light





transmission measurement tool for broad commercial distribution.

AYROX TEAMS UP WITH ADMESY

Leveraging its expertise in quality control instruments in the glass and plastics sector, Ayrox joined to reinforce the distribution and commercialisation of the testing and machine sales. Together with Admesy, Ayrox now proposes a measurement service and a device according to the new

requirements of the NEN 2675:2018: the Hemispherical Light Transmission meter (H-LT meter).

DEVICE SPECIFICATIONS

The H-LT meter features a suspended gonio system surrounded by an enclosure made from high-end Item® profiles and panels that block external light while safeguarding users from moving parts, thereby ensuring their safety. With the ability to take measurements

at various angles between 0° and 70° (at 5° intervals), this device provides comprehensive data for analysis. Furthermore, it covers a broad wavelength range of 250 nm to 1100 nm, dependent on the emission spectrum of the light source, ensuring accurate evaluation across the entire spectrum of interest. The current set-up has a light source that ranges from 360 nm to 950 nm. The system permits automated measurements on 50x50 cm samples made of glass or other materials.

The instrument is also suitable for larger samples when the measurements are taken manually.

OPTIMISED PRECISION

The H-LT meter not only meets the requirements of this standard but surpasses them. Indeed, high levels of accuracy are key. Growers require a measurement device that can be accurate to one-tenth of a percentage, which is precisely what the manufacturer, Admesy, has ensured in its device. To validate the de-

vice's reliability, an interlaboratory comparison with WUR Business Unit Greenhouse Horticulture was conducted on clear and diffuse samples. Both sample types adhered to the requirement of the norm of being within one percent. The spread in results is proven to not exceed ± 1 percentage point for hemispherical transmittance.

OFFERING ADDED VALUE

The H-LT meter provides glass processors, greenhouse engineers, and growers with an easy-to-use solution that enables precise measure-

ment of hemispherical light transmission in greenhouse horticulture. Given that specific crops may benefit from certain ranges of light wavelengths, the H-LT meter is designed to measure both

clear and diffuse panels. Interested in our hemispherical light transmission measurement service or the H-LT meter? Please contact us at deals@ayrox.com – www.ayrox.com

ABOUT AYROX

With more than 30 years of experience in the field of quality control for the glass industry as well as PVB handling and stretching machines, the Ayrox team provides solutions and support to customers and stakeholders in more than 90 countries in applications in architecture, automotive and pharmaceuticals. The company's goal is to make the quality and safety of transformed flat glass and plastics visible and measurable. Ayrox is also an ISO 17025 accredited calibration and testing laboratory for polarimeters.



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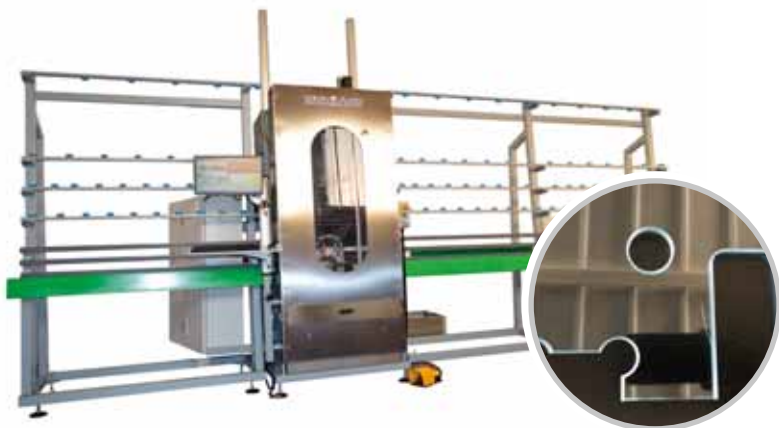
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It's countdown to Vitrum at RCN SOLUTIONS

Though trade shows present excellent opportunities for companies, the landscape has changed significantly over the past decade. Regular attendees at such events understand how they have evolved - all prompted by various factors that needn't be examined here. More important is to focus on the new approach companies are adopting to present their product portfolios, as well as how they are presented. This shift can be attributed, in part, to advancements in technology. Here one might consider the impact of 3D projections and virtual reality, which allow for the simulation of real objects in a digital environment.

LEVERAGING SOCIAL MEDIA

There is a growing trend of showcasing less machinery

while prioritizing effective communication instead, coupled with a strong online presence through social media. Such platforms serve as ready windows into the market - continuing to be relevant to the historical archive. Indeed everything is now just a click away, including organization of the show itself. Notwithstanding the advancements, exhibitions remain indispensable - always providing a crucial element in business, namely direct human interaction and relationship-building. During face-to-face meetings, attendees can see and take each other's measure, such that explanations and discussions can flow more smoothly. Besides, welcoming customers and engaging in a handshake still holds the same value as exchanging business cards.

VITRUM 2023: CONNECTING WITH PEOPLE

With preparations underway at RCN for Vitrum (Milan, September 5 to 8), the company will be using its 80-square-metre area at the trade show to discuss requirements and exhibit future projects. Although the dates fall during summer, the location holds significant meaning as it's situated at the heart of Italy's renowned 'Made in Italy' district. Milan, being the capital of fashion, design, and culture, embodies three exceptional qualities that make it both unique and loved. Visitors to the stand will be afforded the opportunity of witness excellence in laminating interlayers while exploring the company's latest advancements in lamination. The machines will be on display at RCN's factory - conveni-

ently located near the trade show and easily accessible via the company's shuttle service.

TWO KEY PRODUCTS ON DISPLAY

RCN's proposals will emphasize machine combinations with a focus upon different sizes - particularly oversized options. Here two leading products will be highlighted, namely REVA BF (laminating interlayer) and RD Clean Concept (unique to RCN, it's the only patented system for clean edges). REVA BF has gained recognition and appreciation both in Italy and worldwide owing to its high-value specifications. On the market for over a decade now, this interlayer was developed in collaboration with a chemical company after having undergone rigorous testing at an Italian Uni-



Adapting to the current demands of digital, RCN SOLUTIONS is all set for Vitrum in Milan, albeit with less machinery on display this year and a greater social media presence. Still mindful of the continuing importance of human interaction, the company will nonetheless be showcasing laminating interlayers while exhibiting some key products of elevated, 'made in Italy' quality for bending, tempering, lamination - even a new kiln.

versity. The name 'REVA' is also associated with the support provided by RCN in terms of professional guidance on lamination - which is crucial in ensuring that customers achieve optimal results.

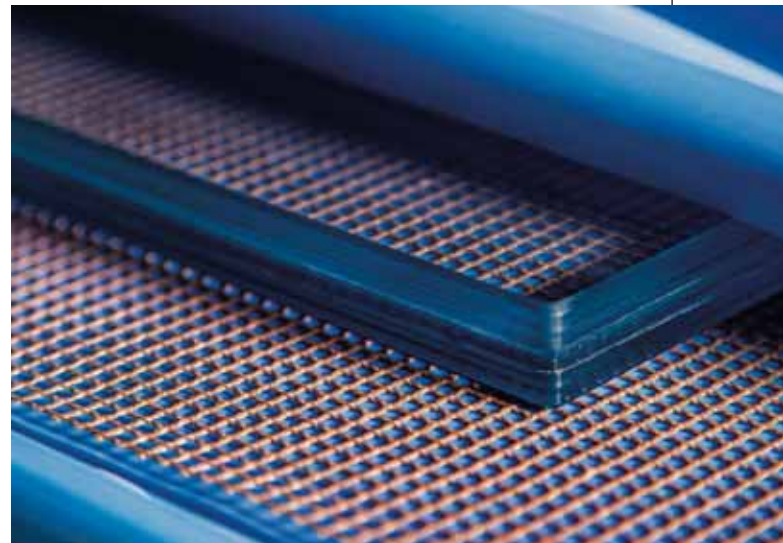
ZERO CAMPAIGN

This daily, essential work has allowed the company to accumulate valuable experience - leading RCN to launch the Zero campaign, where zero takes on a positive and fundamental meaning for industry insiders: zero defects, zero waste, zero downtime and zero dispersion. It serves as a way to support customers in implementing production rules while evaluating the causes behind any issues that may arise. The campaign also promotes waste prevention and energy control. Important here, too, is that

RCN has been manufacturing kilns since 1997 -with a strong focus on consumption- to cater to companies worldwide. Consequently, cost control has always been a key value right since the company's founding.

MULTIPLIED

Among RCN's wide range of offerings, one particularly noteworthy result is the Multiplied - a new laminating kiln that can be assembled in lengths of up to 12 metres, which is well beyond jumbo size. Introduced at Glasstec 2022 with dimensions of 3000 x 6000 millimetres, this kiln has already been purchased by an Italian company operating in shifts. Additional equipment can be installed to facilitate logistics, such as CNV, the latest loading conveyor that



allows for the automatic release of glass sandwiches to be laminated into the bag. It can also incorporate automatic positioning of the platform to the shelf level and automatic shelf exit. Furthermore, the application of a fundamental trio ensures success: a quality kiln that

guarantees heat uniformity, a versatile bag (the heart of the kiln), and a high-performing interlayer that acts as an adhesive. However, RCN's production offerings extend beyond kilns. The company also specializes in bending, chemical tempering and lamination,





RIVA BY RCN CHEMICAL TEMPERING LINE

which can be combined in a full production layout using the Integral Sequencing Framework (ISF) configuration. Alternatively, these processes can stand alone and be integrated into existing production lines.

ECO SPECIAL

The Eco Special bending line has been specifically designed to achieve perfect and intricate curves by leveraging a combination of carefully controlled temperatures managed by a single PLC. Precise

bending is crucial not only for visual purposes but also because laminating curved glass requires the bending of twin glasses that must align perfectly. Currently, projects for loop bending kilns are also in progress. Tempering is a critical step in producing safety glass. Chemically tempered glass is more durable compared to other hardening processes, it has no optical distortion, and it allows for the tempering of thin glass, which is particularly valuable in installations where weight reduction is

necessary, such as boats and flooring. Chemical tempering is not limited to thin glass or small objects like lenses alone; any glazier aiming to specialize and diversify their production can benefit from this process, which offers several advantages. An exciting development is the possibility of initiating chemical tempering on a small scale using a laboratory oven, the CT80S, which will be showcased at Vitrum. This allows for experimentation and practice before committing

to a larger-scale plant. The CT line offers a wide selection of machines, and alternative sizes can be requested to suit specific needs.

MADE IN ITALY

RCN machines are renowned for their robustness, durability and high-quality materials as well as their exceptional performance. However, their appearance may appear somewhat dated. Here, while the company has considered rebranding its machines, the option has been to maintain its existing structures to preserve company identity. Visitors to Vitrum will be able to witness the progress made in RCN's projects. Ultimately, it's essential to acknowledge the driving force behind all of the above: a family with a longstanding tradition in the glazing industry, the quality associated with the 'Made in Italy' label, a flexible production approach and a dedicated team committed to fostering long-term business relationships. All these elements are intrinsic to RCN's identity because, for both business and service, it's the people who truly make the difference.



RCN Solutions Srl

Via Marcatutto 7
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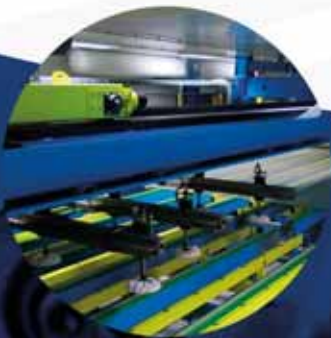


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Sandblasting revolutionized by **FRATELLI PEZZA's** MistralApp

Developed by FRATELLI PEZZA, the cutting-edge MistralApp boasts remote programming, ease of use and personalized options - just one more innovation to add to the company's highly technological automatic sandblasters and marking devices, in full compliance with Industry 4.0 standards



Remarkable breakthrough in the glass processing sector, Fratelli Pezza's MistralApp is a super innovative web application that enables users to programme their sandblasting machines remotely from either PCs or tablets. Whether in the office or at home, there's no need to halt production to programme the equipment manually on the display. MistralApp offers optimum ease of use, as its intuitive graphic simulator will display the programmed sandblasting areas while preventing operators from making errors. Each programme can be personalized with a name and seamlessly uploaded to the machine's software using a USB stick. Here the time-saving capabilities are truly significant. As an exclusive offer, customers purchasing a new cabin from the Mistral EV+ series receive a three-month free App trial. The Mistral EV+ series represents the pinnacle of Fratelli Pezza's product range, providing advanced software in

full alignment with Industry 4.0 standards. The integration allows for a wide array of highly technological features. Besides managing working programmes, users can monitor processes through counters, alarm reporting and proactive maintenance information. The graphic simulator is also accessible directly on the machine's display.

BIRD-SAFE SANDBLASTED PATTERNS: AN ARCHITECTURAL SOLUTION

An ever-increasing use of glass within the construction sector poses a significant threat to birds owing to its transparency and reflectivity. To mitigate bird collisions against glass facades, Fratelli Pezza offers a widely-acclaimed solution that enhances the visibility of glass surfaces from all angles and in any weather conditions.



By using specially-designed moulds, denominated Amacor, it's possible to sandblast vertical strips or other patterns onto the glass surface - making the facade highly visible to birds and thereby reducing collisions substantially. Even a delicate sandblasting treatment significantly reduces glass' reflectivity while giving the facade an aesthetically-pleasing effect. By using Amacor moulds, which integrate seamlessly with the automatic ZEPHIR+ and MISTRAL EV+ sandblaster lines, decorators can adorn glass surfaces without applying individual masks to each piece - thereby reducing production time and costs. Indeed sandblasted glass remains the most reliable and time-tested method for creat-

ing bird-friendly glass facades that simultaneously offer visual appeal. The increased roughness and porosity of the sandblasted surface may attract dirt, however that issue can be mitigated by applying the protective coating Mix30Pro, which renders the surface both water-repellent and resistant to dirt and limescale.

INNOVATIVE AUTOMATIC SAND-JET MARKING DEVICES

At Vitrum, Fratelli Pezza will be proudly unveiling the latest iteration of its automatic marking devices, namely the Easy-marker+ series - now fully compliant with Industry 4.0 standards. This remarkable lineup consists of two models: Easymark-





er EV+ and Easymarker UP+ which will seamlessly integrate with both vertical and horizontal machinery respectively. Each model offers two versions - allowing for marks with diameters of up to 25 and 30 mm. The new 4.0 interface empowers users to effortlessly retrieve data that's

collected by the counters and alarms. It also enables seamless connectivity with the company's management system or any other equipment within the production line. These features position the Easymarker+ line as the perfect solution for companies engaged in mass

production - essentially automating the marking process. Complementing this range are two manual models, the Marker 101T and Marker 301T, which empower operators to imprint logos with diameters of up to 25 and 30 mm respectively. These portable units offer exceptional

flexibility, allowing for use in various areas of the factory or marking glass that has already been installed. However, irrespective of the model, Fratelli Pezza's marking devices ensure clear, sharp and permanent marks upon both tempered and non-tempered glass surfaces.



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Result of Forel's decades of experience in IG processing solutions, the "High Tech" IG line was conceived to offer an unrivalled choice of options for the production of insulating glass, for both the residential and the commercial destination, and also for production of IG façade. The "High Tech" IG line is equipped by exclusive devices and systems for processing offset panes, shaped panes and manufacturing double, triple and quadruple IG units, up to 6,000 x 3,300 mm in size weighing up to 400 kg per linear meter (assembled panel), and up to 100 mm in thickness. The automatic sealing robot Art. SR "High Tech" is designed to maximize productivity and reduce waste and downtime, thanks to features such as the no-stop mode and the automatic dosing unit change.



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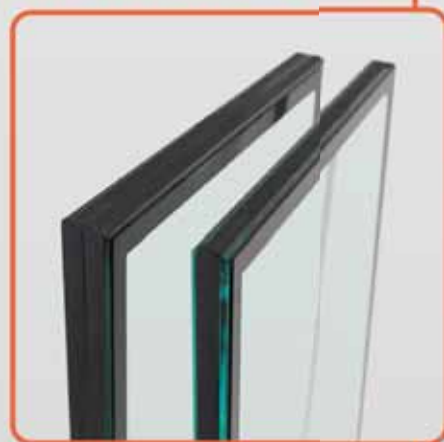
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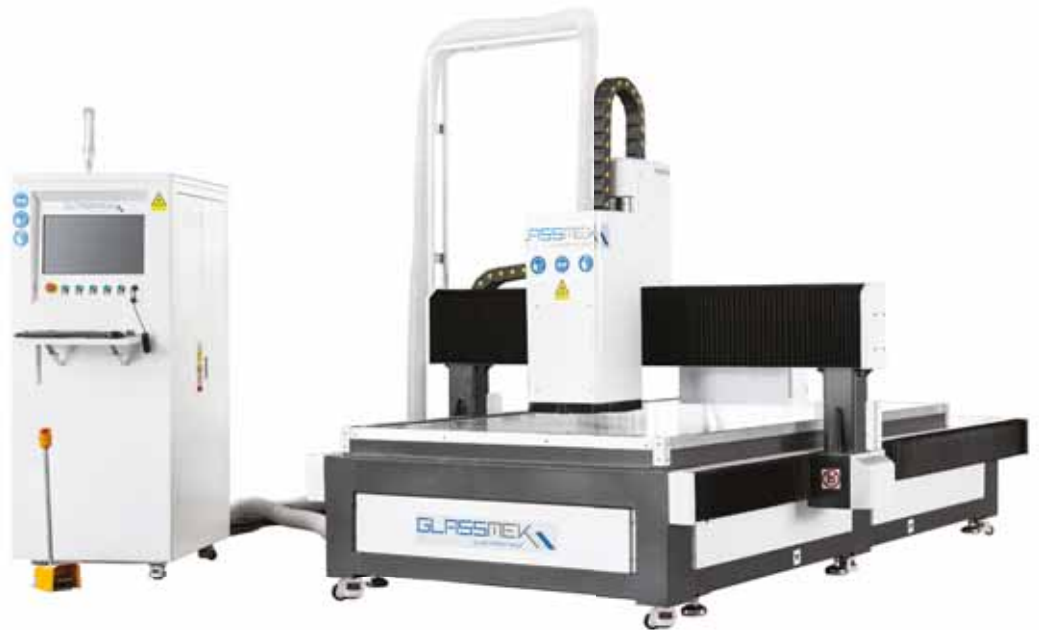
FOR **FLAT** AND **BENT** GLASS



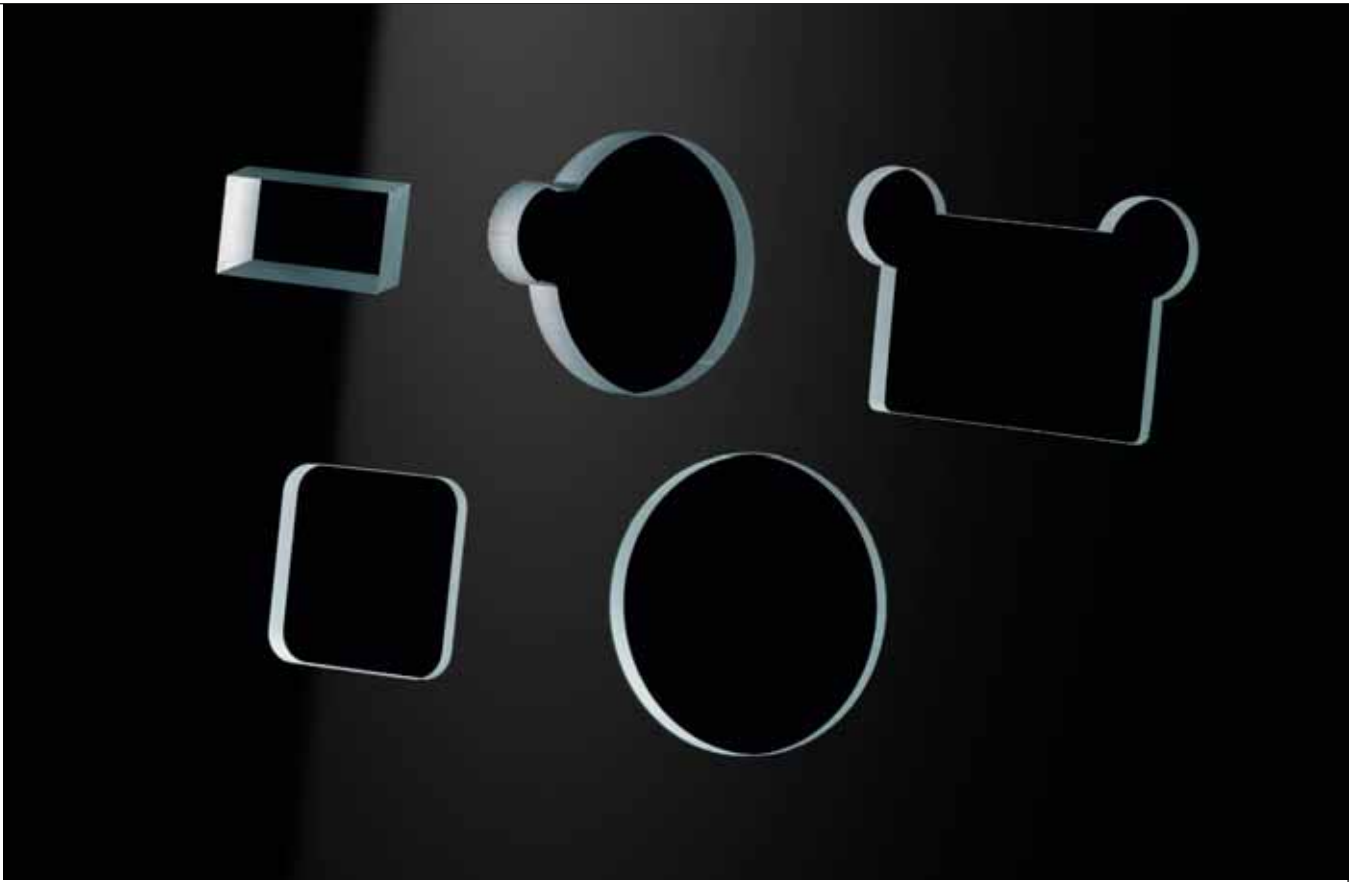
Consultancy at **GLASS COMPANY** taken again to the next level

Glass Company embodies quality, technology, research and innovation - all with a view to surpassing mere mechanical solutions. Based in Pesaro, the company is foremostly a consultancy which, thanks to its team of specialists and engineers, assists businesses in the selection and development of machinery that can meet existing needs.

Born from the decade-long experience of its founder, Claudio Bernabucci, the company has evolved into a significant entity that both markets and manufactures glass processing machinery. Its offerings include systems for safety glass production (thermal and chemical tempering furnaces, EVA lamination ovens, PVB lamination lines with autoclave), laser machines, machinery for fire-resistant EI glass pro-



A leader in the glass processing industry, GLASS COMPANY's high quality solutions exhibit the advanced performances of LaserMek, SoftMek, FireMek and PlasMek - among other specialized machines. All provide tailored options, including fire-resistant glass, atmospheric plasma, smart furnaces for glass tempering and various customized features.





duction, painting systems, digital printing, screen printing and more.

Through key partnerships with European, American and Asian multinationals, the company has structured and provided technological solutions with an excellent quality-to-price ratio - often tailor-made for each client in a way that transforms expertise into an art and thereby enabling the realization of unique and sophisticated projects.

Glass Company's continuous and significant research work, applied to their machines, has led to the creation of the Glass-Mek division, which en-

compasses five main product families, namely those of LaserMek, SoftMek, FireMek, PlasMek and Special Machines.

LASERMEK

These machines, equipped with fiber or other laser sources, have been specially designed for the glass sector. They are ideal for ablating and engraving any type of coating, leaving the glass completely transparent or with a matt effect. Ultra-fast laser machines equipped with Picosecond, Green, IR, etc., sources are also suitable for cutting and drilling glass, available in various sizes upon request.

SOFTMEK: GH SQUARE CALCULATION PROGRAMME

This calculation program has been specifically developed for determining the position of coating cuts, electrical conductivity, and other necessary parameters to produce heated glass with specified characteristics. GH Square generates a vector file that can be executed on our (and not only our) laser machines.

FIREMEK: FOR FIRE- RESISTANT GLASS PRODUCTION

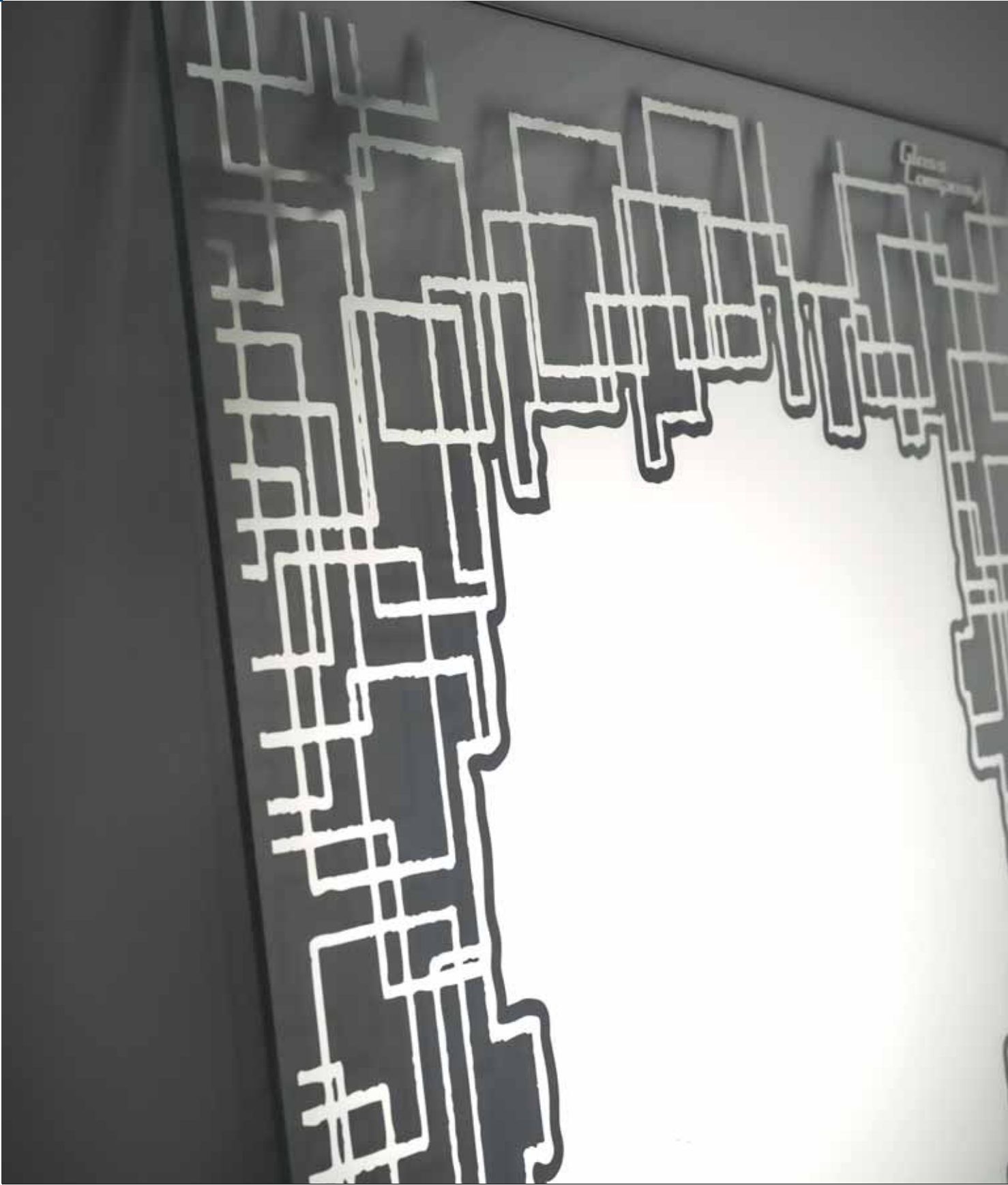
This system is capable of manufacturing a full range

of flat and curved fire-resistant glass in various resistance classes: 30, 60, 90 and 120 minutes. These glass types provide the highest level of protection. Also, each machine comes with certified chemistry for the production of extremely transparent inorganic intumescent mixtures.

