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THE LEADING MAGAZINE FOR THE INTERNATIONAL FLAT GLASS INDUSTRY

May/June Year 37 • No. 3/2026

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INSULATING GLASS CAPACITY EXPANDS WITH **BEST MAKINA** SYSTEMS

**SYSTRON** ENGINEERING POWERS NEXT-GENERATION EFFICIENCY FOR **LSG** PROCESSING

**SAINT GOBAIN** DRIVES LOW-CARBON GLASS TRANSFORMATION



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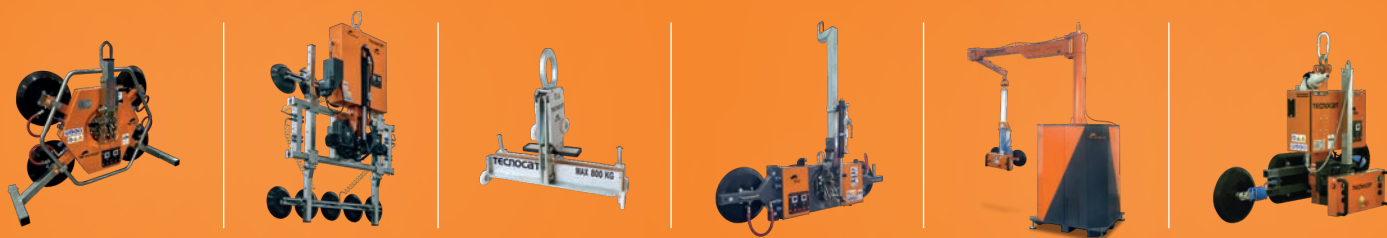


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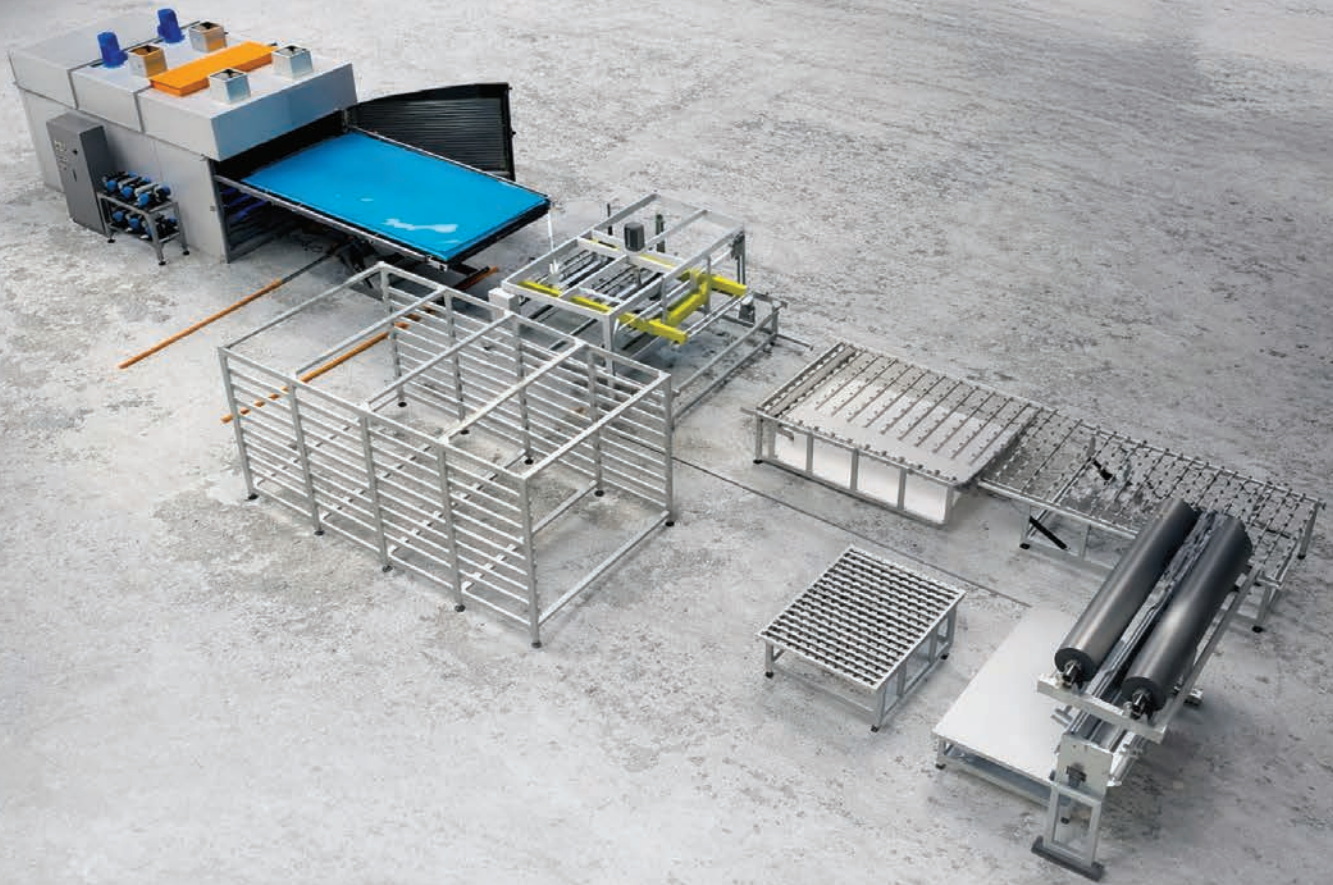
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**LAMINATED GLASS**

### Production milestone for PUJOL and ARREDA VETRO BIZZOTTO

It is the increasing capabilities of the production capabilities of P&L technology supports ARREDA VETRO BIZZOTTO's push for greater efficiency, enhanced product quality, the increased customer-related benefits, lower energy use, reduced infrastructure demands and improved productivity, reinforcing competitiveness in laminated glass manufacturing.

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### Efficiency advanced with FILTRAGLASS and L&L GLASS collaboration

Reducing costs and increasing sustainability, FILTRAGLASS and L&L GLASS are jointly manufacturing low-iron float glass in maximum efficiency in the United States. Collaboration between the two is highlighting the growing importance of resource optimization in modern glass production - at whole system-level competitiveness through innovative, adaptable technical solutions.

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### Optimising digital ink processes: CUGHER infrared dryer technology

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### Integrated quality management moves forward with DELTAMAX EVO

As production expands and precision grows, more complex, 3D-printed 3D components full glass manufacturers with integrated, automated quality process. The solution combines precision, measurement, 3D tracking, 3D printing and reporting capabilities. Making operators' time, safety, accuracy and improved production reliability across horizontal and vertical lines.

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**EXPANSION**

### Regional manufacturing milestone achieved by SWISSPACER partnership



With the start of the new year, the Swisspacers have achieved a significant milestone in their partnership. The company has successfully completed the production of its first glass panels in the region, marking a major step in its expansion strategy.




**SUSTAINABILITY**

### SAINT GOBAIN drives low-carbon glass transformation

For the first time, Saint Gobain has achieved a significant milestone in its sustainability journey. The company has successfully completed the production of its first low-carbon glass panels, marking a major step in its commitment to reducing its carbon footprint.

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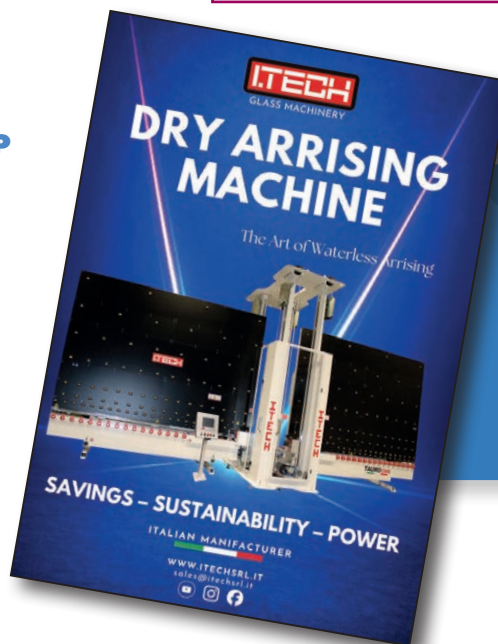
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# 2026 TRADE FAIRS CALENDAR

The magazine will be distributed at the following Events

<p>2026</p>  		<p>Editorial files: <b>16-01-2026</b></p> <p>Deadline Adv files: 20-01-2026</p>
<p>2026</p> <p><b>1</b></p>	<p>FENSTERBAU FRONTALE   24-27 MARCH   NUREMBERG - GERMANY</p> <p>GLASS EXPO NORTHEAST   25-26 MARCH   LONG ISLAND (NY) - USA</p> <p><b>FEATURED CONTENT: FIRE-RESISTANT GLASS</b></p>	<p>Editorial files: <b>09-02-2026</b></p> <p>Deadline Adv files: 13-02-2026</p>
<p>2026</p> <p><b>2</b></p>	<p>CHINA GLASS   7-10 APRIL   SHANGHAI - CHINA</p> <p>INTERNATIONAL GLASS MANUFACTURING SHOW   21-23 APRIL   DUBAI - UAE</p> <p>WINDOOREX   7-9 MAY   CAIRO - EGYPT</p>	<p>Editorial files: <b>02-03-2026</b></p> <p>Deadline Adv files: 06-03-2026</p>
<p>2026</p> <p><b>3</b></p>	<p>GLASS-TECH POLAND   26-28 MAY   WARSAW - POLAND</p> <p>BIG 5 CONSTRUCT SOUTH AFRICA   9-11 JUNE   JOHANNESBURG - SOUTH AFRICA</p> <p>GLASSTECH MEXICO   15-17 JULY   MEXICO CITY - MEXICO</p>	<p>Editorial files: <b>24-04-2026</b></p> <p>Deadline Adv files: 28-04-2026</p>
<p>2026</p> <p><b>4</b></p>	<p>ICCG CONFERENCE &amp; EXHIBITION   15-17 SEPTEMBER   BERLIN - GERMANY</p> <p>GLASSBUILD AMERICA   23-25 SEPTEMBER   LAS VEGAS (NV) - USA</p>	<p>Editorial files: <b>27-07-2026</b></p> <p>Deadline Adv files: 30-07-2026</p>
<p>2026</p> <p><b>5</b></p>	<p>GLASSTEC   20-23 OCTOBER   DÜSSELDORF - GERMANY</p> <p>All GLASSTEC exhibitors advertising in this issue also receive a free GLASSTEC PREVIEW</p> <p>GLASSTECH ASIA   10-12 NOVEMBER   KUALA LAMPUR - MALAYSIA</p> <p>VETECO   10-13 NOVEMBER   MADRID - SPAIN</p>	<p>Editorial files: <b>24-09-2026</b></p> <p>Deadline Adv files: 29-09-2026</p>
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GLASTON

# Fancy Windows investment in VARIO TPS® insulating glass line



Canadian window manufacturer **Fancy Windows** has invested in a **Glaston VARIO TPS®** IG line to further develop its insulating glass production. The new installation includes the first **TPS® PRO'APPLICATOR** in Canada as well as the first **ACTIVE'SEALER** in Canada and the United States. The investment follows the company's earlier experience with a Glaston VARIO FLEX line installed in 2017.

Based in Edmonton, Alberta, Fancy Windows manufactures top-quality energy-efficient windows and doors for residential and commercial applications. The company operates approximately 23,000 square metres of production space equipped with advanced manufacturing equipment. "Our experience with the Glaston VARIO FLEX IG line has been very positive," said Kelly Cheung, General Manager at Fancy Windows. "The machine has proven to be a reliable and robust piece of equipment with minimal downtime. This supported our decision to invest in Glaston's new insulating glass production technology."

Glaston TPS® is a fully automated insulating glass production system in which thermoplastic spacer material is applied directly onto the glass pane. The technology supports high process repeatability and improved thermal performance of insulating glass units.

Launched in 2024, the **TPS® PRO'APPLICATOR** is the latest generation of Glaston's spacer application technology designed to improve production yield by up to 15 percent.

**ACTIVE'SEALER** is the company's new sealing robot for the automatic sealing of double and triple insulating glass units of varying shapes and dimensions. Driven by advanced technology, the solution supports consistent sealing quality, improves process control and helps manufacturers achieve long-term IG performance.

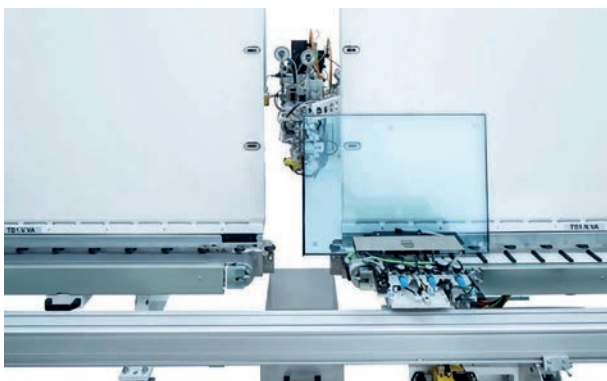
The new line was delivered to Fancy Windows in July 2025 and installed and during the following weeks at the company's facility.

[WWW.FANCYWINDOWS.COM](http://WWW.FANCYWINDOWS.COM) - [WWW.GLASTON.NET](http://WWW.GLASTON.NET)

UNIGLASS

# Product range expansion to lifecycle services

Sealing often becomes the bottleneck in IG production, especially when manual work, complex shapes or operator variability slow things down.



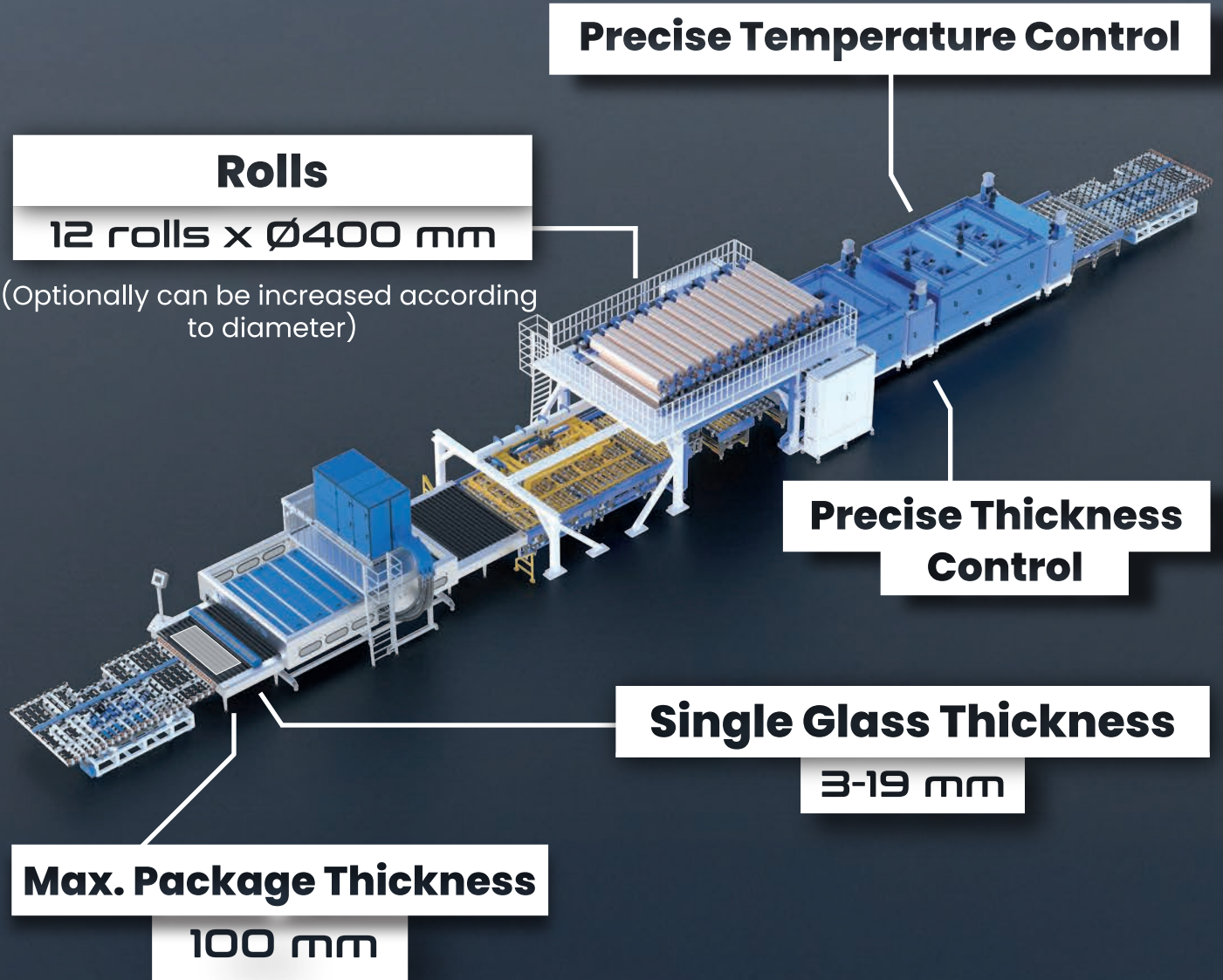
The **Uniglass Sealing Robot Zone Upgrade** is a retrofit sealing solution that upgrades your existing line into a modern automated sealing platform. Instead of replacing the full line, you upgrade the sealing zone: automated sealing for double and triple units, high-speed dosing with a static mixer for reliable flow, and support for rectangular, shaped, and stepped units up to 80 mm thickness.

Beyond performance, this upgrade is engineered for fast integration: an independent control cabinet and pre-engineered mechanical and electrical interfaces reduce installation time and minimise downtime. The result is a meaningful boost in throughput and consistency, with reduced labour dependence and fewer operator-driven errors, all while extending the usable life of your IG line. Uniglass Sealing Robot Upgrade can be installed on any IG line brand.

Explore the upgrade options in the Uniglass Configurator.

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NSG GROUP

## Demonstration of horizontal recycling of PV cover glass

**N**SG Group recently announced the successful completion of a demonstration experiment manufacturing float glass from cover glass recovered from end-of-life photovoltaic (PV) modules.

More than a decade has passed since the large-scale introduction of photovoltaic power generation systems in Japan. As these systems approach the end of their service life, the volume of decommissioned panels is expected to rise sharply after 2030. Establishing technologies that enable proper material separation and closed-loop recycling has therefore become an increasingly important social priority.

However, PV cover glass has traditionally been difficult to recycle due to its composition, which is designed to enhance module performance, and the strong adhesives used to ensure long-term durability.

For this demonstration, the cover glass was separated and extracted using Tokuyama Corporation's Low-Temperature Thermal Decomposition Recycling Technology for Photovoltaic Panels at its demonstration facility in Nanporo Town, Hokkaido.

In February of this year, NSG Group conducted a manufacturing trial at the float furnace of its Chiba Plant in Ichihara, Chiba Prefecture, using the recovered cover glass as part of the raw material mix. The trial assessed product quality and the impact on the manufacturing process. Results confirmed that the recycled material can be utilised under defined conditions, demonstrating the feasibility of horizontal recycling into float glass.