PLASMEK: ATMOSPHERIC PLASMA

This atmospheric plasma is used for the pre-treatment of glass surfaces to enhance the adhesion strength of applied materials such as paints, inks, adhesives, etc.







SMART FURNACES FOR GLASS TEMPERING

These combine top-quality materials with excellent technology, ensuring reliability, quality, and reduced energy consumption - all at competitive prices. These furnaces are available for the production of flat and curved glass, in single-chamber, double-chamber and continuous configurations.

SPECIAL MACHINERY AND PLANTS

These are custom-made upon client request. They include machines for the production of glass spacers, assembly machines for glass fridge doors with transparent spacers, machines for the application of functional coatings, chemical tempering furnaces, and more besides.



Glass Company Srl

GLASSCOMPAN

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61122 Pesaro (PU) - ITALY
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GlassInspector shows **DELTAMAX** expertise in double-glazing lines

Back in 2007, Finstral decided to entrust Deltamax with the provision of a system to improve the quality of its products, thereby guaranteeing concrete and reliable support to its operators. This gave birth to GlassInspector, a scanner

Gaining increasing worldwide success since 2007, DELTAMAX's GlassInspector initially came from a drive to meet growing customer demand. A reliable scanner for glass quality control, it's now evolved into Q Plus to offer enhanced defect detection and it can operate jointly with the company's new IGU Scanner for pre-sealing inspections.





Q Plus

that was then successfully installed on the insulating glass production lines of the Trento factory before conquering the market and spreading its presence to more than 30 countries worldwide with over 300 installations and more than 200 satisfied customers.

SEASONED EXPERIENCE OVER TIME

That was over 15 years ago and GlassInspector has since grown to become even more reliable and accurate in detecting defects. Above all it has set the foundations for the realisation of new solutions

for glass quality control - all destined to satisfy customers with different and increasingly demanding requirements. Here continuous dedication by experts at Deltamax has made it possible to develop new systems whilst maintaining such fundamental attributes as independence from the line, ease of installation, a high degree of customisation in defect assessment, reduced maintenance - and all without affecting the characteristic reliability of the systems.

GLASSINSPECTOR

Still the company's bestseller today, GLassInspector is the

ideal solution to get started with a focus on quality. Installed after the washing machine so as to inspect clean and dry glass, GlassInspector can detect typical glass defects - whether generated by the production process or by the processing to which the glass has been submitted. Bubbles, inclusions, scratches, dirt and residues are all identified in a timely manner, providing the operator with an intuitive and rational screen as well as photos of the defects and the coordinates of their positions.

Q PLUS

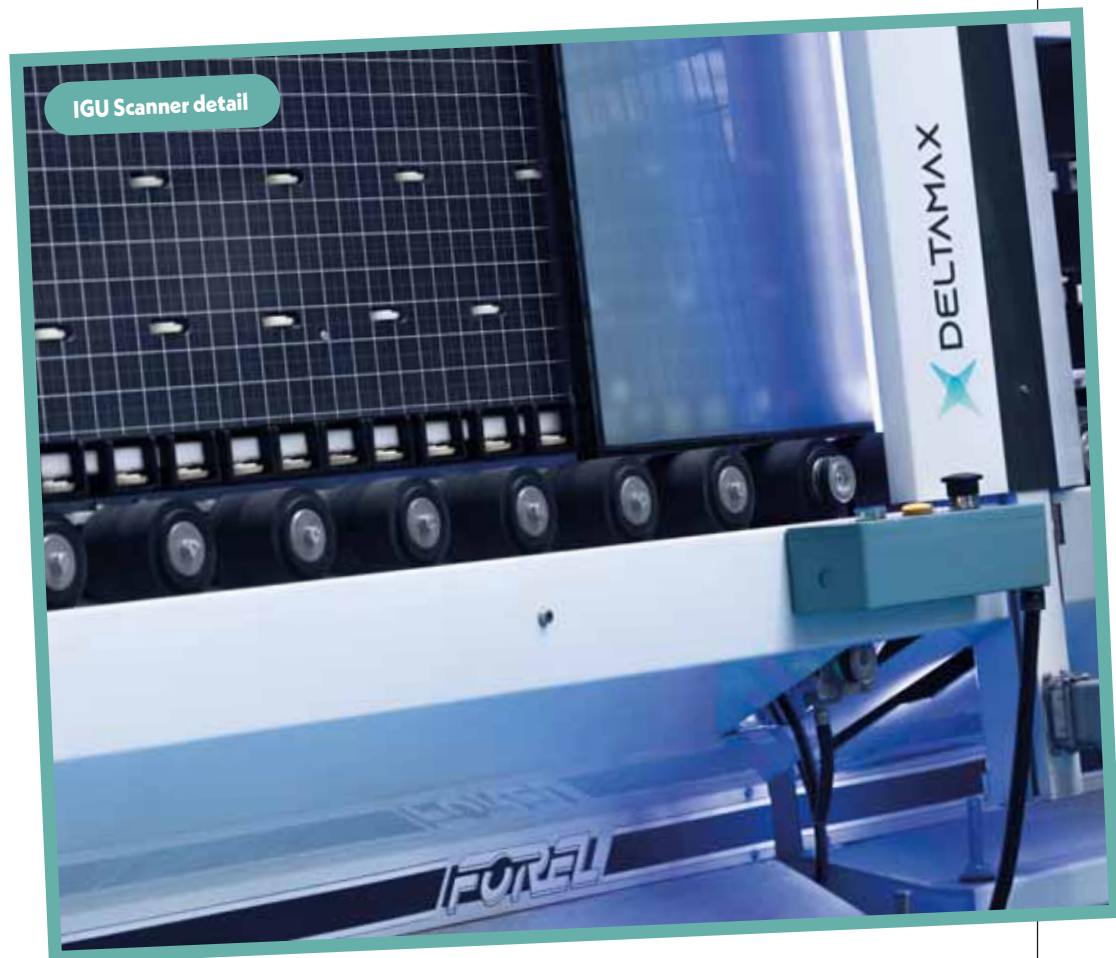
Here the name of the system already betrays several clues:

the evolution of GlassInspector is actually the equivalent of two scanners, for greater precision in the detection of defects - and surface defects in particular. Fine scratches, light marks and stains, roller marks in tempered glass, prints made by vacuum cups in laminated glass and even the infamous halos are no longer a problem - guaranteeing optimum glass quality. The price/performance ratio of Q Plus is unbeatable because the technical department's work at Deltamax has enabled a rational yet innovative solution with a single camera vector and dual lighting - thus allowing two different images of the glass to be captured by using

two different machine vision techniques. A technological condensate that's nevertheless simple to use for the operator while maintaining the user-friendly interface created for GlassInspector, Q Plus can be installed after the frame application station to check, along with the presence of any defects, its position before entering the press.

IGU SCANNER

Deltamax's latest product is a system that aims to respond to an ever more pressing need of insulating glass manufacturers: a product that can check the insulating glass unit before it is sealed - guaranteeing the delivery of a perfect product to the end customer. Such was Deltamax's intention behind the development of its IGU



scanner - a solution that allows all the panes forming the IG unit to be checked, as well as the position of the grooves. The system's performance is comparable to that of GlassInspector for defect detection, which of course includes the identification of any butyl residue within the transparent area.

Deltamax
Automazione Srl



Via Kufstein, 5
Zona Industriale Spini di Gardolo
38121 Trento (TN) - Italy
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Vitrum 2023 lends new traction to **MAZZAROPPI's** engineering heritage



Always driven by its ambition to refine the industry landscape, Mazzaroppi Engineering has been an emblem of both evolution and innovation for over the past six decades - offering environmentally and economically sustainable solutions to businesses of all sizes. Indeed faithful to its core values, the family-owned Italian company has engineered numerous technologically-advanced solutions in a constant effort to elevate its machinery to achieve unparalleled performance. Here it underscores four of its most coveted solutions:

POWER SAVING SOFTWARE

Mazzaroppi's intelligent software transcends mere

thermoregulation. Instead it focuses upon optimizing efficiency with minimal dissipation. Through its power saving software, substantial energy and financial savings can be realized by curtailing peak absorption during production.

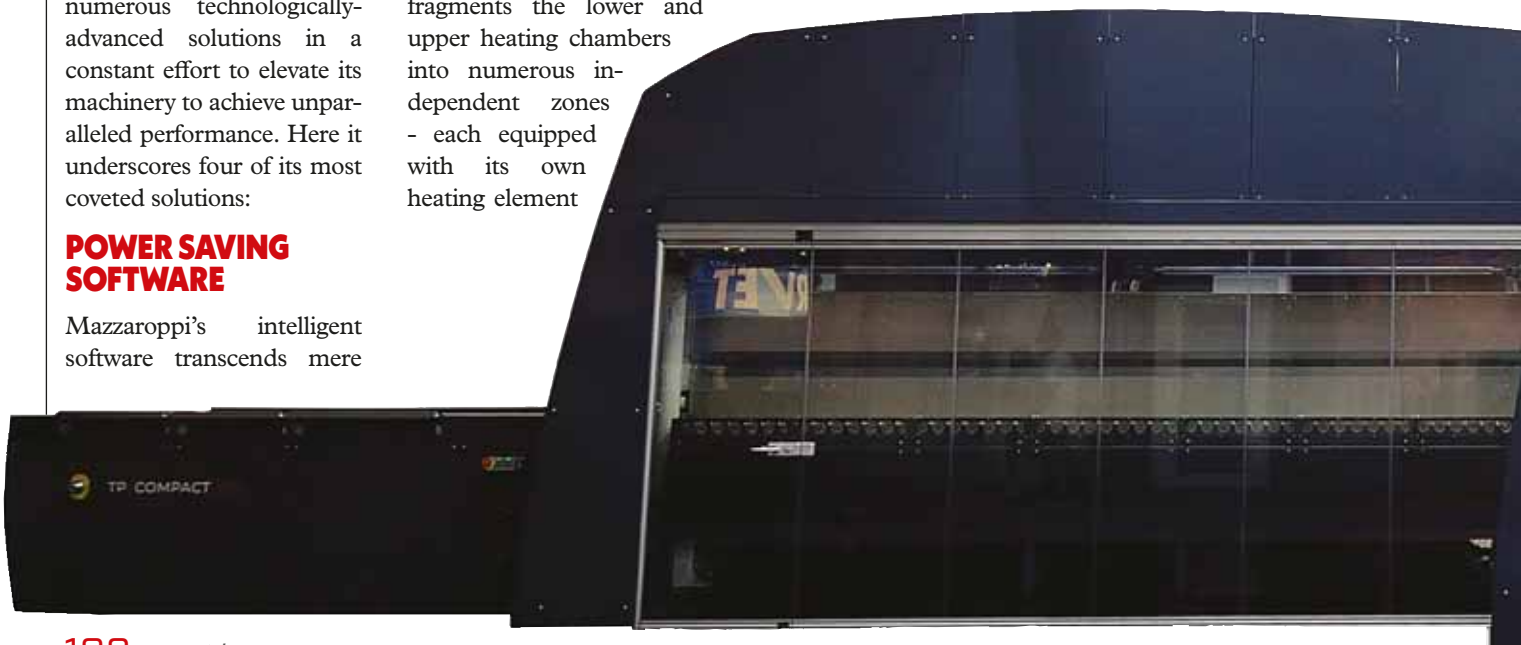
SMART HEATING AREA

Employing a multi-area control system, Mazzaroppi fragments the lower and upper heating chambers into numerous independent zones - each equipped with its own heating element

and thermocouple. Intricate optimization algorithms embedded within the software enable automatic recognition of glass-occupied areas and their respective proportions, effectively activating them according to real-time necessity. This not only curbs peak current demand. It also facilitates seamless adjustments in glass thickness.

JUST-IN-TIME IGNITION: FROM 0° TO 680° IN ONLY AN HOUR

With Mazzaroppi's ingenious rapid ignition system their furnaces swiftly soar from 0°C to 680°C in a mere 30 minutes - shortly after initial commissioning. This extraordinary capability allows for complete daily shutdowns, eliminating unproductive costs typical





As glass tempering innovator, MAZZAROPPI now unveils four transformative technologies. With a proud legacy that spans six decades, the company typically offers both sustainable solutions and enhanced performance. Company highlights at Vitrum this year include power-saving software, smart heating zones, rapid ignition and 97 percent anisotropy reduction.

of conventional tempering furnaces. Achieved through the integration of low absorption materials and a low thermal mass within the furnace, it adeptly absorbs sustained and high-temperature fluctuations. Consequently, internal furnace components remain unaffected by expansion and the perennial issue of insulation material chalking is deftly averted.

97 PERCENT ANISOTROPY REDUCTION

Mazzaroppi systems, thanks to a trio of automatic multi-

zone control, an eco convention system and intelligent software can all minimize different temperature areas

(ensuring even heating and cooling of the glass panes). This allows for a decrease of a whopping 97 percent anisotropy.

MAZZAROPPI
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Via Cagliari 49
04011 Aprilia (LT) - Italy
Tel.: +39-06-92854602
Fax: +39-06-92730082
E-mail: sales@mazzaroppi.com
www.mazzaroppi.com



A virtuous example of Automated Glass Logistics by **ITALCARRELLI**



The world of glass production and logistics is currently undergoing a transformative era with the introduction of automated and technologically-advanced systems. Here Italcarrelli stands out as a key contributor to this revolution - playing a pivotal role in automation development at Lannutti Mornimont, a leading flat glass logistics centre in Belgium. Spanning over 60,000 square metres, the impressive complex is managed by Italcarrelli-branded laser-guided vehicles (LGV) that are entirely designed, manufactured and programmed in Chiampo, Vicenza, Italy.

SEAMLESS LOGISTICS

Inside the logistics centre, trucks carrying loaded glass racks, known as Float Liners, come and go. The electric ITALCARRELLI

A major player in automating glass logistics, ITALCARRELLI handles glass racks with precision with its laser-guided vehicles. The company's sophisticated Warehouse Management System (WMS) maximizes efficiency while its advanced safety features and energy management system jointly ensure uninterrupted operation. Such cutting-edge solutions promote efficiency, safety, and sustainability - all consolidating automation as a characterizing feature of the industry's future.

Italcarrelli's
Warehouse
Management
System

and rack locations through a user-friendly tablet interface. With RICU, all rack loading and unloading operations are precisely synchronized, thereby maximizing efficiency while minimizing downtime.

PRECISION IN HANDLING

The PTN 330 LGV Inloader's reliability and maneuverability are both ensured by step-by-step electric motors directly connected to the wheels. This configuration enables a prompt and precise response to the guidance system inputs - ensuring safe and smooth load handling. Additionally, the vehicles are equipped with an advanced load lifting safety system (patented 'SicurLift') as well as collision avoidance devices, which jointly guarantee the protection of both materials and operators.

Effective energy management is crucial for efficient logistics operations. Italcarrelli's Battery Exchange System (BES) allows all the company's vehicles to independently exchange batteries. When batteries fall below a certain charge

PTN 330 LGV Inloader takes centre stage - a laser-guided vehicle that can transport loads of up to 33 tons. The PTN 330 LGV Inloader exhibits remarkable autonomy and precision, retrieving racks and independently transporting them to the sorting

area. Serving as a logistical operations hub, this extensive area can accommodate up to 300 Jumbo racks. Mind that these warehouses handle 200 flat glass racks daily - all testifying to the facility's efficiency and management capabilities. All handling and logistics

are expertly managed by Italcarrelli's sophisticated Warehouse Management System (WMS), or RICU. This advanced system allows for seamless and intuitive management of the entire Autonomous Guided Vehicle (AGV) fleet, providing real-time information on the glass

3 operator-free
Inloader Italcarrelli
vehicles after
delivering the racks



threshold, the vehicles proceed to the charging area, where automated battery swapping occurs. This process ensures uninterrupted operation - so avoiding downtime caused by charging and ensuring consistent productivity. Upon sorting the glass in the dedicated area, an operator then uses an Italcarrelli EN4L series Side-loader that can handle loads of up to 16 tons. With advanced features and exceptional maneuverability, the operator retrieves all glass packs from the racks



The automated
battery exchange
system, BES



in just two retrievals. This flexibility optimizes storage space and enables precise and safe handling. After retrieval from the racks, the glass packs are placed on one of the 500 shelves within the warehouse.

DEFINING THE FUTURE OF AN INDUSTRY

A similar process is implemented when orders are completed. The sideloaders transfer the glass from the shelves to the racks. Subsequently, the racks are collected by an Italtcarrelli PTN 330 LGV transporter and positioned in front of one of the doors, whereupon they're loaded onto a truck for transportation to their destination. Thanks to the collaboration with Italtcarrelli, this efficient and highly-auto-

mated structure exemplifies excellence in the flat glass logistics industry. Indeed this combination of Italian technology with logistics expertise creates a modern and exceptionally-efficient work environment that can deliver state-of-the-art flat glass handling and management. In sum, Italtcarrelli offers an advanced solution for the complete automation of glass transportation from production sites to final storage warehouses - promoting efficiency, safety, and sustainability in glass logistics. Here automation allows for optimal resource management, reducing energy waste and minimizing CO2 emissions. By using its autonomous guided vehicles (AGV) as an innovative traffic management

system, WMS, as well as sophisticated safety and remote assistance systems, all operations are optimized - thereby ensuring precise and safe handling. Italtcarrelli represents a solid foundation for the future development of the entire industry, placing automation at the core of glass handling and management technologies going forward.




Via Monte Rosa, 9
36072 - Chiampo - VI - ITALY
Tel.: +39 -0444-623393
Fax: +39-0444-420195
E-mail: info@italcarrelli.eu
www.italcarrelli.eu



Supply chain: Italy's **GLASS GROUP** examines future challenges and opportunities

Market trends, projections and future scenarios as well as new technologies and solutions - these were just some of the talking points on the agenda at the recent **GLASS GROUP** Spring Meeting, organised in collaboration with Forel Spa.

The large Glass Group network met at Forel Spa in Vallio di Roncade (TV) on 25 and 26 May for the usual annual appointment with the balance books. Such is the driving reason behind the Spring Meeting, which marks an annual opportunity for the group to take stock of the past year, but also to reflect on current trends as it seeks to make projections concerning potential market developments. As infrastructure that holds an entire supply chain together, Glass Group is a one-stop shop that aims to generate dialogue opportunities and knowledge exchange, as well as sharing of know-how and information. Here industrial alliances are the workhorse of this group, which is also a promoter of dialogue among organisations that are also interdependent.

Besides the leaders of the flat glass supply chain, representatives of ANCE (Associazione Nazionale dei Costruttori Edili), the or-

ganisation that promotes innovative interventions for decarbonising real estate assets also took part in the two-day event. For the flat glass transformation supply chain, representatives of factories, transformers, manufacturers of industrial components and plant manufacturers also participated - all represented by Gimav and Forel, which hosted the events as co-organiser. Representing glass recycling, Eurovetro too was present - being the next to organise the 2024 meeting.

This Spring Meeting was opened with a welcome greeting at Forel by Fortunato, following which Riccardo Vianello kicked off the roundtable entitled 'Glass and Construction: trends and future developments.' Journalist Adriano Baffelli served as moderator for speeches delivered by coordinator of the Assovetro and Unicmi Observatory Carmine Garzia, Glass Group President Daniele Predari, ANCE Vice President Mas-

simo Angelo Deldossi, Edera founder Thomas Miorin and Cuoia Business School professor Maurizio Castro.

THE CONFERENCE

Carmine Garzia was tasked with presenting the data of the two Observatories, which sees the market decelerating in 2023 after a record 2022 which saw growth in the Construction industry



at around 19 percent. However, the analysis confirms a positive trend that estimates +9.4 percent for this year and +7.1 percent for next year. In the two-year period 23-24, a growth in investments of over EUR 16 billion in residential construction and around 10 billion in non-residential construction is expected - all significant figures considering that they indicate the net of potential incentives. Also, for the residential renovation sector, which recorded 20 percent growth over 2022, around +10 percent is expected in 2023 and +6 percent in 2024, while for infrastructure renewal a +9 percent is expected in 2023 and +6 percent in 2024.

Daniele Predari, who collaborated with Carmine Garzia on the Observatory data, confirmed a decelerating trend for processing companies in the first few months of the year, in terms of quantities produced - all owing to a sharp realignment of the supply chain 'lead-time' and mainly triggered by a greater availability of raw materials, which is leading to a contraction in raw materials prices for glass after the peaks of October 2022.

This perception has prompted customers to lower warehouse stocks, which have never been so high: postponing orders as they await better quotations. Orders for window and door manufacturers are comforting - being mostly covered for this year and the first months of 2024. This phase is a harbinger of

new imbalances on the market, which is leading processing companies into a strong conflict scenario. That, in turn, is restarting the race to reduce prices which, for so long, has forced many of the processing companies into very low profitability in order to decelerate both growth and innovation in comparison with other sectors. The hope, by the work of the Glass Group, is to successfully transfer to companies of the group (but also external ones) a greater awareness of the fundamental role that processing glassworks play within the supply chain. Here the rigidity characterising the production of flat glass becomes a natural barrier to strong changes in terms of supply on both the domestic and import markets. Essential is to recognise the scenarios into which one has fallen, have transparent information about the market trend, know the customers and finally get a preview of major projects that will invest in the construction market over the years ahead. Only by knowing the data and investigating scenarios can correct strategies be developed - all aimed at the growth and prosperity of companies.

Indeed it was precisely on the basis of such reflections that subsequent operations were adopted. The bridge with ANCE, represented by Vice-President Massimo Angelo Deldossi, serves to open a dialogue between operators within the same sector and create the conditions for mu-



tual growth - considering the challenges concerning companies transversally throughout the entire construction chain, and with sustainability always top of mind.

But the sites were also set on the future and on the European Union's programmes related to the decarbonisation of real estate assets. Highlighting the great opportunities offered by the decarbonization process, Thomas Miorin, founder of Edera (which is promoting Energiesprong in Italy), spoke of how this concerns the construction sector nationwide. Here too the figures are important, as are the challenges that accompany them: first of all, operational innovation with the creation of more effective models to respond to time limits imposed both by Europe but also increasingly by requests of the market.

The morning session concluded with an outstanding talk by Maurizio Castro, professor at CUOA Business School, whose long managerial career has seen him at the head of such titans as Electrolux and Zanussi as well as such large private entities as INAIL. Both post-globalization economic scenarios and industrial alliances were the key themes he covered. In an economy set to be dominated by uncertain scenarios - here we're talking systemic industrial 'permacrisis' in Italy- the winning formula will be dimensional growth, either through industrial alliances

or increasingly successful external growth. Here, according to Maurizio Castro, it is Glass Group that can serve as a model of inspiration for the Italian system as an aggregation project that's based on industrial alliances and supply chain collaborations - all aimed at overcoming fragmentation to best dominate the evolution that's taking place.

VITRUM 2023

The afternoon session opened with another strategic collaboration that has for some time now seen Glass Group and Gimav, the organisation of glass processing plant manufacturers, flanking each other to promote the supply chain. Here, among the many opportunities for synergy, the most important is undoubtedly that of Vitrum, the industry's international trade fair. Vitrum CEO Fabrizio Cattaneo and Sales Manager Giada Isella took the opportunity of the Glass Group meeting to present the 2023 edition - which will be hosted in Milan from 5 to 8 September. The session dedicated to Vitrum included a talk by Glass Group Design Manager Ascanio Zocchi, who collaborated in designing the exhibition spaces, as well as Riccardo Vianello, who holds the Vice Presidency of both Vitrum and Forel Spa. Certainly Vianello well understood the promo opportunity in communicating to meeting guests the need to remain in lockstep with Italian en-

trepreneurial culture while abandoning any individualistic vision to instead move towards common strategic objectives and an idea of 'country system' which must already find fertile ground among industry leaders.

EXPERIMENTAL GLASS STATION

The second appointment of the afternoon schedule saw an Experimental Glass Station talk by Nicola Favaro, director of its laboratories, who spoke on 'UNI Certification: a tool for developing and growing the insulating glass processing and production industry.' Here the objective of the Experimental Glass Station was to promote a fresh institutional approach respecting UNI certification, firstly by fostering a relationship of greater collaboration with transformation companies and secondly by encouraging UNI adoption, through certification-related communication and valorisation, on the part of more insulating glass manufacturers.

ROOM FOR PARTNERS

The Spring Meeting was also an opportunity to enhance the group's partnerships through specific moments dedicated to Glass Group partners. New Glass Group Technical Partner Eurovetro of Origgio (VA) is a company that operates in glass recycling - performing the task of transforming the waste it collects from com-

panies into a raw material that the glass industry can use to produce new products. Sales Manager Massimo Tamagno presented the company and its services dedicated to Glass Group, going on to invite all guests present to the 2024 edition of the Spring Meeting which will take place in the company's new glass recycling plant in Friuli.