Tokuyama, the supplier of the PV cover glass used in the experiment, possesses one of Japan's leading technologies for efficiently separating and extracting cover glass from photovoltaic panels at the end of their life cycle. To produce even higher-quality float glass, NSG Group partnered with Tokuyama and utilised this technology.

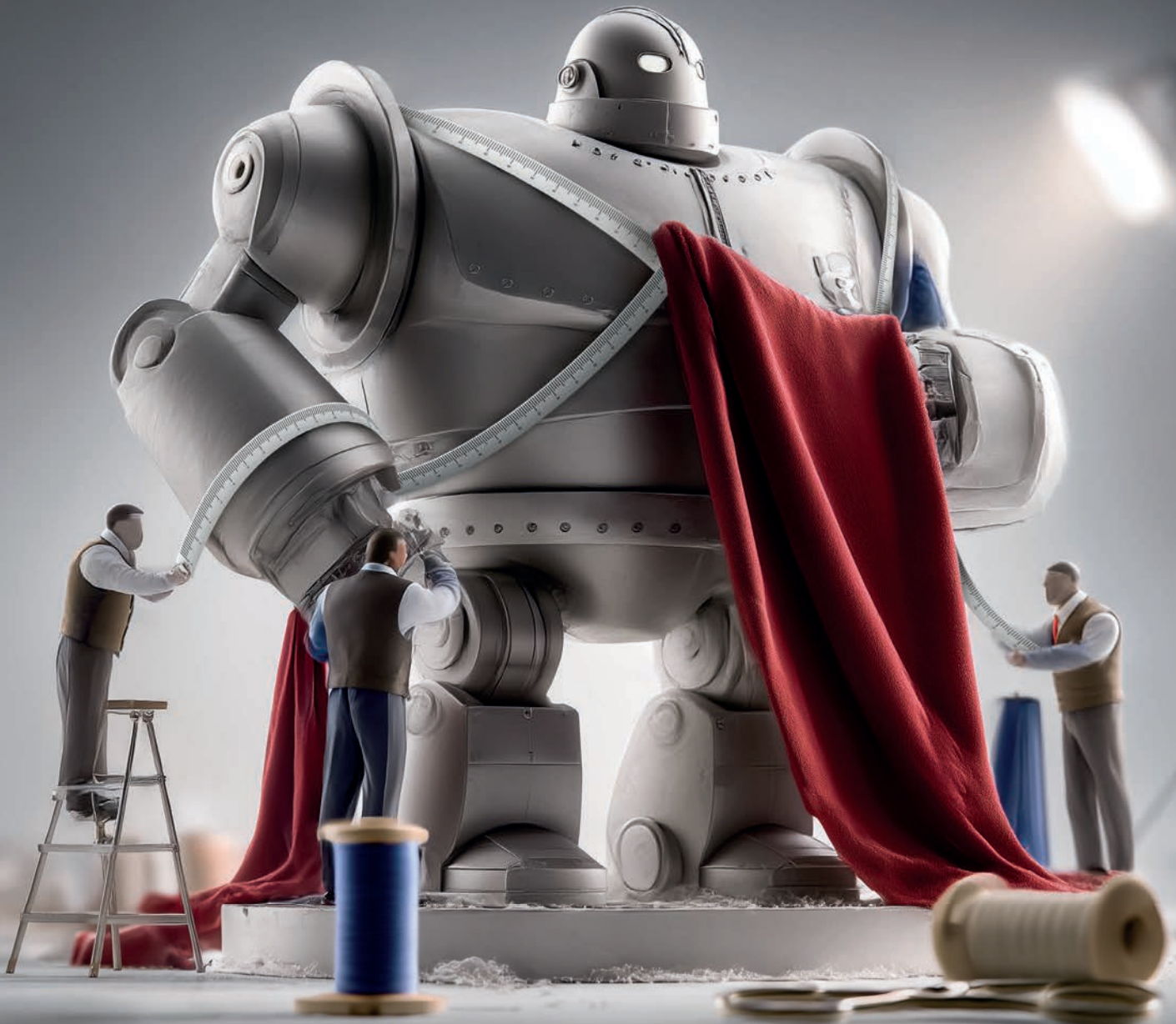
The practical application of this technology and recycling process promotes the effective use of discarded cover glass, contributing to a circular economy. Additionally, we expect reductions in the mining of natural resources, such as silica sand and soda ash; improved combustion efficiency in melting furnaces through increased cullet use; and overall reductions in CO<sub>2</sub> emissions in float glass manufacturing.

These efforts support the "Vision 2025 for Achieving Carbon Neutrality in the Glass Industry by 2050," already announced by the Flat Glass Manufacturers Association of Japan last December, which aims to build a waste glass recycling system.

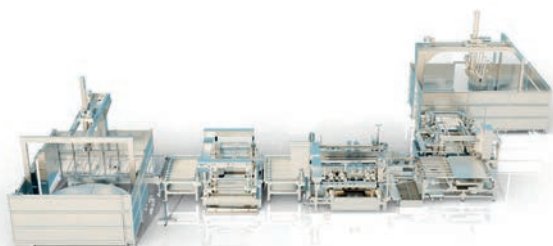
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ŞİŞECAM

## Completion of largest flat glass facility

Şişecam, the only global company operating in all core areas of glass, has completed its greenfield flat glass facility and TR9 line investment in Tarsus, Türkiye, realised with an investment of EUR 315M. Equipped with the TR9 furnace and line, the facility has an annual gross production capacity of 432,000 tonnes, making it the largest flat glass facility ever built by Şişecam and one of the highest-capacity

flat glass facilities in the world. With the commissioning of this new facility, Şişecam's flat glass production capacity will exceed 5 million tonnes.

### One of the largest facilities in the world

Commenting on the TR9 line investment, Şişecam CEO Can Yücel noted that Tarsus's strategic location provided significant advantages for the project. Yücel explained, "With this investment, which aligns with our sustainability-focused and value-added production strategy, we have established one of the world's largest flat glass manufacturing facilities. The commissioning of the new line will further strengthen Şişecam's flat glass production capability and significantly enhance our competitive position in global markets. Our facility, which will supply clear flat glass products to the domestic market, will also provide base glass for the coating line we will soon commission in Tarsus.

"These value-added products will serve as inputs for our architectural glass product groups. As a result, we expect improved capacity utilisation and stronger margin resilience, while efficiencies in supply chain and logistics will further enhance working capital performance."

### The integrated raw material facilities are becoming operational

As part of the investment, the sand preparation facility, located within the same complex as the TR9 line, has also been made ready for production. The sand used in glass manufacturing will be processed in this facility and then transferred to the furnace. In addition, the capacity expansion of the limestone -dolomite processing facility in Mersin Organized Industrial Zone has been completed. With this expansion, the raw materials required by TR9 will also be supplied from this plant.

[WWW.SISECAM.COM](http://WWW.SISECAM.COM)

HORN

## Strengthening its market position, breaks new ground in Middle East

HORN Glass Industries has recently founded a new project company named HORN Contracting LLC with a subsidiary in Abu Dhabi to ensure the handling and operational support of strategically important projects in the UAE. Local anchoring allows processes to be made more efficient, decision-making paths to be shortened, and close cooperation with all regional partners to be



guaranteed.

The newly founded company HORN Contracting LLC is designed in such a way that, once the current projects with Emirates Float Glass (EFG) have been successfully completed, it

can also be used for future projects throughout the Middle East region. HORN is thus creating a long-term basis for sustainable growth and customer proximity in the Arab region.

A key advantage of the new structure is the direct access to customers and contacts in the United Arab Emirates. This enables faster response times, more intensive support, and a significant strengthening of HORN's regional presence.

[WWW.HORNGLOSS.COM](http://WWW.HORNGLOSS.COM) - [WWW.EFGME.COM](http://WWW.EFGME.COM)

FENZI

## First automated ultra thin-glass triple-glazed unit

**F**enzi Group is a trusted supplier of Regency Glass, with the advanced system of Thiover (polysulphide secondary sealant) + TPS2020 (Next Reactive Generation Thermoplastic Spacer), innovation that redefines insulating glass performance.

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- *Optional with Waterjet*



## systron proMD



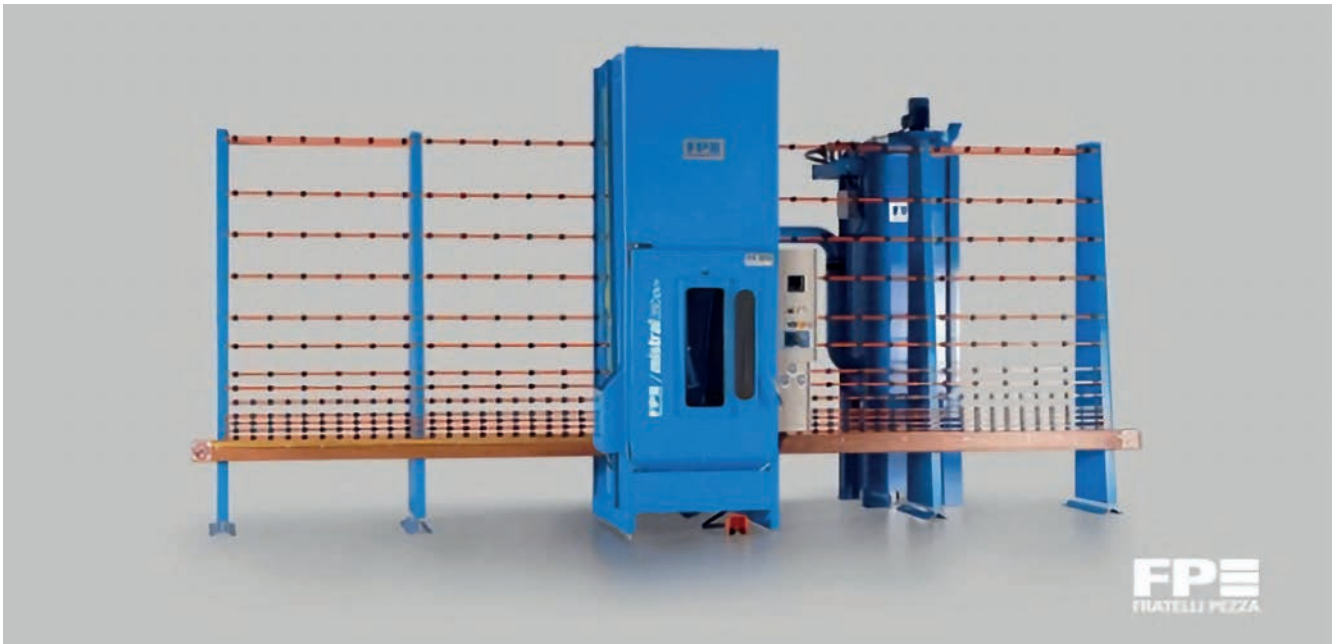
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+43 (7477) 44152 . [sales@systron.at](mailto:sales@systron.at)

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- ⊕ **SPEED** – Fast hole drilling & cutouts
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FRATELLI PEZZA

## Gradient effects with Multishading technology

**M**ultishading is the advanced function of Fratelli Pezza's Mistral EV+ for glass sandblasting shading with dynamic pressure control in vertical, horizontal and radial directions.

### From uniform blasting to dynamic process control

In modern glass processing, there is a growing demand for more complex and customised surface finishes. In this context, Multishading represents an evolution of traditional sandblasting processes. Developed for Mistral EV+ automatic sandblasting machines, it introduces dynamic pressure control to achieve advanced shading effects. Unlike constant-pressure systems, Multishading enables controlled gradients directly within the process.

### Multi-axis pressure control

The core of Multishading lies in its ability to modulate blasting pressure along the movement of the gun. The glass is always positioned on its longer side. However, the system adjusts pressure:

- vertically
- horizontally

As a result, shading effects are generated by process control rather than glass positioning. This allows precise and repeatable transitions across the surface.

### Linear, radial and concentric shading effects

With continuous pressure modulation, Multishading enables a

wide range of finishes:

- linear gradients
- smooth transitions across large surfaces
- radial shading
- concentric patterns

This flexibility opens new possibilities for both industrial production and architectural glass design.

### Optimised processing of circular glass elements

One of the key advantages of Multishading is the ability to process circular geometries efficiently. Traditionally, these applications require manual adjustments. However, dynamic pressure control allows the process to adapt to the shape of the glass.

This results in:

- improved surface uniformity
- higher quality finishes
- reduced manual intervention
- Integration into industrial workflows
- Multishading is designed for industrial environments

It allows manufacturers to:

- standardise complex processes
- reduce operator dependency
- ensure consistent results

Moreover, it expands production capabilities without changing the machine setup. Mistral EV+: a platform for advanced glass processing. Multishading is part of the technological evolution of the Mistral EV+ series. By integrating advanced pressure control, it enables a more flexible and scalable approach to glass surface processing.

[WWW.FRATELLIPEZZA.COM](http://WWW.FRATELLIPEZZA.COM)

CORNING

## Launch of Corning® Gorilla® Glass Ceramic 3

Corning Incorporated recently announced the launch of Corning® Gorilla® Glass Ceramic 3, the toughest Gorilla Glass Ceramic ever made. Designed to help deliver enhanced durability across a device's lifetime, Gorilla Glass Ceramic 3 will be featured on Motorola's upcoming razor fold device. Consumer devices are routinely exposed to a variety of hard, unforgiving surfaces, making realistic testing essential. To accurately assess durability under everyday conditions, Corning evaluates its cover material innovations across multiple surfaces designed to closely replicate real-world environments. In Corning lab tests, Gorilla Glass Ceramic 3 demonstrated outstanding drop performance, surviving drops greater than two metres onto surfaces replicating concrete, one of the most challenging impact surfaces for consumer devices. These results highlight the material's ability to help devices better withstand everyday accidents. Gorilla Glass Ceramic 3 also demonstrated substantial advantages in repeated drop scenarios. In Corning lab tests, the material survived at least 20 repeated drops from one metre onto surfaces simulating asphalt, another common surface where devices are dropped. In contrast, a competitive aluminosilicate glass typically failed on the first drop, underscoring the long-term durability benefits enabled by Corning's glass ceramic technology. Corning Gorilla Glass is already used by leading global device manufacturers, including Motorola, to help protect billions of devices worldwide. By pairing Corning's advanced glass ceramic technology with Motorola's renowned product design, the razor fold device will be the first smartphone available on the market to feature Gorilla Glass Ceramic 3, offering consumers greater confidence in everyday use.

[WWW.CORNING.COM](http://WWW.CORNING.COM)



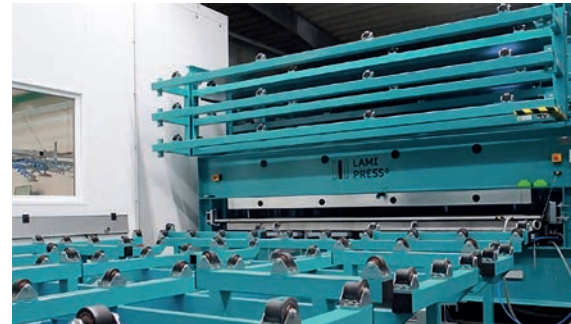
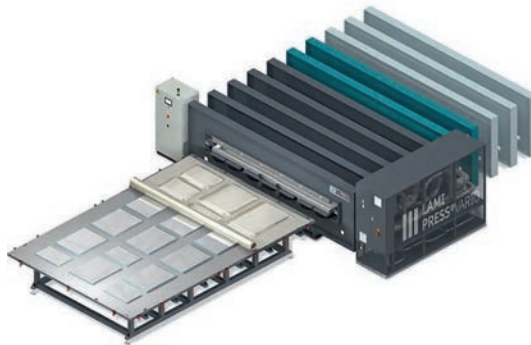
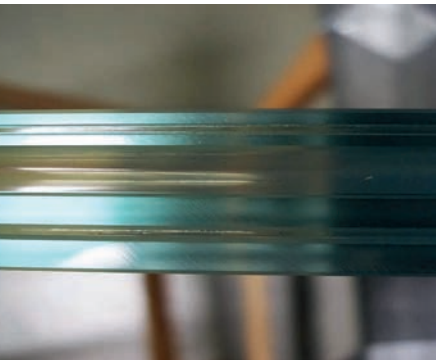
**The perfect cut is our goal**  
*Un taglio perfetto è il nostro obiettivo*

**TALAMONI**  
 YOUR PARTNER FOR GLASS CUTTING

**30**

LiSEC

## Acquisition of majority shareholding in LamiPress GmbH



The LiSEC Group has acquired a majority shareholding in LamiPress GmbH, headquartered in Marl, Germany, and is therefore expanding its offering in the laminated glass production area.

LamiPress is a lamination system to manufacture laminated safety glass (LSG) using PVB- and SGP-foils. The system achieves certified quality at autoclave-level but without classic autoclaves, without pre-lamination line and without vacuum bags. The capability of the laminates produced using LamiPress has been tested and confirmed by leading foil manufacturers Kuraray and Eastman.

This provides glass processors with an attractive alternative to the classic autoclave technology: less infrastructure, lower energy consumption and significantly reduced total expenditure - with the same degree of safety and reliability.

LamiPress can be used to efficiently manufacture a wide range of glass products, including:

- Architecture and façade glass
- Interior doors, partition walls and interior elements
- Special glass sheets with drilled holes, cut-outs or shapes
- Formats and product variants in a flexible range of products

LamiPress is particularly suited to companies that wish to produce customer-specific products, changing formats and a wide range of glass structure variants economically. Thanks to the flexible process architecture, different laminates can be processed even together, therefore as a product mix on a transfer plate.

The intuitive operating structure and predefined process recipes therefore enable reproducible quality regardless of the employees' degree of experience.

Furthermore, additional post-processing is no longer required in many applications, which saves time and costs, and reduces process steps further.

The LamiPress product range comprises modular lamination systems that are based on flexible transfer plate logistics and that can be configured for different production sizes, glass format and process requirements.

The machines are available in different variants, from the compact basic systems to advanced configurations such as twin-table systems or integrated LamiStore solutions. These variants mainly differ in their cycle performance and therefore their suitability for different throughput requirements. The system can therefore be tailored precisely to the relevant product mix, the available production areas and the required capacities.

With the acquisition of LamiPress, LiSEC is expanding its competencies in the laminated safety glass area and now offers its customers additional production options. LamiPress supplements the existing LiSEC solution range ideally, particularly wherever flexibility, cost-effectiveness and variant diversity are required.

[WWW.LISEC.COM](http://WWW.LISEC.COM) - [WWW.LAMI-PRESS.DE](http://WWW.LAMI-PRESS.DE)



Glass Company Srl

Pesaro - Italy

Tel: +39 0721 283519

www.glasscompany.com

info@glasscompany.com



# GLASSCOMPANY

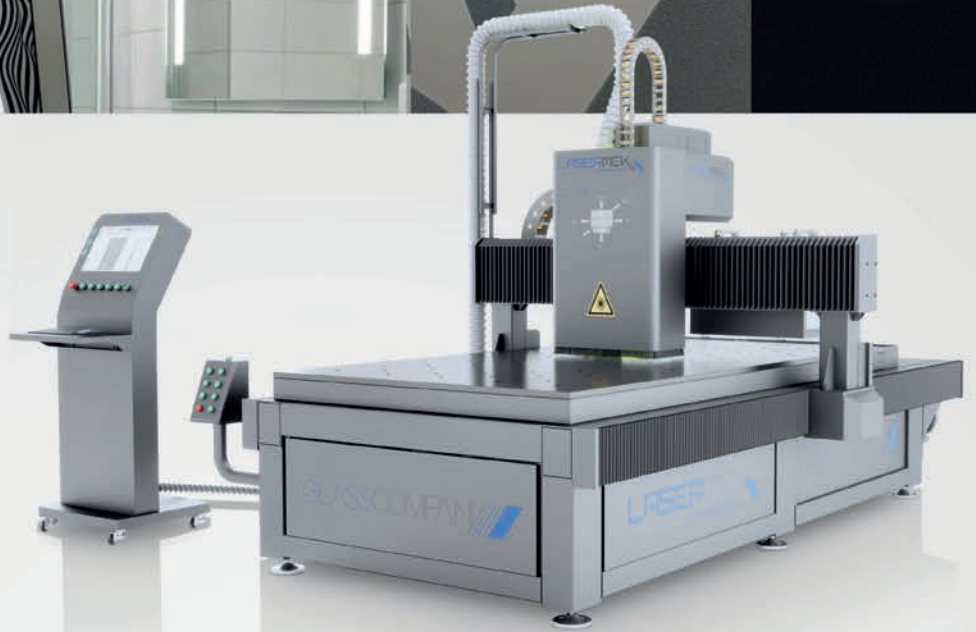
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## FIREMEK

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FOR SMALL AND LARGE  
GLASS SIZE



FOREL

## Schollglas investment in Jumbo Insulating Glass Line



The SCHOLLGLAS Group based in Germany, is a major European manufacturer of flat glass products, and has recently installed a new, state-of-the-art insulating glass production line at its facility in Nossen, Germany.

SCHOLLGLAS has been a pioneer in thermoplastic spacer technology since 1996, when it began producing its first insulating glass units using this system. Building on decades of experience, the company chose FOREL as its technological partner for this crucial investment, recognising the performance credentials of

Forel machinery and the consistency in delivering high quality finished product.

The unique line configuration maximises efficiency, flexibility, and long-term performance, and represents a key milestone in the SCHOLLGLAS Group's industrial development strategy.

The recently installed system, known as High Tech Jumbo, extends over an impressive 96 metres. More than a production line, it's a fully customised engineering solution, designed specifically through a close collaboration between SCHOLLGLAS and the Forel development team.

The line integrates multiple operating modules in a sequential and highly optimised configuration, ensuring outstanding product quality while delivering tangible advantages in terms of output productivity and process control.

With this investment in a Forel insulating glass line featuring dual thermoplastic application, SCHOLLGLAS sends a clear message to the market. The integration of patented solutions such as the Buffer and Alignment solution with advanced performance and diagnostic system, serves to strengthen the Group's leadership position, providing the delivery of high-performance insulating glass products distinguished by thermal efficiency, durability and customisation.

[WWW.SCHOLLGLAS.COM](http://WWW.SCHOLLGLAS.COM) - [WWW.FORELSPA.COM](http://WWW.FORELSPA.COM)

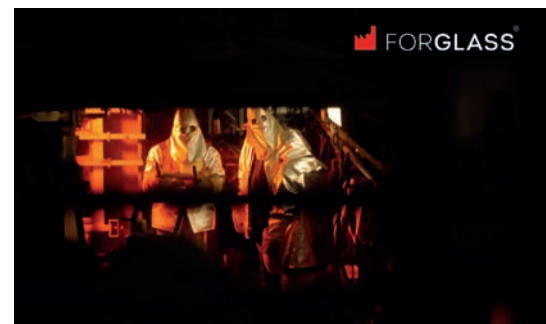
FORGLASS

## Continued cooperation with float glass producer in Poland

Forglass has just finished a hot repair project on a float furnace in Poland for one of the world's leading producers of automotive and architectural glass. Following several successful furnace repair projects in the past, the client once again entrusted Forglass with the execution of this highly demanding operation. Hot repair of a large float furnace is one of the most complex types of furnace repair and requires precise coordination of experienced teams as well as careful planning of every stage of the process. The entire operation must be organised in a way that minimises glass-to-glass time, leaving no room for delays or errors. Each task has to be performed with maximum efficiency and accuracy to ensure that the work is completed correctly the first time.

Thanks to its experienced specialists and well-established project management approach, Forglass continues to support its long-standing partner in maintaining reliable furnace performance. The project in Poland once again confirms the company's strong position as a trusted expert in large-scale furnace repair projects.

[WWW.FORGLASS.EU](http://WWW.FORGLASS.EU)





★ EVO

# The checkmate of defects



26-28 May - Visit us at  
Stand Bottero:  
Hall B - n. stand B3.34



15-17 July - Visit us at  
Stand FDS - n. C01

At Deltamax our vision is clear: continually optimized production processes and advanced quality control technology make sure Deltamax quality standards are always 100% transparent. Thanks to the latest in high-resolution camera tech and a dedicated software system, we can detect even the tiniest qualitative or dimensional defects in flat glass, including superficial residues, so that you don't.

[deltamax.eu](http://deltamax.eu)

SPARKLIKE

# Handheld NOVA™ launch

Sparklike has launched the Sparklike Handheld NOVA™, the next generation of its non-destructive insulating gas measurement device designed specifically for double-glazed insulating glass units.

The new Handheld NOVA™ builds on Sparklike's established spark emission spectroscopy technology and introduces a new design, modernised software environment, and improved data handling capabilities to support today's production and quality control requirements.

Sparklike Handheld NOVA™ enables manufacturers to verify gas fill levels non-destructively, meaning tested units remain fully usable and can be delivered to customers after measurement.

While the measurement principle remains based on plasma emission spectroscopy that is compliant with ASTM E2649-20, the NOVA introduces several key updates:

- Measurement result in approximately 2 seconds
- Single and multi-sample measurement modes
- User-configurable PASS/FAIL limits
- QR code reader support for optional unit-level traceability

**Wireless data transfer**

The device supports argon measurement as standard, with krypton measurement available as an option. The key development objective was not to change the proven measurement technology but to introduce a future-ready software platform that allows better data usability and scalability.



Manufacturers increasingly require documentation and traceability to meet internal quality standards and regional compliance requirements. With Handheld NOVA™, measurements can be linked to specific insulating glass units using QR code identification, supporting audits and documentation processes. Wireless communication and browser-based access to data allow measurement results to be integrated into quality monitoring systems.

Sparklike Handheld NOVA™ is designed specifically for double-glazed insulating glass units. The device measures gas concentration non-destructively through the glass using spark emission spectroscopy. It can measure double-glazed units with one low-e coating, provided measurement is performed through the clear glass pane. Certain thin laminated structures can also be measured under defined conditions.

For more complex structures such as triple glazing or multiple coatings, Sparklike offers its laser-based measurement solutions Sparklike Laser Portable™ and Sparklike Laser Integrated™.

The NOVA features an updated industrial design and ergonomic structure for daily factory use. The device is portable, battery-operated, and weighs approximately 1.7 kilograms. Measurement is non-destructive, eliminating the need to damage sealed units, which distinguishes it from invasive gas testing methods.

With the introduction of Handheld NOVA™, Sparklike strengthens its position in supporting manufacturers who aim to combine production efficiency with documented, transparent gas fill control.

[WWW.SPARKLIKE.COM](http://WWW.SPARKLIKE.COM)

## FENZI GROUP

## Price list adjustments to safeguard continuity of supply

**F**enzi Group, an international leader in chemical technologies for glass processing, recently announced a price list adjustment that will come into effect in the coming weeks. This decision has become necessary due to the significant deterioration of market conditions for chemical raw materials, directly influenced by geopolitical instability in the Gulf region. In recent months, tensions in the Middle East have caused major disruptions across global supply chains, with direct impacts on energy and logistics costs, as well as on key raw materials used across industries connected to the glass sector, including polymers, solvents, resins, plasticisers, plastics and precious metals.

“We are operating in an extremely volatile international environment, marked by strong pressure on raw material costs and uncertainty in supply chains,” said Alessandro Fenzi, CEO of the Fenzi Group. “As in every critical phase faced throughout our 85-year history, we remain committed to ensuring operational continuity and high quality for our customers. However, the exceptional nature of the current situation requires a significant price adjustment.”

Despite these challenging market dynamics, the Group continues to rely on its long-standing solidity, the geographical diversification of its sourcing operations, and its ability to react swiftly to change. Even during previous global crises, Fenzi demonstrated resilience by adopting effective measures to mitigate the impact on customer deliveries

and to maintain high service standards.

In this extraordinary phase, the Group's sales team will directly coordinate the implementation of the price list adjustments, working closely with partners and customers to ensure maximum support, transparency and operational continuity.

[WWW.FENZIGROUP.COM](http://WWW.FENZIGROUP.COM)



**FINEO**  
by AGC

### Energy efficient, sustainable, ultra thin: FINEO vacuum glass for restoration, renovation and new construction

**FINEO** represents a new generation of insulating glass. This ultra thin vacuum glazing offers optimal thermal and acoustic comfort.

Aesthetic, climate friendly and manufactured in Belgium, **FINEO** vacuum glass is ideal for environmentally conscious construction and renovation. It delivers energy efficiency, comfort and the thermal performance of triple glazing while being six times thinner and significantly lighter. **FINEO** can also be installed in existing window frames and stands out for its sustainability, as it maintains its thermal insulation performance throughout its entire service life.

**FINEO** vacuum glass complies with EU regulations and can be recycled 100% without delamination. It is available with AGC's Low Carbon glass and offers a service life of at least 60 years with a 20 year warranty. Furthermore, **FINEO** by AGC is the only vacuum insulating glass worldwide that carries the aBG, CE and EPD certifications.



Would you like to find out more?  
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For further information:  
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[www.fineoglass.eu](http://www.fineoglass.eu)

AGC

## 50,000 windows treated with WAVETHRU™ Retrofit

A Belgian innovation initiative within **AGC Automotive Europe**, Pulaart by AGC recently announced a major milestone for passenger connectivity in rail: 50,000 train windows have been treated with WAVETHRU™ Retrofit across Europe.

WAVETHRU™ Retrofit is a laser-based glazing treatment applied to existing train windows. The treatment makes coated glazing more permeable to mobile signals while preserving the window's essential functions, including thermal insulation and optical performance. In operational deployments, the unique glass treatment increases mobile signal coverage inside the train car by up to 300 times, without altering the passenger's view through the window. Performance is validated through pre and post-treatment RF measurements, complemented by on-train quality checks.

The service is currently deployed with 10 rail companies across Europe, and Pulaart by AGC is working with partners to expand deployments further. Some deployments remain confidential under customer agreements; Pulaart by AGC therefore does not disclose customer names or deployment geographies for all programmes.

While widely adopted in rail, AGC applies the same principle to other glazing environments where signal penetration is constrained, including buildings equipped with high-performance coated glass.

"Reaching 50,000 treated windows is a meaningful milestone for our team and a clear indicator of market adoption and customers trust. Over the last 4 years, we have reached a significant maturity level with continuous operation," said Yvain Cornet, CEO of Pulaart by AGC. "Rail operators want measurable improvements in onboard connectivity, but they cannot compromise on passenger comfort or window performance. WAVETHRU™ Retrofit delivers both while reducing costs compared to expensive window replacement. We value the trust of our partners across Europe and we remain focused on scaling deployments with additional rail companies in new countries."

[WWW.AGC-AUTOMOTIVE.COM](http://WWW.AGC-AUTOMOTIVE.COM)

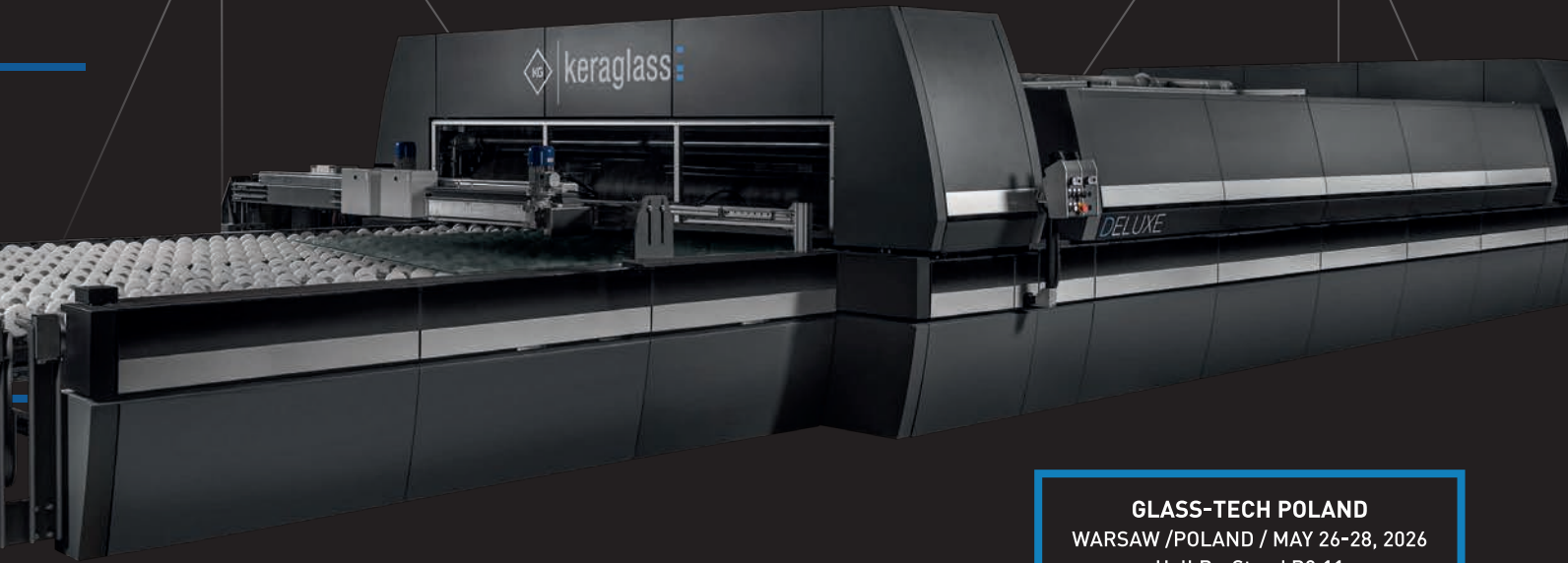


THE LAMINATING LINE  
COMPACT OUTSIDE AND BIG INSIDE

# DELUXE

Automatic PVB laminating line  
for the latest generation glass

flustdesign



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**A**

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- + COMPACT AND SOLID STRUCTURE
- + EVEN AND PRECISE LAMINATION
- + EFFICIENT HEATING SYSTEM
- + HIGH FLEXIBILITY IN CUTTING PVB
- + OUTSTANDING RESULTS ON MOST TYPES OF GLASS



[keraglass.com](http://keraglass.com)



**keraglass**

a **voilàp** company

WEHA-THERM

## Reliance upon Softsolution since 2012

Since 2012, Weha-Therm in Hutthurm, Germany, has relied on Softsolution's quality assurance systems. What began with a smaller camera-based template measurement installation (VirtualDigitizing) has developed into a comprehensive partnership over the years. Today, the company uses three high-performance LineScanners that ensure consistently high quality across Weha-Therm's production lines.

Since 2016, a LineScanner has been operating on the insulating glass line downstream of the washer. The scanner performs a comprehensive single-pane inspection before the glass is processed further. In addition to surface quality, the LineScanner also checks glass thickness and identifies coatings.

This early inspection ensures that only flawless glass panes proceed to further production. Defective glasses are sorted out before processing into insulating glass units. This saves material, reduces scrap, and prevents costly rework on finished insulating glass

units.

In 2019, another LineScanner was installed on the second insulating glass line before assembly / after the washer. The system performs all-in-one glass quality control, inspecting surface defects, dimensions, and other quality-relevant parameters. Since installation, the LineScanner has operated reliably and delivers precise quality data for production.

Integration into the

LiSEC line enables automated control without manual intervention. Defects are immediately detected and documented in the data archive.

In 2025, Weha-Therm expanded its quality control by adding a LineScanner White Haze. The system detects white haze on tempered single-pane glass at varying intensities. This reflection-based scanning technology specifically inspects the bottom glass surface and classifies white haze as mild, medium, and strong.

The LineScanner White Haze uses AI-based software that enables precise, consistent evaluation. During production, Weha-Therm can ensure that only glass with acceptable white haze levels is shipped. This prevents claims and strengthens customer trust.

The more than 13-year collaboration between Weha-Therm and Softsolution demonstrates how a partnership relationship contributes to the continuous development of quality assurance. Through the gradual expansion of its systems, Weha-Therm has steadily improved its quality standards and positioned itself as a reliable partner for high-quality glass products.