MAIN PARTNERS: FENZI, FOREL, PELLINI AND TECHNOFORM

ScreenLine division Sales Manager for Italy Giorgio Lesanti then represented Pellini SpA, introducing the group and its new industrial projects. Production sites, group companies and the new solutions studied by its internal R&D department were all described, as was Wise, the accessories ecosystem for remotely or locally controlling motorised ScreenLine double-glazing screens.

The last part of the meeting was hosted within the Forel production area, reserving an exclusive visit to production areas and new plants for all attendees.

Two islands reserved for Fenzi and Technoform were created within the Forel production spaces for setting up two technical laboratories. Using systems made available by Forel, new solutions were then presented for application in the production of insulating glass units.

TECHNOFORM: GLASS-EDGE INNOVATIVE SOLUTIONS

The Technoform laboratory was created by:

- Chiara Grisanti, Design & Development Engineer
- Mauro Lardini, Market Development Manager
- Marco Manzella, Product Manager Italian Market
- Fabiola Renzi, Italian Market Team Manager

During the laboratory, the Technoform experts demonstrated the application in detail, going through workability, technical characteristics and certifications of all available solutions - with both practical cases and concrete demonstrations.

Current solutions were among those presented, namely SP14 the standard solution with a warm edge, SP18 the high stability spacer, SP16 the solution that offers the highest thermal performance. Great news too: solutions that respond specifically to climatic (SP27 and SP28) and thermal

(SP24) loads, spacers that combine the highest thermal performance with such excellent workability and productivity as is typical of cold bending.

BUTYLVER TPS: AUTOMATION AND EFFICIENCY FOR HIGH- PERFORMANCE INSULATING GLASS UNITS OF MAXIMUM DURABILITY

The Fenzi Laboratory was created by:

- Laura Casarin, Sealants R&D Manager
- Matteo Padovan Managing Director

This laboratory presented live demonstrations of the automated application of Fenzi's innovative warm edge thermoplastic profile, Butylver TPS, using Forel technology. Here our key Italian players in the glass industry gathered in the Glass Group were able to appreciate the advantages that Butylver TPS offers to insulating glass manufacturers: production simplified to

maximum automation for the creation of double, triple and even quadruple insulating glass units optimum in every detail, with high energy efficiency and maximum durability over time.

All the main partners underscored the importance of a supply chain collaboration that could allow for a shortening of distances while creating the conditions to study new solutions for testing within the group and then subsequent transferral to the market.

CONCLUDING ITEMS

Internal discussions were held on the second day of the meeting between companies of the group during which market trends and potential strategies were examined. New Glass Group projects were also presented - set to be launched during the second half of the year. Of these the first, from the Glass Group Observatory, is

dedicated to:

- Demand analysis
Analysis of the purchasing process and trends in the flat glass sector

- Supply analysis
Observatory on the performance of processing companies. Comparative analysis of performance and assessment of the economic sustainability of growth.

The talk by Glass Group technical partner Omnidecor was held at the end of the meeting with a presentation of the company and its range of products to all companies present.

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Extremfenster GmbH chooses **SWISSPACER AIR** for durability

extremfenster's SKI aluminium windows will meet the high demands of any motorhome, camper van or delivery vehicle that's exposed to extreme weather, altitude or temperature variations. Thanks to SWISSPACER AIR they can now endure height and climate differences while ensuring resilience in different conditions.

FROM CONCEPT TO REALIZATION

The notion of developing a specialized window for motorhomes originated with managing director Constantin Hanov-Blum whilst planning a trip around the world in 2019. As an enthusiastic globetrotter, Hanov-Blum converted a decommissioned fire engine into a



Constantin Hanov-Blum, MD of extremfenster GmbH, developed SKI aluminium windows especially for motorhomes.



Motorhomes are frequently exposed to extreme climate conditions. With the SWISSPACER Air, the windows also withstand enormous height differences and climatic loads.

ity for high altitudes due to the demanding conditions encountered during tours across various climate zones. The small pane sizes in touring vehicles result in significant climate-related stress.” While scouting for solutions, Hanov-Blum discovered SWISSPACER Air.

SWISSPACER AIR – PRESSURE-EQUALISED INSULATING GLASS UNITS AT ANY ELEVATION

SWISSPACER Air is integrated into the glazing edge of the air-filled insulating glass unit. This effectively minimises overpressure or underpressure caused by height variations and climate conditions. The metal sleeve with an integrated special membrane ensures pressure equalisation between the surrounding air and the space between the panes.

touring vehicle, including customized windows and doors. Unable to find a suitable solution on the market, he personally constructed a narrow, lightweight aluminium window tailored precisely to motorhome requirements. Positive feedback on the initial prototypes led to the establishment

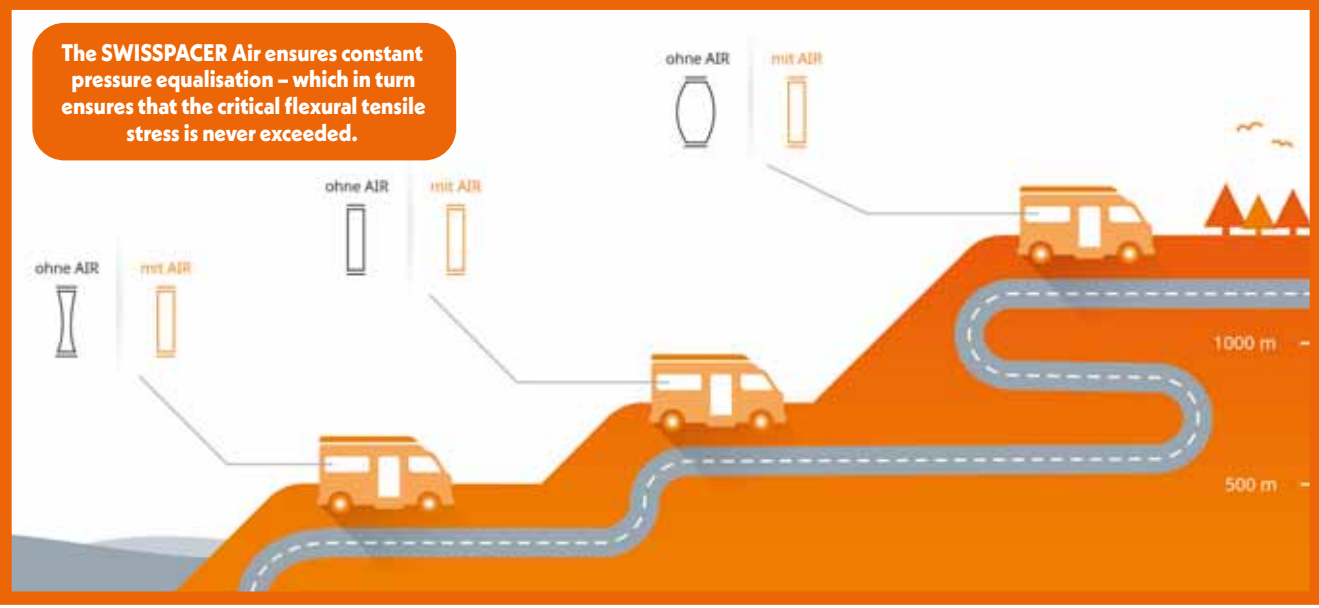
of extremfenster shortly thereafter.

PURPOSE-BUILT WINDOW SYSTEM

The extremfenster SKI aluminium window features a sturdy sash and a flush frame made of insulated, thermally-broken aluminium profiles. With three comprehensive sealing layers, the construc-

tion ensures complete dust and water resistance. High-quality stainless steel scissor hinges provide effortless and infinitely adjustable opening. Regarding the glazing, Constantin Hanov-Blum explains: “Initially, our intention was to incorporate double glazing with toughened safety glass. However, we also had to consider suitabil-

The SWISSPACER Air ensures constant pressure equalisation – which in turn ensures that the critical flexural tensile stress is never exceeded.



SWISSPACER Air



able for high altitudes is an ongoing endeavour. The extremfenster team diligently works on new solutions with enhanced performance. Says Hanov-Blum: “We’re currently constructing a Saint-Gobain glazing unit with a specialised coating to create an insulating glass unit approved for vehicles. These panes will block nearly all infrared heat and prevent interior overheating.” The specialists are also focusing on glazing units that exhibit even greater resistance to vibrations and driving rain-true extreme windows.



The insulating glass unit retains its function and quality over the long-term through the permanent pressure equalisation provided by the SWISSPACER Air. A normal service life can thus be achieved - even in the presence of climatic loads.

Its unique structure prevents vapour accumulation within the cavity, which could lead to condensation or damage the metallic low-e coatings. Such permanent pressure equalisation allows the insulated glass unit to maintain its functionality and quality over an extended period. The risk of bulging panes, glass breakage, and premature ageing due to excessive stress on the glazing edge is significantly reduced. As Hanov-Blum emphasises: “The insulating

glass possesses road approval and can be used in nearly any climate. Our vehicles can traverse the world at any elevation.” Considering project requirements, extremfenster has opted for SWISSPACER Air for their SKI aluminium windows and other constructions for over three years now. These specially-developed glazing units have successfully withstood expeditions to Mexico’s volcanoes at an altitude of 4,400 metres and the Andes at 3,500 metres.

Additionally, one customer’s touring vehicle will soon be embarking on a journey to Mount Elbrus, the highest peak in the Caucasus at 5,642 metres. Here again it’ll be SWISSPACER Air that ensures the necessary pressure equalisation within the window cavity.

FURTHER ADVANCEMENTS FOR EXTREME CLIMATE CONDITIONS

However, the development of glazing units suit-



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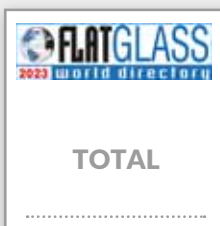
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SGM (division of Vismara)
Teknik Elmas
Tesir Makine

STRAIGHT-EDGE BEVELLING MACHINES

Adelio Lattuada
Bando Kiko
Bavelloni
Bovone Elett.
CMS
Glass Company
Hiseng Glass Machinery
Schiavo
Schiatti Angelo
SGM (division of Vismara)
Teknik Elmas
Tesir Makine

BEVEL POLISHING MACHINES

Adelio Lattuada
Bando Kiko
Bavelloni
Bovone Elett.
CMS
Hiseng Glass Machinery

Biesse Group

Lovati
Teknik Elmas
Tesir Makine

STRAIGHT-EDGE ENGRAVING MACHINES

Bavelloni
Bottero
CMS
Biesse Group
SGM (division of Vismara)
SKG - Skill Glass
Teknik Elmas
Vismara

SHAPED GLASS ENGRAVING MACHINES

Bavelloni
Bottero
CMS
Biesse Group
Lovati
SGM (division of Vismara)
Teknik Elmas
Tesir Makine
Vismara

CORNER GRINDING MACHINES

Adelio Lattuada
Ashton Industrial Sales
B Solution
Bavelloni
Biesse Group
CMS
Dongguan Byrnsion Machinery Co., Ltd.
Lovati
SGM - Special Glass Machinery
SKG - Skill Glass
Teknik Elmas
Tesir Makine

SHAPED GLASS GRINDING MACHINES

Adelio Lattuada
Ashton Industrial Sales
Bando Kiko
Bavelloni
Biesse Group
Bottero
CMS
Dongguan Byrnsion Machinery Co., Ltd.
Forel
Glass Company
Hiseng Glass Machinery
Lovati
SGM (division of Vismara)
Teknik Elmas
Tesir Makine
Vismara

BELT GRINDING MACHINES

Adelio Lattuada
Ashton Industrial Sales
Fenzi
Hiseng Glass Machinery
IOCCO Group
Si.Ste

LATHES - VERTICAL AND HORIZONTAL

CMS
Fenzi
Teknik Elmas
Tesir Makine

EMBOSSING MACHINES

CMS
Fenzi

PORTABLE MACHINES

Fenzi
Helios Quartz
Si.Ste
Tecno Glass

DIAMOND TOOLS

Adelio Lattuada
ADI - Surface Group
Ashton Industrial Sales
Bando Kiko
Bovone Diamond Tools
Bottero
Diamut - Biesse
Duezeta Srl
Fenzi
Glaston Group
Marrose Abrasives
Mole Moreschi
Neptun
Schiavo
Talamoni
Teknik Elmas
Vincent - Surface Group

DIAMOND BELTS

Mole Moreschi
SEAMING LINES
Ashton Industrial Sales

MANUAL LINES

Ashton Industrial Sales

POLISHING WHEELS

Adelio Lattuada
ADI - Surface Group
Bando Kiko
Bovone Diamond Tools
Diamut - Biesse
Dogo
Duezeta Srl
Fenzi
Glaston Group
Italmole
Marrose Abrasives
Mole Moreschi

RBM Italia - Surface Group

Schiavo
SGM (division of Vismara)
Si.Ste
Teknik Elmas
Vincent - Surface Group
Vismara

POLISHING AGENTS AND OXIDES

ADI - Surface Group
Bovone Diamond Tools
Fenzi
Schiavo
Teknik Elmas
Vincent - Surface Group

POLISHING BELTS

Di Gregorio
Fenzi
Schiavo
Si.Ste
Vismara

COOLANTS

Adelio Lattuada
Bovone Diamond Tools
Fenzi
Schiavo

GLASS GRINDING AND BEVELLING COOLANTS

Schiavo
Teknik Elmas

SEPARATORS FOR GLASS-SOLIDS

Ashton Industrial Sales
Dieffe Macchine
Filtraglass
Immes
Schiavo
Vitrosep

ACCESSORIES

ADI - Surface Group
CMS
Duezeta Srl
Fenzi
Helios Quartz
IOCCO Group
Mole Moreschi
Schiavo
Schiatti Angelo
Teknik Elmas
Vincent - Surface Group

Washing

HORIZONTAL WASHING MACHINES

Ashton Industrial Sales
Bando Kiko

Bavelloni
Bovone Elett.
 Di Gregorio
 ECOL
Forel
Glass Company
Glaston Group
GPM Automation
 Hiseng Glass Machinery
 IOCCO Group
Lisec Group
Neptun
Schiavo
 SGM (division of Vismara)
 Si.Ste
 Tecglass S.L
Triulzi
 Vismara

VERTICAL WASHING MACHINES

Adelio Lattuada
 Ashton Industrial Sales
Bavelloni
Best Makina
 Di Gregorio
 ECOL
Forel
Glass Company
Glaston Group
GPM Automation
 Hiseng Glass Machinery
 IOCCO Group
Lisec Group
Neptun
Schiavo
Schraml Glastechnik GmbH
 SGM (division of Vismara)
North Glass Technology
 Si.Ste
Stefiglass
 Tecglass S.L
 Teknik Elmas
 Tesir Makine
Triulzi
 Vismara

WASHING MACHINES FOR AUTOMOTIVE GLASS

Bando Kiko
 ECOL
Glaston Group
 IOCCO Group
 SGM (division of Vismara)
 Tecglass S.L
 Tesir Makine
Triulzi
 Vismara

WASHING PURIFICATION SYSTEMS

Dieffe Macchine
Filtraglass
Forel
Glass Company

Glaston Group
Immmes
 IOCCO Group
Schiavo
LIQUID WASHING CONCENTRATES
Schiavo
 SGM (division of Vismara)
 Vismara
ACCESSORIES
Helios Quartz Idrotecnica
Neptun
Schiavo

Mirror production

COMPLETE PLANTS & CONVEYORS FOR MIRROR PRODUCTION

Bovone Elett.
 IOCCO Group
Triulzi
PAINTING EQUIPMENT
Dongguan Byrsonion Machinery Co., Ltd.
 Fenzi
 IOCCO Group
Triulzi

DRYING OVENS

Bovone Elett.
CMS
Dongguan Byrsonion Machinery Co., Ltd.

AUTOMOTIVE MIRROR BENDING FURNACES

Bovone Elett.
 Tecnosens

MANUAL SILVER-SPRAYING EQUIPMENT

Fenzi
Glass Company

PAINTS AND CHEMICAL PRODUCTS

Fenzi
ACCESSORIES
 Fenzi

Helios Quartz

Insulating glass

COMPLETE INSULATING GLASS LINES
 Ashton Industrial Sales

Bavelloni
Best Makina
 Di Gregorio
Forel
Glass Company
Glaston Group
 Lisec
Marval
Neptun
Schiavo
 SGM - Special Glass Machinery
 Thermoseal Group
Triulzi
AUTOMATIC SEALING LINES

Bavelloni
 Easy Automation
Forel
Glaston Group
Lisec Group
Marval
 Teknik Elmas
 Tesir Makine
AUTOMATIC SPACER BENDING MACHINES

Bavelloni
Best Makina
 Fenzi
Forel
Glaston Group
 IOCCO Group
Lisec Group
Marval
Schiavo
 Thermoseal Group

DESICCANT SALT FILLING MACHINES

Ashton Industrial Sales
Bavelloni
Best Makina
 Di Gregorio
 Fenzi
Forel
Glaston Group
Lisec Group
Marval
Neptun
Schiavo
 Stefani
 Tecno Glass
 Thermoseal Group
Triulzi

SPACER CUTTING SAWS

Ashton Industrial Sales
Bavelloni
Best Makina
 Di Gregorio
 Fenzi
Forel
Lisec Group
Marval
Neptun

Schiavo
 Tecno Glass
 Tesir Makine
 Thermoseal Group

BUTYL EXTRUDERS

Bavelloni
Best Makina
 Di Gregorio
Forel
Glaston Group
Lisec Group
Marval
Neptun
Schiavo
 Si.Ste
 Stefani
 Tecno Glass
 Thermoseal Group
Triulzi

HOT-MELT EXTRUDERS

Bavelloni
Best Makina
 Di Gregorio
 Easy Automation
 Fenzi
Forel
Lisec Group
Marval
Neptun
Schiavo
 Si.Ste
 Stefani
 Tecno Glass
 Thermoseal Group
Triulzi

POLYURETHANE EXTRUDERS

Bavelloni
Best Makina
 Easy Automation
 Fenzi
Forel
Glaston Group
Lisec Group
Marval
Schiavo
 Tecno Glass

POLYURETHANE ENCAPSULATION

Glaston Group
Lisec Group
Marval
Schiavo

SILICONE EXTRUDERS

Best Makina
 Di Gregorio
 Fenzi
Forel
Glaston Group
Lisec Group
Marval
Schiavo

SUPPLIERS GUIDE Yellow Pages

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Tecno Glass

Triulzi

**POLYSULPHIDE
SEALANT EXTRUDERS**

Best Makina

Fenzi

Forel

Glaston Group

Lisec Group

Marval

Schiavo

Stefani

Tecno Glass

Triulzi

**GAS FILLING
EQUIPMENT**

Di Gregorio

Fenzi

Forel

Glaston Group

Lisec Group

Marval

Neptun

Schiavo

Si.Ste

Sparklike

Stefani

Tecno Glass

Thermoseal Group

DESICCANT SALTS

Ashton Industrial Sales

Di Gregorio

Fenzi

Neptun

Schiavo

Stefani

Tecno Glass

Thermoseal Group

SPACERS/PROFILES

Ashton Industrial Sales

Edgetech Europe

Fenzi

Schiavo

Tecno Glass

Thermoseal Group

GEORGIAN BARS

Ashton Industrial Sales

Hegla

Tecno Glass

Thermoseal Group

BUTYL

Ashton Industrial Sales

Fenzi

Stefani

Thermoseal Group

POLYSULPHIDE SEALANTS

Fenzi

Stefani

HOT MELT

Ashton Industrial Sales

Fenzi

Stefani

Thermoseal Group

OTHER SEALANTS

Fenzi

Stefani

PANTOGRAPHS

Fratelli Pezza

ACCESSORIES

Ashton Industrial Sales

Deltamax Automazione

Forel

Helios Quartz

Schiavo

Sparklike

Stefani

Tesir Makine

Triulzi

Tempering

**TEMPERING FURNACES
(ARCHITECTURAL GLASS)**

Glass Company

Glasstech Inc.

Glaston Group

Hornos Industriales Pujol

Jinglass

Keraglass

Landglass Technology

Lema

Lisec Group

Mappi International

Mazzaroppi Engineering

Schiavo

North Glass Technology

Tecnosens

Tekno Kilns

Texpack

**TEMPERING FURNACES
(AUTOMOTIVE GLASS)**

Glass Company

Glasstech Inc.

Glaston Group

Jinglass

Keraglass

Landglass Technology

Mappi International

Mazzaroppi Engineering

Satinal

SGLASS

North Glass Technology

Taifin

Tecnosens

Texpack

CHEMICAL

TEMPERING EQUIPMENT

Glass Company

R.C.N. Solutions

**ROBOT FOR CLEANING
SILICA ROLLERS**

Eurotech Way

ACCESSORIES

Deltamax Automazione

Fenzi

Glass Company

Glaston Group

Helios Quartz

Hornos Industriales Pujol

Keraglass

Landglass Technology

Mappi International

Mazzaroppi Engineering

R.C.N. Solutions

Satinal

SGLASS

Taifin

Tekno Kilns

Torgauer Maschinenbau

Bending

**BENDING FURNACES
(ARCHITECTURAL GLASS)**

Hornos Industriales Pujol

Jinglass

Keraglass

Mappi International

Mazzaroppi Engineering

R.C.N. Solutions

SGLASS

Tecnosens

Tekno Kilns

Texpack

**BENDING FURNACES
(AUTOMOTIVE GLASS)**

Glass Company

Glasstech Inc.

Glaston Group

Jinglass

Keraglass

Mappi International

Mazzaroppi Engineering

R.C.N. Solutions

Satinal

Si.Ste

Taifin

Tecnosens

Texpack

ACCESSORIES

Ayrox

Deltamax Automazione

Glass Company

Glasstech Inc.

Glaston Group

Hornos Industriales Pujol

Keraglass

Mappi International

Satinal

Softeco

Tekno Kilns

**Laminated glass
production**

**COMPLETE PLANTS FOR
LAMINATED GLASS**

Bovone Elett.

Bottero

Forel

Glass Company

Glaston Group

GPM Automation

Hornos Industriales Pujol

IOCCO Group

Italmatic

Lisec Group

Mazzaroppi Engineering

R.C.N. Solutions

Satinal

Si.Ste

Texpack

Triulzi

LAMINATED WINDSCREEN

BENDING FURNACES

ECOL

Glass Company

Glasstech Inc.

Glaston Group

Keraglass

Mappi International

Taifin

Texpack

AUTOCLAVES

Bürkle

Glass Company

Glaston Group

GPM Automation

Hornos Industriales Pujol

Italmatic

Lisec Group

Triulzi

**AUTOCLAVE-FREE
LAMINATED GLASS
PRODUCTION**

Bürkle

CLIMATIC CABINS

Forel

Glaston Group

GPM Automation

IOCCO Group

Lisec Group

Triulzi

INFRARED OVENS

ECOL

Forel

Glass Company

Glaston Group
GPM Automation
Hornos Industriales Pujol
 IOCCO Group
Lisec Group
Satinal
 SGLASS
Triulzi

MANGLES

GPM Automation

PRESSES/BENDING MACHINES

Forel
 IOCCO Group
Lisec Group
Triulzi

RESIN LAMINATING MATERIALS AND EQUIPMENT

IOCCO Group
Satinal
 Teknik Elmas
 Torgauer Maschinenbau

EVA (ETHYLENE VINYL ACETATE)

Satinal

PVB

Everlam
 Kuraray - Trosifol
 Tecnosens

PVB - SHAPING AND CUTTING EQUIPMENT

Ayrox
 ECOL
Forel
Glaston Group
GPM Automation
 IOCCO Group
Lisec Group
Softeco

PVB - WIRING TECHNOLOGY FOR HEATABLE LAMINATES

Ayrox
 Easy Automation
 ECOL
Softeco

EVA (ETHYLENE VINYL ACETATE)

Tecnosens

ACCESSORIES

Ayrox
Bottero
Deltamax Automazione
 Eurotech Way
Glaston Group
Helios Quartz
Hornos Industriales Pujol
 IOCCO Group
Lisec Group

Satinal
 Simtech
Softeco
 Taifin
Triulzi

Drilling

AUTOMATIC DRILLING LINES

B Solution
Bando Kiko
Bavelloni
Biesse Group
Dongguan Byronson Machinery Co., Ltd.

Glaston Group
 IOCCO Group
Neptun
Schiatti Angelo
Schraml Glastechnik GmbH
 SGM (division of Vismara)
SKG - Skill Glass
 Teknik Elmas
 Tesir Makine
 Vismara

MULTI-SPINDLE DRILLING MACHINES

B Solution
Bando Kiko
Bavelloni
Biesse Group
CMS
Glass Company
Glaston Group
 IOCCO Group
Neptun
Schiavo
Schiatti Angelo
 SGM (division of Vismara)
SKG - Skill Glass
 Teknik Elmas
 Tesir Makine
 Vismara

DRILLING MACHINES WITH OPPOSITE DRILLING HEADS

B Solution
 Bando Kiko
Bavelloni
Biesse Group
Bottero
CMS
 Di Gregorio
 Fenzi
Glaston Group
 Hiseng Glass Machinery
 IOCCO Group
Lovati
Neptun
Schiavo
Schiatti Angelo

SGM (division of Vismara)
SKG - Skill Glass
 Teknik Elmas
 Tesir Makine
 Vismara

COLUMN DRILLING MACHINES

B Solution
Bottero
 Di Gregorio
 Fenzi
Neptun
Schiavo
 SGM (division of Vismara)
 Si.Ste
 Tesir Makine
 Vismara

PORTABLE DRILLING MACHINES

CMS
 Fenzi
Schiavo
 Si.Ste
 Teknik Elmas
 Tesir Makine

DRILLING AND MILLING MACHINES

Bavelloni
Bottero
CMS
Biesse Group
 IOCCO Group
Lovati
Neptun
Schiavo
Schraml Glastechnik GmbH
 SGLASS
 SGM (division of Vismara)
 Teknik Elmas
 Tesir Makine
 Vismara

DIAMOND DRILLS

ADI - Surface Group
 Bovone Diamond Tools
Diamut - Biesse
Duezeta Srl
 Fenzi
Glaston Group
Mole Moreschi
Neptun
Schiavo
 Si.Ste
 Teknik Elmas
 Tesir Makine
Vincent - Surface Group

ACCESSORIES

CMS
Duezeta Srl
 Fenzi
Neptun
Schiavo

Si.Ste
 Teknik Elmas

Other equipment and plants

TURNKEY PLANTS / ENGINEERING - FOR BUILDING GLASS

Bando Kiko
Bottero
Cugher Glass
Glaston Group
 Horn
Biesse Group
 IOCCO Group
Keraglass
Lisec Group
 Torgauer Maschinenbau

TURNKEY PLANTS / ENGINEERING - FOR AUTOMOTIVE GLASS

Bando Kiko
Bottero
Cugher Glass
 Easy Automation
 Horn
Glaston Group
Biesse Group
 IOCCO Group

TURNKEY KEY PLANTS / ENGINEERING - FOR DISPLAY GLASS

Bando Kiko
Cugher Glass
 Torgauer Maschinenbau

EDGES ROLLER COATING MACHINE

Eurotech Way

WORK CENTRES - CNC CONTROLLED

Bando Kiko
Bavelloni
Bottero
Glass Company
 Glasstech Inc.
Glaston Group
Hegla
Biesse Group
Neptun
SKG - Skill Glass

FLOAT PLANTS / LINES (EQUIPMENT & ACCESSORIES)

Bovone Elett.
 Horn
 IOCCO Group

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CULLET HANDLING SYSTEMS

ECOL

COMPLETE BATCH PLANTS

Zippe

VACUUM COATING EQUIPMENT AND PLANTS

Giardina Group Glass Division

Glass Company
North Glass Technology

ENAMELLING EQUIPMENT AND PLANTS

Giardina Group Glass Division

Glass Company
Rollmac division of GeMaTa

DRYERS AND ENAMELLING FURNACES

Bürkle

Giardina Group Glass Division
Tecglass S.L

SPRAYING TECHNOLOGY

Bürkle

Giardina Group Glass Division

HOT- AND COLD-END COATING SYSTEMS AND MATERIALS (CYD, ROLLERS, CURTAIN COATERS)

Bürkle

Giardina Group Glass Division

SANDBLASTING SYSTEMS, EQUIPMENT AND PLANTS - OPTIMIZERS

Di Gregorio

Fenzi

Fratelli Pezza
Glass Company
Schiavo
SKG - Skill Glass

DIGITAL INKJET PRINTERS

Glass Company
System Ceramics
Tecglass S.L
TecnoFerrari

SCREEN PRINTING EQUIPMENT AND PLANTS

Ayrox
COMSS

Cugher Glass
Deltamax Automazione
Dongguan Byrnsion Machinery Co., Ltd.