[WWW.WEHA-THERM.DE](http://WWW.WEHA-THERM.DE) - [WWW.GLASSQUALITY.COM](http://WWW.GLASSQUALITY.COM) - [WWW.LISEC.COM](http://WWW.LISEC.COM)



NSG

## New Global pilkington.com website to elevate user experience

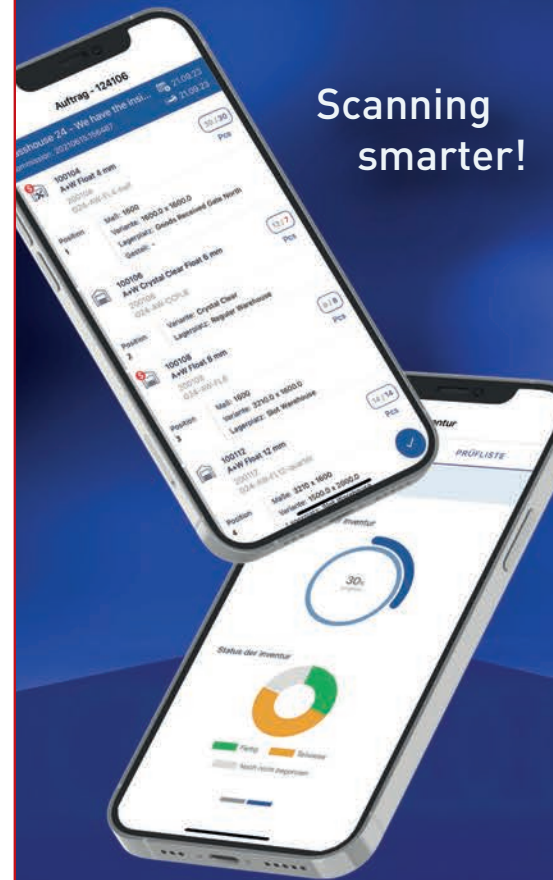
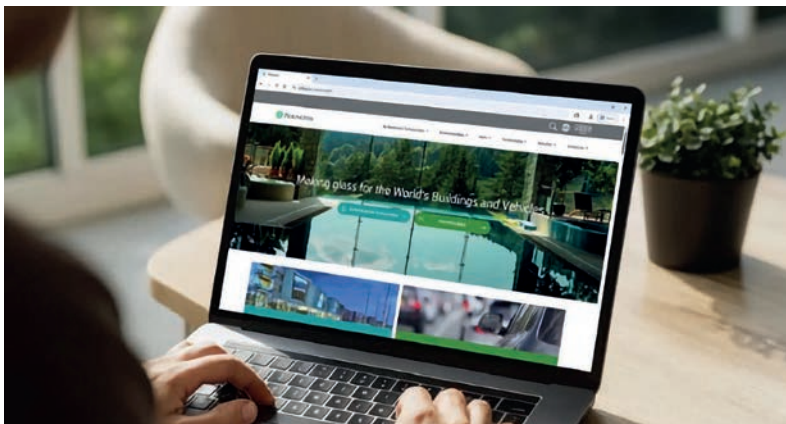
**N**SG Group, a leading global manufacturer and distributor of architectural, automotive and technical glass, launched its new global website for the renowned Pilkington brand as part of the organisation's wider digital transformation initiative. The platform delivers an improved, user-centric online experience for visitors to the site. The website features a streamlined, mobile-optimised design, clearer product segmentation and expanded educational and technical content. It brings together the Group's architectural and automotive businesses operated under the Pilkington brand, and introduces unified sections such as News and Sustainability, offering shared resources and guidance in an easy-to-navigate format.

The Architectural and Technical Glass section unfolds into four clearly defined and easily navigable areas: Product Category, Brand Names, Glass Applications and Specific Glass Applications. This simple structure empowers users to discover a wide array of applications and solutions with effortless ease. The Glass Applications area will be further developed to highlight the various uses of Pilkington glass products.

The Knowledge Hub has been well-structured to provide a comprehensive resource for professionals. It offers detailed information on specification tools, glass technology, and practical help and advice. It ensures that architects, specifiers and glass processors have immediate access to the technical knowledge and support they need to make informed decisions and deliver outstanding results in their projects.

For automotive customers, the upgrade improves accessibility across both original equipment and aftermarket offerings. New resources include an expanded automotive glass product catalogue with filterable capabilities by glass component, as well as a strengthened aftermarket section featuring information about services, programmes and partnerships that were not previously consolidated in one place.

[WWW.NSG.COM](http://WWW.NSG.COM)



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PYROGUARD

# Investment in India with new manufacturing partnership

**P**yroguard, the world's leading independent provider of fire safety glass, has established a new manufacturing partnership with **South Glass** in India as part of its strategic expansion to support increasing demand across India and the Middle East.

This investment reinforces Pyroguard's long-term commitment to the Indian market and strengthens its operational presence in the region. The collaboration will enable shorter lead times and enhanced local technical and sales support, while ensuring full compliance with Indian building and fire safety standards alongside Pyroguard's globally recognised performance benchmarks.

With a dedicated manufacturing base in India, Pyroguard will be better positioned to collaborate closely with architects, developers and installers to deliver customised fire-rated glazing solutions for applications including doors, partitions, façades and curtain walling.

Steve Goodburn, Business Development Director at Pyroguard, said, "India's rapidly growing infrastructure and commercial real estate sectors, combined with tighter fire safety regulations, are driving strong demand for high-quality fire-rated glazing. Our local manufacturing presence enables closer collaboration with customers, reduced lead-times and improved support for architects working to local specifications across India and the Middle East."



Pyroguard has supplied high-performance fire-resistant glazing to India for over a decade from its facilities in France and the UK, supporting major projects including Vivanta by Taj Dwarka, the Windsor Group IT Park in Noida and high rise developments in Hyderabad.

The new Indian manufacturing plant, based in Hyderabad, will produce fire-safety glass locally to the same global standards of performance, quality and certification as Pyroguard's UK and French operations, providing the market with premium fire-rated glass and improved project efficiencies.

Key products manufactured in India will include Pyroguard Protect (13 millimetre fire safety glass) and Pyroguard Firesafe E120, both rigorously tested to relevant local standards to ensure the highest levels of performance and compliance. Pyroguard has invested in ongoing testing and certification for the market, in collaboration with partners. This comprehensive testing has validated the capability of 13 millimetre Pyroguard Protect to achieve both EW120 and EI30 classifications in accordance with IS standards.

Achieving this milestone reflects not only proven product performance, but also Pyroguard's ongoing investment in regional testing, certification and strategic partnerships, demonstrating a sustained commitment to strengthening local capabilities and advancing fire safety standards across the market.

Steve Goodburn added, "Pyroguard has a well-established sales presence in India and a dedicated team based here. Local manufacturing strengthens our commitment to the market and ensures architects, developers and contractors benefit from our quality, speed and service."

[WWW.PYROGUARD.EU](http://WWW.PYROGUARD.EU) - [WWW.SOUTHGASS.IN](http://WWW.SOUTHGASS.IN)





# Pujol Temper Flex engineered by **Teknokilnys**

**TEMPER FLEX. The first glass tempering oven on the market with high productivity and high installed power, able to adapt to produce with low energy consumption and low installed power if the customer requires it.**

- ◆ High flexibility.
- ◆ High quality of the finished product.
- ◆ Higher profits per square meter of glass produced.
- ◆ Low maintenance costs.
- ◆ Better return on investment.



# Production milestone for PUJOL and ARREDA VETRO BIZZOTTO

A new laminating installation strengthens production capabilities as PUJOL technology supports ARREDA VETRO BIZZOTTO's push for greater efficiency, automation and quality. The investment combines advanced lamination, lower energy use, reduced infrastructure demands and improved productivity - reinforcing competitiveness in laminated glass manufacturing.

Arreda Vetro Bizzotto is reinforcing its position in laminated glass with the commissioning of an advanced PUJOL 100 PVB+ system. The company, described as a prestigious Italian glass processor with a two-generation

family tradition, is continuing to invest in innovation and the modernisation of its production processes through the installation of a PUJOL 100 PVB+ /2C-50x28 laminating furnace. The investment also includes a fully automatic as-

sembly line composed of a large-format tilting loading table, an automatic washing machine for selective and laminated glass, and an automatic assembly station. Together, these additions establish an updated production standard within the company and are intended to increase capacity, raise product quality, and strengthen competitiveness through state-of-the-art technology.

### A TECHNOLOGY THAT REDEFINES GLASS LAMINATION

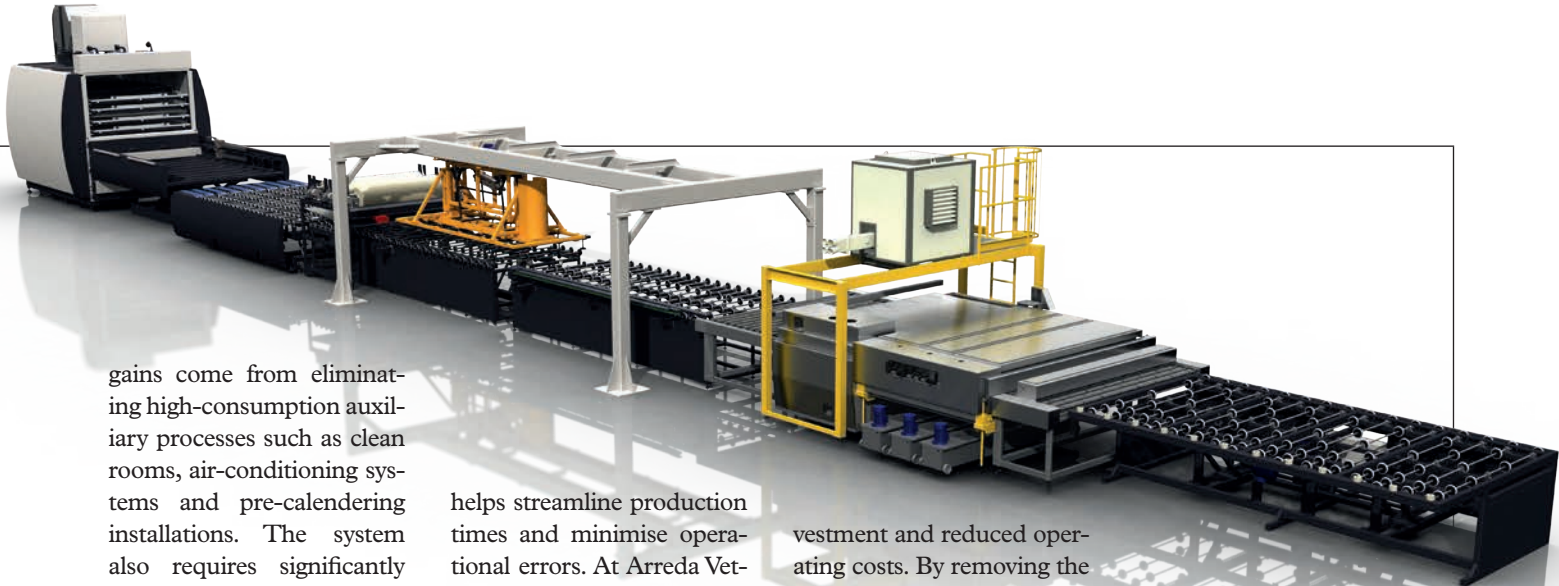
The PUJOL 100 PVB+ system has emerged as an advanced solution for glass lamination using EVA, PVB, SGP interlayers and other

technical compositions, offering an efficient alternative to traditional autoclave systems. With its installation at Arreda Vetro Bizzotto, the company is moving toward a more flexible, automated and sustainable production model suited to both high-volume output and customised manufacturing.

### ENERGY EFFICIENCY AND REDUCED OPERATING COSTS

One of the system's principal advantages is its high energy efficiency, with energy consumption reduced by up to 70 percent compared with traditional autoclave systems. According to the information provided, these





gains come from eliminating high-consumption auxiliary processes such as clean rooms, air-conditioning systems and pre-calendering installations. The system also requires significantly lower installed power, reducing the need for investment in electrical infrastructure and improving overall plant profitability.

### **AUTOMATION, PRODUCTIVITY, AND SPACE OPTIMISATION**

With a high degree of automation, the PUJOL 100 PVB+ reduces manual intervention in critical stages including glass loading, unloading and handling. This

helps streamline production times and minimise operational errors. At Arreda Vetro Bizzotto, the installed line can be operated efficiently by a reduced number of workers while still delivering high productivity. It also requires substantially less space than traditional systems, adding another practical advantage to the investment.

### **LOWER INVESTMENT AND GREATER COMPETITIVENESS**

A further benefit of the system lies in lower initial in-

vestment and reduced operating costs. By removing the need for complex infrastructure, while also lowering maintenance demands and stabilising energy consumption, the PUJOL 100 PVB+ presents itself as a highly competitive option for glass manufacturers.

### **A STRATEGIC STEP IN THE INDUSTRIAL EVOLUTION OF ARREDA VETRO BIZZOTTO**

The introduction of the PUJOL 100 PVB+ system

deepens Arreda Vetro Bizzotto's modernisation strategy and, according to the text provided, consolidates its role as a reference for innovation in the laminated glass sector in Italy. More broadly, the investment marks a significant step in the company's industrial evolution, underlining its commitment to production technologies that combine efficiency, sustainability and technical precision.



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[www.pujolgroup.net](http://www.pujolgroup.net)



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# Efficiency advanced with **FILTRAGLASS** and **L&L GLASS** collaboration

Reducing costs and supporting sustainability, **FILTRAGLASS** and **L&L GLASS** are jointly demonstrating how advanced water filtration is enhancing efficiency in the United States. Collaboration between the two is highlighting the growing importance of resource optimisation in modern glass production - all while reinforcing competitiveness through innovative, adaptable industrial solutions.

International expansion into competitive markets often signals technological maturity. In this context, Filtraglass has taken a strategic step in strengthening its global presence through the installation of a water filtration system at a new production facility operated by L&L Glass in Denver, United States. The collaboration marks entry into the demanding North American market while underscoring the capability of advanced filtration technology to meet the glass industry's stringent requirements.



From left to right:  
Peter French,  
Alberto Medina,  
Chad Tipton, Keith  
Stevens. The dog  
is Ruby.



## **A LEADING PROVIDER OF BESPOKE INTERIOR GLASS SOLUTIONS**

L&L Glass has built a strong reputation in the Denver, Colorado area as a specialist in bespoke interior glass solutions, particularly for shower and bath enclosures and mirrors. Its market standing reflects technical expertise, precision-driven processes, and consistent product quality. The commissioning of a new production plant represents a further step in its growth. Within this environ-

ment, water plays a critical role in both machinery performance and the quality of finished glass. Addressing this, L&L Glass selected Filtraglass' DG.365.F system, designed specifically for facilities operating multiple interconnected machines.

## **WATER OPTIMISATION IN PLANTS WITH MULTIPLE MACHINES**

A defining feature of the installation is its configuration: the DG.365.F system

is connected to four edging machines operating simultaneously. This setup enables centralised water treatment and optimised reuse across the production line. Water used during processing is collected and filtered to remove glass particles before being reintroduced into the system in a clean state. This continuous cycle maintains optimal water conditions while reducing residue accumulation in equipment. The system's adaptability to multi-machine environments is particularly relevant in mod-

ern, automated plants where efficiency and productivity are essential to maintaining competitiveness.

## **OPERATIONAL AND FINANCIAL BENEFITS**

The integration of advanced water filtration technology delivers measurable improvements in both production performance and cost efficiency. The use of recycled, particle-free water reduces mechanical wear, lowering maintenance demands and minimising unplanned downtime. At the same

time, water recirculation decreases reliance on mains water, generating operational savings. In an industrial landscape where water is an increasingly strategic resource, such efficiencies carry growing importance. Waste management is also enhanced. Glass particles are separated from the water and converted into a dry, solid by-product suitable for recycling, reducing environmental impact.

### SUSTAINABILITY AS A COMPETITIVE ADVANTAGE

Beyond operational gains, the partnership reflects the rising significance of sustainability in glass manufacturing. Efficient water use is no longer solely a cost consideration but a critical factor in environmental responsibility and global competitiveness. Filtraglass technology aligns with circular economy principles by enabling continuous water reuse and waste reduction. This approach supports L&L Glass in reinforcing its position as a manufacturer that balances productivity, quality, and sustainability.

### INTEGRATION IN DEMANDING ENVIRONMENTS

The project demonstrates Filtraglass' capacity to operate within highly demanding industrial settings, where system reliability and seamless integration into complex production workflows are essential. A key



characteristic of the company's approach is customization. Systems are tailored to the specific requirements of each plant and process, allowing compatibility with a wide range of machinery configurations while maintaining consistent performance.

### TECHNOLOGY DRIVING INDUSTRIAL EFFICIENCY

The collaboration illustrates how advanced water recycling systems can reshape glass processing operations. The combined benefits of efficiency, cost control, and

sustainability have become central to competitiveness in an increasingly demanding sector. For Filtraglass, the project represents both entry into the US market and validation of its ability to meet high-performance standards. For L&L Glass, it demonstrates how targeted investment in resource optimisation can support growth without compromising output or quality. In a global environment where resource efficiency is paramount, water treatment technology is no longer optional but a strategic necessity - one that is redefining the future of glass production.



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SUSTAINABILITY



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industrial processes.*

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solid waste.*

*Reliable systems with low  
maintenance requirements.*

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# Flat and curved applications converge in **KERAGLASS** technology



Curved glass is gaining ground across industries. KERAGLASS is addressing exactly that demand with a furnace system that processes flat, cylindrical and spherical glass with precision, flexibility and repeatability. Supported by consulting and after-sales service, today the technology combines production efficiency, optical quality and design potential.

As glass processing continues to evolve, tempered curved glass has become one of the most sought-after solutions across sectors ranging from automotive and architecture to home appliances and interior design. In response to that demand, Keraglass has developed Visionbend, a bending and tempering furnace designed to process flat glass, cylindrical curved glass and spherical curved glass with flexibility and consistent quality. The system combines two forming technologies in a single industrial platform, aiming to deliver precision, reliability and repeatability. Drawing on more than 30 years of experience in glass bending and tempering, Keraglass has been refining each stage of production to meet the requirements of contemporary industry.

### ADVANCED FORMING TECHNOLOGY

At the heart of the system are two complementary technologies. K-PRESS, developed for precision

spherical bending, is based on a continuous ring system that combines mold and press to produce stable, accurate spherical curvatures. Its off-set tempering layout and configurable hood system are designed to deliver strong optical quality and precise geometry, including on thin glass. For cylindrical bending, Keraglass uses K-ROLL, a bending roller

system engineered for continuous productivity and high-quality output. By reworking the traditional design, the company has created a system intended to improve reliability, precision and repeatability from piece to piece.

### FLEXIBLE CONFIGURATIONS

The furnace can be config-

ured according to production requirements. It can operate in a unidirectional format, using one of the two technologies, or in a bidirectional configuration that integrates both within the same furnace while sharing the same heating and ventilation area. That flexibility extends beyond curved glass. The system can also process flat glass, allowing manufac-





turers to address the needs of different industries with a single production platform.

### ONE FURNACE, ENDLESS POSSIBILITIES

The Keraglass bending system is designed to produce a broad range of geometries, including cylindrical and multi-radius curved glass, spherical and deep spherical curved glass, J-shaped glass and other complex curved forms without radius limitations. It also supports the production of tempered flat glass. Its capabilities are further expanded by a 500°C convection system that allows the processing of LOW-E glass with emissivity as low as 0.01, maintaining performance even when working with more delicate materials.

### UNLIMITED APPLICATIONS

The range of possible applications reflects the growing role of curved glass in industrial design and manufacturing. In automotive, the emphasis is on precision and safety. In shower enclosures, the material supports clean, modern forms. In home appliances and display refrigeration units, it combines functionality with contemporary styling. In architecture and interior design, it contributes to more distinctive and visually ambitious projects.

### AESTHETICS AND CUSTOM DESIGN

Curved glass is not only a technical solution but also a design tool. Its ability to

follow non-linear shapes makes it suitable for spaces that seek a lighter, more dynamic and more contemporary character. In this context, performance and visual quality are closely linked, with aesthetics becoming an integral part of the product's value.

### KERAGLASS TECHNOLOGY AND SERVICE

Keraglass positions the system within a broader service model that includes technical consulting, system customisation and after-sales support. The company's approach is aimed at delivering tailored solutions that balance production efficiency with aesthetic quality,

helping clients translate project requirements into finished results.