ECOL

Eurotech Way

Glass Company

Keraglass

Rollmac division of

GeMaTa

North Glass Technology

Softeco

TecnoFerrari

SCREEN PRINTING FRAMES

COMSS

Dongguan Byrnsion Machinery Co., Ltd.

SCREEN PRINTING DRYING SYSTEMS

COMSS

Cugher Glass

Dongguan Byrnsion

Machinery Co., Ltd.

Glass Company

Rollmac division of

GeMaTa

EDGES ROLLER COATING MACHINE

Giardina Group Glass Division

ACIDING GLASS EQUIPMENT AND PLANTS

Lisec Group
Rollmac division of GeMaTa

LASER DECORATING MACHINES

Ashton Industrial Sales

Glass Company

LASER MARKING

Ashton Industrial Sales

Artistic glass production

CERMAMIC INKS

Glass Company
Tecglass S.L

CHAMBER ELECTRIC KILNS

Glass Company
Keraglass
Tekno Kilns

ACCESSORIES

Deltamax Automazione
Helios Quartz

CUTTERS

Si.Ste

CUTTING WHEELS

Si.Ste

MANUAL GRINDING MACHINES

Di Gregorio

UV ADHESIVES

Si.Ste

Miscellaneous

ADHESIVES FOR GLASS BONDING

Si.Ste

AUTOMATION

Ashton Industrial Sales

Easy Automation

Horn

IOCCO Group

Tecnosens

Torgauer Maschinenbau

Zippe

AUTOMOTIVE GLASS APPROVAL SERVICES

Ayrox

Softeco

Tecnosens

Teknik Elmas

AUTOMOTIVE GLASS QUALITY CONTROL

Ayrox

Bando Kiko

Cugher Glass

Deltamax Automazione

Glaston Group

IOCCO Group

Softeco

Tecnosens

CE MARKING - QUALITY CONTROL EQUIPMENT FOR GLASS IN BUILDING

Ayrox

Softeco

COATING OF GLASS SHEETS - SYSTEMS & MATERIALS - HOT / COLD END

Bürkle

COLOURS & ENAMELS - OTHER APPLICATIONS

Ayrox

CUTTERS

Tesir Makine

CUTTING WHEELS

Talamoni

Teknik Elmas

Tesir Makine

DEIONIZING AND WATER SOFTENING EQUIPMENT

Fenzi

Forel

Glass Company

Idrotecnica

Immies

Lisec Group

Triulzi

DIAMOND ROUTER EQUIPMENT - PORTABLE

Teknik Elmas

Tesir Makine

FLAT GLASS QUALITY CONTROL DEVICES

Ayrox

Deltamax Automazione

Forel

IOCCO Group

Softeco

Tecnosens

FURNACES

Glass Company

Horn

Texpack

FURNACES / HYDROGEN GENERATORS (WATER ELECTROLYSERS)

Nel Hydrogen

GLASS COATING AND TINTING

Bürkle

Glass Company

Rollmac division of

GeMaTa

GLASS TREATMENT FILMS

Glass Company

HEATING EQUIPMENT - STANDARD (GAS FIRING, BURNERS, AIR GAS MIXERS, SAFETY DEVICES, ELECTRICAL RESISTORS)

Horn

Keraglass

Texpack

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HINGES FOR GLASS DOORS

Si.Ste

INSPECTION INSTRUMENTS & INTENSIMETERS

Tecnosens

INFRARED TUBES

Helios Quartz
Deltamax Automazione

KILNS

Glass Company
Keraglass
Lisec Group
Tekno Kilns
Fenzi

METAL ACCESSORIES

Si.Ste
Teknik Elmas
Tesir Makine

METALLIC SECTIONS

Fenzi
Tesir Makine

NUMERICAL CONTROL SYSTEM (CNC) FOR ALL GLASS PROCESSING MACHINES

Glass Company
IOCCO Group
Prodim

OPTICAL DISTORTION ANALYSERS FOR AUTOMOTIVE GLASS

IOCCO Group
Keraglass
Tecnosens

OPTICAL INFRARED THERMOMETERS

Optris

POLYMER MACHINE PARTS

Simtech

POWDER OR LIQUID APPLICATION SYSTEMS FOR PROTECTING FLOAT GLASS

BOST
Cugher Glass
Glass Company

PUMPING AND APPLICATION SYSTEMS (AUTOMOTIVE GLASS)

IOCCO Group

PURIFIERS FOR REFLUENT WATER

Dieffe Macchine
Immes

PUTTIES AND SEALANTS

Fenzi

QUARTZ EQUIPMENT

Helios Quartz

SHAPE CHECKING DEVICES

Easy Automation
IOCCO Group

RAW MATERIALS

BOST

SHOWER ENCLOSURES

SGM (division of Vismara)
Vismara

SIC HEATERS

Helios Quartz

SOFTWARE SYSTEMS FOR PRODUCTION CONTROL

A+W Software

CMS
Cugher Glass
Deltamax Automazione
Edgetech Europe
Forel

Lisec Group
Optima
Prodim

SOLDERING EQUIPMENT FOR ELECTRICAL CONNECTORS FOR WINDSCREENS AND BACKLITES

Ayrox
Easy Automation
Softeco

SORTING SYSTEMS

Forel
Glaston Group
GPM Automation
Lisec Group

SURFACE STRESS MEASUREMENT INSTRUMENT

Ayrox
Glass Company
Tecnosens

WINDSCREEN STRESS MEASUREMENT INSTRUMENT

Tecnosens

WINDSCREEN AND BACKLITES

Tecnosens

TESTING FOR SOLDERINGS

Ayrox
Easy Automation
Softeco

TESTING DEVICES OF BACKLITES ELECTRICAL HEATING

Ayrox
Easy Automation
Softeco

THERMAL IMAGING SYSTEMS

Glass Company
Easy Automation
Optris

TIN FLOAT BATH FURNACES

Horn
IOCCO Group

TIN FLOAT BATH SIDE DETECTION DEVICES

Tecnosens

UV LAMPS

Helios Quartz

UV PORTABLE MACHINES

Helios Quartz



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Preview

VITRUM

The following pages offer readers a useful guide to advertisers of this issue that are exhibiting at Vitrum 2023

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ADI - SURFACES GROUP	7 E02-F01	LOVATI	7 R09
ANGELO SCHIATTI	7 H24-K27	MAPPI INTERNATIONAL	7 H02-K13
AYROX	7 R33	MARVAL	7 S08-U07
BOTTERO	7 P22	MAZZAROPPI ENGINEERING	7 C23
BOVONE ELETTROMECCANICA	7 S14-U13	MOLE MORESCHI	7 S21-S25
CMS	7 F34	NORTHGLASS TECHNOLOGY INDUSTRIAL	7 R06
CUGHER GLASS	7 P14	OPTIMA	7 E27-F24
DELTAMAX AUTOMAZIONE	7 R14-S13	PRODIM INTERNATIONAL	7 E23-E27
DIAMUT - BIESSE	7 N28-P27	HORNOS INDUSTRIALES PUJOL	7 E14-F13
DUEZETA	7 U28	RBM - SURFACES GROUP	7 E02-F01
EDGETECH EUROPE	7 S04	RCN SOLUTIONS	7 H01
FILTRAGLASS	7 P08	ROLLMAC DIVISION OF GEMATA	7 D34-E33
FOREL	7 K02-P13	SCHRAML	7 S22
FRATELLI PEZZA	7 F02	SKILL GLASS	7 A24
GLASS COMPANY	7 P34	SOFTECO	7 R33
GLASTON GERMANY	7 H34-K33	STEFI GLASS INTERNATIONAL	7 A14
GPM	7 K30	STRATO - TK	7 G30-H29
HEGLA	7 K22	TALAMONI	7 U10
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Hall 7 - Stand E19

**Glass-Technology
International**
THE LEADING MAGAZINE FOR THE INTERNATIONAL FLAT GLASS INDUSTRY

hall 7 / stand C02-E11

People to contact at our stand

ADELIO LATTUADA OWNER
NICOLA LATTUADA SALES DEPARTMENT
GINO S. GRAMAGLIA SALES DEPARTMENT
OUR TECHNICAL AND COMMERCIAL STAFF



State-of-the-art grinding technology will take centre stage on **Lattuada** stand at Vitrum '23.

First, a robotic line live and in operation. Developed in cooperation with Knittel Glass, it consists of a variable-angle grinding machine with 13 wheels and a KUKA robot running on an ultra-high-speed track (maximum speed 2.35 m/s) capable of loading, moving, rotating and unloading glass.

This line can reach a throughput up to 130 m/h considering a speed of 3 m/min and glasses with dimensions 1600x600x8 mm and 1000x2000x8 mm.

A new feature is a device to control the correct position of the edge of the glass. The customer can load the glasses on the rack even without using a reference/zero point, just roughly in the middle of the rack. So, when turning it 90° the bottom edge can be a little bit higher or lower compared to the standard zero line. This is the task of this new device: to check, before loading the glass, the real position of the edge to have a safe and smooth loading.

One very interesting option is a state-of-the-art and advanced vacuum technology able to save around 85% of the energy, compared to more standard systems.

The line can be operated just by an operator who only needs to load a rack and start the line. All glasses will be automatically grinded on four sides and unloaded on another rack or sent into a washer. The line can communicate with the operator through a pager.

This solution combines the full automation usually offered by a closed cell with 2 polishers and 2 robots but with a smaller footprint and a reduced budget. It can almost match the same throughput but with the advantage that no operators must handle the glasses manually.

The 13-wheels grinding machine of the robotic line will be fully automated, being equipped with the A-WR system and the i-AL package. These solutions, made by Lattuada, have a precise objective: to automate glass grinding activities, exponentially increasing production flexibility. They allow the transfer of

the customers know-how into their control system, making it easier to achieve a homogeneous and consistent process result. The machine automatically adjusts all processing parameters and compensates for tool wear.

In Lattuada booth also PETRA 4 model awaits you: a 46° mitring machine dedicated to grinding of stone, ceramic and composite materials. It will show how Lattuada has managed to bring the same quality and precision of glass grinding to stone processing. PETRA series 46° mitring machines perform 46° miters, even with a very small rest or almost no rest, used to make perfect gluing for: kitchen worktops or backsplashes, bathroom furniture, furniture, windowsills, etc.



Product Range

- ELECTRONIC OR PC CONTROLLED STRAIGHT-LINE EDGING MACHINES FOR FLAT EDGES OR WITH VARIABLE ANGLE
- ELECTRONIC OR PC CONTROLLED STRAIGHT-LINE BEVELLING MACHINES
- ROBOTIC SOLUTIONS
- VERTICAL EDGE POLISHERS (PETRA)
- VERTICAL WASHING MACHINES
- AUTOMATIC CORNER-GRINDING MACHINES
- HORIZONTAL DRILLING MACHINES

www.adeliolattuada.com • www.lattuada-na.com



ADELIO LATTUADA
 Via Abbondanza 11/13 - 22070 Carbonate (CO) - Italy
 Tel.: +39-0331-832713 - Fax: +39-0331-833886 - E-mail: info@adeliolattuada.com



LATTUADA NORTH AMERICA
 6967 Wales Road, Suite F, Northwood OH. 43619 - USA
 Tel.: +1-567-2494486 - E-mail: info@lattuada-na.com

hall 7 / stand E02-F01

People to contact at our stand

DINO ZANDONELLA NECCA PRESIDENT / CEO
LORENZA DAL MASO GLASS DIVISION MANAGER



ADI will be at Vitrum 2023 trade show, with its complete range of **UHS®** tools for horizontal and vertical CNC machines. The biggest advantages of this series of tools are fast start-up, zero chipping and long life. Moreover, the special combination of bonds provides the highest performance in terms of working speed.

Designed initially for the automotive industry, the **UHS®** bond has successfully found application in the CNC working process. Customers who choose to invest in such a key equipment, as **UHS** tools never go back to standard ones.

The **UHS** family of tools, which includes routers, Pencil edge and trapezoidal wheels, is intended for automotive, solar and architectural glass sectors.

ADI's R&D Department is always focused on increasing the performances of the tools. Being not just a tool supplier, but a Total Service Partner, **ADI** can also assist its Customers in the after-sales process supplying, as an example, **GlassRenu**, the ultimate solution in the glass recovering business. This patented Scratch Removal System, with its dry working process, is able to remove a wide range of damages, restoring the original transparency of the glass. **GlassRenu** has limitless fields of application, ranging from the architectural industry to the automotive, marine and maintenance of public transportation.

Moreover especially these two last branches of the maintenance market, highlighted to **ADI** the need to deliver solutions for the maintenance of other materials, different from glass, but equally present in those environments.



Thus was born **PXCare**, the first of a series. It's engineered to restore all plexiglass surfaces (polymethylmetacrilate). In fact this kind of materials are widely used on cruises and boats, in consideration of their higher resistance to impact, transparency and lighter weight if compared to glass. Thanks to its patented discs, **PXCare** grants an extreme flexibility of use, and can be operated manually or with the use of random orbital sanders. The special No Wave Technology (+nwt) mixes different abrasive technologies, allowing a dry tooling cycle, and giving to the surfaces an optimal sharpness of the image reflected, avoiding at the same time the orange-skin effect.



www.aditools.com



Via Dell'Economia 12/16 - 36016 Thiene (VI) - Italy

Tel.: +39-0445-360244 - Fax: + 39-0445-366862 - E-mail: info@aditools.com

People to contact at our stand

ALESSANDRO SCHIATTI

CINZIA SCHIATTI

COMMERCIAL AND TECHNICAL STAFF

PRODUCTION MANAGER

SALES MANAGER



Straight to VITRUM

Technological innovation and sustainability are the main topics that will animate, also this year, the sector debate at VITRUM. For us all this goes hand in hand with the concept of automation, which leads not only to the optimization of performance but also to significant increases in energy savings.

Automation: benefits are measurable

In fact, thanks to the automation, the increase in the profitability of the processes and therefore the profit margins obtained is immediately measurable.

And the margins grow not only due to the speeding up of some steps of the work-flow, but also due to the minimization of errors and the reduction in the use of working time.

Companies need to increase the use of "smart" machines, able to connect to a network to process data and exchange information with other produc-

tion plants for the management of their life cycle but they need also to simplify processes, reduce human error and intervention, increase ease of use and decrease machine downtime.

One of the most obvious advantages of automation is also the remote assistance, that is the possibility for the technical assistance or for the operator to connect from other locations to intervene, also in a preventive way, on the machine and on the process.

Under the spotlight

The protagonists of our 2023 edition of Vitrum will be the straight edger mod. FPS50R, the bilateral edger mod. BFP20 and glass charger mod. CVB35

The straight edger mod. FPS50R, with 10 grinding wheels, is in the "top" category of our range.

It allows the processing of thicknesses from 3 to 55mm, for glass sheets with a minimum size of 100x100mm and a maximum weight of 1,800kg.

The machine grinds the flat edge and chamfers at 45° and then polishes the edge with also the cerium oxide. Among the optionals available that you can see at the fair there will be the device for grinding parallelograms and the extension of the grinding machine of 1m in height.

In the FPS50R model, the combined clutch and thickness control system prevents the entry of sheets of different thickness from the one set by stopping only the incoming conveyor, without compromising the plates already being processed.

The single double edger mod. BFP20, with an opening of 2000mm, works thicknesses from 3 to 20mm and sheets of minimum dimension of 160x160mm. The BFP20 machine grinds the flat edge with arris and it is fully automatic, controlled by the PLC

Amongst the other optionals available that the machine can fit, there are the edge and surface engravers and the oscillating spindle for thick lami-

nated or monolithic glass processing

The Glass loader mod. CVB35 with rotating base is a machine designed and built by SCHIATTI to automatically place the glass sheets positioned on a vertical rack to an horizontal position on the roller conveyors. The whole equipment consists of a glass trolley, a base equipped with horizontal crossbar and mobile arm and a roller conveyor.

The roller conveyor is controlled by a motor variator, to synchronize the speed of the loader with that of the coupled grinder. On it are mounted two sensors for the control of the presence of glass.

The loader has a precious option: the bar code, that is used by the loader to identify the glass to be processed.

Depending on the information set and read, the board can rotate automatically or manually. The bar-code can be supplied either with a gun for manual reading, or to be applied on the loader arm.

Do you need something more?

We can offer a great reliability, extreme durability of our machines, careful and prompt service from design to assistance and, last but not least, the quality of our made in Italy.



Via alla Porada 188 - 20831 Seregno (MB) Italy

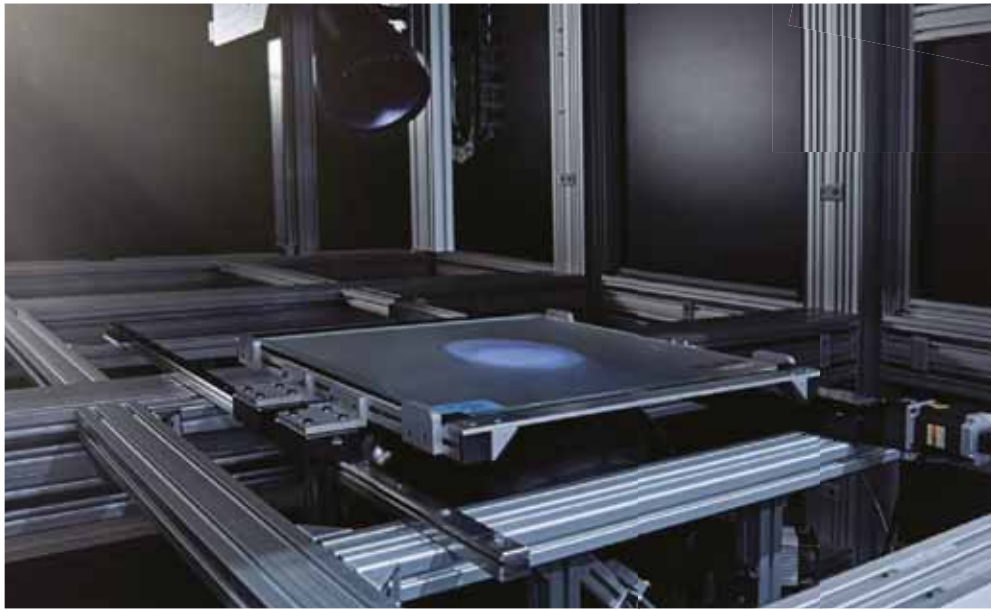
Tel.: +39 0362-238496

E-mail: info@schiattingelosrl.com

www.schiattiangelosrl.com

hall 7 / stand R33

People to contact at our stand

MIKKO SUOMI**ANDRE SILNOV****Hemispherical light transmission measurement on greenhouse panes**

AYROX has over 25 years' experience in the glass industry. We provide quality control instruments complying with the international norms for architectural and automotive glass.

We offer ISO 17025 accredited calibration and testing, repair and maintenance service in our own laboratory for a wide range of optical quality control instruments. Additionally, to improving quality and optimising production, Ayrox commercialises production accessories for laminated and tempered glass such as silicone and silicone free vacuum rings and aramid fibre tapes.



AEM of for automatic edge stress measurement



SIS-02 Automatic collimator for secondary image separation

Product Range

- **ISO 17025 ACCREDITED CALIBRATION AND TESTING**
- **REPAIR AND MAINTENANCE OF POLARIMETERS**
- **QUALITY CONTROL EQUIPMENT FOR GLASS**
- **WIRED PVB AND PLASTIC FOR HEATABLE APPLICATIONS**



hall 7 / stand P22

People to contact at our stand

ALBERTO MASOERO EXECUTIVE DIRECTOR SALES
MARKETING & AFTER SALES - FLAT GLASS



Vitrum 2023 will be the perfect moment to meet our customers from all over the world, after two years of forcibly limited relationships.

Bottero S.p.A. is happy to present to the public the latest technological developments in the field of flat and hollow glass, sharing the technological roadmap but mostly the key projects on which we are working.

Bottero business strategy is focused on two main pillars: sustainability and automation.

In terms of sustainability, Bottero focuses on respecting and valuing resources, people, stakeholders and the environment, with the goal of leaving a better world for the future generations. The attention to sustainability is confirmed by the ISO26000 certification which the company has recently obtained.

In terms of automation, Bottero's investments in R&D are focused on the manufacturing of glass with cutting-edge technology, on system integration, on collection and analysis of data with the application of AI algorithms.

In this paradigm, GlassForm.AI company activity fits right in; it's a joint venture between Bottero and Tiama, which operates at 100% in this sector with over 25 engineers dedicated to the development and the application of AI algorithms in the field of hollow glass and flat glass.

Using cutting-edge technologies, big data and machine learning, this joint venture develops automation tools to offer solutions to auto-

matically manage the process of forming based on production goals, limiting the environmental impact through energy saving, reducing operators' exposition to machine regulations through automated controls and compensate the loss of know-how of the process by leveraging on the use of artificial intelligence technologies.

The ability to integrate and scale processes, from the basic stand-alone machine up to the automation of the entire factory, are the main objectives of the business units of flat glass and hollow glass of Bottero.

Since 1957, Bottero S.p.A., is the only pro-



ducer of machines and technologies for the production and the manufacture of flat glass and hollow glass developing stand-alone machines and complete lines.

In the last 5 years, thanks to the growth of solar energy demand and photovoltaic installations demand, Bottero has strengthened its own presence in the renewable energies segment.

Thanks to the important investments in R&D and the intelligent solutions for the factory's automation, 3Sun company of the Enel Green Power group, has chosen Bottero technologies for its new

Gigafactory of 3GW (Tango Project), located in the heart of the industrial area of Catania.

It's the biggest production site of photovoltaic panels in Europe, with five production lines of photovoltaic panels of 600 MW each in advanced installation phase.

"With more than 60.000 active installations all over the world – states Marco Tecchio, CEO of Bottero, by applying the principles of the 5.0 Industry we have made important investments in automation, bringing innovative solutions to the glass industry with the goal of gaining automatic control and the optimization of productive processes".

Bottero, with over 750 employees (more than 25% of the work force is made up by engineers coming from R&D and service activities), has a sales revenue of just a little under 300 million euros with establishments in Cuneo, Montecchio Maggiore, Rovereto and in China.



bovone

MADE IN EXCELLENCE

The joint participation of **Bovone** and Bovone Diamond Tools at the Vitrum 2023 international exhibition will be an opportunity to celebrate together the important milestone of 20 years of activity of the tool manufacturing company.

A solid bond, the one that joins Bovone with its sister company BDT, which is declined mainly in technological innovation, a distinctive feature of the production of both companies: BDT is specialized in the production of tools for the second processing of flat glass - metal and resin bonded diamond wheels for all bevelling and straight-line edging machines, bilateral machines, and cnc machines - as well as the customized production of polishing wheels and special grinding wheels according to design and the sale of a wide range of accessories. BDT's product range is distinguished by its top-quality finish, extensive catalogue and considerable potential for customization.

BDT has recently started a process of strengthening its production assets that has seen the hiring of new resources within the Technical Sales and Research & Development areas. This strengthening has immediately produced a significant acceleration in terms of technological innovation and quality of the offer. The close collaboration alongside Bovone further fuels the R&D process: in fact, thanks to the possibility of working on Bovone's wide portfolio of customers, which is declined in different areas of industrial application, BDT develops and increases its expertise and know-how on a daily basis, dealing with complex and diversified requests, com-

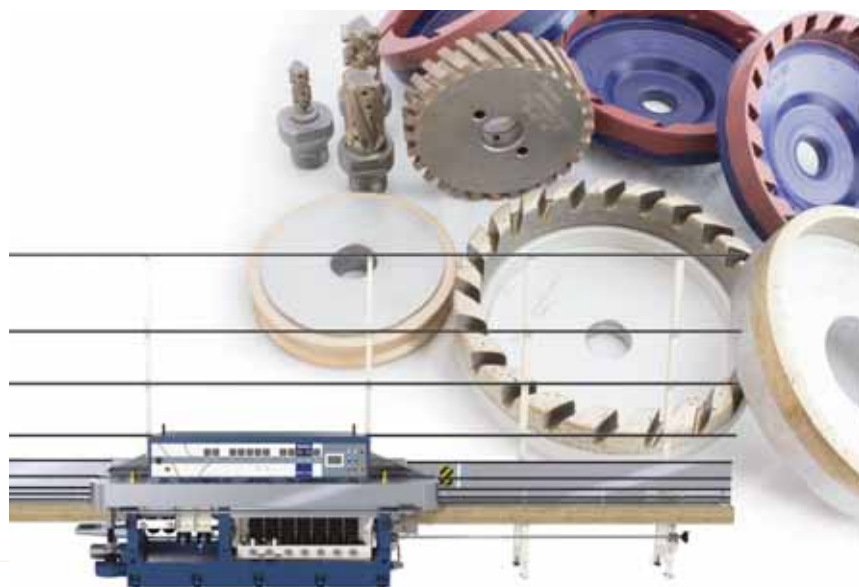
ing from different realities of the flat glass processing sector, resulting in a high quality, flexible and highly customizable tool offer, able to overcome any challenge.

Working on Bovone's straight line edgers, the two companies jointly conducted a study to optimize the performance of the grinding wheels: the development of new wheel configurations for Bovone's edgers significantly improves the production versatility of the edgers, reduces production costs related to wheel consumption, while maintaining the high quality standards guaranteed by technologies Made in Bovone, for which the company is internationally recognized and appreciated.

Spotlight is then turned on Bovone's automation in grinding processes: the range of Bovone's FA automatic edging machines will act as ambassadors of Bovone's excellence. This range of edging machines, thanks to significant improvements in automation, is able to increase productivity in customer machining cycles. In addition to the increase in productivity rates, these edgers are easy to use, maintain a high and consistent quality of the finished product, and provide glass shops with a highly reliable production tool that will enable them to give answers marked by a very high quality of the finished product quickly and with certainty, regardless of the skill of the operator.

On display at the fair will be the Elb 11/45 FA model, which, in fully automatic tool setting mode, performs glass edging, achieving a very high quality of flat edge and 45-degree inclined edge.

The joint participation of Bovone and Bovone Diamond Tools, in BDT's 20th anniversary year, is intended to bring to the market's attention how the combination of their respective knowledge translates into tangible benefits for the customer, supporting them in improving the efficiency of production processes, the quality of the finished product, and guaranteeing them excellent before and after sales service.



hall 7 / stand F34

People to contact at our stand

CARLO PROPERSI

LUCA BARBIERI

ALESSANDRO COLELLA

PAOLO RONCA

DIVISION MANAGER

BUSINESS UNIT MANAGER

PRODUCT MANAGER

SALES AREA MANAGER ITALIA



Last year, **CMS Glass Technology's** expansive machine range was updated with the introduction of new products such as the vertical machining center ypsos, the vertical dry seaming machine aura, and the compact and versatile cutting table agil tr. The expansion continues in 2023 with the unveiling of cms electa, cms taktika, and cms proxima, which will be showcased to the glass market during an open house at CMS headquarters this coming September.

Cms electa is the new compact 3/4-axis horizontal monobloc machining center with the smallest footprint and largest work area in its category. Electa is designed to perform seaming, tangential grinding, polishing, cup wheel polishing, drilling, milling, disc cutting, engraving, writing, and 5° bevelling operations. The machine's Metal Synthetic Technology (MST) worktable, replacing the conventional aluminum one, dampens vibrations and enhances the finish and quality of the glass piece. Electa also delivers top performance with a maximum axis speed of 72 m/min.

Cms taktika is the new entry-level vertical working center from CMS, ranking as the most flexible in its category. It's perfect for machining workpieces from 320 x (h)



220mm up to 3000mm x 2000mm. It's designed to process both rectangular and shaped workpieces with at least one straight edge and can perform seaming, polishing, industrial grinding, milling, and coaxial drilling. Cms taktika is equipped with one front- and one rear-magazine capable of accommodating 23 tool-holders in total. Its compact design allows for installation even under lower ceilings and it can connect with a washing machine to clean the glass.

Cms proxima is the new semi-automatic horizontal dry seaming machine. It operates in seconds, with simultaneous residue extraction via a three-level filtration system. Ideally paired with tilting float glass cutting tables or laminated glass cutting tables, it can be installed in less than a day and can seam sides up to 2600 mm long in one pass. Proxima's design allows it to

seam glass in multiple passes without any length limitation.

These three new machines will be available for demos at the CMS site (Zogno – BG) during 8–9 September. [CONTACT CMS FOR MORE INFO OR DEMOS ON OTHER DATES]

Alongside these new products, machines introduced in recent months, including ypsos, aura, cms agil tr and the vertec mill vertical drill, will also be available.

Visit us at Vitrum to discover the latest from CMS and to arrange a visit to our site.



Product Range

- **VERTICAL MACHINING CENTRES**
- **HORIZONTAL MACHINING CENTRES**
- **CUTTING TABLES AND CUTTING LINES**
- **LOADING SYSTEMS**
- **WATERJET CUTTING SYSTEMS**
- **SEAMING MACHINES**



Via A. Locatelli 123 - 24019 Zogno (Bg) - Italy
Tel.: +39-0345-64111
E-mail: info@cms.it

www.cms.it

hall 7 / stand P14

People to contact at our stand

BARBARA MAZZA	GENERAL MANAGER
MARINO BONETTI	SALES MANAGER
PAOLO BARDOTTI	CHIEF ENGINEERING OFFICER
ANDREA ZORZITTO	PROJECT MANAGER OFFICER
MARIANNA CROCI	MARKETING MANAGER
SILVIA VIVA	SALES ACCOUNT
DEA CIZMJA	MARKETING ACCOUNT



CUGHER
Plants and machinery customer oriented

At Vitrum 2023 **Cugher** will present latest developments of products and services, among them the strengthening of **Help Desk Service**. Thanks to a specialized



team dedicated to assistance, the company has the aim to always support customers after commissioning of machinery, ensuring quick resolutions and customized maintenance proposals.

An immersive view of Cugher products will be possible with EVA, the special configurator for augmented reality:

- Silk-screen Printing Machines that best fits the production needs thanks to options that ensure excellent image definition, precision and uniformity of the ink.

- System dedicated for handling, transport and storage for glasses with any dimension and shape, guarantying excellent integration and synchronization with all line components.
- Dryers (IR, UV or combined) with specific features and flexibility for satisfy both silk screen printing and digital printing on glass.
- Vision systems and quality control provides opportunity to best control the glass and the print quality in every detail and to monitor and adjust the process.
- Order manager 4.0, the interface between machinery and Customer's operating system.

Every solution, stand-alone machinery or entire plants, is customized to efficiently perform for each sector:

- AUTOMOTIVE, ensuring high productivity, print repeatability (<+/-0,08 mm) and short cycle time (from 6 to 15 seconds).
- HOME APPLIANCE, a sector where speed is essential, the production change-over is very simple and fast.
- BUILDING AND INTERIOR DESIGN in

which the research center, Architectural LAB, is specialized in the creation of long-term specific solutions.

- SOLAR, guaranteeing wet film uniformity, 98% good parts and 7/7 working plant and high reliability.



Services

- **CUSTOMIZED ENGINEERING SOLUTIONS**
- **SPECIALIST ADVICE: A FREE STUDY ON THE TECHNICAL NEEDS AND PECULIARITY OF THE CUSTOMER**
- **CUGHER HELP DESK: THE NEW AFTER-SALES SERVICE THAT GUARANTEES A CONTINUOUS PRESENCE AND A SPECIALIZED INTERVENTION**

Product Range

- **SILK-SCREEN PRINTING MACHINES**
- **HANDLING**
- **IR AND UV DRYERS**
- **VISION SYSTEMS**
- **ORDER MANAGER 4.0**



hall 7 / stand R14-S13

People to contact at our stand

CHIARA CORRIDORI
ELENA PETROVA
GIANLUCA DIENER



THE GREEN CHOICE

Deltamax's latest system, named OPT, is designed to detect structural defects in jumbo or regular sheets, enhancing the quality of the final product by optimising the entire production cycle, and in particular:

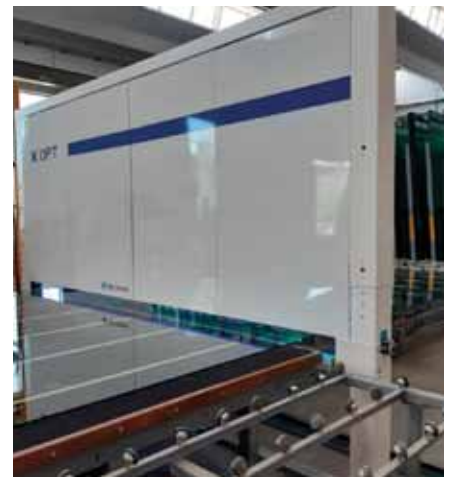
- reduction of waste in the line and consequent time saving, leading to improve cycle times
- reduction of energy consumption and machinery wear, avoiding the processing of non-compliant sheets
- reduction of rejected glass area, thanks to the re-optimisation of the cutting plan (optional with third part software)

These advantages highlight how the system, now installed in some of Italy's most important glass factories such as Predari Vetri (<https://www.predarivetri.com/>) and Artigianvetro (<https://www.artigianvetro.com/>), can represent an important step towards a more sustainable production cycle, with a significant reduction in its environmental impact. A green choice that fits perfectly with the philosophy of Industry 4.0 according to which the system was developed, given the interaction with the line - in specific with the cutting table.

As far as installation is concerned, the OPT system is inserted between the loader and the cutting table, and uses a patented

system to check unwashed glass and detect bubbles and inclusions, assessing their gravity according to the set parameters - minimum size - and producing a map with their positions on the glass. The Deltamax development team is now working to expand the range of defects that can be detected, focusing in particular on scratches that affect the surface of the glass and foreign bodies that could end up between the glass and the PVB (e.g. flies).

This map can be used by the cutting table's management software to optimise



the cutting plan, changing the position of single glass panes so that any defects found end up in the waste area (as show in the picture).

The OPT system can control both monolithic and laminated glass sheets, with different configurations depending on the range of glass and PVB thicknesses.

The system is easy to install, and in general does not require modifications to existing lines; maintenance is limited, while the ease of use combined with the reliability guaranteed by the inspection methodology designed by Deltamax makes it an essential tool for modern glass transformation processes, with an easily quantifiable economic return.

For more information contact us at sales@deltamax.eu or visit our website <https://deltamax.eu/es/productos/opt/>

At Vitrum we will have on our booth a demo machine that will show how OPT works and the reliability of the software, that can detect defects even if lucite is still present on the glass surface.

www.deltamax.eu



DIAMUT



Diamut is the brand leader in the production and marketing of diamond tools for the processing of glass, stone and ceramic materials, used on the majority of the machines on the market. Diamut will be present at Vitrum 2023 showing a wide range of products, among which Helix, a Diamut patented product, which sets new standards in drilling operations, and Chevron, Diamut's definitive solution for laminated glass.

Diamut's commitment to research and innovation has led to the definition of a new binder "cobalt free" used on all products. The use of "cobalt free" powders provides a benefit to the operator during the entire production process of the tool, including the disposal of processing waste. It also represents an important advantage for customers granting a saving on waste disposal costs deriving from the material processing.

The Helix System is able to perform drilling operations with integrated upper and lower countersinking on glass sheets up to 19mm thick, using a single tool on CNC machines.

Helix overcomes all the limits of traditional drilling. Today's technology forces operators to use two tools, as well as imposing

limits; it does not integrate countersinking of the lower part, thus requiring the use of different drill bits for bores of different diameters.

Helix is an innovative tool managed by dedicated software. This tool no longer descends vertically, but works helicoidally; the entrance of the tool takes place from the bevelled side of the tool and

the glass is ground to create a hole instead of being drilled.

Chevron is Diamut line of tools with arrow-cutting profile which has been specially designed to optimize the removal of plastic film and to ensure removal capabilities that have never been achieved previously with traditional tools. Furthermore, compared to a standard tool, the new V-shaped design limits and delays the generation of the classic cutting at the centre of the groove caused by the plastic film that affects the performance of the tool.

The results go above and beyond all current standards. The new, innovative arrow profile allows the Chevron grinding wheel to channel the water to the centre of the tool, facilitating cooling and thus improving performance and final results.

The Chevron line of tools is available in a wide range of different configurations according to machining operations to be carried out and the type of machinery on which these will be performed. The tool is available in 100mm, 150mm and 200 mm diameters, and can be mounted on both CNC and vertical machines, for trapezoidal, flat and groove profiles.



Product Range

- **CUP AND PERIPHERAL WHEELS**
- **DRILL BITS**
- **ROUTERS**
- **CUTTING DISCS**
- **WRITING BITS**
- **SPHERICAL TOOLS**
- **TOOLS FOR THIN GLASS SHEETS**
- **PRESETTER**
- **TOOLHOLDER FOR CNC**



hall 7 / stand U28

People to contact at our stand

LUCA ZACCHI	OWNER
ANDREA MURACA	SALES DEPT.
SANTINA MOLINARO	SALES DEPT.
MICHELE ZACCHI	SALES DEPT.
MARIO TESSERA	TECHNICAL DEPT.

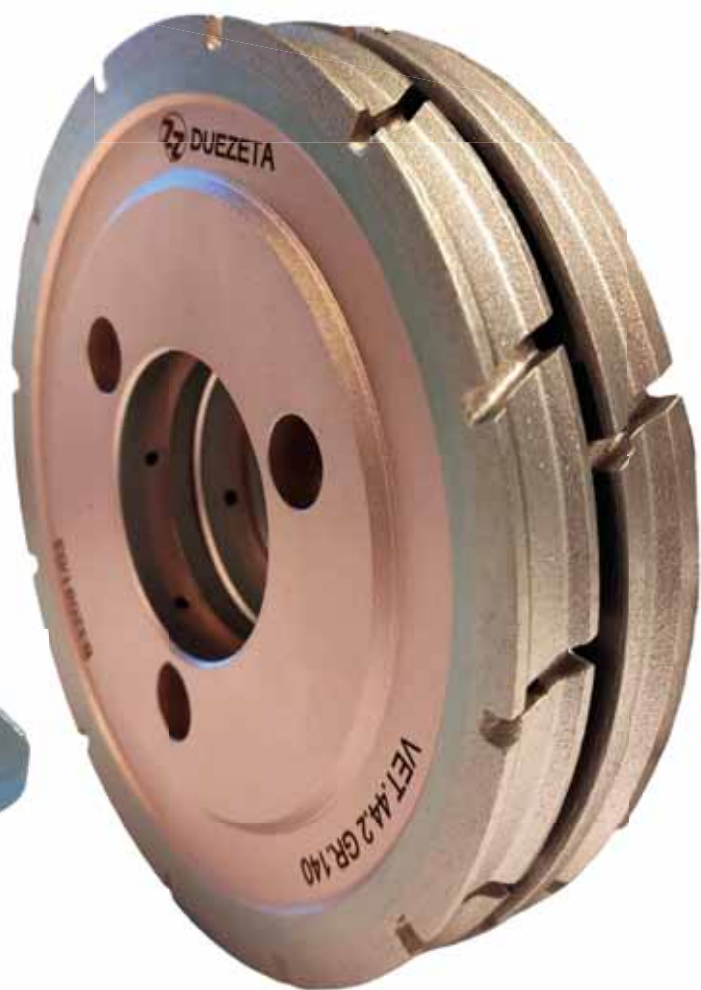


Active in the diamond-tipped tools market since the early 1970's, **DUEZETA** is today known as one of the leading firms in the sector; over the past fifty years, DUEZETA's business has grown and, thanks to the gradual but continuous expansion of its corporate structure and to its increasingly wider commercial network, it now has a hold in the markets over eighty countries throughout the world.

In order to stay competitive and satisfy its customers' various need, DUEZETA invests a significant part of its annual turnover in Research and Development, thereby ensuring the constant quality of its products and keeping the service that it provides to its customers at a high level.

In order to reach its important goals, DUEZETA has placed its focus on a series of diamond-tipped tools, which are capable of satisfying the needs of its customers.

By working on Total quality, in short, DUEZETA is confident of being able to continue its expansion process and to main market share in an increasingly competitive market.



Product Range

- **DIAMOND METAL BOND AND RESIN BOND WHEELS**
- **DIAMOND DRILLS, COUNTERSINKS AND ROUTERS**
- **POLISHING AND FELT WHEELS**
- **CERIUM OXIDE**



Via Brisconno 7, 20081, Abbiategrasso (MI) – ITA

Tel.: +39-02-94966816

E-mail: duezeta@duezeta.it - vendite@duezeta.it - export@duezeta.it

www.duezeta.it

hall 7 / stand S04

Edgetech
A Quanex Building Products Company

A spacer for all solutions, Edgetech presents its entire Super Spacer® family

Joachim Stoss, Vice President International Sales: "In 1989, Edgetech was the first manufacturer worldwide to introduce flexible, foam-based warm edge spacer systems. Since then, we have seen an incredible amount of innovation in the window and facade technology. Today, our Super Spacer® can show its full potential in many domains.

Whether it is in the areas of energy efficiency, room comfort, in automated insulating glass production, as well as in the aesthetics of the edge seal."

In addition to the tried-and-tested Super Spacer® variants for robot-assisted and manual application, the structure of Super Spacer® T-Spacer™ SG was specially developed to meet the requirements of the structural glazing and XXL glazing market. Parallelism and low tolerances of the spacers in large multi-pane insulating glass units have become even more precise and the overall system ever so robust.

In addition, Edgetech will show a selection of new color variants and samples in ruby and green. They complement the standard colors Light Grey, Grey, White and Black and demonstrate the company's versatility.

However, the key argument for flexible warm edge spacer remains its Psi value of up to 0.028 W/mK. This makes Super Spacer® one of the best energy-efficient spacers on the market and makes a significant contribution to the thermal optimization of insulating glass and thus to the reduction of the CO₂ footprint.

A Part of Something Bigger

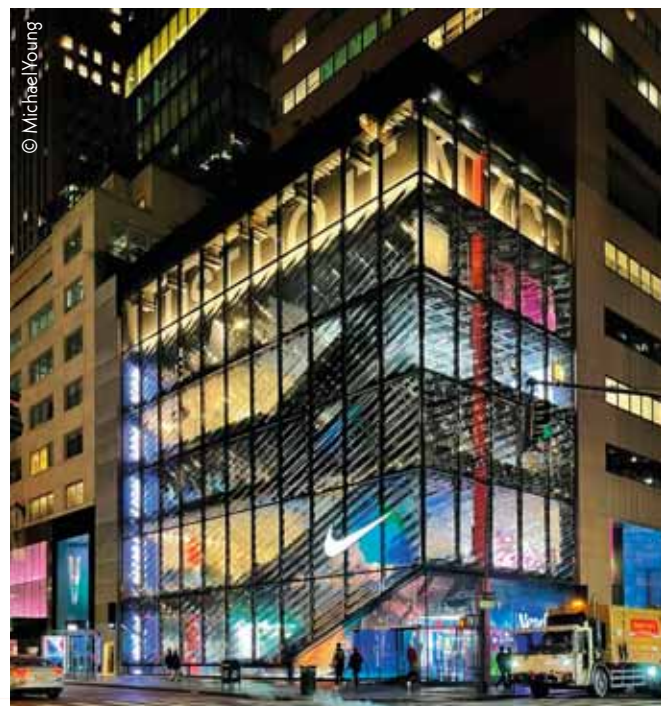
Edgetech Europe GmbH, located in Heinsberg, Germany, is a fully owned subsidiary of Quanex Building Products Corporation, (NYSE: NX) a global, publicly traded manufacturing company primarily serving OEMs in the fenestration, cabinetry, solar, refrigeration and outdoor products markets. Edgetech Europe GmbH services markets in continental Europe with a total of 490 employees and 17 extruders. We are "A Part of Something Bigger" by improving the performance and aesthetics of end products through continuous innovation, helping customers achieve greater production efficiencies, and giving back to communities where we operate.



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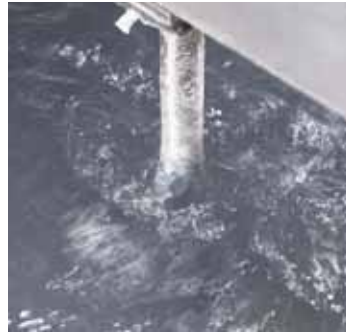
Gladbacher Strasse 23 - 52525 Heinsberg - Germany
Tel.: +49-(0)2452-96491-0
E-mail: info@edgetech-europe.com

www.superspacer.com

FILTRAGLASS IS ALREADY WARMING UP THE ENGINES FOR VITRUM 2023

At Vitrum, from 5 to 8 September in Milano, **Filtraglass** will present XtremFlow, its new range of water filtering systems for large volumes of water, which will be at the Filtraglass stand, available to be seen firsthand for all those interested in the system.

The XtremFlow range, which includes six different models, differs from all its predecessors mainly because it works with a new filtering system: the filter press. This new feature has made it possible to multiply the number of litres that a Filtraglass machine can filter. However, this isn't the only novelty XtremFlow offers. All new models include a touch screen on the control panel that makes it possible to program the machine, set it to operate in automatic or manual mode, and more. Other great new features include a



pH control meter, a turbidity control system, and a complementary filter to produce top-quality filtered water for use in CNC spindles.

The Filtraglass team will be on-site at the fair to serve any company that is looking for a solution to reduce their tap water consumption and improve their productivity while always respecting the environment.



hall 7 / stand K02-P13

People to contact at our stand

CARLO ZUCCARELLO SALES AREA MANAGER

FOREL

FOREL CONFIRMS ITS PRESENCE AT THE EVENT, WHERE IT WILL EXHIBIT A NEW INSULATING GLASS SOLUTION AS A WORLD PREMIERE

Forel confirms its participation at Vitrum 2023 (5-8 September, Milan - IT) demonstrating the same passion for the trade show with an impressive stand of over 1100 square metres. As per its style, the company will present its best technologies for insulating glass assembly and flat glass processing. There will be no lack of novelties: at this edition, Forel will be exhibiting a new solution dedicated to the insulating glass sector as a world premiere. With its presence, Forel reiterates its opinion on this event:

"For Forel Vitrum is not just one of many events to budget or not to budget for. It is the main event of Gimav, the national trade association of which we have been a member for over forty years" comments Riccardo Vianello, CEO and Vice President of Forel "We believe that Vitrum has a special value: that of which positions Italian companies as the main holders of glass processing technology.

Technologies displayed at Vitrum '23

The **insulating glass assembly line with thermoplastic profile** will be in operation at Vitrum 2023. This is a bivalent model, highly automated, which is also capable of processing conventional insulating glass with a rigid profile.

Before glass coupling but post spacer extrusion, the glass can be stationed within the new **Buffer Station**, here the thermoplastic spacer will stabilize for better downstream processing. This patented solution enhances the characteristics of the material and increases the overall assembly speed of the panel.



As a **world premiere** at Vitrum 2023 a new innovative postproduction **Sorting System** for completed IG units will be demonstrated. This integrated logistic solution, allows for freshly sealed panels to be stored in a specially automated warehouse, from where they can be recovered later. The completed panels are allocated a special ID, in a sequence that is useful for shipping individual orders. The new automatic Sorting System delivers clear gains in terms of production optimisation and handling.

Also being demonstrated are Forel's machinery solutions for the accurate preparation of traditional rigid spacer: Profile Bender Art. PB, automatic Desiccant Filler Art. DF and the Manual Butyl applicator Art. MB.

Also on show at Vitrum 2023 will be the **vertical edge processing line**, a world best seller, with some interesting upgrades to enhance glass positioning, especially in shapes processing.



hall 7 / stand F02

People to contact at our stand

MICHELA PEZZA	PRESIDENT
FABIO GABRIELI	TECHNICAL DIRECTOR
PAOLO DE BORZATTI	SALES MANAGER



The Italian company **FRATELLI PEZZA S.r.l.**, leader in the production of sandblasting and marking systems for flat glass, will display at Vitrum the Mistral EV+ series, full optional sandblasters that comply with the standards of Industry 4.0: interconnection, digitalization of the production process and constant monitoring of performance, key factors for any modern glasswork. The cabins enable to manage the working programs, copy, rename, delete or backup them. There are counters for monitoring the processes, a report of any alarms and preventive maintenance information. A graphic simulator displays the programmed sandblasting areas. Moreover, a web application called MistralApp will allow the customer to program the machine remotely via PC or tablet. All automatic cabins are equipped with a unique anti-static system called MirrorProtection; this system enables mirror manufacturers to no longer have to worry about the phenomenon of static electricity sparks, with a significant reduction of scrap. Fratelli Pezza will

bring at Vitrum the model Mistral 180EV+ along with the company's complete range of marking devices, that provide a clear, sharp and permanent mark on the glass surface. The automatic line EASYMARKER+, now equipped with a 4.0 software, includes two models: EasymarkerEV+ and EasymarkerUP+, suitable to be combined with vertical and horizontal machines respectively. The equipment can be connected to other glass processing machinery receiving an impulse that activates the marking operation in a totally automatic way. Marker 101T and 301T are instead manual and portable units which, just as like the Easymarkers, enable to carry out a logo up to 30 mm in diameter. FRATELLI PEZZA's product range is completed by a line of nanotechnological coatings for the protection of sandblasted glass (Mix30pro) and float, extra-clear and acid etched glass (Ghostglaze); it will also be available a new formula dedicated to transparent glass which is suitable for automatic application (Sprayglaze).



Product Range

- **SANDBLASTING MACHINE FOR GLASS AND MIRROR**
- **MARKING EQUIPMENTS FOR GLASS AND MIRROR**
- **COATINGS FOR SANDBLASTED, FLOAT AND ACID ETCHED GLASS.**



Via Ing. V. Balduzzi, 29 24023 Clusone, Bergamo (Italy)
Tel. +39-0346-27841

E-mail: info@fratellipezza.com - E-shop: shop.fratellipezza.com

www.fratellipezza.com

hall 7 / stand P34

People to contact at our stand

CLAUDIO BERNABUCCI MANAGING DIRECTOR
HICHAM ERMICHI SALES DEPARTMENT

GLASSCOMPANY



Glass Company Srl, a leader in the sector for special glass processing machinery, will be at VITRUM 2023 with its software **SOFTMEK** which works combined with **LASERMEK**, the laser range specifically designed for the glass sector, in particular for any type of coating cutting and removal, such as silver, reflective, electro-conductive, organic paints tempered paints, etc., leaving the glass completely transparent. Laser Scanner machines are able to carry our fast and high precision processing of small, medium and large size glass sheets, consuming less than 1KW/h of electricity.

Glass Company personnel will be glad to explain the numerous applications sectors of **LASERMEK** technology and **SOFTMEK**, our specific software for heated glass calculation and it will be possible to see glass produced with that process.