### FOR MORE INFO

With its spherical and cylindrical bending system, Keraglass presents a production solution built around flexibility and consistent quality across industrial sectors. Further technical information is available through the company's official channels and technical team.



keraglass

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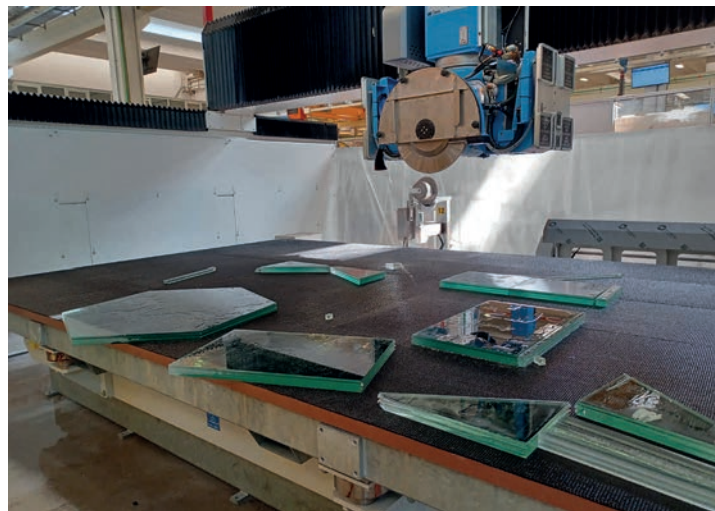
# Bulletproof and fire-resistant glass becomes more controllable with CMS

**B**ulletproof and fire-resistant glass is among the most demanding products in bulletproof and fire-resistant glass fabrication. It is increasingly specified for architectural, security and industrial applications, where strict performance requirements leave no margin for process variability or inconsistent quality. Multilayer structures, thick glass sections, and sensitive interlayers or coatings all raise the risk of

defects during cutting and machining. Even small deviations in processing can compromise the finished product, resulting in scrap, reworking, or, in the worst case, loss of certification.

## **MATERIAL SENSITIVITY**

Fire-resistant glass presents an even more critical challenge. Its intermediate layers, often based on flame-retardant gels or intumescent materials,



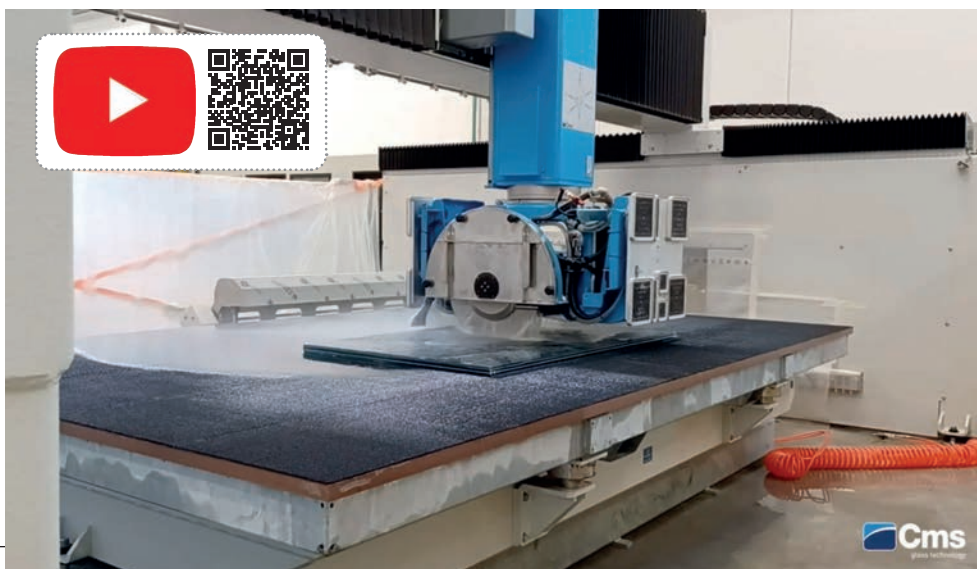
Bulletproof and fire-resistant glass fabrication demands precision, stable processing and careful control of sensitive materials. CMS technology helps manufacturers manage these challenges through advanced cutting and machining solutions that improve edge quality, reduce handling, limit scrap and reworking, and support reliable performance in demanding applications.

are particularly sensitive to environmental conditions, especially moisture. A carefully controlled drying phase after fabrication is therefore essential to prevent interlayer degradation and to ensure that the glass retains its declared fire-resistance performance over time. Thick laminated glass is still generally cut in straight lines using vertical panel saws. While effective for basic formats, this approach becomes restrictive when more complex shapes or controlled edge quality are required. Ad-

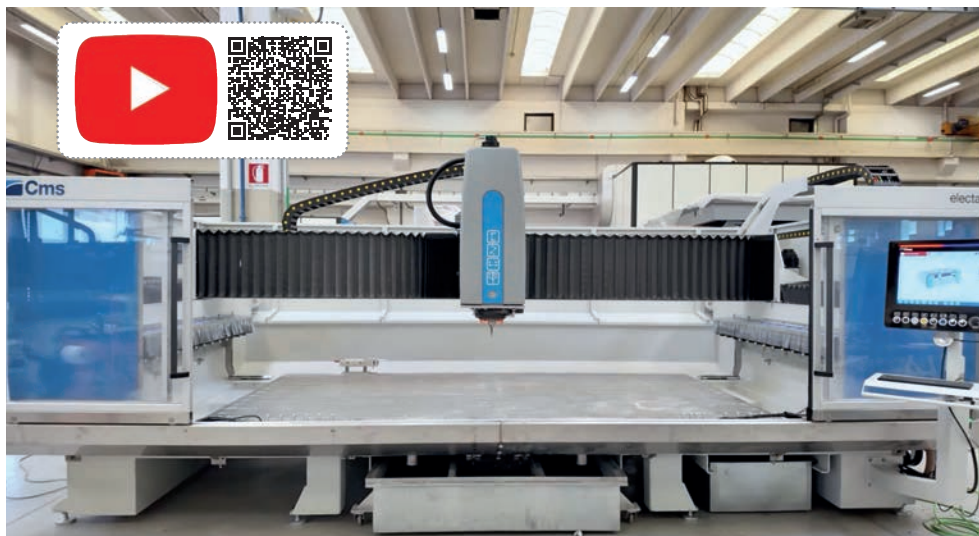
ditional operations such as chamfering, seaming and edge finishing then become necessary, adding handling steps, extending processing time and increasing overall production complexity.

### CUTTING CONTROL

In this context, advanced technologies are needed to manage complexity while maintaining precision, process reliability and consistent quality. CMS Glass Technology addresses these requirements with solutions developed for the specific demands of bulletproof



and fire-resistant glass fabrication. CMS sprint is designed to optimise cutting operations in laminated, fire-resistant and safety glass production lines, where productivity and repeatability are essential. It can process square, rectangular and polygonal sheets, carrying out vertical cuts as well as 45° angle cuts to meet the typical requirements of security and architectural glazing. An integrated vacuum manipulator automatically



regular, controlled edges and precise chamfers, a fundamental requirement in bulletproof and fire-resistant glass, where edge defects can cause delamination or stress concentration. With high axis dynamics, CMS electa performs shaping, grinding, polishing, drilling and milling on a single platform. This allows manufacturers to process complex shapes, reduce intermediate handling and adapt production to small batches or customised projects. The result is higher edge quality, less scrap and reworking, improved process reliability and stronger overall productivity, even with the most demanding laminated glass configurations.



separates and relocates the cut sections, eliminating manual intervention and significantly improving operator safety when handling heavy, thick laminated glass, while also supporting greater efficiency and workflow stability.

### EDGE QUALITY

Where higher edge quality and complex profiling are required, the CMS electa machining centre is intended to overcome the limitations of traditional machining systems. It enables the creation of



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# High TEMPERATURE GASKETS



Texpack srl is a manufacturer of various products for the protective coating of rolling rollers in tempering furnaces in the flat glass industry and conveyor belts. For example:

## **1200N Aramtex® discontinuous filament tapes**

Aramtex® tapes are produced using 100% pure paraaramid yarns with discontinuous filaments, which are usually woven in several layers.



## **1210N Aramtex® continuous filament tapes**

Aramtex® tapes are produced using 100% pure paraaramidic yarns with continuous filaments, that are usually woven in several layers,



Texpack also produce textiles for the glass industry: roller coatings for tempering furnaces in flat glass production, as well as coverings for molding dies or handling clamps for hot glass.

## **1200C Aramtex® discontinuous filament sleeve**

The Aramtex® sleeve is produced using 100% pure aramid yarns with discontinuous filaments that provide it with greater softness and good mechanical resistance at a lower cost compared to sleeves made with continuous filaments.



## **1210C Aramtex® continuous filament sleeve**

The Aramtex® sleeve is produced using 100% pure aramid yarns with continuous filaments that give it better mechanical properties than discontinuous filament sleeves.

# TEXPACK®



# Optimising digital ink processes: CUGHER infrared dryer technology

*As digital glass printing evolves, CUGHER leverages its expertise to deliver infrared drying systems designed for precision, stability and reliability. Combining advanced airflow management with controlled thermal processes, these solutions ensure consistent results - supporting industrial manufacturers in meeting increasingly complex production demands.*

The rapid expansion of digital printing on glass is reshaping expectations for industrial drying systems. As production environments demand greater consistency and quality, factors such as thermal precision, airflow stability and operational reliability have become central to process performance. Within this evolving landscape, Cugher has extended its established expertise in screen printing into the digital domain. Drawing on years of application experience, the company has developed infrared drying solutions specifically engineered to address the complexities of digital inks, en-



surely controlled processes and consistent outcomes even under demanding production conditions.

## DRYING CONTROL FOR DIGITAL INKS

Digital printing introduces a level of sensitivity absent in traditional screen processes, particularly during the initial drying phase. At this stage, inks remain unstable and highly vulnerable to disturbances caused by airflow or temperature fluctuations, which can compromise image definition. To mitigate these risks, Cugher has implemented a 'soft' air diffusion ventilation system designed to deliver uniform, non-invasive airflow. Characterised by large-diameter openings, this approach prevents ink displacement prior to stabilisation, maintains consistent thermal conditions across the glass surface and preserves the integrity of even complex graphics. The drying process is further refined through the integration of infrared radiation with hot air recirculation. This combination ensures efficient and controlled energy transfer while enabling the processing of substantial digital ink layers - up to 100 microns - without sacrificing stability or final adhesion.

## TECHNICAL FEATURES AND DESIGN

Cugher's dryers for digital applications incorporate a range of engineering solu-



tions focused on process stability, continuous operation and durability. Operating temperatures can reach up to 250°C, supported by a forced fume extraction system equipped with dedicated fans for each module. The modular architecture, based on two-metre sections for both heating and cooling zones, allows flexible configuration while maintaining efficiency. Ventilation systems have been specifically optimised for the sensitivity of digital inks, and the overall design supports seamless in-line integration for uninterrupted production flows. Enhancements derived from traditional IR dryer evolution include stainless steel hot module heads, which offer increased resistance to heat and solvents, alongside a polygonal structural design that improves efficiency and simplifies maintenance. Together, these elements

contribute to a stable process environment, reduced maintenance demands and extended equipment lifespan.

## IR-J RANGE: TAILORED SOLUTIONS FOR DIGITAL GLASS PRINTING

In response to the diversification of digital printing applications, Cugher has expanded its offering with the IR-J series, a comprehensive range of dryers designed to accommodate varying production requirements. The portfolio includes both belt-driven systems and roller conveyor configurations, providing flexibility across different operational setups. Models within the range -IR-J-100, IR-J-130, IR-J-160, IR-J-200, IR-J-230 and IR-J-250- enable coverage of a broad spectrum of

industrial applications while maintaining consistent performance standards.

## RELIABILITY AND CONTROL

As digital glass printing continues to advance, the demand for precise and reliable drying systems is intensifying. In this context, Cugher's infrared dryers represent a mature and dependable solution, combining technical innovation with proven application knowledge. Accurate control of process parameters, supported by design features tailored to the behaviour of digital inks, ensures high levels of quality, stability and repeatability. These capabilities position the technology as a key enabler for manufacturers addressing increasingly sophisticated production challenges.



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# Redefining American Glass lamination industry with TK's Italian expertise

Across the Americas, laminated glass manufacturing is advancing through scalable, energy efficient technologies and integrated support systems. With successful installations last year, TK plays a central role by delivering high-performance EVA, PVB and SGP laminating ovens, enabling low energy consumption, consistent quality, operational flexibility and continuous production - all whilst supporting evolving industrial demands with reliable solutions and long-term technological development.

## EXPANSION

TK, an Italian manufacturer of ovens for glass lamination, tempering, chemical tempering, and HST, has expanded its presence across North and South America over the past year. A series of installations highlights the company's ability to address the diverse requirements of modern glass fabricators, from high-volume architectural jumbo production to the precision demands of specialized laboratories. Its Made in Italy technology is increasingly recognized as a standard of excellence in overseas markets.





as the only full convection technology on the market. It incorporates fast curing and intelligent heating designed to deliver balanced heat distribution across each tray. An automatic fast cooling phase ensures transparency at the end of the cycle, a critical stage in the lamination process. Designed for high-volume laminated glass production and manu-

factured exclusively with European components, the TK Convection oven combines advanced technology with operational simplicity. It is suitable for multi-laminated and bulletproof glass, tempered laminated glass, structural applications, railings, balustrades and can process various types of interlayers.

### REPUTATION, RESULTS AND RELIABILITY

TK's sustained success is rooted in both its established reputation and the measurable outcomes achieved by its customers. Its ovens are known for a solid, scalable, all-metal design engineered for durability. Combined with precise heating control and high-performance thermal insulation, these systems significantly reduce energy consumption and operating costs. This combination represents a strategic advantage for businesses and a consistent benchmark of quality for clients.

### ONE AND ONLY FULL CONVECTION TECHNOLOGY

TK's expansion in the American market includes the installation of a TK Convection 250x600 kiln, equipped with six vacuum pumps, one for each tray, designed to support high production volumes and continuous workflow. The TK Convection system is presented



**TK LAMIJET OVENS. THE IDEAL CHOICE FOR SMALL AND MEDIUM PRODUCTION VOLUMES**

A global chemical company in the United States has installed a compact TK Lamijet 01 80x140 with radiant technology for testing within its R&D department. In parallel, three glass processors have adopted TK Lamijet 02 210x310, TK Lamijet Hybrid 02 210x360, and TK Lamijet Hybrid 04 210x360 systems to optimize large-scale lamination workflows. Expansion has also extended into South America, where a regional provider selected the TK Lamijet Hybrid 02 260x360 to enhance production capacity. The TK Lamijet Hybrid models integrate radiation and convection technologies within a single kiln, ensuring process stability and uniform



heat distribution across interlayers and custom inserts. Thermal precision is maintained through energy-efficient multizone control, which independently regulates power to achieve a consistent temperature profile. A forced cooling system further reduces cycle times while keeping the clarity and

structural integrity required for high-quality glass production.

**SCALABILITY AND 24/7 SUPPORT**

The TK Lamijet range is designed with modular scalability, enabling manufacturers to expand production capacity progressively by adding modules as demand grows. This approach safeguards the initial investment whilst maintaining operational efficiency. Support extends beyond equipment supply through TKare and TKconnect 4.0 technologies. The company provides on-site installation and training to ensure seamless integration into production workflows. In addition, TKconnect 4.0 enables continuous remote assistance via cloud-based connectivity, allowing real-time diagnostics and troubleshooting. This Industry 4.0 capability supports rapid intervention, often re-

solving issues before performance is affected.

**TK NEVER STOPS**

With several ovens currently being finalized for delivery, the company's expansion continues. Upcoming installations include a TK Convection 260x600 and a TK Lamijet 04 Hybrid Pro, representing advanced developments in glass processing technology. These projects reflect a continued focus upon large-scale convection systems and hybrid solutions, reinforcing the company's position in innovation and reliability across global markets.



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# Global footprint enables **TECNOCAT** to refine glass handling

At industry exhibitions worldwide, TECNOCAT engages directly with glass professionals to demonstrate field-proven solutions and gather operational insight. That continuous presence supports application-driven engineering, ensuring equipment is designed for real workflows - all to deliver durability, reliability and consistent performance in both factory environments and on-site installations.



In the flat glass sector, trade fairs remain one of the few environments where technology can be assessed in a truly practical way. Live demonstrations, direct technical dialogue, and real application scenarios allow glass processors, installers, and manufacturers to evaluate equipment beyond brochures and specifications. Observing machines in operation-and engaging directly with the engineering teams behind them-provides a level of clarity that static materials cannot match. For Tecnocat, international trade fairs are not

treated as isolated marketing opportunities but as part of a continuous, year-round engagement strategy. By maintaining an active presence across global events, the company uses these platforms to demonstrate solutions under real conditions, exchange technical knowledge with industry professionals, and gather operational feedback that informs ongoing product development.

## **A YEAR-ROUND INTERNATIONAL PRESENCE**

Across the global glass industry, requirements vary widely depending on market,



nuity. Handling solutions must integrate seamlessly into processes such as cutting, edging, insulating glass production, CNC operations, and tempering. The objective is stable lifting, precise positioning, reduced manual intervention, and sustained productivity over extended duty cycles. On-site conditions introduce a different set of variables. Space constraints, complex access, and environmental factors often dictate how glass is moved and installed. In these situations, manoeuvrability and precision become essential, alongside safe handling within real-world limitations. Operators require reliable control over every movement, as each action directly influences efficiency, risk, and instal-

application, and workflow. Installation constraints, production layouts, handling cycles, safety expectations, and even standard glass formats differ significantly by region and segment. A sustained presence at international trade fairs enables Tecnocat to remain closely connected to these variations, not only by showcasing equipment but by participating in the practical conversations that shape more effective engineering decisions. Trade fairs also provide direct access to decision-makers and operators who work with glass daily. This proximity is critical, as the most valuable insights often emerge from real-world conditions: limited space on-site, the need for precise positioning, repetitive handling demands in factories, and the operational consequences of unplanned downtime. In this context, product development becomes firmly grounded in actual workflows rather than theoretical assumptions.

### FROM FACTORY FLOORS TO ON-SITE INSTALLATION: WORKFLOWS DEFINE THE SOLUTION

A consistent reality across international markets is that glass handling is never uniform. The demands of

high-cycle production environments differ substantially from those of on-site installation, yet both depend on the same fundamentals: controlled movement, safe operation, and predictable performance. In factory settings, the priority is repeatability and conti-





familiar with both factory processes and on-site challenges. Rather than offering generic equipment, Tecnocat presents solutions refined through years of real-world use and adapted to the day-to-day requirements of glass processors and installers. Across its portfolio, the emphasis remains consistent: durability, operational reliability, and long-term performance. The equipment is designed to deliver predictable results over extended service lifecycles. Trade fairs also reinforce Tecnocat’s consultative, application-led approach. By discussing formats, loads, spatial constraints, and workflow objectives directly with customers, the company can recommend appropriate configurations and, where necessary, develop tailored solutions based on proven platforms. This combination of robust engineering and application-specific flexibility is supported by close technical guidance and long-term collaboration.