Glass Company will have on show **EI** fire resistant glass produced with **FIREMEK** line, a turnkey system dedicated for the production of fire resistant glass, suitable also for small and medium-sized companies, both with regards to their ease of use, as well as for their affordability. Glass Company personnel will discuss the main parts of the line and the products required to produce EI30, EI60, EI90, category glass, etc.

Glass Company can also supply the tested and approved intumescent mixture together

with **FIREMEK** machines and equipment.

VULCAN, the new intelligent glass tempering furnace generation will also be presented, a technology which offers an important energy consumption reducing combined with high efficiency and final product quality.



Product Range

- **LASERS FOR ALL OF KINDS OF GLASS SURFACE COATINGS REMOVAL, MARKING AND ENGRAVING, INTERNAL 3D GLASS ENGRAVING**
- **LASERS FOR CUTTING AND DRILLING GLASS IN THICKNESS UP TO 15MM**
- **TURNKEY SYSTEMS FOR THE PRODUCTION OF (EI30, EI60, EI90, EI 120, ETC.) FIRE RESISTANT GLASS**
- **FLAT AND BENT GLASS TEMPERING FURNACES OF ALL SIZES, FROM VERY SMALL FURNACES TO LARGE FORMATS FOR CONSTRUCTION GLASS**
- **GLASS PAINTING AND DECORATION SYSTEMS**
- **GLASS LAMINATION SYSTEMS, FROM THE SIMPLEST WITHOUT AUTOCLAVE TO THE MOST EFFICIENT WITH AUTOCLAVE.**
- **MACHINES FOR SURFACE TREATMENT OF GLASS (PLASMA, ANTIBACTERIAL COATING, EASY TO CLEAN, ETC.)**
- **QUALITY CONTROL INSTRUMENTATION FOR TEMPERED GLASS, LASER ENGRAVED, SMART INDUSTRY, ETC.**
- **CUSTOMIZED MACHINERY AND EQUIPMENT**



Via Brigata Garibaldi, 33 - 61122 Pesaro (PU) - Italy

Tel.: +39-0721-283519 - Fax: +39-0721-283310 - E-mail: info@glasscompany.com

www.glasscompany.com

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DAILY NEWS

Tuesday, February 14, 2023



Glaston invests in reducing its carbon footprint



sedak relies on green energy



New Designs for Troalfol® and SentryGlas® bird-friendly solutions



AGC glazing gives iconic Tunis landmark a sparkling makeover



NSG Group: Quarter 3 results of Financial Year ending March 2023



Company news
RCN Solutions at Viridian Glass, Australia
13 February 2023



Company news
Guardian gets Bronze level Cradle to Cradle re-certification in Europe
13 February 2023



Company news
Glass Futures announces the appointment of two new Board Members
13 February 2023

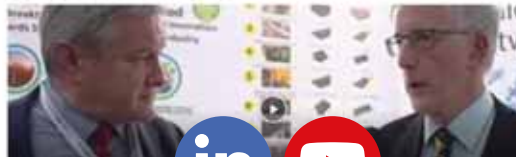


The World's Leading Glass Industry Website



Customers involve IOCCO in feasibility studies for whole car glass sets

Among IOCCO's contribution in the manufacture of systems for the air extraction during the lamination of windscreens, laminated sidelights and sunroofs is the notable improvement for both concept and fabrication of vacuum bag furnaces...



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hall 7 / stand H34-K33

People to contact at our stand

AT VITRUM, OUR EXPERTS WILL BE AVAILABLE TO PROVIDE YOU WITH RECOMMENDATIONS AND SOLUTIONS FOR ANY OF YOUR GLASS PROCESSING CHALLENGES. COME ASK US MORE!

glaston
seeing it through

VITRUM 2023 – GLASTON IS SHAPING THE SUSTAINABLE FUTURE OF GLASS

Now is the time to focus on energy efficiency, quality and automation with every piece of glass processed. We will showcase our latest developments at VITRUM 2023.

In flat glass tempering

Glaston is developing advanced heating and cooling technologies for the best glass quality, outstanding energy efficiency and reliable automation.

Glaston FC Series EVO, the newest addition to the FC Series family, represents a smart, energy-efficient and flexible solution for today's developing glass market. FC Series features the most advanced circulated-air convection technology with the highest energy efficiency on the market. The line also includes state-of-the-art automation that ensures reliable and flexible production.

Glaston Autopilot reduces the need for operator input and offers process control without parameters. The Autopilot automatically sets all necessary parameters based on the glass sheet placement on the line.

The online stress calculation solution uses measured process data to calculate temperature and stress distribution in the quenching part of the tempering process.

The **White Haze Scanner** is the first AI-based solution to provide a high-quality visual indication of white haze on processed glass. The unique system instantly notifies users of an issue, allowing glass processors to react immediately when an unacceptable haze is detected.

In flat glass laminating

The **Glaston ProL** flat glass lamination line provides unprecedented flexibility for mixed production. The convection heating chamber makes switching between glass types and different glass sandwiches easier than ever. From glass handling to the latest PVB cutting technology,



Glaston ACTIVE'SEALER

the line has been designed for flexible operations.

Glaston has introduced new convection control technology that offers a significantly wider operating window, even with complex laminates. With our lamination process autopilot, the furnace learns to achieve the most optimal way to run.

In insulating glass manufacturing

Glaston's new automatic sealing robot **ACTIVE'SEALER** is an ideal entry-level solution for the automated sealing process. Thanks to the advanced gear pump dosing technology, ACTIVE'SEALER offers high material dosing accuracy. This volume-controlled dosing function precisely determines the sealing depth and width and then applies the exact amount of sealing material required, ensuring excellent sealing quality.

Targeting the mid-range market segment, the new ACTIVE'SEALER processes double and triple glass units. The sealing robot features air cushions and a new conveyor system, consisting of individual belts with integrated and easily exchangeable support bars for safe and clean glass transport.

Glaston MULTI'ARRISSER is a 3-in-1 solution for the highest quality, economical glass edge arripping, flat edge arripping and corner dubbing. These benefits come with the proven Glaston cup wheel technology that uses only one wear part. It is the fastest single-head machine in the world with a maximum arripping speed of 60 m/min.

TPS® is an ingenious system solution for highly efficient IG manufacturing. Glaston is the inventor of this technology with more than 150 installations worldwide. With TPS®, production is significantly simplified, since the Thermo Plastic Spacer material can be applied directly onto the glass plate.

In automotive and display glass processing

Glaston CHAMP EVO represents the latest evolution in the CHAMP automotive glass pre-processing line. The newest CHAMP EVO generation includes high-precision features in a grinding machine. Maintenance costs, wear and tear have been reduced considerably with energy-saving, state-of-the-art linear drives that are accurately adjustable. A freely moveable glass holding system shortens changeover times.

The Glaston **MATRIX EVO** automatic bending furnace is now available to revolutionize the way automotive windshields and sunroofs are bent to perfection. The line is specifically designed to meet the most challenging requirements in today's automotive industry.



Glaston Autopilot

It offers the best optical quality even for the most complex shapes and applications, including advanced driver assistance systems (ADAS), heads-up displays and coated glasses.

Boost energy with upgrades

In Services, Glaston's latest developments include **new upgrade possibilities** for glass heat treatment, insulating glass manufacturing and automotive & display glass processing. Upgrading an existing glass processing line with the latest technology leads to significant energy improvements without investing in an entirely new line.

Product Range

- **FLAT TEMPERING FURNACES**
- **BENDING AND TEMPERING SYSTEMS**
- **FLAT LAMINATING LINES**
- **WINDSHIELD BENDING FURNACES**
- **INSULATING GLASS MANUFACTURING LINES**
- **AUTOMOTIVE & DISPLAY GLASS PROCESSING LINES**
- **HANDLING EQUIPMENT**
- **GLOBAL SERVICING & SPARE PARTS**
- **UPGRADING OF EXISTING EQUIPMENT**

www.glaston.net



Lönnrotinkatu 11 - FI-00120 Helsinki
Tel. +358-10-500500 - Fax +358-10-5006515
E-mail: info@glaston.net

hall 7 / stand K30

People to contact at our stand

ALESSANDRO GRANDO OWNER
LORIS GRANDO OWNER



GPM automation is committed to providing innovative solutions in the glass automation and laminated glass production.

GPM automation operates in two main business areas:

1 glass processing machineries: turnkey laminated glass plant; PVB trimming lines after autoclave; horizontal and vertical washers;

2 automation: sorting and stocking systems

for glass, window, stone and ceramic tiles; robotic solutions for loading/unloading of third parties lines as insulating glass line, double edger, painting line, vertical CNC line, tempering furnace.



Laminated glass line



Horizontal washer and tilt table



Robot and conveyors for IG line unloading



Robot and conveyors for double edger loading/unloading



Robot for ig loading

Product Range

- **LAMINATED GLASS LINE, INCLUDING CLIMATIC ROOM AND AUTOCLAVE**
- **HORIZONTAL AND VERTICAL WASHERS**
- **ROBOTIC LINE FOR LOADING/UNLOADING: DOUBLE EDGERS, IG LINE, CNC, TEMPERING FURNACE AND OTHER PROCESSING LINES**
- **SORTING SYSTEM FOR GLASS AND IG UNITS**
- **HARP RACKS AND SHUTTLE FOR AUTOMATIC GLASS LOADING/UNLOADING INTO HARP**
- **ROBOTIC LINE FOR THE TRIMMING OF PVB AND IONOPLAST INTERLAYER ON LAMINATED GLASS AFTER AUTOCLAVE CYCLE**



Via Tommaso Salsa, 9 - 31030 Carbonera (TV) - Italy
 Tel. +39-0422-606015
 E-mail: info@gpmautomation.com

www.gpmautomation.com



“Create added value” is the focus of the trade fair stand at Vitrum. The ProLam LSR laminated glass cutting system will be present to show the patented laser diode heating system. “Focused heat application to the cutting contour accelerates the cutting process by twenty per cent and more for even higher productivity,” remarked **HEGLA** Managing Director Bernhard Hötger. “The surrounding edge remains cold, such that the risk of delamination is systematically reduced and the next cuts can be made without waiting”.

With its short boot-up time, the laser diode is a proven energy-saver and, with an operating life of at least 20,000 hours, it is more sustainable than classic heaters.

Post-installation glass functionalisation

With its new solution for the post-installation functionalisation of facades and windows, HEGLA boraident plans to attract attention at Vitrum. The CELLFree Mobile and BIRDFriend Mobile laser solutions can be implemented to functionalise facades on site, even after years. To reduce mobile radio loss, the metallic functional coatings of Low-E, for example, are transformed with ultra-thin lines to enable high-frequency communication waves to pass through the pane without attenuation. For bird protection glass, small dots are applied 5 cm apart with a laser transfer printing process. This has a triple effect: first, the semi-transparent

ent dots are printed so close together that birds perceive them as impossible to fly through. Second, the pattern breaks up any realistic reflections which would normally attract birds. The third effect changes UV reflections, sending out another warning signal to birds. “The American Bird Conservancy has confirmed the high efficacy of our bird protection glass on its all-important first page” explained Dr Rainer.

User-friendly and future-orientated ERP for glass processing

HEGLA-HANIC from Bochum, Germany, is passionate about the big picture and merging individual areas. The development of a completely new ERP system is one of the most recent major projects of the software specialist. Based on Microsoft Dynamics, it offers usability that users are familiar with from their everyday life. Operators also have access to numerous add-ons and defined interfaces, and the system can be used on almost any end device without any adjustments. “The new structure gives us the freedom to perfectly adapt processes for order entry, warehouse management, material ordering or even billing to the glass-processing industry,” explained Jan Schäpers. “Thanks to the even more effective integration of the processes, we have improved our shop-floor mapping and, in conjunction with the MES, can implement further workflow improvements in ongoing operation and actively support employees.



Product Range

- **FLOAT GLASS CUTTING TECHNOLOGY**
- **GLASS STORAGE AND PREPARATION SYSTEMS**
- **LASER MARKING AND LASER FINISHING OF GLASS**
- **INDIVIDUAL SOFTWARE SOLUTIONS FOR GLASS**
- **COMBINED FLOAT AND LAMINATED GLASS CUTTING MACHINES**
- **CONVEYOR SYSTEMS**
- **LAMINATED GLASS SEPARATION TECHNOLOGY**
- **DYNAMIC STORAGE SYSTEM FOR RESIDUAL SHEETS**
- **AUTOMATIC BREAKING SYSTEMS**
- **SORTJET - AUTOMATIC SORTING SYSTEMS AFTER BREAKOUT**
- **SOLUTIONS FOR INTERNAL AND EXTERNAL GLASS LOGISTICS**



hall 7 / stand 533

People to contact at our stand

LUIGI GASTALDO C.E.O.
ARMANDO GIRO CHAIRMAN

helios quartz®



Helios Quartz is now an international player and a reknown supplier for Quartz Glass processing and the manufacturing of Infrared Emitters and Ultraviolet Lamps. Helios Quartz also produces Specialized Equipment for Industrial, Scientific and Medical applications.

TÜV certified, Helios Quartz is a very flexible and dynamic group which is deeply oriented towards internationalization and which is living a strong and stable growing phase with great momentum: in the last 10 years, Helios Quartz has opened commercial branches in USA (Helios Quartz America), in

China (Shenyang Helios Tech) and Hong Kong (Helios Quartz Asia).

Thanks to its experience in different fields

and to its **cutting-edge testing laboratory** located in the historical Helios Italquartz S.r.l. plant in Cambiagio (Italy), **Helios Quartz can advise customers and provide them with the best solution for every specific application.**

The key of all HELIOS QUARTZ companies is to be a partner for their customers, not only a regular supplier.

Helios Quartz product range for the glass industry includes:

- **QUARTZ INFRARED HEATERS** in short-, medium-, and fast medium wavelength, in single- and twin tube, with or without gold reflector for:
 - Laminating lines (plastic film coupling)
 - Screen printing lines
 - Bending furnaces
 - Fusion furnaces
 - Laminated glass cutting tables
- **INFRARED MODULES:** complete infrared solutions, designed and customized according to customers' needs and



ready to be integrated in existing machines and production lines;

• UV POLYMERIZATION EQUIPMENT:

UV high and medium pressure lamps for drying screen printing of reactive inks, paints, coatings

and adhesives for the decorating and furnishing sector;

• TIN DETECTOR EQUIPMENT:

UV black light devices which are able to detect the tin coated side of the float glass even under high brightness conditions. This kind of detection is crucial before processes like laminating, mirroring, printing and decorating. Helios Quartz offers two type of device:

- **MANWOOD 25-N:** manual equipment.
- **AUTOMATIC TIND SIDE DETECTOR:** compact automatic version of this device. It can be fixed directly on the glass transportation line, before the production process, in order to check each and every piece of glass. A user-friendly PLC helps the operator in calibrating and managing the different recipes.



Product Range

- | | |
|---|--------------------------------------|
| • INFRARED HEATERS | • UV POLYMERIZATION EQUIPMENT |
| • INFRARED MODULES AND SYSTEMS | • UV BLACK LIGHT EQUIPMENT |
| • FULLY AUTOMATIC TIN DETECTOR | • PHOTOCHEMISTRY |
| • MEDIUM AND LOW PRESSURE UV LAMPS | • QUARTZ GLASSWARE |



HELIOS ITALQUARTZ Srl:

Viale delle Industrie 103/A - 20040 Cambiagio (MI) - Italy

Tel.: +39-02-95349318 a.r. - Fax: +39-02-95345085 - E-mail: italy@heliosquartz.com

HELIOS QUARTZ GROUP SA: Via Roncaglia 20

6883 NOVAZZANO Switzerland - Tel. +41-919233555/6 - E-mail: swiss@heliosquartz.com

www.heliosquartz.com

hall 7 / stand C30-D33

People to contact at our stand

FEDERICO MARCENARO

SALES TECHNICIAN



At Vitrum 2023 **Idrotecnica**, as for over 30 years, will not fail with its own stand at the Italian glass processing machinery fair. Idrotecnica water demineralizers are widespread all over the world to supply pure water to glass washing machines and guarantee the highest quality standard. For this reason Idrotecnica is now considered a point of reference in the production of demineralised water for the secondary processing of glass.

At Vitrum 2023 Idrotecnica will bring a presentation of the numerous models of water demineralizers, which develop in a marked and intelligent modularity to meet the individual needs of every requirement. Indeed these depend on:

- Type of secondary glass processing (Automotive, LOW-E, laminate, coater, tempering, etc.)
- Operating regime of the glass processing machine
- Characteristics of feed water Idrotecnica will propose the best and most reliable solution, customizing its configuration.

The novelties of recent years will be particularly interesting. The **IDRO RO-2P** range, a unit that allows the production of very low conductivity water to comply with the most stringent water purity parameters.

Cororesi is the new system that significantly increases the recovery of reverse osmosis units, reducing water consumption in the range of 50 and 70%.

This system is suitable for medium and large glass industries with medium and high intensity operation, and allows for the following advantages: - to significantly reduce (from 50 to 70%) the volume of water used - thereby optimizing and improving the functioning of the demineralizer that services the system.

The new industry 4.0 solutions that allow remote monitoring and control of demineralization plants will be present at the Idrotecnica stand. The union of advanced sensors and PLC industry 4.0 allows for plants with an advanced diagnostic system that helps in the advance organization of maintenance while preventing anomalies. The new models, technical updates and innovations follow the philosophy that distinguishes Idrotecnica's equipment and services in addition to reliability and sturdiness, simplicity and intuitiveness are a priority. Here Idrotecnica's equipment must remain as it is recognized worldwide : Plug and Play and very easy to use.



Product Range

- REVERSE OSMOSIS DEMINERALIZERS
- ION EXCHANGE DEMINERALIZERS
- CLOSED-CIRCUIT SYSTEMS
- FILTERS, SOFTENERS, ELECTRODEIONIZERS, ETC.



Via Sardorella 125 - 16162 Genova (Italy) - Italy
Tel.: +39-010-711651
E-mail: sales@idrotecnica.com

www.idrotecnica.com

hall 7 / stand M29-M33

People to contact at our stand

PAOLO REFFO SCARSO

SALES MANAGER

IMMMES

The Spirit of Innovation



IMMMES SRL: THE TOP IN WATER PURIFICATION

Vitrum 2023 starts under the banner of an ever-growing market for centralised grinding water purification plants.

Strengthened by the growing ecological and sustainability awareness (remember that in many countries a certification of sustainability of the process is already in place), the IMMMES DTP system, world leader in its sector, proves to be a key solution, with an export share that has been growing in double figures for years now. Savings and sustainability, two important topics for those of you who have decided to rely on this technology.

The unique technology that equips Immmes DTP makes it by far the most efficient integral purification system for the modern, sustainable factory using total recirculation technology and supplying your machines with absolutely pure water, suitable for feeding the most sophisticated equipment such as CNC spindles. Modularly designed to offer the best service from small factories up to giants in the glass

industry, without any difficulty the DTP tackles the toughest challenges, returning entrepreneurs with plenty of substance, stability and savings. The plant's average payback period (value based on the last 4 years) is around 3 years.

Perfectly developed around the highest demands on performance, control, safety and interconnection, it meets the requirements of modern Industry 4.0 systems and IE4 Efficiency class classification, allowing, in countries where this is applied, large tax incentives.

All DTP systems are equipped with remote control for servicing and updating.

In addition to the systems in the DTP range, Immmes manufactures and installs

other professional products for water treatment in the glassworks:

- Reverse Osmosis and Resin systems for DEMINERALISATION,
- Systems for purifying water from COLOUR contamination (biological or synthetic)

Come and visit us at our stand **Hall 7 M29-M33** we are waiting for you to personally verify the effectiveness of our DTP (we have a working plant in operation) and we could evaluate directly with you the advantages for the application on your factory.

For a more complete and detailed view www.immmes.com



hall 7 / stand G29



People to contact at our stand

DAVIDE SCHIAVON SALES MANAGER



PLATFORM TRANSPORTERS



INLOADER TRANSPORTERS



LAMINATED GLASS HANDLING

ITALCARRELLI - TOP HANDLING SOLUTIONS

Smart working, synergies of value.

Italcarrelli designs and manufactures special machines, technology and accessories for the handling and storage of glass. After many years of hard work, the company has put into practice its idea of smart work. Smart with clients to create personalized machines responding to the precise needs and demands of clients. Smart with suppliers to have the constant availability of top class material and components. Smart solutions both with regards to technology and energy savings. Last but not least, smart for safety each and every day. The company is one of the very few that is able to provide both machines and automatic driving systems and, thanks to the perfect synergy between design department and software development, Italcarrelli's machines have the highest levels of performance and ease of use, with low energy consumption levels.

CONTAINER
LOAD/UNLOAD



SIDE-LOADERS



TAILOR-MADE SOLUTIONS

Product Range

- PLATFORM TRANSPORTERS
- INLOADER TRANSPORTERS
- SIDE-LOADERS
- TAILOR-MADE SOLUTIONS
- CONTAINER LOADING/
UNLOADING
- LAMINATED GLASS HANDLING



hall 7 / stand G33

People to contact at our stand

COMPANY STAFF



Italmole is an Italian manufacturer of polishing wheels for all types of machines and has more than 45 years of activity and experience in the glass industry.

The company is able to offer a complete range of polishing wheels with binder, grit, standard and custom machining for different uses in glass processing.

Since 1978, Italmole has continued to renew its products to ensure the best polishing quality for all customers.

In recent years, through careful research, two new product lines have been created: the peripheral polishing wheel called ASTRA, which is quieter and super polishing, suitable for vertical CNC machines such as VERTMAX, CMS and SKILLGLASS, as well as horizontal machines such as MASTER, CMS and BOTTERO-BIMATECH.

Another new entry is in the cup wheel group, the **ALFA** line. Produced in all grits, with all fixing for all machines, it is available with rigid plastic plate and J40. On request with sectors for laminated glass.

Both types are having great success and excellent results. This is one more confirmation for Italmole, which, over the years, has been able to combine experience and innovation to give pre- and post-sales service and technical support to all its customers.

Visitors to Vitrum 2023 will have the opportunity to learn about the ASTRA and ALFA line and other famous and no less important products from September 5 to 8, in Milan, stand G33 / hall 7.



Via Carducci, 11/12/14

20072 Fizzonasco di Pieve Emanuele (MI) - Italy

Tel.: +39-02-90426141 - Fax: +39-02-90426149 - E-mail: info@italmolesrl.com

www.italmolesrl.com

hall 7 / stand M34-N3

People to contact at our stand

OUR STAFF WILL BE AT YOUR SERVICE THROUGHOUT THE SHOW.

LandGlass



LandGlass Technology Co., Ltd. is a high tech company specialized in the development and manufacturing of glass tempering furnaces (for architecture, household appliance, automotive and solar power industries) and tempered vacuum insulated glass products. In the field of high-end intelligent equipment manufacturing, LandGlass is able to offer integrated solutions for glass tempering machinery, smart factory upgrade, assisting users to realize elaborate and efficient intelligent manufacturing and management.

Huge R&D investment

Since its establishment, LandGlass has considered innovation as the driving force for the development of the company, which has led to its achievements in R&D

and technical progress today. At present, LandGlass has established a company technology centre equipped with 20,000 square meters of factory floor space for new glass tempering product development and experiments - the largest facility in the industry - in addition, the world-class vacuum insulated glass laboratory established by LandGlass is equipped with more than 100 sets of various R&D equipment and testing instruments worth more than USD 6 million.

Worldwide after-sales support

LandGlass has established a service network with worldwide coverage through technical service centres located in Europe, America, Southeast Asia, India, and Russia, allowing more timely and

thoughtful services to its customers around the world. In the meantime, these existing international service network and service centres will have an important role in the future, providing comprehensive and timely after-sales service to LandGlass' customers.

LandGlass' customer service team is responsible for the installation of LandGlass equipment and providing after-sales service. All our service personnel have received formal, systematic training in mechanical and electrical fields. We are available to help customers solve problems anywhere, anytime.

We now invite you to experience the improved safety and quality of life that our latest innovation brings to the market.

We will be at Vitrum at HALL 7 Stand M34-N3.



Product Range

- **CYCLONE™ SERIES GLASS TEMPERING FURNACES**
- **ULTRAJET™ SERIES GLASS TEMPERING FURNACES**
- **JETCONVECTION™ SERIES GLASS TEMPERING FURNACES**
- **TIGER™ SMART FACTORY**
- **LANDVAC® TEMPERED VACUUM INSULATED GLASS**



Add: Guangjian Building, No. 12, Wangcheng Road,
Luoyang, 471000 - China - Tel.: +86-379-65298882 / 65298883
Fax: +86-379-65298878 - E-mail: marketing@landglass.com

www.landglass.net

hall 7 / stand S22
People to contact at our stand
PLEASE ASK AT THE LISEC RECEPTION FOR THE SALES REPRESENTATIVES DEDICATED TO YOUR COUNTRY

LISEC

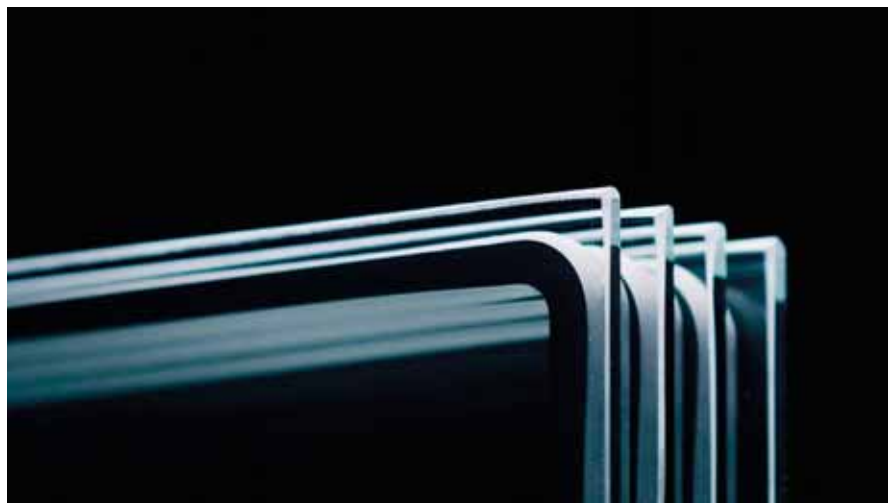


all.in.one:solutions: The **LISEC** motto for Vitrum 2023 is not only the slogan of this year's trade fair – it also shows LiSEC's total solution competence in all topics related to glass processing and finishing

for more than 60 years regarding machines, software solutions and services.

You can see the innovations and highlights from LiSEC live in the usual great trade fair atmosphere!

LiSEC's sales team and product specialists are looking forward to show you the products, discuss open questions and to find the best solutions for you! So visit LiSEC from 5th to 8th September 2023 in Milano / Italy – we are looking forward to welcome you at our booth in hall 7 at stand S22!


www.lisec.com


Peter-Lisec-Str. 1, A-3353 Seitenstetten - Austria
 Tel.: +43-7477-405-0 - Fax: +43-7477-405-80
 E-mail: sales@lisec.com

hall 7 / stand R09

People to contact at our stand

CORINNA LOVATI	GENERAL MANAGER
ROLANDO LOCATELLI	TECHNICAL MANAGER
LORY LOVATI	SALES MANAGER
MAURO CARRANO	SALES & COMMUNICATION MANAGER



LOVATI: more than 80 years of experience and continuous innovation!

Technology, customization, reliability and assistance: Lovati's strengths that give the company the possibility to be recognized as a serious and valuable partner all over the world. Lovati is specialized in the production of glass processing machines for shaped glasses, starting from simple manual edgers up to the most sophisticated CNC.



One of the Lovati's best seller is **Vela**, a semi-automatic machine that grinds the bevel and the edge on shaped glass with internal curves, external curves, straight-line sides and mitred corners. The machine has a central plateau to support the glass which can rotate also in reverse drive.

Glass is fixed by a vacuum system. A pneumatic cylinder allows to work some glass shapes in automatic mode. Bevel is grinded by cup wheels (150 mm) and polished by felt and nebulized cerium oxide. Edge is grinded by peripheral wheels (100 mm).

Another very important product is **Lynx** that is a numerical control machine. Thanks to the linear and circular interpolation X, Y and Z axis, the machine can process any kind of shape and profile; it is also possible to make holes, internal and external millings and routings. **Lynx** is equipped with two high precision electro spindles for grinding and polishing two glasses simultaneously. The aluminum working table is divided in two parts which slide on guides with high precision ball sliding blocks. This division facilitates glass loading and unloading. LYNX has an automatic tool store and is available in different versions, basing on maximum glass size.

Big impact on the market and important to mention is also **Zephyr**. The machine has 5 axis with linear and circular interpolation of axis X, Y, Z, A for head rotation and B for spindle inclination. The A axis can rotate 360° in continuous mode. In addition to grinding and polishing of the bevel and the edge, the machine can also make holes, pin and screw inserts, internal and external milling and routing. **Zephyr** is equipped with a strong and powerful head which can have a maximum inclination of +/- 90°. This characteristic allows to grind the bevel and the flat edge on high thickness glass with any type of required inclination and by using cup wheels instead of peripheral wheels. The machine is equipped with automatic tool store, aluminium working table, on which several glass sheets can be positioned, and a cerium oxide spray unit for bevel polishing.



hall 7 / stand H02-K13

People to contact at our stand

NANCY MAMMARO
ERMANNO PETITTI
DANILLO MAGI
ANTENORE TOSELLI
GIULIO DALLA COSTA

MANAGING DIRECTOR
SALES MANAGER
SALES MANAGER
TECHNICAL MANAGER
SOFTWARE & ELECTRICAL MNG.



Fox, ATS 4.0 and the brand new MTH all share the same features and innovations.

All new **Mappi** furnaces are 'Powered by Siemens' approved and, as such, are ready to be integrated with a potentially infinite number of software applications. They can also communicate in real time with other equipment and with the Company's Management, Logistics, Maintenance and Planning departments. Thanks to a series of innovations, Mappi furnaces can implement Supertemper functionality, a great innovation in fire-resistant glass tempering, and directly produce flame certified E30 resistant glass - all in a faster, easier, and more economical way than has ever been done in this particular industry.

MHS | MULTIZONE HEATING SYSTEM

MHS automatically manages the temperature of the furnace by means of a network of electronically controlled sensors that maintain constant temperatures, focusing the heat only in the areas where the glass is present.

IHS | INTELLIGENT HEATING SYSTEM

The internal temperature of the furnace is controlled with an accuracy of +/- 1°C, preventing the overheating of the ceramic rollers and avoiding downtime for the adaptation of the furnace temperature.

ESS | ENERGY SAVING SYSTEM

Heating and forced ventilation stages are coordinated and managed by a computer system, thereby optimizing consumption and significantly reducing the installed power required by the entire system.

SYNCRO | TRANSMISSION TECHNOLOGY

The ceramic rollers are precisely driven within 1/1000 mm by brushless motors eliminating friction transmission between iron and rubber



components (avoids consequent slack time gaps/ gear lash and the relative risks of marks on the glass) whilst guaranteeing precise roller position and speed. This effectively eliminates the need of SO₂. Automatic speed management of the ceramic roller oscillation avoids distortions and damage to the glass surface. All ceramic rollers can be easily replaced.

ITS | INTEGRATED TOUCH SYSTEM

The system monitors the parameters of the tempering process and immediately prints the compliance report for CE and ANSI glass standards at the same time, automatically storing the information for each production cycle.

AC | ADVANCED COOLING

AC is a particular feature of the blowing system that allows even more specific control during tempering and substantially decreases the iridescence of the glass.

ATI | ACTIVE THERMAL INSULATION

ATI dramatically reduces the thermal dispersion and is the product of our continuous research into the best performing materials for thermal insulation, in association with the

most prestigious research centres in Europe, as well as with Knauf and Morgan.

GHBS | XTREME PROFILE CONVECTION

GHBS can process all latest generation coated glass, including low-E with 0.01 Emissivity.

HEATING CHAMBER EXTRACTION

Mappi is the only tempering equipment manufacturer that has this feature for easier maintenance and higher finished product quality.

Product Range

- **HORIZONTAL TEMPERING FURNACES:**
FOX FROM 1050X2300 TO 1500X3200
ATS 4.0 FROM 1500X3800 TO 2500X5000
MTH FROM 2700X6000 TO 3300X6000
- **BENDING AND TEMPERING FURNACES FOR ARCHITECTURAL AND AUTOMOTIVE FLAT GLASS**
- **LAMINATING PLANTS**
- **HEAT SOAK TEST PLANTS**



Via Fieramonti 1 - 04012 Cisterna di Latina (LT) - Italy

Tel.: +39-06-96873284 - E-mail: info@mappi.it

MAPPI AMERICA, INC. - 3888 Mannix Drive # 314 - Naples, FL 34114 - USA

Tel: +1-336-8787460 - Mobile: +1-336-2579651 - E-mail: sales@mappi-na.com

www.mappi.it • www.mappi.us

hall 7 / stand S08-U07

People to contact at our stand

GIANLUCA CERIANI SALES MANAGER



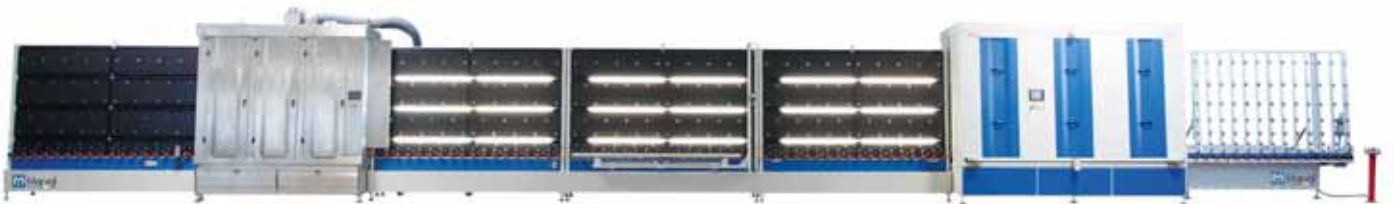
Marval was founded in 1985 in Mariano Comense (Como) in the heart of the Brianza industrial area.

Over the years it has become a worldwide point of reference in the Insulating Glass sector.

Marval was born as a mechanical workshop and was brought to success thanks to the determination and experience of its staff in designing simple and reliable machines with excellent technology.

Today, Marval uses all the advanced technologies in the production of Insulating Glass, producing machines and equipments that are appreciated and exported all over the world.

Everything about Marval is planned, manufactured and tested in our new headquarters in Villa Guardia, Como.



Product Range

- VERTICAL AND HORIZONTAL WASHING MACHINES
- AUTOMATIC GAS PRESS
- AUTOMATIC SEALING MACHINES
- COMPLETE SEMIAUTOMATIC AND AUTOMATIC LINE FOR INSULATING GLASS
- AUTOMATIC BENDING PROFILE MACHINE
- AUTOMATIC DESSICANT FILLING MACHINE
- BUTYL EXTRUDERS



hall 7 / stand C23

People to contact at our stand

ANTONIO MAZZAROPPI	GENERAL MANAGER
ORSOLA ABBATE	ADMINISTRATION MANAGER
MARIAELENA PICCOLO	SALES DEPARTMENT
FABIO ZUCAL	SALES MANAGER
FEDERICO MAZZAROPPI	MARKETING MANAGER
CHIARA MAZZAROPPI	MARKETING SPECIALIST



MAZZAROPPI
HIGH PERFORMANCE. ALWAYS



Did you know there are tempering furnaces that allow you to **save up to 70% on energy?**

Come and discover them at Vitrum!

Mazzaroppi systems ensure the industry's **lowest energy consumption** and highest efficiency.

This is what the **Energy Saving Approach** means to us: **sustainability for the environment and for your business.**

- **Lower initial cost:** the cost of the substation is up to 70% less.
- **Consumption in production of up to 100 kWh:** up to 3 times less than other tempering furnaces on the market.
- **Zero unproductive costs:** furnaces can be turned on and off whenever you want because they reach temperature in 60 minutes.
- **Lower fixed cost for contract kW:** get more favourable contracts with energy suppliers!
- **40% residual value at 10 years:** with a Mazzaroppi furnace

you not only save money on your utility bills, but also protect your investment.

Mazzaroppi Engineering is the only family that has been dedicated to glass tempering for more than 60 years. All its machinery is made from a selection of the best certified European materials.

Each customer shares dozens of years of their company history with the company, because a Mazzaroppi furnace has an average life of more than 30 years.

Temper glass

IN-HOUSE



www.mazzaroppi.com



Via Cagliari 49 - 04011 Aprilia (LT) - Italy
Tel.: +39-06-92854602 r.a. - Fax: +39 06-92730082

People to contact at our stand

MARCO MORESCHI	OWNER
BARBARA DODA	SALES MANAGER
YURI CATTABRIGA	SALES MANAGER



MORESCHI is, and has been, one of the leading companies in the production of diamond wheels for glass processing machines for 103 years. The company can offer a complete range of diamond and polishing wheels for all types of glass processing, with different bond and grit to be used for float glass and laminated glass. The wheels are made for high production and long life, the best partners for processing of all types of glass.

Our wheels have greater process stability than the wheels on the market, improving efficiency and reducing cost of glass processing. Moreschi can offer sets of wheels for all types of grinding and polishing: polished edge, ground edge, industrial edge and polishing with cerium oxide. Depending on the quality of the edges, the wheels can be combined with or without polishing.

The routers are available in different types with diameters, and each type is available with different bonds for the best quality.

Moreschi give its customers the possibility to have the best technology and the best tools.

At Vitrum, **Moreschi** will be in **Hall 7 Stand S21-S25** with the following products on show:

- New bond for high speed CNC vertical machines
- New bond for double edger peripheral
- New ring construction available from diameter from 100 to 200
- New Patented refrigeration system
- New wheels for laminated glass
- New countersinks without vibrations and free cutting



hall 7 / stand R06

People to contact at our stand

NORTHGLASS SINCERELY WELCOMES YOU TO OUR STAND FOR MORE INFORMATION YOU ARE INTERESTED IN. YOU CAN ALSO VISIT OUR WEBSITE FOR DIFFERENT BUSINESS CONTACTS.



NorthGlass was established by Mr. Gao Xueming, Chairman of the board, in Luoyang National High & New Technology Development Zone on 18th May, 1995. In 2011, NorthGlass created a precedent in glass deep processing machine industry, going public at Shenzhen Stock Exchange (stock code: 002613). Today, NorthGlass has developed into a high-tech industry group integrating in R&D, manufacturing, sales and service with continuous innovation capability, composed by 4 bases respectively in Luoyang, Shanghai, Tianjin and Beijing. NorthGlass has also expanded her product series with tritubo fans, glass processing automation system, glass storage system, glass cutting machine, etc., up to now more than 300 product models in total. At the same time, the NorthGlass Light-Stone industry invested by North Glass Co., Ltd. was successfully incubated and took the lead in the layout of new wall materials for prefabricated green buildings.

GLASS TEMPERING FURNACE

NorthGlass flat/bent glass tempering furnace, is ranking stable forefront of the world-wide industry within last 21 years since 2002 when the sale amount of furnaces exceeded 100 sets. Accumulatively more than 5700 NorthGlass glass tempering furnaces are running around the world.



T-Series: Standardly furnished with "Finer Heating Control Partition" and "Intelligent Heating Control System based on glass exit-

chamber temperature", suitable to produce highest quality tempered glass with big production quantity and high efficiency and stability. It is the ideal choice of domestic & foreign large-scale glass processors for industrial upgrading.

A-Series: Standardly furnished with "Intelligent Heating Control Module" and "Super Flat & Spotless technology", optionally with "5G Gapless Forced Convection technology", A-series tempering furnace can efficiently & stably temper almost all kinds of glass with minor optical distortion and slight iridescence. It is the most popular choice of glass tempering furnaces for all different scale glass processors.

B-Series: Completely upgraded and reborn from NorthGlass's classic B-series furnace, furnished with recently developed "2G Temperature Control System" and "Basic Gapless Forced Convection System", significantly improve the production efficiency and glass quality meanwhile reduce the energy consumption. It is an affordable choice for small & medium scale glass processors.

GLASS AUTOMATION SYSTEM

Glass Automation System can not only provide turnkey projects, but also provide personalized optimization to existing glass of production. In the whole automation system, we can provide you with raw glass storage systems with space-saving, cutting machine with automatic loading, cutting and breaking-out, Buffer, control system and other accessories, such as MES (manufacturing execution system), NorthGlass box, AGV, buffer system, automatic loading / unloading system, etc.

COATING MACHINE

Equipped with vacuum sputtering cathode, NorthGlass coating line can be widely applied in glass industry, consuming electronics industry and PV industry, etc. from designing to manufacturing.

PROCESSED GLASS

NorthGlass is also one of the biggest glass manufacturers of high-quality oversized architec-

tural glass. Dimensions up to 3300mm×2400mm, 3600mm×1800mm, 8000mm×4000mm, which are the largest sizes in the world. Currently various types of glass are produced and sold, including jumbo-size insulated glass, curved tempered glass, laminated glass, super flat & spotless glass, screen printing glass, digital printing glass, jumbo-size curved tempered glass, structural glass, Low-E coated glass, etc.

A number of glass deep-processing technologies independently developed by NorthGlass have been applied in many famous landmarks construction projects, such as China National Grand Theatre, Bird Nest, Lusail Towers, UAE Abu Dhabi Airport,

Expo Dubai Mobility Pavilion, Yale University Tsai Center, US Oracle Headquarters, etc.



Product Range

- **GLASS TEMPERING FURNACE**
- **GLASS AUTOMATION SYSTEM**
- **GLASS STORAGE SYSTEM**
- **GLASS CUTTING MACHINE**
- **COATING MACHINE**
- **PROCESSED GLASS**
- **GENERAL FAN**



hall 7 / stand E27-F24

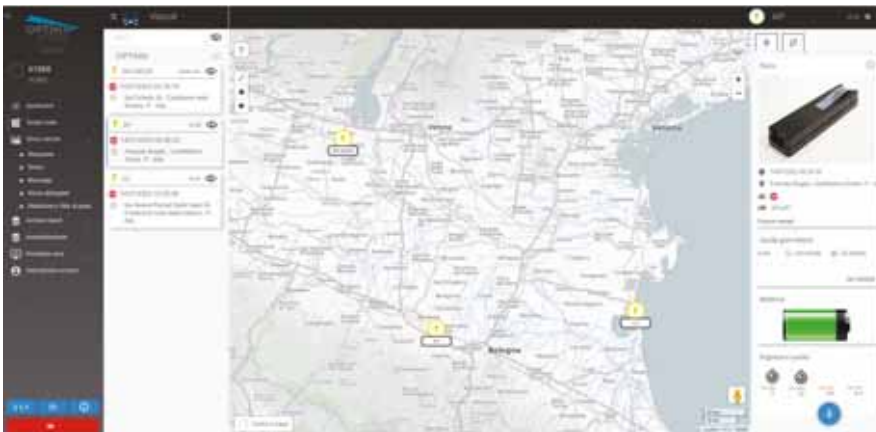
People to contact at our stand

CRISTIAN ZANCA	SALES MANAGER
ANDREA PAGANI	PROJECT & PRODUCT MANAGER
DAVIDE DE CARNE	SALES & PRODUCT MANAGER PERFECT CUT



Vitrum 2023 will be the official presentation of an important novelty, the result of the integration process between Optima and another historic Italian company in the sector, RO Srl, based in Turin and of Optima's entry into the **Zucchetti SpA group** - an undisputed leader in the field of management software in Italy. On June 14 of this year **RO** was incorporated by merger into Optima, effectively becoming a single reality in the glassware software sector in Italy, as per Zucchetti's will. This transaction marks the end of the process which in recent years had Optima gradually acquiring the majority of RO shares - up to 100%. As such the merger allows us to combine the profession-

alism and skills acquired over almost 30 years of activity on both sides, to further improve the products - offered both now and in the future - to create new ones that are increasingly **technological-ly-innovative and integrated** with Zucchetti software, while having a range that can boast management products for accounting, transport and logistics, CRM, attendance manage-



ment and control - and much more. Furthermore, the Vitrum fair will see a new project on display, which we are already working on, thanks to our partnership with "GuardOne Italia," a company of the Zucchetti group, in the field of geolocation of trucks and above all of trestles - one of the needs of the glass factory. The dedicated WEB application will be integrated with the management systems of the Opty-Way Enterprise and Perfect ERP family and will be used to track shipping with self-powered GPS systems connected to the vehicle (GLONASS system) - also allowing users to monitor the position of the single trestle, reconstruct the history of movements and generate alerts should the stand be detected in areas other than those associated with those customers with whom the stand was deposited. These are some of the important innovations that you can come and touch at our stand.

We are waiting for you!

www.optima.it



Via Amerigo Vespucci 4 - 40017 S. Giovanni in Persiceto (BO) - Italy
 Tel.: +39-051-826336
 E-mail: info@optima.it

hall 7 / stand E23-E27

People to contact at our stand

PRODIM'S SALES AND SUPPORT TEAM WILL BE AVAILABLE TO PROVIDE LIVE PROLINER AND PRODIM SOFTWARE DEMONSTRATIONS

PRODIM

Proliner Generation X Glass packages – The best solution for digital templating

As a leading specialist, **Prodim** invests heavily in the continuous development of the Proliner Glass packages, making the best even better! The Proliner Generation X Glass Packages have taken the market by storm.

Proliner Architectural Glass package: Easy to use, accurate and able to measure in multiple planes.

The package includes:

- measurement of multiple planes.
- leap function.
- edit all your drawings onsite.
- motion detection, allowing an alarm to go off if the Proliner is accidentally moved, preventing incorrect measurements.
- textured grip on the measuring pen for easier handling.
- good visibility of the measuring wire.
- excellent battery management.
- a large storage capacity.
- connect your smartphone (Android) to the Proliner.
- transfer all your files from the Proliner via Bluetooth, and from the phone, send them directly to the office.

Proliner Architectural Glass package

Prodim Factory 5.0 – Integrated Photogrammetry

Prodim's latest software release "Prodim Factory 5.0" sets a new bar for today's fabricator. Check the main improvements below:

SITE CONTROL – Check your digital templates with photos

Match an image captured by your camera with your measurements or drawings.



You can show your picture in drawing/ editing view or in the rotating 2D/3D view.

INTERPOLATE – Simplify, connect and enhance complex shapes

Quickly simplify complex shapes, connect open shapes and address imperfections.

Reduce points! Simply slide between smooth and accurate to the position you want.



Proliner Bent Glass package: Measure – Model – Flatten -- Frame – Compare

- create 3D Glass surfaces based on Proliner measurements
- transform 3D surfaces to 2D unfolded production shapes
- create digital support frames to construct moulds
- 3D Match surface models for IST and SOLL quality control



hall 7 / stand E14-F13

People to contact at our stand

OUR STAFF WILL BE AT YOUR SERVICE THROUGHOUT THE SHOW.



Pujol Group a fourth-generation company founded in 1911, consolidated worldwide in more than 90 countries as a company specialized in the sector of laminated glass, offering a complete 360° service based on furnaces and complete rolling solutions, consumables, training, and technical assistance service, covering all needs of our customers. Is made up of 70 highly trained professionals each specialized in their respective fields, the Group has three production units covering an area of 20,000 m², half of which (10,500 m²) dedicated to production.

HORNOS PUJOL

During VITRUM 2023 Pujol will introduce their TEMPER FLEX, a tempering oven designed and envisaged for the professional. Manufactured with the latest technology and materials that make it a highly flexible production oven that allows the manufacture of tempered glass with excellent planimetry and without anisotropy at a low production cost and with low maintenance costs. It offers the following advantages:

- Glass with minimum optical distortion.
- Glass with excellent planimetry.
- Exclusive engineering applied to the rollers and to the insulation.
- Useful life greater than 12 years in heating equipment.
- 5-year guarantee offered by PUJOL on the heating equipment.
- High thermal efficiency through the K-Panel system.
- Low power consumption.
- Low maintenance costs.
- Convection system for low-emissivity glasses.
- Tempered by sectioned ventilation.
- Supervision and control system on a large screen of 55".
- Ready for industry 4.0 with the Pujol e-Connect system.

EVALAM

Is currently the company that has set a standard around the world for EVA and other interlayers for architectural use. The following will be exhibited at Vitrum.

EVALAM Visual: Developed for lamination experts looking for a product with high added value. It's an outstanding lamination solution when optics and durability are essentials, optimum performances as it's incomparable transparency, high adhesive strength, superb acoustic insulation, and a crosslinking index that's con-

spicuously excellent on the market.

EVALAM N-Fluent: Designed to minimise the overall costs of the post-lamination process. Its innovative formula prevents product fluidity and saves time and costs in edge cleaning. This in turn translates into direct benefits for the processor.

EVALAM COLOR: Developed for temperatures in the 120°C range without causing changes in colour near the edges. The 14 basic colours in the range allow for a large chromatic assortment. Four shades of white and one black shade, which carry European certification for outdoor use.

AB-AR: A structural interlayer developed by EVALAM with high-performance mechanical resistance that provides post-breakage passive safety when tempered glass is used. Is the ideal solution for structures whether for use in glass facades, structural windbreaks, walkable floors, stairs, ceilings, railings, as well as anti-vandal security. Excellent performance especially in post-breakage stability states above 50°C

I-On By Pujol

PDLC that allows to convert spaces with transparent glass into spaces with total privacy simply by applying or interrupting the current. Total integration in home automation systems and remote control using: Compliance with all regulations required by the ECC law of laminated glass for the construction of glazing outdoors and indoors.

Product Range

- LAMINATION FURNACES
- TEMPERING FURNACES
- HEAT SOAK FURNACES
- FUSING, BENDING & CHEMICAL
- TRANSPARENT EVA FILMS
- COLOR EVA FILMS
- PDLC LAMINATED GLASSES



hall 7 / stand E02-F01

People to contact at our stand

SIMONA BIAMINO SALES MANAGER
MIRIAM MUNARI SALES MANAGER



SURFACES GROUP

R.B.M. Italia will be present at Vitrum 2023 in its 60th anniversary year.

From 1963 to the present, RBM Italia continues to represent the state of the art in glass polishing wheels, further strengthening its ability to develop ideas and applied innovation.

Recent corporate developments, with its entry into Surfaces Group, have enabled it to consolidate its propensity for innovation through increased investment in R&D, strengthening of its organizational structure, and even more efficient material sourcing.

RBM Italia will be present at Vitrum with its three families of hybrid grinding wheels that continue to enjoy great success in international markets, summing up the merits of hard and soft grinding wheels in one tool: **X510**, **RP320**, and the new **CL600**.

Above all, the latest innovations that will be presented at the Vitrum fair are the following new types of grinding wheel:

- **Switch Wheel**, a new type of grinding wheel with an innovative bond, to use before polishing. Leaves a perfect roughness to continue with the 'classic' RBM grinding wheels. Very easy to use and set up. Available flat or with 16 notches of 2 mm..
- **CX8 Wheel**, brand-new semi-hard bond cerium wheel. Its main characteristic is the excellent price/quality/duration ratio. Available in all sizes and suitable for all main straight and double-edged lines.

Today the R.B.M. brand is synonymous with 100% made in Italy, high quality and reliability. The company is based in Baldichieri (Asti), in northwestern Italy, and still has a background as a manufacturing company

with a remarkable history of technology and experience. With a strong focus on customized solutions and very fast delivery times, which is one of R.B.M.'s strengths, the partnership with customers will be enriched.



hall 7 / stand H01

People to contact at our stand

ELENA CALVI	CEO & OWNER
DAVIDE RICCHI	CO-OWNER AND R&D MANAGER
SIMONE VECCHI	SALES & TECHNICAL MANAGER
GIANFRANCO RIVAROLI	CHEMICAL TEMPERING CONSULTANT
ROBERTA COMETTI	INTERNATIONAL DEPARTMENT & PUBLIC RELATIONS MANAGER
GIORGIO BOTTIGLIONI	SOCIAL MEDIA SPECIALIST

RCNTM
solutions

RDTM
clean concept

REVA^{BF}
INTERLAYER FILM



RCN SOLUTIONS is ready for Vitrum. At the stand, visitors could see the excellence in matter of laminating interlayer and check our latest in lamination. Machines will be on display at RCN's factory, very close to the exhibition area, easily reachable with our car service.

As usual, RCN has several proposals for machine combinations, different sizes, especially oversize ones, and a couple of important focus on: **REVA BF** - laminating interlayer - and **RD CLEAN CONCEPT** - the patented system for clean edges.

REVA BF is appreciated in Italy as in the rest of the world for its high value specifications. On the market for over ten years, this interlayer has been developed in cooperation with a chemical company and formula checked by an Italian University. The name is also associated to the assistance RCN supplies, providing a professional guideline in lamination, crucial matter to enable customers to reach good results.