**RELIABILITY OVER THE LIFECYCLE: PERFORMANCE MEASURED IN YEARS**

For Tecnocat, reliability is not a claim but a principle demonstrated through long-term use. In glass handling, performance is evaluated over years, not only in terms of lifting ca-

lating quality. Decades of international trade fair participation and collaboration with industry professionals have reinforced a core principle at Tecnocat: every facility and project presents unique constraints. This accumulated knowledge is reflected in solutions engineered around real handling workflows rather than idealised conditions.

**FIELD-PROVEN SOLUTIONS, DEMONSTRATED WORLDWIDE**

A sustained presence at international trade fairs serves a clear function: en-

abling professionals to experience Tecnocat’s field-proven solutions first-hand. These events provide a practical setting to observe

equipment in operation, assess handling precision and safety logic, and engage with technical teams





capacity or cycle time, but through uptime, consistent safety, and dependable day-to-day operation in demanding environments. This long-term perspective is embedded across Tecnocat's solutions. For glass processors, reliable equipment supports stable throughput and operational planning by minimising unexpected interruptions. For installers, it ensures confidence in precision-critical tasks, particularly in less controlled environments. Over time, extended service life and consistent performance reduce replacement cycles and help maintain operational standards. The concept of equipment built to last becomes tangible in this context. A focus on durability and consistency contributes to overall cost efficiency, limits the impact of downtime, and supports reliable production and installation schedules over the long term.

**A PRACTICAL CONCLUSION: GLOBAL PRESENCE WITH A CLEAR PURPOSE**

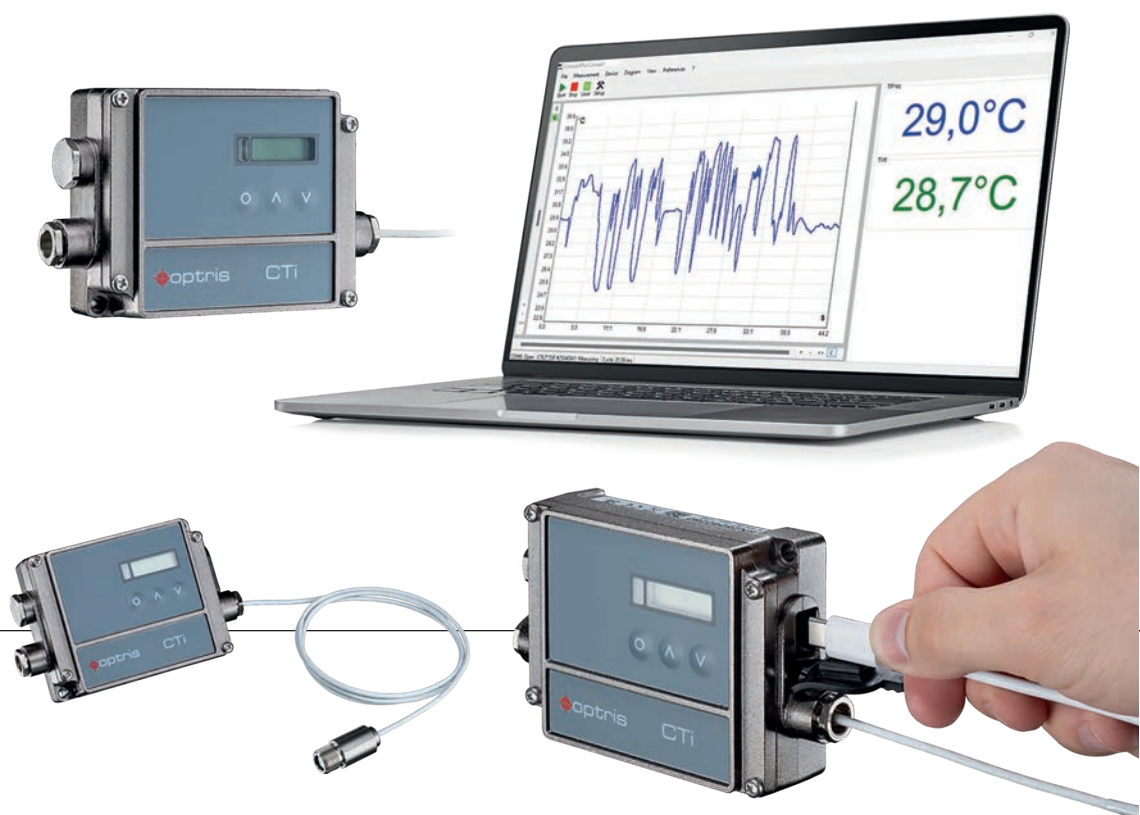
Tecnocat's continuous participation in international trade fairs is defined by practical intent: offering glass professionals direct access to solutions designed for real workflows, both in high-cycle production and complex installation scenarios. Through live demonstrations and application-focused dialogue, the company reinforces its defining attributes—durable engineering, operational confidence, and long-term reliability measured in years.

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# Expanding industrial sensing capabilities through **OPTRIS CTi** developments

New infrared sensor models from OPTRIS are expanding the CTi platform - delivering precise non-contact temperature measurement across demanding industrial environments. With optimized wavelengths, faster response times and improved connectivity, the range supports reliable monitoring of metals, high-speed processes and automation systems with enhanced flexibility and integration.

**B**erlin, Germany - Optris GmbH & Co. KG has expanded its CTi pyrometer portfolio with the introduction of the CTi 1M and CTi 2M models. Designed for demanding industrial environments, both infrared sensors deliver highly accurate, non-contact temperature measurement for metals and high-temperature applications, while maintaining the compact, modular CTi platform design. The CTi 1M operates at a short wavelength of 1.0  $\mu\text{m}$  and covers temperature ranges





from 350 °C up to 2200 °C, making it particularly suitable for steel, tungsten, iron and semiconductor processes. Its fast exposure time of 110 µs and response time of 320 µs enable reliable monitoring of rapid thermal processes, while an optical resolution of up to 75:1 ensures precise measurements even at longer distances. Complementing this model, the CTi 2M features a 1.6 µm spectral range optimized for lower metal temperatures between 150 °C and 2000 °C. The short-wavelength design minimizes measurement deviations caused by emissivity changes and reflections, providing stable readings in real production

environments. With a miniature sensing head and robust stainless-steel construction, the sensor integrates easily into confined machinery installations. Both CTi M models also feature a lower starting temperature than the previous CT series.

### **CTi LTFast: HIGH SPEED MEASUREMENT FOR DYNAMIC PROCESSES**

With the CTi LTFast, Optris introduces a solution tailored for extremely fast control and monitoring applications. Covering a temperature range from -50 °C to 1050 °C, the sensor delivers response times

down to 6 ms, enabling precise monitoring of rapidly changing thermal processes. Operating in the 8-14 µm spectral range, the LTFast model is suited to high-emissivity targets and lower temperature applications such as plastics processing, automation systems and fast production lines. Its rugged sensing head withstands ambient temperatures up to 125 °C without cooling, while flexible analogue and digital interfaces support seamless integration into modern automation environments.

### **FLEXIBLE PLATFORM WITH INDUSTRIAL CONNECTIVITY**

All new CTi models follow the established two-piece

design with separated electronics, an integrated display and easily accessible programming keys. Extensive interface options -including analog outputs, a built-in USB interface not available in the previous CT series, RS485, Ethernet-based protocols and industrial fieldbus systems- ensure straightforward system integration and long-term scalability. "With the new CTi 1M, CTi 2M and CTi LTFast models, we are significantly expanding the flexibility of our CTi platform," says Torsten Czech, Head of Marketing at Optris. "Customers benefit from optimized wavelength selection, extremely fast response times and a compact, robust design that enables reliable temperature measurement across a wide range of industrial applications."



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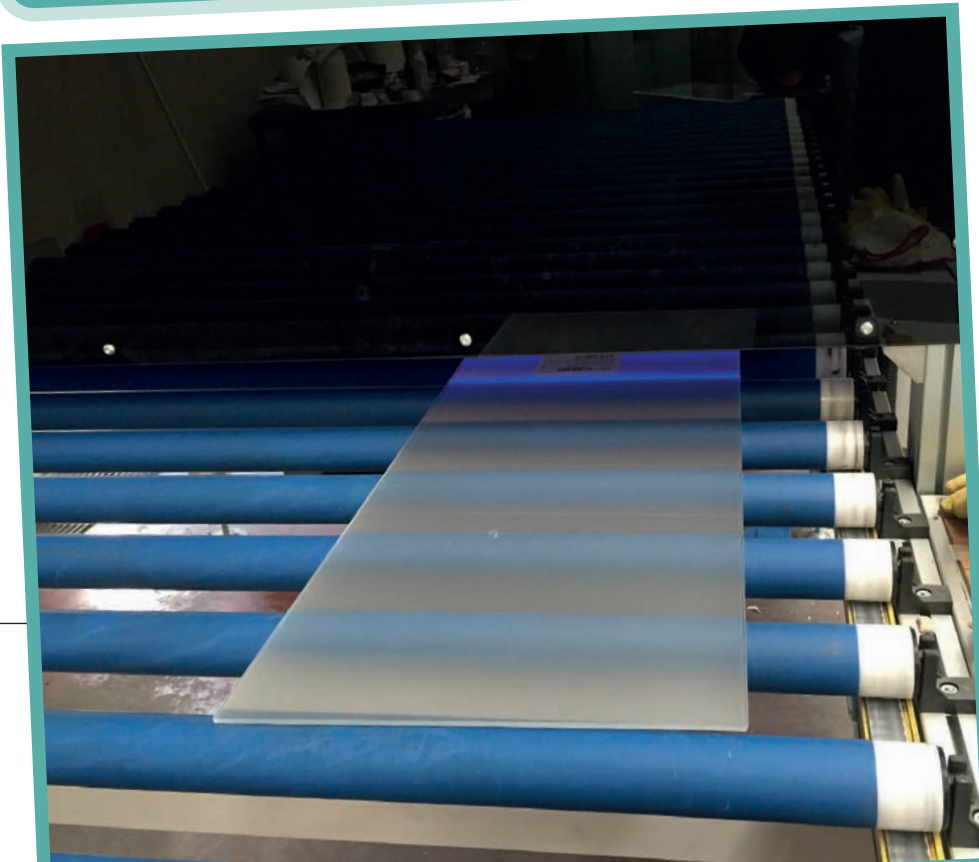
## **ABOUT OPTRIS GMBH & CO. KG**

Optris GmbH & Co. KG was founded in 2003 and has established itself as one of the leading manufacturers of non-contact temperature measurement devices. Its product portfolio consists of both wearable and stationary infrared thermometers and online infrared cameras for thermographic real-time analyses. Optris develops and produces in Germany to ensure the highest standard in quality as a key component of its company policy.



# Integrated quality management moves forward with **DELTAMAX EVO**

As production speeds rise and processing grows more complex, DELTAMAX EVO supports flat glass manufacturers with integrated, automated quality control. The system combines inspection, measurement, data tracking, image archiving and reporting - helping operators manage defects, verify processing and improve production reliability across horizontal and vertical lines.



## **E**VO: THE KEY TO QUALITY CONTROL IN FLAT GLASS

Production speeds are rising, and processing operations are becoming increasingly complex. In this environment, relying on the human eye alone for quality control is no longer sufficient. Across the flat glass industry, the need for more advanced support tools is becoming clear. Operators require systems that can deliver continuous, precise qual-



ity control whilst remaining fully integrated with the production process. EVO, Deltamax's most versatile solution, was developed for this purpose, combining different quality checks with a high level of automation and interaction with the production line.

### **WHAT DOES QUALITY CONTROL MEAN TODAY?**

Quality control now extends well beyond the identification of glass defects. It also includes the verification of dimensions, shapes, processing operations and screen printing. EVO

was designed around this broader understanding of inspection. It brings different types of control into a single system, adapting to production requirements and to the quality level required by each customer. At the same time, it reduces operational complexity, giving every operator access to an easy-to-use tool.

### **FROM INSPECTION TO PROCESS MANAGEMENT**

Quality control can now become an active part of production. Through integration with the line and with management systems, EVO not only de-

etects anomalies but also supports the automatic rejection of non-compliant pieces by interacting directly with the production line. The system also tracks production data in line with Industry 4.0 requirements, archives images and results to support process improvement and raw material selection, and generates reports and statistics that provide a solid basis for forecasts and production planning. In this way, quality control becomes a tool for analysing and optimising the production process. It is no longer limited to selecting compliant and non-compliant pieces. Instead, it acts as an attentive eye upon production, offering precise indications on individual items and broader insight into the entire process through customisable reports.



### IS IT POSSIBLE TO ADAPT TO COMPLEXITY?

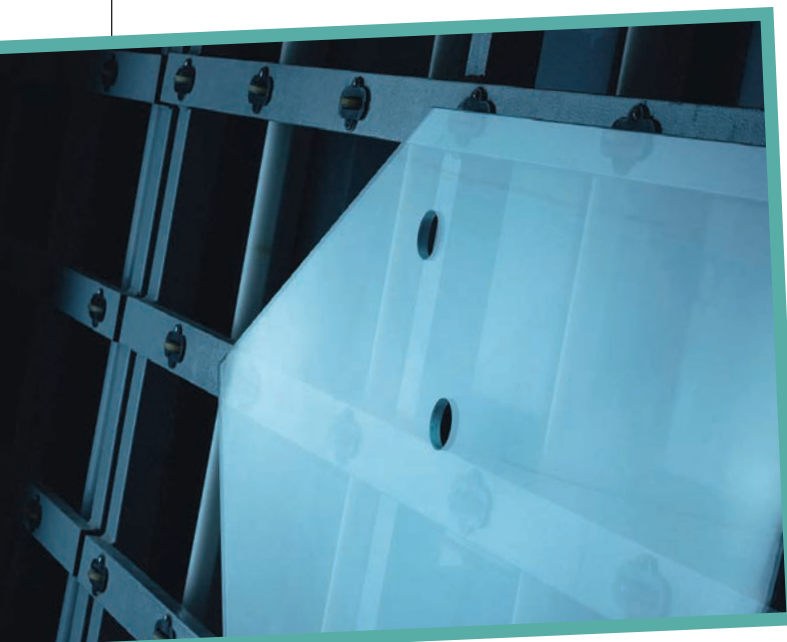
Glass sheets are being produced with increasingly intricate geometries. Screen

printing and processing operations are also becoming more complex, whilst precision requirements continue to rise. At the same time, application sectors are demanding higher quality standards that can help manufacturers strengthen their competitive position. This variability requires flexibility. EVO can be configured according to each customer's requirements at both hardware and software level. It allows different quality levels to be defined and integrates with any production line, whether horizontal or vertical.

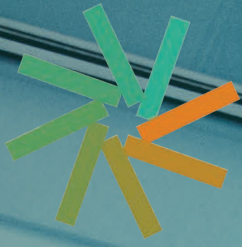
### TOWARDS A NEW APPROACH TO QUALITY CONTROL

The real evolution lies not only in technology,

but also in the approach to quality. Quality control is no longer a final stage in production; it is an integrated component of the process. This is where systems such as EVO play their role. By transforming inspection into added value, they improve effectiveness and efficiency whilst supporting reliability and continuity at the highest levels.



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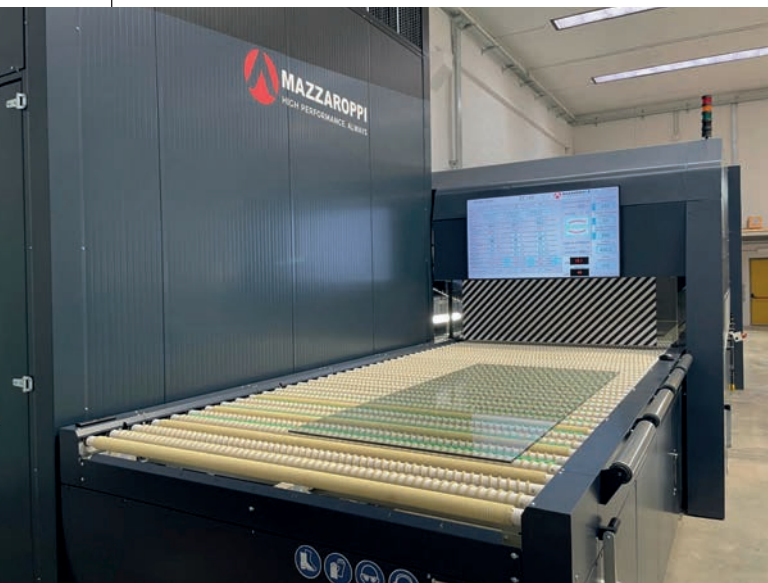
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# Energy volatility gives MAZZAROPPI furnaces a sharper edge



With energy prices fluctuating sharply, Italian furnace maker MAZZAROPPI argues that long-term tempering costs depend chiefly on consumption. Its patented M Efficiency 5.0 software and M Start&Stop technology target peak current, idle costs and predictable production economics for glassworks worldwide in periods of uncertainty today.

## **G**LASS TEMPERING IN TIMES OF ENERGY CRISIS: MAZZAROPPI'S SOLUTION

In recent years, energy prices have surged unexpectedly more than once, placing renewed pressure on glassworks and companies whose production costs depend

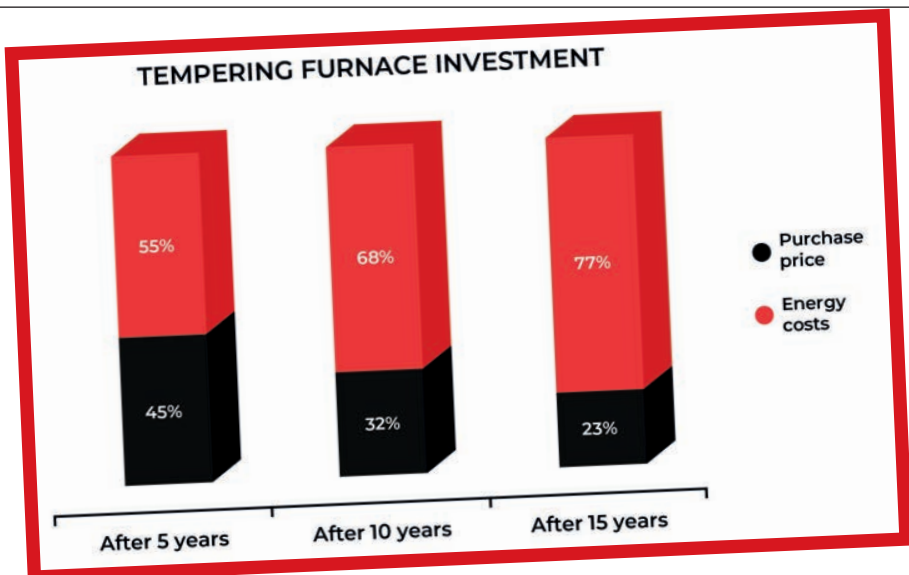
heavily on power consumption. For the Italian company Mazzaroppi, the answer lies in reducing the long-term energy burden of glass tempering.