Among all the proposals, one results particularly important: **MULTIPLIED**, the new laminating kiln that can be composed in length with modules up

to 12 metres, much over jumbo size. Presented at Glasstec 2022, in size of 3000x6000 millimetres, this kiln has been purchased by an Italian company working on shifts.

Add to that, the customer can decide to install facilities such as **CNV** - the last loading conveyor allowing the automatic release of the glass sandwiches to be laminated into the bag - require automatic positioning of the platform to the shelf level, and automatic exit of the shelves.

Most of all, the use of one fundamental trio: a quality kiln granting heat uniformity, a versatile bag - the heart of the kiln - and a performing interlayer acting as adhesive, represent the way for success.

But RCN's production offers much more: bending, chemical tempering and lamination that can be combined in full layout of production, as per ISF configuration - Integral Sequencing Framework - or they can stand-alone to be integrated into an existing output.

The **ECO SPECIAL** bending line has been specially created to grant perfect and complex curves based on a combination of different temperatures mastered by one PLC. Thou the art of bending is less popular in comparison to tempering or lamination, and still represent a niche work, precise bending is very important, not only for visual purposes, but also because to laminate curved glass, we need to bend twin glasses, perfectly matching.

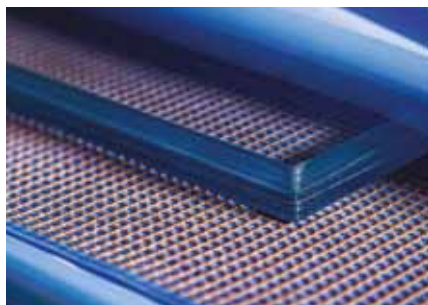
It takes some works before glass can be called a safe one, and tempering is an important step, a crucial matter: **glass chemically tempered** is more robust in comparison to other hardening processes, it has not optical distortion, thin glass can be tempered becom-

ing especially important in all those installations where weight should be lightened, such as boats, flooring, and so on.

Visitors will find out that chemical tempering cannot be limited to thin glass or small objects such as lenses for optical purposes, but any glazier who wants to specialize and diversify production should issue special products and chemical tempering carries several advantages to reach this purpose. An important news is the possibility of starting chemical tempering on small scale using a laboratory oven, CT80S, on display at Vitrum, to experiment and practicing chemical tempering before deciding to buy a plant. This small kiln worth the investment because it will remain useful for testing before running production of high volumes.

RCN's machines are known for their robustness and durability, for their top quality materials and for performing properly, but their "dress" is quite dated. The company has considered machines' re-branding but do not intend to overturn the existing structures, thus preventing the loss of identity. The time RCN develops machines, granting the quality, a re-branding has been started, moving to a future version, more dynamic, in step with the times. At Vitrum visitors can learn more about our progress in projects.

And above all, behind all RCN's plans there are fundamental business relationships, and a team working to make all those matters possible: they are part of the RCN's identity, machines also mirrors distinguishing features of a strong group, because in trade, as well as in service, people make the difference and more... **zero defects, zero waste, zero downtime, zero dispersion is our new campaign.**



hall 7 / stand D34-E33

People to contact at our stand

MICHELE FASSINA	AREA MANAGER
FEDERICO DALLA BENETTA	AREA MANAGER
RICCARDO BOOZ	LABORATORY



Rollmac, the commercial branch division of Gemata Spa, world leader in the design and production of roller finishing and coating machines, is a reliable and expert partner in the supply of finishing machinery, from single machines up to complete lines. The experience acquired over the years in the global market has brought the branch to offer final users complete know-how service and support to project completion.

JUMBOGLASS is the new reverse roller technology for the continuous enamelling and design printing of float glass sheets "jumbo" size. It is a rollercoater with tubular welded steel framework, for an unmatched torsional resistance, which offers the possibility of processing larg-

er glass sheets, expanding the working width.

COLORGLASS is the single-roller machine, suitable to the enamelling and design printing of glass sheets by means of an engraved cylinder. Thanks to its high versatility and ease of use, it is the indispensable working tool for in-house laboratory or production lines. It is suitable from small dimensions such tiles and decorations to big sizes such internall walls, doors and façades.

MULTI GLASS is the rollercoater for enamelling, coating and design printing on flat glass sheets by means of an engraved roller. The technology is quite flexible and, without any particular changes or setting changes, special

paints and products can be used to give the plate particular properties. Special care has been taken in the uniformity and homogeneity of painting, that must not have overcoating, unpainted areas, drops or excess paint on the entry/exit edges.

GLASSLINE edge coater system designed for the complete automation of the Automatic Sheet Rotation (ASR) process. The ASR process is particularly useful for coating glass sheets which are too large, too heavy, or which cannot be handled manually.

Rollmac - Gemata is certified ISO 9001, ISO 14000, and Italian "Safe Work" standards

Live printing demonstrations and tests will be carried out during the show.



Product Range

- ENAMELLING AND GLASS COATING MACHINES
- DRYING SYSTEMS
- DGE COATERS
- CONVEYING SYSTEMS

www.rollmac.it



Via Postale Vecchia 77 - 36070 Trissino (VI) - Italy
 Tel.: +39-0445-492711 - Fax: +39-0445-490111
 E-mail: rollmac@rollmac.it

hall 7 / stand S22

People to contact at our stand

PLEASE ASK AT THE LISEC RECEPTION FOR THE SALES REPRESENTATIVES DEDICATED TO YOUR COUNTRY

SCHRAML

member of the LiSEC group



Schraml Glastechnik GmbH has been working in wet processing for three decades now and was the world's first provider of vertical glass drilling machines. They are specialized in the glass processing and washing machines. Schraml also takes care of installation, service and spare parts supply. With reliable glass processing machines Schraml significantly contributes to the success of their customers.

Since 2017, Schraml Glastechnik GmbH has been part of the LiSEC group and the company can therefore optimally utilise LiSEC's development and production capacities.



Lumplgraben 49, A - 4463 Grossraming - Austria
 Tel.: +43-7254-8100
 E-mail: horst.schraml@lisc.com

www.schraml.com

People to contact at our stand

OUR STAFF WILL BE AT YOUR SERVICE THROUGHOUT THE SHOW



SKILL GLASS is an Italian company specialized in the manufacture and design of high technology numerical control machines for the processing of flat sheet glass, which, combined with special software with dedicated functions and modern and functional design, are simple and quick to use.

processing of workpieces

- Faster grinding and polishing with 2 simultaneous heads
- Automatic tool changer 24 positions
 - Automatic tool preset and dressing
 - Vibration-free and long service life
 - Minimal maintenance
 - Maximum precision and speed



E-D 101 is a vertical CNC centre for grinding, milling, drilling and polishing rectangular and shaped flat sheet glass. The machine can process both rectilinear and shaped flat sheet glass and combines all the technology for vertical drilling and milling with the features of a vertical grinding machine. Its main feature is its versatility, which allows for different types of processes at high speeds and optimal precision.

Oppositely placed heads ensure drilling is at maximum speed with top quality and precision, and countersinking can be performed with individual diamond tipped tools or with accessories of the drill bits.

The power and precision of the machine guarantee rapid and simple milling and multiple tools produce milled and grinded inserts in a few seconds.

Key benefits

- Automatic reading and

DRILL 1600FF is a 5-axis CNC drilling machine designed for producing holes, inserts and countersinks on rectangular flat sheet glass with a thickness of 3-20 mm.

The machine is made up of five axes, X Y V Z W, and two electro-spindles which, as opposite drilling heads, create a double-sided drilling system that drills perfect holes.

This vertical drilling CNC is able to operate with extreme speed and precision thanks to the management of all the processes by numerical control and also thanks to the support of the double tool change.



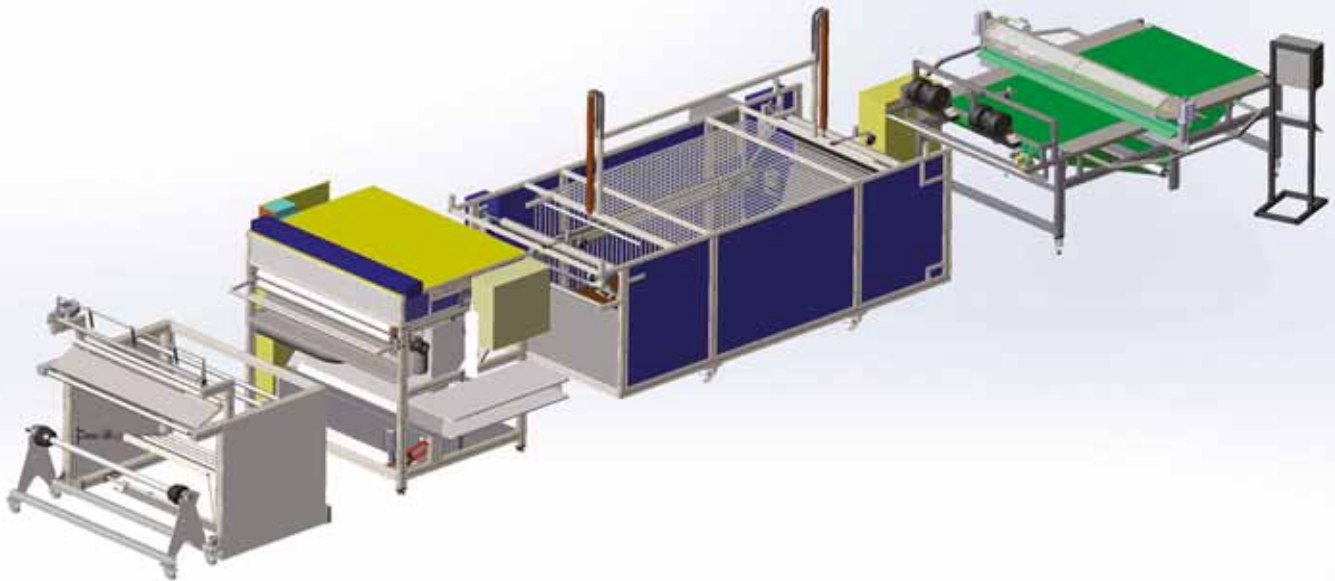
hall 7 / stand R33

People to contact at our stand

MIKKO SUOMI

ANDRE SILNOV

softeco



PVB shaping, stretching and cutting line

Strong with 35 years' experience, **Softeco** specializes in PVB treatment equipment and more particularly in PVB shaping and stretching technology. We also have PVB roll handling systems for different needs. In addition to this, we offer consultancy

in safety glass production and quality control. We arrange complete testing services and official test reports as well as applications to the granting authority for approvals for ECE R43 and American DOT."

Product Range

- **PVB HANDLING, STRETCHING AND CUTTING**
- **QUALITY CONTROL EQUIPMENT FOR GLASS AND PLASTICS**
- **ECE R 43 AND DOT ANSI Z 26.1 APPROVAL SERVICES**
- **TESTING SERVICES FOR SAFETY GLASS ACCORDING TO DIFFERENT NORMS**



Automatic pummel tester according to EN 14449 and ASTM C1908



www.softeco.com



PL 176, 00101 Helsinki Finland
 Tel.: +358-336-00424 - Fax: +358-336-00434
 E-mail: info@softeco.com

hall 7 / stand A14

People to contact at our stand

GIOVANNI VISINI
ELISABETTA ANELLI VISINI

GENERAL MANAGER
ADMINISTRATOR

STEFIGLASS
MACCHINE ED IMPIANTI PER LA LAVORAZIONE DEL VETRO
MANUFACTURER OF WASHING MACHINES AND IG. LINES



Product Range

- **FULL RANGE OF VERTICAL WASHING MACHINES**
- **HORIZONTAL WASHING MACHINES**
- **COMPLETE IG LINES WITH DIFFERENT ASSEMBLY MODELS, PRESS AND OPTIONAL TILTING TABLE**
- **EXCLUSIVE IG LINE, PATENTED BY STEFIGLASS, COMPACT LINE WITH PANEL PRESS**
- **FULL RANGE OF EQUIPMENT FOR INSULATING GLASS PRODUCTION**

With over 30 years of experience in glass machinery manufacturing, **Stefiglass International** is a leading manufacturer in Europe for a wide range of glass washing machines, complete IG lines and complementary machinery, offering good quality, post-sale assistance and reliable service.

Stefiglass' production, which responds to all the needs and demands concerning washing, ranges from small-sized washing machines of 1300h, right up to Jumbo sized glass of 3300h. Along with a wide range of standard models, Stefiglass also offers the possibility of customizing plants as per specific needs of processing. Customization, which is the realization of custom-built machinery, is the prevalence in the company's production activities.

On show at Vitrum 2023: washing machine model SUPER.

Main quality features:

- Durable and strong construction in compliance with EU norms;
- Only EU electrical and mechanical components of top quality brands;
- Easy maintenance and easy replacement of spare parts;
- Excellent value for money;
- Customization of machines and possibility of connection to CNC.



hall 7 / stand G30-H29



STRATO®:

STRATO® EVA is a 100% made in Italy range of specific products created with the ambitious mission of making the Safety Glass Industry sustainable. The product has been designed mixing mechanical and strength properties with aesthetical features as a source of inspiration for new architectural solutions.

STRATO® EVA interlayers are certified according to European (UNI EN ISO) and American (ANSI-SGCC-ASTM) standards. All the industrial production processes are certified in accordance with UNI EN ISO 9001 standards. STRATO® EVA is also Carbon Free available. STRATO® obtained the ISCC PLUS certification with a score of 1,13 [kg CO₂ eq]. The environmental profile of STRATO® is a reference score for developing a road map toward zero-carbon aspirations in 2050.



CONTACT US

STRATO® by Satinal Spa

Via del Lavoro 1
22036 Erba (CO) - Italy
Tel.: +39 031 870573
Email: backoffice@satinal.it

TK Srl

Via del Lavoro 1
22036 Erba (CO) - Italy
Tel.: +39 031 3574873
Email: service@tkitaly.com

TK:

TK is an Italian brand designing and manufacturing high-quality and innovative Made in Italy glass machinery appreciated worldwide. TK glass ovens are meant for small, medium and big-sized enterprises who need to start or increase their production capacity and improve the quality performances of their finished products. Working in close partnership with customers, TK relies on the best Italian technology and European components to meet the quality standards and the requirements they set.

SATINAL



www.satinal.it



Via del Lavoro, 1 - 22036 Erba (CO) - Italy
Tel.: +39-031-870573 - Fax: +39-031-5472199
E-mail: info@satinal.it



hall 7 / stand U10

People to contact at our stand

TOMASINO TALAMONI OWNER
ROSELLA MITIDIERI EXPORT MANAGER



Talamoni srl is specialized in the manufacturing of wheels and holders for glass and tile cutting.

The company has been in business since 1994 in Ornavasso (vb) in the north of Italy, a territory deeply involved in the processing of micro mechanics.

Started by Mr and Mrs Talamoni, the company was born as a glass tools producer providing hollow glass to industries such as Bormioli.

Through the years, the company has maintained the craftsmanship of the process, which means high precision and attention to detail thanks to the quality of the products and to its competitive prices, Talamoni has become supplier to the main glass and tile industries.

The product line at Vitrum is the following:

- automatic cut: tungsten carbide wheels for glass cutting with holders for the mains glass cutting table. Wheels for glass cutting and engraving are grounded with specific machines which can guarantee quality and constant production batches. Wheels are available in different dimensions, as well as finishing and cutting angles.
- manual cut: professional oil hand glass cutters. Talamoni offers a wide range of hand glass cutters models born from the twenty-years experience in hard metals processing. Talamoni products have high quality standards that combine



the benefits of craftsmanship in production with an innovative processing system.

- lubricants and cutting oils for glass: Talamoni produces oils that are ideal for lubrication during glass cutting, optimizing the longevity of the cutting wheel.

At Vitrum 2023 Talamoni will be presenting the new D-RO6015 wheel

After many tests with important clients, Talamoni has determined that this new wheel hollows to achieve perfect cuts with float, laminated and stratified glass.

The hard metal wheel D-RO6015 is produced with a special mix of components that, thanks to sintering, offer the product an excellent durability and quality.

D-RO6015 is a

wheel with a 6 mm diameter that's available from 110 to 165 degrees and with different finishings - each of which can change according to the glass thickness being processed. The wheel is available both in the standard plastic support (clips) and in the metal support.

The benefit to clients, resellers and users is that they can purchase and use an all-in-one product that guarantees perfect cuts.



Via Menconi 3,28877 Ornavasso (VB) - Italy

Tel.: +39-0323-836198 - Fax: +39-0323-836900 - E-mail: info@talamoni.com

www.talamoni.com

People to contact at our stand

TRIULZI QUALIFIED TEAM



PREVIEWED AT OUR BOOTH AN INNOVATED DESIGN OF OUR MACHINES, BEST DESIGN AND BEST PERFORMANCE



**COMPACT WASHER , TOSCANA
MODEL NEW DESIGN: MAXI-
MUM PERFORMANCE AND
MINIMUM FOOTPRINT**

- Made entirely of stainless steel
- Working width 1,000 mm
- Min. glass size 100 x 50 mm

**VERTICAL CLOSED TOP
- HIGH SPEED**

WATER SAVING WASHER

- Made entirely of stainless steel
- Working height 2,000 mm jumbo sizes - to be integrated in line
- Automatic thickness adjustment
- Low Emissivity glass detection with frequency control
- Complete with high pressure pre-wash section with tank
- Heated water tanks
- Controlled by PLC and touch screen operator panel
- Very silent operation

**LOW-E HORIZONTAL WASHER
- ENERGY EFFICIENCY WASHER
WATER SAVINGS**

- Made entirely of stainless steel
- Working width 2,800mm

- Top scrubber section with disc brushes (option)
- Heated water tanks
- Conductivity water sensor for water control, cascaded water flow
- Auto water tanks cleaning
- Antistatic bar fitted to exit of upper drying section
- Remote control
- Bevel gear transmission
- Very silent operations

**CUSTOMIZED
SOLUTION**



Product Range

- **OPEN AND CLOSED TOP VERTICAL WASHERS**
- **HORIZONTAL WASHERS FROM MINI TO JUMBO SIZE**
- **AUTOMATED SYSTEM FOR CURVED GLASS**
- **WET POWDER APPLICATION SYSTEM FOR AUTOMOTIVE**
- **ULTRASONIC BATH GLASS WASHING EQUIPMENT**
- **FIREPROOF GLASS WASHING EQUIPMENT**
- **LAMINATING GLASS LINES**
- **INSULATING GLASS LINES**
- **CUSTOMIZED SOLUTIONS FOR ANY GLASS PROCESS**



Tuomas will return to Vitrum 2023

TUROMAS will be present at the new edition of Vitrum. The Spanish brand will make the most of this opportunity to present its complete range of machinery for smart glass storage, float or laminated glass cutting and all the novelties in software applications to visitors who come over to stand N22 - P25 in hall 7.



Tuomas offers a comprehensive and specialized service for fully automated glass installations. The team of highly qualified engineers works closely with customers to design and develop customized solutions that optimize flat glass manufacturing processes.

From smart glass storage and loading to cutting and separation, the Spanish brand's equipment comprises fully automated installations designed to maximize efficiency and productivity while reducing response times and minimizing errors. Thanks to cutting-edge technology and experience in the sector, TUROMAS offers reliable and efficient automation solutions that enable customers to achieve new levels of precision, quality, and profitability in their glass production.

AUTOMATION AS DRIVING FORCE

Automation has been the driving force behind many of TUROMAS innovations, such as the TUROMAS loading system and the development of intelligent warehouses that automate the glass storage and loading process, reducing production times and minimizing human errors.

In recent years, automation has also driven the expansion of TUROMAS' machinery range, including automatic scraps manager systems and auto-

matic break out system. While these initially require a significant investment, they result in long-term labour savings, enhanced process control, and increased efficiency.

Visitors to booth N22 - P25 in Hall 7 will have the opportunity to see first-hand the advanced features and functionalities of these new systems. The TUROMAS team of experts will be on hand to answer questions and discuss how these automation technologies can revolutionize glass production processes.



ACR- Advanced Coating Removal for EasyPro

Tuomas launches ACR Advanced Coating Removal, a new generation of decoating system able to meet the needs of today's market and the requirements of the most demanding customers: larger amounts of glass in multiple coating formats.

It incorporates patented innovations which help to process the coated glass, such as the Advanced Cooling System which avoids the increase in temperature at the edges of the wheel and the Two Phase Decoating System which prevents the protective layer edges from lifting off. Also, the system is equipped with a high-flow three-phase hoover for waste collection during the decoating process.

SOFTWARE TUROMAS

TUROMAS will present and launch a new range of products based on Industry 4.0. These applications understand how industry works, based on the data provided by the machines themselves.

They run state-of-the-art software that guarantees ideal interconnection of the machines with any ERP Optimiser available on the market.

The software solutions provide optimal use of resources to manage production from a single control interface, monitoring and controlling glass stock in real time or managing non-automated glass warehouses.

Information is power, and that has been the aim of TUROMAS: to provide the necessary information to make our customers' day-to-day work easier – in a standardised, open way for all software manufacturers.

Don't miss the chance to explore the future of glass automation at the TUROMAS booth. Now is the time to meet again and discover how TUROMAS and its new developments can help you get the most out of your flat glass processing.

See you at Vitrum 2023.

Product Range

- **SMART GLASS STORAGE AND LOADING SYSTEMS**
- **FLOAT GLASS CUTTING SYSTEMS**
- **LAMINATED GLASS CUTTING SYSTEMS**
- **CUSTOMIZED PROJECTS**



hall 7 / stand E02-F01

People to contact at our stand

CARLO CRESCINI	SALES MANAGER
MORENO MOLON	SALES MANAGER
FRANCO DI NARDO	PRODUCT SPECIALIST



VINCENT is a leading manufacturer of cutting, grinding and dressing tools for Natural Stone, Quartz Agglomerate, Glass and Ceramics Tiles. Founded in 1974, VINCENT combines nearly 50 years of experience and know and is able to provide the whole complete solutions for grinding with cup wheels on all cup wheel edging machines.

VINCENT started a revolution in the flat glass processing on double edging machines introducing the **STARFLEX** set of diamond cup wheels. This universal set is able to grind a wide range of glasses, from thin 3mm mirror glass to thick glass, or even laminated glass, always using the same sequence of tools. The specifically developed bonds and the perfect match of the metal and resin wheels allow excellent removal capacity at high speed.

Starflex set, introduced first on cups **diameter 175mm** for use in high production double edging machines is today available also on **diameter 150mm** for all straight line edging machine.

On display at Vitrum 2023 also:

CERIUM CE200 polishing cup wheels for the final steps of glass processing that can be used at very low pressure and high speed and still provide a perfect edge surface quality from the very first piece. They ensure excellent final polishing quality that reduces roughness of the edge to a very close level to the glass surface.

SURFACE and REX polishing wheels specifically developed for the flat edge processing on double edging machines and straight line edging machines. On thick laminated glasses smudg-

ing is avoided due to the innovative deep bores. At the same time, excellent working continuity is achieved on thin glasses.

ARRIS polishing wheels, specifically developed for high quality finish of the arris.

VINCENT wheels are available with different attachments and sizes to fit all machines available on the market.

Thanks to his R&D competence and technical application know-how, VINCENT is infact able to offer a **complete sequence** of tools that grant easy machine setup for all glass processing on all cup wheels grinding machines. As a result, there is a considerable increase in productivity.



hall 7 / stand F33

People to contact at our stand

JOSEP SAIS

GENERAL MANAGER

ALEIDA GUINART

SALES DEPARTMENT



Water treatment and sustainable development

In a world in constant change and climate emergency, a large part of the measures adopted or demanded are the reduction of water consumption.

Water recycling in the glass industry and quality assurance are key to achieving optimal use and contributing to the conservation of the planet.

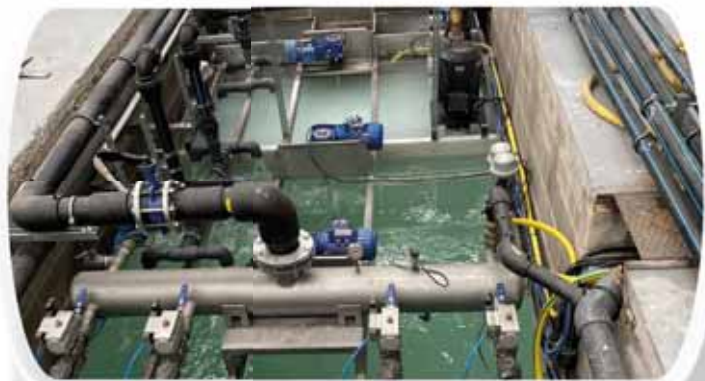
The **VITROSEP** water treatment and solutions portfolio is one of the most technologically advanced and specialized available in the glass market. In addition to offering a wide range of particle separators based on filtration processes, VITROSEP brings innovations in the field of optimization and control of water treatment parameters.

Digitization technologies such as new computer processors, sensors and the internet of things are indispensable for data collection. They help to ensure good water management and provide information in real time, allowing a broader view of the operation of infrastructures. Consequently, this type of technology makes it possible to proactively control and operate in front an action or technical problem reducing consumption and costs.

Another benefit of data management and analysis of the installations is the minimization of water losses due to leaks and high consumption of additives. VITROSEP helps the customer to make the systems, both in the use of resources and in the impact on the environment, providing a sustainable and quality service to all its customers.

In this regard, VITROSEP's commitment to sustainability will be on full display, with a dedicated area showcasing their eco-friendly water treatment processes, aimed at reducing the environmental impact of glass production.

VITROSEP will be located at booth nº F33, where you will find all new products including the C11-900 glass particle separator, the most compact of the range in terms of size & performance. VITROSEP's booth will also be a hub of knowledge exchange, where industry professionals can engage with VITROSEP's team of experts and gain invaluable insights into the latest trends of the glass sector.



THE GLASS YOU ARE LOOKING FOR AWAITS YOU IN MILAN

VITRUM | FIERA MILANO RHO | 5-8 Sept 2023

MILAN GLASS WEEK | 4-10 Sept 2023

THE ITALIAN
GLASS
WEEKS

VISION
MILAN GLASS WEEK
focusing on a sustainable future



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Secretariat
Via C. I. Petitti 16
20149 Milan Italy
Ph. +39 02.33006099
Fax +39 02.33005630



Ministero degli Affari Esteri
e della Cooperazione Internazionale



FOREL



Sealing Robot Art. SR

PREDICT

market trends

PROCESS

new solutions

PERFORM

the glass of the future

THE NEXT EXHIBITION

VITRUM

VITRUM
Milan, Italy
5-8 September



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