### **THE REAL COST OF TEMPERING**

The main cost involved in tempering glass is not the initial investment in the furnace.

That outlay can be recovered relatively quickly through the increased productivity the equipment enables. The greater challenge is the energy bill. Many glassworks have faced exorbitant energy costs in recent years as a result of market fluctuations. If rising prices continue, these costs

risk constraining growth and affecting business continuity. Federico Mazzaroppi, the company's marketing manager, explains that while the cost of a furnace is written off over time, energy costs continue to accumulate. Five years after the initial investment, energy accounts for 55 percent of total expenditure;



after 15 years, that share rises to 77 percent. Those figures refer to a medium-sized furnace operating on a single shift. For furnaces running two shifts, or in the event of further energy price increases, the percentage would be even higher.

**EFFICIENCY BY DESIGN**

Saving on the purchase price of a furnace can therefore become a double-edged sword. Energy remains the largest factor in an investment of this kind, regardless of the machinery chosen, making efficiency essential to controlling long-term expenditure. Mazzaroppi, active in the glass temper-

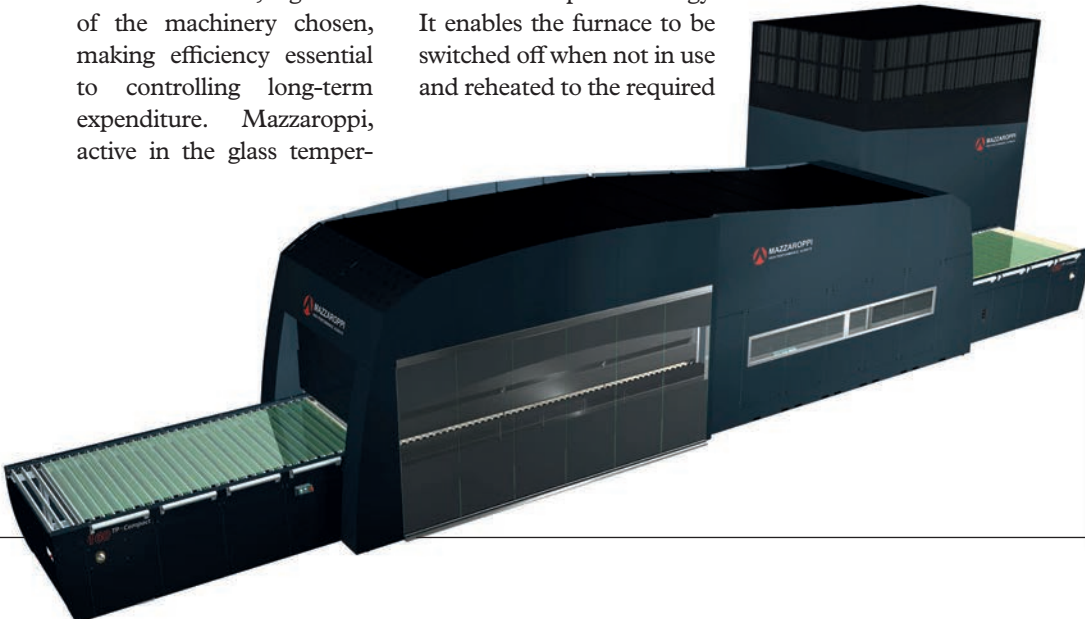
ing sector since 1958 and renowned worldwide, has focused over time on making its furnaces easier to use and increasingly energy-efficient. This approach has been supported by specific patented technical solutions, including M Efficiency 5.0 software, which limits peak current and average consumption. The system is designed to maximise energy efficiency throughout every stage of the tempering cycle, ensuring smarter and more uniform heating of glass sheets. Another example is M Start&Stop technology. It enables the furnace to be switched off when not in use and reheated to the required

temperature within half an hour for the next shift, reducing idle costs.

**PREDICTABILITY IN UNCERTAIN MARKETS**

For Mazzaroppi, the only way to reduce tempering costs over the long term is to keep energy consumption down. Its furnaces are said to deliver energy savings of up to 70 percent compared with competitors' systems, generating consistent financial savings day after day and

year after year. According to Federico Mazzaroppi, a Mazzaroppi furnace is designed to safeguard the operations of glassworks and companies of all sizes by ensuring autonomy and high-level performance. In today's market, that safeguard also depends on efficient energy use. With energy prices fluctuating, limiting their economic impact at company level is essential to avoiding production stoppages or repeated price increases that could lead to the loss of customers. Mazzaroppi positions its technology as a route to lower, more predictable fixed costs, supporting business continuity for glass tempering operations during periods of energy uncertainty.



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# Insulating glass capacity expands with **BEST MAKINA** systems

With back-to-back deliveries, Safeguard Glazing Supplies has expanded its insulated glass manufacturing capacity through new machinery investments from BEST MAKINA. The additions support heritage and large-format production, improve flexibility, enable high argon gas filling performance, and establish a strong platform for future growth.



## **E**XPANSION

Safeguard Glazing Supplies Limited, the UK-based insulated glass manufacturer, has expanded its production capabilities through multiple investments in automated insulating glass machinery from Best Makina, with two IGU lines delivered in close succession. Specialising in high-specification sealed units, Safeguard produces a broad range of products, from fully certified heritage units for restoration projects to large commercial insulated glass units measuring up to 2500 x 3200 mm. Its portfolio includes low-E, solar-control, laminated and acoustic glass, alongside specialist restoration solutions such as SCHOTT Goethe Glass and Restover.

## BROADENING CAPABILITY

In its search for a machinery supplier capable of serving both ends of this production spectrum, Safeguard turned to Best Makina. Following a visit to the company's facility in Türkiye, Safeguard's management team, Nick Welsh and Simon Welsh, selected Best Makina as its equipment partner. According to Safeguard, the decision was shaped not only by the quality of the machines, but also by Best Makina's fully in-house manufacturing capability, its technical support and fast spare-parts delivery, as well as its professionalism and hospitality. The ability to adapt machinery layouts to Safeguard's limited space constraints was also an important factor during the planning process. The first installation took place in September 2025 with the Heritage Line [BWPG-S], developed for the produc-



tion of small and specialised insulated glass units. The line is capable of processing units from 150 x 250 mm up to 2000 x 2500 mm, and includes a high-precision spacer bar assembly unit together with a press unit featuring automatic argon gas filling.

## SCALING PRODUCTION

A second major investment followed in February 2026 with an Automatic Washing and Combining

Line [BWPG], integrated with Safeguard's previously purchased Automatic Two-Component Extruder [BLSS]. This line provides fully automatic production capability for multiple-pane insulated glass units up to 2500 x 4000 mm, achieves argon gas filling levels above 90 percent, and increases production flexibility, enabling a wider range of insulating glass units to be manufactured. Both investments were followed by comprehensive installation and training covering line operation and use of the control panel. To complete the production setup, Safeguard also invested in two Butyl Extruders, which offer automatic width adjustment, high application accuracy and user-friendly controls.

## PARTNERSHIP

Reflecting on the collaboration, Safeguard describes its experience with Best Makina as 'highly positive'

and says the investments have created a strong foundation for future growth. Best Makina, for its part, says it takes pride in achieving a high level of customer satisfaction in the UK market through a solution-oriented approach focused on customer needs and existing production bottlenecks.

**bestmakina**

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# SYSTRON engineering powers next-generation efficiency for LSG processing

Laminated safety glass (LSG) consists of two or more glass panes permanently bonded by a tear-resistant, elastic interlayer, typically made of PVB. It is used wherever safety and structural sta-

bility are critical, including architecture, automotive applications, and public infrastructure. Processing laminated glass demands maximum precision, clean edges, and highly reliable systems. The systron lines

pro, proHD, and proMD provide intelligent, automated solutions for flat glass processing, particularly for coated glass and laminated safety glass. Developed to meet evolving industry requirements,

these systems -working closely with LSG applications- rely on patented water cushion technology to ensure stable processes, high efficiency and consistent quality.

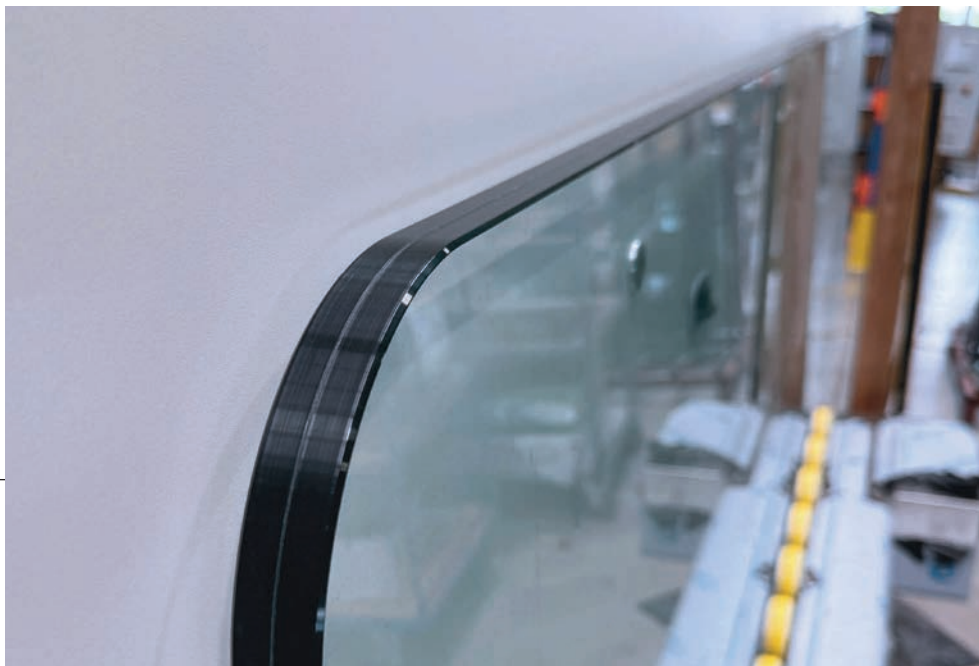
**Fig 1: Laminated Safety Glass Processing (LSG 24.4) with systron technology**



Advanced processing technologies from SYSTRON are reshaping laminated safety glass production by combining precision, automation and efficiency. Supporting LSG applications with patented water cushion systems and integrated waterjet cutting, these solutions deliver cleaner edges, reduced waste and consistent quality across complex architectural, automotive and infrastructure projects.

### **PATENTED WATER CUSHION - NO MECHANICAL GLASS CONTACT**

systron's water cushion system operates entirely without mechanical clamping. Instead, the tool is surrounded by a uniform film of water, making it ideal for sensitive glass types such as coated or laminated glass. A key advantage is that the tool remains fully accessible, allowing film residues, grinding dust, and glass particles to fall directly onto the machine base. From there, they are pumped into the water treatment system and reliably removed. Unlike partially or fully enclosed systems, where contaminants can accumulate and disrupt operations, systron's open design provides great



er process freedom and stability in results.

### **OPTIMISED MATERIAL REMOVAL - ESPECIALLY FOR THICK OR UNEVEN GLASS**

Another significant advantage is the high material removal achieved in a single pass. This is particularly beneficial when processing thick float or laminated glass, compared to machines

that require multiple grinding cycles with minimal removal rates. The outcome is reduced processing time, lower energy consumption and decreased tool wear.

### WATERJET CUTTING: PERFECT RESULT FOR COMPLEX SHAPES

The systron proHD and proMDH lines incorporate automated waterjet cutting technology, developed specifically for the precise machining of complex shapes in laminated glass.

Processes that once re-

quired time-consuming manual cutting are now fully automated. Due to the cold-cutting nature of the waterjet, no thermal or mechanical stress is applied to the glass layers or the PVB inter-layer. The resulting cuts are exceptionally fine and clean, eliminating the need for reworking. Even intricate geometries and highly contoured shapes can be produced with excellent edge quality and maximum repeatability.

The advantages of Waterjet Cutting at a glance:

Waterjet cutting enables precise contour cuts regardless of complexity or geometry, eliminates the risk of breakage caused by thermal stress, minimises waste while optimising material usage, delivers clean cut edges and offers high flexibility, making it particularly suitable for custom architectural projects.

### IN SUM

Laminated glass processing with systron means maxi-

mum quality and ultimate flexibility – from automated production lines and efficient material removal to precise waterjet cutting for complex shapes.



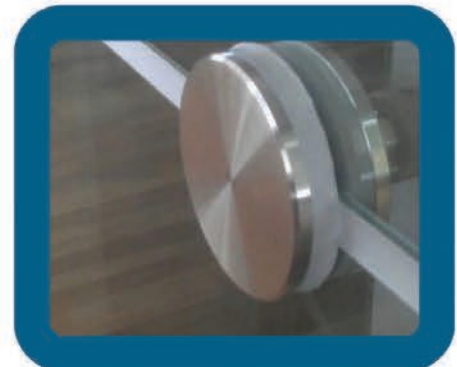
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# Paris landmark balances heritage, daylight and **EDGETECH** precision



© Eiffage Métal

## **H**AUSSMANNIAN ARCHITECTURE SHAPES THE FACE OF PARIS

The modernisation of the historic *Chambre des Notaires* in central Paris has reinterpreted a landmark embedded in the Haussmannian cityscape since the 19th century. To introduce greater openness, light and spatial depth, a crescent-shaped glass façade was created in the inner courtyard, making the dialogue between past and present visible. Eiffage Métal delivered the demanding façade construction, while Doering Berlin manufactured the curved insulating glass units. Supporting the project was the flexible Super Spacer® Tri-Seal™ Premium Plus spacer, which helps ensure the functional reliability of the edge seal across all storeys and contributes to the long-term durability of the new façade. Paris still bears the imprint

of the vast urban transformation launched in 1853 under Prefect Georges Eugène Haussmann. Thousands of old buildings were demolished and replaced, while broad boulevards, a modern sewer system and extensive green spaces reshaped the medieval city. The result remains unmistakable: typically six-storey buildings with uniform façades of light ochre limestone, wrought-iron balconies and pitched mansard roofs continue to define the capital's architectural identity. At 12 Avenue Victoria, the seat of the Paris Chamber of Notaries, also known as the *Hôtel du Châtelet*, is one of those enduring Haussmannian icons. Inaugurated in 1855, the building no longer met contemporary functional and technical requirements, prompting the Chamber to launch an architectural competition in 2019. The brief called for a design that would open the build-

In Paris, the modernisation of the historic *Chambre des Notaires* uses curved insulating glass and a seven-storey courtyard curtain wall to bring together light, transparency and technical performance. Supported by EDGETECH's Super Spacer®, the façade combines precise geometry, energy efficiency, durability and edge-seal reliability.

ing up, integrate contemporary digital working methods with the historic fabric, and refresh the image of a profession often perceived as closed. As Pierre Tarrade, President of the Chamber of Notaries, put it, the *Hôtel du Châtelet* embodies a subtle balance between heritage and modernity, much like the notarial profession itself. The winning consortium, Atelier Senzu + Lagneau Architectes, preserved the building's architectural heritage while bringing in a stronger sense of transparency. Elements that had obstructed light and depth for decades were removed, reopening the ground floor and making it feel accessible again. At the centre of the redesign is a semicircular glazed courtyard façade that follows the geometry of the existing structure and rises from the ground floor to the sixth storey. It draws daylight deep into the interior and marks the transition from the historic fabric to the modern working areas at the rear.

### 77 CURVED INSULATING GLASS UNITS FORM A 305 M<sup>2</sup> CURTAIN WALL

Wandrille Marchais, one of the founding partners of

Senzu, summed up the façade's technical character succinctly: the curved panes are self-supporting, eliminating the need for mullions and heavy structures while giving the open space and work areas a clear structure and direct access to intense daylight. The curved insulating glass units are supported at each floor by coated, welded T-section steel transoms whose bending radius precisely matches that of the glazing. A curtain wall system based on RAICO THERM+ 56 is mounted on these transoms. The glazing rests on an EPDM profile that also drains condensate and is secured by a pressure plate with an outer cover cap. Silicone setting blocks compensate locally for tolerances created by the curved panes, and a final silicone joint

completes the sealing. Butt joints between the panes are executed with a type B gasket profile. Integrated screw channels within the supporting structure allowed the bespoke aluminium cover caps to be screwed directly into place without welding on the façade. The 77 insulating glass units, each 35.52 millimetres thick, were designed as cylindrically curved, concave panes with fully finely ground edges. The outer pane comprises laminated glass made from 6-millimetre float glass and 6-millimetre SG COOL-LITE® SKN 176 II, bonded by a 1.52-millimetre PVB interlayer, a 16-millimetre Super Spacer® TriSeal™ Premium Plus spacer, and 6-millimetre float glass on the inside. A continuous stepped edge,

12.5 millimetres high, runs around the perimeter. Each unit has an arc length of 1,305 millimetres, an inner radius of 1,000 millimetres and a height of approximately 1,287 millimetres. The glazing is fixed at the head and base, while the vertical edges remain free. Load transfer is distributed evenly through three setting blocks per unit. Because the façade also had to provide protection against falls, it was statically designed in accordance with balustrade requirements. A soft-body impact test using a 50 kg impactor confirmed the construction's resistance.

### TIGHT TOLERANCES DEMAND PRECISION IN FABRICATION AND INSTALLATION

The semicircular geometry of the seven-storey courtyard façade created strong interdependence among all components. Permissible tolerance deviations for the curved insulating glass units were up to five millimetres for the radius and up to seven millimetres for the height. Even very small deviations in the glass units or in the elevation of the steel transoms would have accumulated over the full height of the façade. As Benjamin Jourda-





© Jared Chulski

ne, Director of Operations Deputy at DO Bâtiment / Eiffage Métal, noted, a deviation of just one millimetre per floor would already have produced a noticeable offset over seven storeys, potentially causing fit issues, uneven clamping forces and varying silicone joint widths. Structural requirements increased that sensitivity further. The curved panes provide fall protection and are supported only at the head and base, which makes them particularly sensitive to deformations in the supporting structure. Glass can absorb

very little structural movement, so thermal length changes in the steel transoms or minimal settlements are transmitted directly into the panes and can create local stress peaks. According to Carsten Kunert, site manager at Doering Berlin GmbH, a flexible spacer such as Super Spacer® helps reliably accommodate the permitted tolerances in radius and height. Its ability to adapt to the individual glass geometry compensates for local deviations at the edge, avoids additional stress peaks and helps secure the functional reli-

## ABOUT EDGETECH EUROPE GMBH

Located in Heinsberg, Germany, Edgetech Europe GmbH 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. The company services markets in continental Europe with a total of 490 employees and 17 extruders. Considering itself 'A Part of Something Bigger', the company works to improve the performance and aesthetics of end products through continuous innovation - helping customers achieve greater production efficiencies, and giving back to communities where we operate.

ability of the edge seal over the full height of the façade. Installation posed equally exacting demands. Mounting the curved panes within a radial geometry required a tightly coordinated sequence across all storeys. Every transom and every pane was a unique element that could be installed only in a defined order and at a defined elevation. Small deviations in the position or angle of one transom directly affected the fit of the next unit. Errors in sequence, elevation or alignment could have led to clashes, inconsistent joint widths or insufficient clamping. The

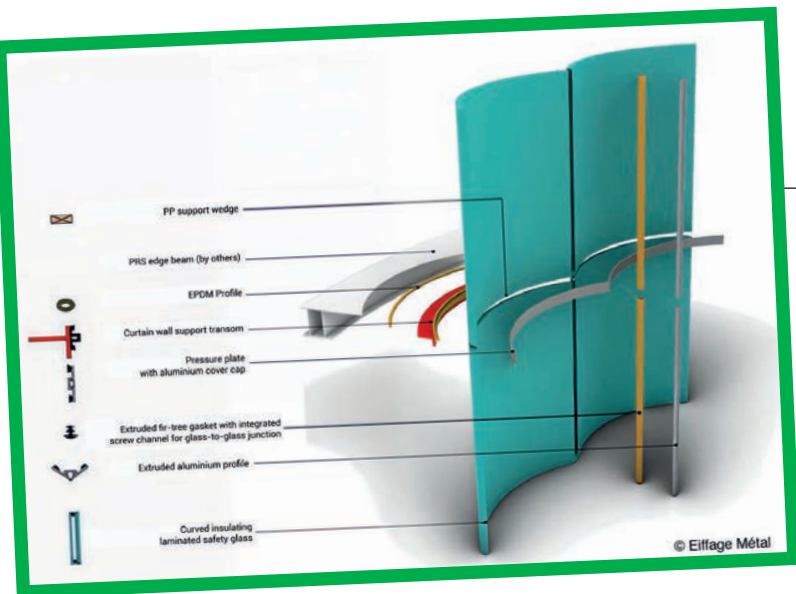
process therefore depended on highly precise, continuously monitored assembly, with each level determining the dimensional accuracy of the next.

### **FLEXIBILITY OF SUPER SPACER® AS A GUARANTEE FOR ENERGY EFFICIENCY AND DURABILITY**

With a thermal transmittance of  $1.0 \text{ W/m}^2\text{K}$ , the façade provides effective thermal insulation in winter. In summer, the solar-control coating limits overheating with a maximum total solar energy transmittance



© Eiffage Métal



of 38 percent, while light transmission of at least 45 percent ensures sufficient daylight with minimal glare. The Super Spacer® system from Edgetech/Quanex also contributes to the façade's energy performance. Kunert said his company uses Super Spacer® spacers exclusively in the manufacture of curved glazing for several reasons, including the ability of the foam-based, metal-free system to reduce thermal bridges at the glass edge as customers increasingly specify glazing with demanding energy-performance values. Curved insulating glass units place particularly high demands on the edge seal. Their increased bending stiffness makes them more sensitive to climatic pressure fluctuations and temperature-related length changes, with the resulting pumping

movements acting directly on the sealant layer. The silicone-based structural foam spacer Super Spacer® TriSeal™ Premium Plus combines low thermal conductivity with high elasticity and reliable shape memory. It compensates for shear stresses caused by one-sided heating and climate-related volume changes, relieves the PIB primary seal, and distributes forces across the bonding surfaces and the lateral acrylic adhesive layer. In climatic zones with extreme or strongly fluctuating temperatures, this supports the long-term stability and functional reliability of the insulating glass units while reducing gas diffusion and condensation in the cavity. Mike Moran, Vice President Sales at Edgetech/Quanex, argued that in large-format, curved façade glazing, flexible spacer systems are struc-



## ABOUT QUANEX

Quanex is a global manufacturer with core competences and a wide range of applications in various end markets. The company works with leading OEMs to provide innovative solutions in the areas of windows, doors, plastic fencing, solar panels, refrigerators and cabinets. In the future, Quanex plans to leverage its material science and process engineering expertise to expand into adjacent markets.

turally the only way to accommodate movement in a controlled manner.

He added that Super Spacer® TriSeal Premium is particularly well suited to manual application, which remains standard for curved insulating glass units, because the polyisobutylene primary seal is already factory-applied.

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# Vacuum glass growth sees AGC scale Fineo manufacturing



**Q**UADRUPLED  
PRODUCTION  
CAPACITY,  
WITH LEAD TIMES  
HALVED

AGC Glass Europe has launched its new production line for Fineo by AGC vacuum insulating glass at its Lodelinsart site, delivering on an announcement

made last year. The expansion quadruples production capacity and cuts lead times by half, bringing them down to two weeks. With  $U_g$  values of up to  $0.44 \text{ W/m}^2\text{K}$ , AGC is positioning Fineo for the wider European building market. The new Lodelinsart facility is described as one of the world's most advanced,

highly automated manufacturing sites for vacuum insulating glass.

"The facility is a prime example of a new generation of industrial glass production. We started in 2019 with a pilot line, essentially Generation 1.0, are now at Fineo 3.0, and already have Fineo 5.0 in the pipeline for the fu-

ture," says Stefan Lips, Sales Director Europe for Fineo. "We are still at the beginning of a revolution, but are very excited to see this innovation take place in the world of glazing."

The industrial expansion is intended to support more competitive pricing and a broader product portfolio,

At Lodelinsart, AGC has launched a new production line for Fineo vacuum insulating glass, quadrupling capacity and halving lead times to just two weeks. The expansion supports broader availability Europewide, as well as improved pricing, a wider product portfolio and certified low-carbon performance for renovation and new construction.

including additional solar coatings and new variants for applications ranging from restoration to new construction. Available glass formats extend from 0.01 square metres to 1,600 x 3,000 millimetres. A key technological advance in the new line is vacuum evacuation at lower temperatures. This has reduced the production cycle from 20 to 15 hours, with a target of reaching 10 hours. As a result, production capability is expected to increase further.

### **'LESS IS MORE' AS DESIGN AND MANUFACTURING PRINCIPLE**

Fineo is an insulating glass product with a 0.1-millimetre vacuum layer between two glass panes. Unlike other vacuum glazing products, it has no evacuation opening, reducing visual disruption. During the vacuum process, the glass edge is hermetically fused to maintain high insulation values without maintenance, while preserving daylight transmission and the slender appearance

of façades.

“This vacuum glass offers thermal insulation comparable to that of triple glazing. However, it is much thinner, a quarter of the thickness of triple glazing, and lighter, at around half the weight. Fineo also enables a significant reduction in the thickness of new frames and windows, thereby drastically reducing the quantities of raw materials required. These properties lower CO<sub>2</sub> emis-

sions, both during production and in operation,” says Jérôme Goubau, Fineo General Manager.

The manufacturing process reverses the logic of conventional insulating glass. In a cleanroom, a large plate known as the motherboard, measuring 1,605 x 2,500 millimetres, is divided into the required pane sections, fully evacuated and sealed. Because no valve is integrated into the glass, the full sur-

face remains available. The glass is cut only after this process. Fineo also differs in its material composition. While conventional insulating glass consists of glass, aluminium, butyl and polysulphide, Fineo is made entirely from ceramic materials. It is 100 percent recyclable and circular, with all components able to return to the glass furnace. “I won’t live to see the end of the service life of the panes we produce today. If Louis



XIV had had Fineo available for Versailles, the glass would still have its original insulation value today,” says Jean-Charles Dumont, Operations Manager.

### **FINEO: THE PREMIUM RESPONSE TO A GROWING MARKET**

Europe’s building stock faces growing climate, economic and comfort-related pressures to renovate glazed surfaces. Many buildings remain poorly insulated, yet retrofitting them with thicker insulating glass can be difficult. Conventional

multi-pane insulating glass often reaches its limits because profiles are too slim, while load-bearing capacity and weight create further constraints. Fineo vacuum glass offers the thermal performance of triple glazing at significantly reduced thickness and weight, making it suited to these renovation challenges.

“Thanks to its slim edge seal and versatility of form, Fineo is the ideal solution for glass replacement in the restoration and renovation of historic windows. Beyond that,



the advanced vacuum glazing technology opens a clear market opportunity in new construction,” says Stefan Lips, Sales Director Europe for Fineo by AGC. On the strength of its proven benefits, vacuum insulating glass is continuing to gain market share from conventional insulating glazing solutions.

### **CERTIFIED GREEN VIG MANUFACTURER**

As energy labels become stricter, circularity and durability are moving closer to the centre of tenders and planning decisions. AGC has positioned Fineo as ‘a truly green’ option among glass insulation solutions. Fineo is indeed singular as a vacuum insulating glass produced in Europe. Its production benefits from an in-house coating facility at Lodelinsart, enabling products such as Fineo Solar Control solar protection glass, Fineo Acoustic sound insulation glass and fire-rated variants in combination with Pyrobel fire

protection glass. These combinations make thinner fire protection solutions possible. The nearby float glass production facility in Moustier further supports the product’s environmental profile. AGC manufactures the float glass, coats it on site and processes it into Fineo vacuum glass without lengthy transport. The company is also working to reduce the product’s environmental footprint through increased use of cullet as a recycled raw material, production electrification and a growing share of renewable energy. Fineo’s sustainability positioning is supported by recently obtained certifications. It is the first vacuum insulating glass product to receive an Environmental Product Declaration verified by an external third party, INIES, achieving 18.9 kg CO<sub>2</sub> equivalent per square metre in its low-carbon variant. Fineo has also obtained an EPD from the Nationale Milieu Database, which is highly demanded by

## **ABOUT AGC GLASS EUROPE**

AGC Glass Europe is a manufacturer, processor and distributor of flat glass for use in the construction industry (exterior glazing and interior decoration), the automotive industry (original equipment manufacturing and replacement glass) and other industries, including transportation, solar energy and high technology. It is part of AGC’s European branch, which is a leading global manufacturer of flat glass, with over 100 locations and around 13,000 employees across Europe.

## ABOUT FINEO

Fineo by AGC is a latest generation of insulating glass, combining an ultra-slim design with exceptional thermal and acoustic insulation properties. Manufactured in Belgium using a revolutionary process, Fineo guarantees maximum energy efficiency and sustainability, in line with current building regulations. It does not compromise on aesthetics or performance. Fineo is a reliable and proven solution for professionals seeking the highest standards of technical excellence and environmental responsibility - whether for restoration, renovation, or new construction projects.

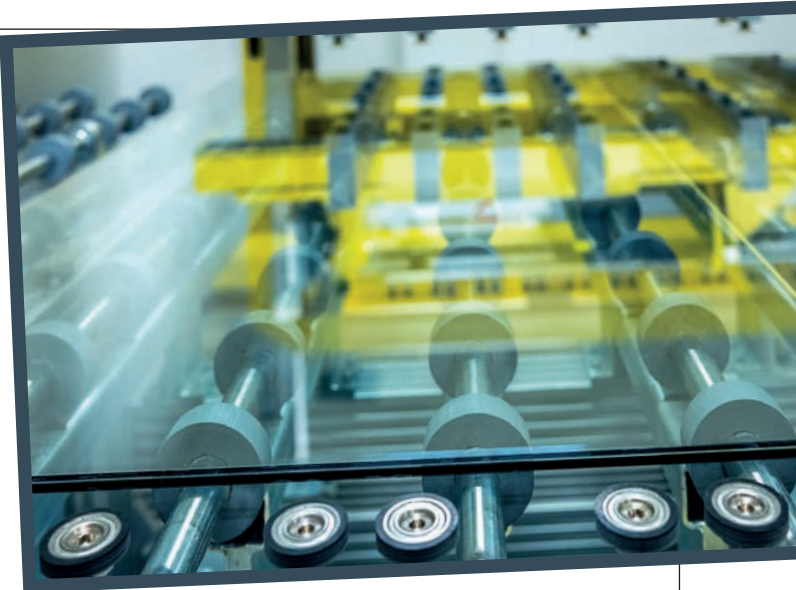
the construction industry in the Netherlands.

### OVER 60-YEAR TESTING CONFIRMS THERMAL AND ACOUSTIC PERFORMANCE

Fineo was the world's first VIG manufacturer to ob-

tain CE marking, ETA 20/0048, and holds relevant local approvals including aBG from the DIBt in Germany, Avis Technique from CSTB in France, BCRG in the Netherlands and ATG in Belgium.

"No other supplier can say the same. But one thing

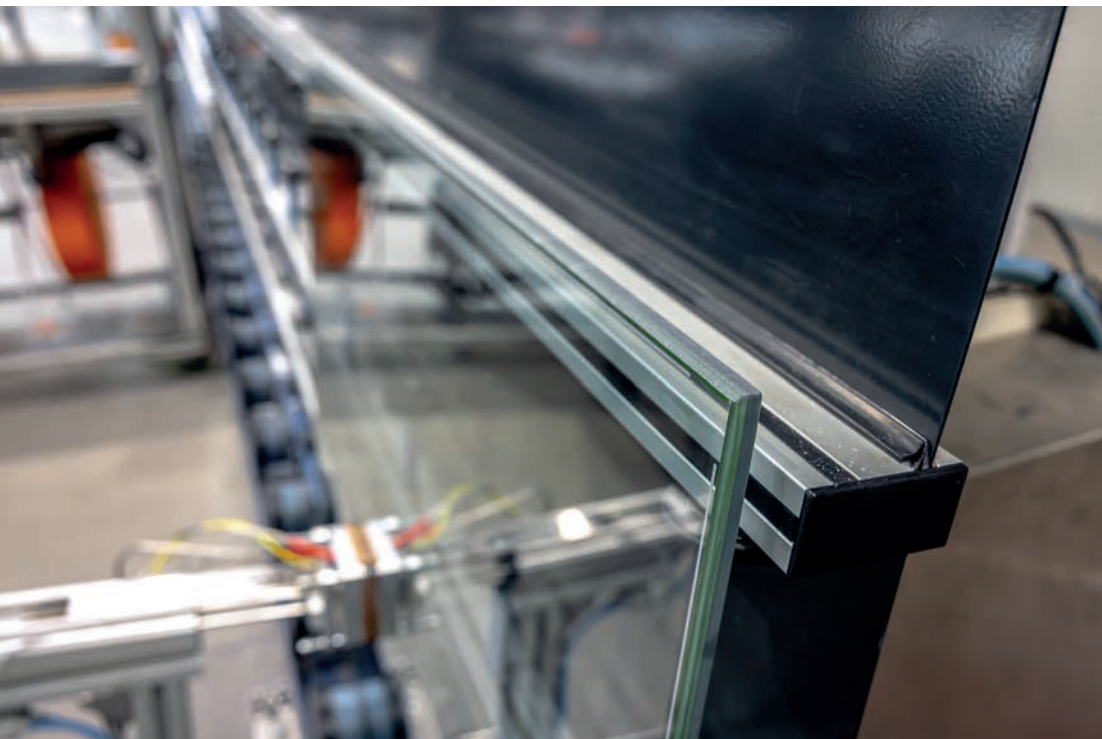


must be kept in mind: a certificate is not a test report. What counts is whether a product can be delivered consistently and at scale. Fineo can," says Clément Lemoine, Head of Product & Marketing. For specifiers and architects, this certification base supports planning certain-

ty, simplified compliance documentation and faster approval processes. With the new line, Fineo is now available to all customers, with no minimum quantities or exclusivity barriers. The range includes free shapes and is compatible with common frame types. Beyond manufacturing, Fineo is positioning itself as a knowledge and service platform for the value chain, from installers and distributors to architects and building owners. Digital tools such as the Fineo Configurator already support planning and specification. "This is not a promise for the future. It is already reality. AGC is not talking about an expansion. AGC makes it real," says Lips.

**FINEO**  
by AGC

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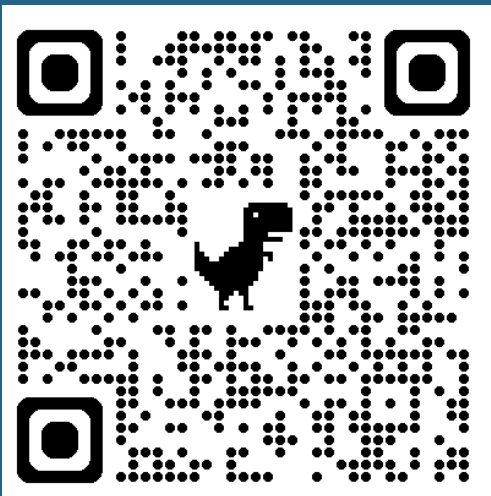


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# KRITIS Umbrella Act for the Protection of Critical Infrastructure

With developing needs to create spaces protected by glass foregrounding key glasstec 2026 themes of toughened glass requirements on physical security, climate resilience and cyber security are rising, Marc Everling of Nachhaltige Kommunikation highlights rising security needs - stressing how the KRITIS regulation, extreme weather and cyber risks are all boosting demand for resilient glazing.

Europe has to become more independent, resilient and secure - this could be the credo of a current press review. The need for security is rising noticeably and now KRITIS, the new umbrella act to improve the physical security of critical infrastructure, was adopted on 29 January. The Act requires uniform minimum standards, risk analyses and attack monitoring. Many of the rules relate to the physi-



cal resilience of installations and buildings, which also impacts the glass industry and is expected to further fuel the rising demand for toughened glazing. glasstec asked ift Rosenheim and Kuraray as a producer of high-performance interlayers for toughened glass structures about the trends in requirements for toughened glass. In view of growing threats posed by geopolitical tensions, cyber-attacks and natural disasters the reliable protection of critical infrastructures seems as important as ever. These infrastructures include facilities, systems and organisations highly critical to maintaining the fabric of society and whose failure would substantially impact everyday life such as energy supply, information technology and telecommunications, transport and traffic, health, water, food, waste disposal, finance and insurance, state and administration, media and culture. Germany's federal Länder decides which facilities in Germany are governed by the KRITIS Umbrella Act



on the basis of quantitative and qualitative criteria. If a facility is critical for serving a total of 500,000 people, for example, it is rated as critical infrastructure. Mutual dependencies also have to be considered - energy, water and operational transport routes, for instance, are also instrumental to all other critical sectors.

### **VANDALISM AND PHYSICAL ATTACKS**

According to estimates by ift Rosenheim, vandalism - though increasingly also sabotage - poses a high risk to public buildings, transport infrastructure or administrative buildings. In acts of vandalism perpetrator behaviour is completely different than seen in acts of burglary, as Dipl.-Ing. Jürgen Benitz-Wildenburg, Head of PR and Technical Communication at ift Rosenheim, explains: "Here, perpetrators act openly, mostly on impulse, using improvised tools ranging from paving stones and street signs to manhole

covers as their ramming implements. This means endangered building elements and glazing have to resist direct violent attacks as well as concealed manipulation by burglars. Burglar-resistant components are therefore only suitable to a limited extent." This is why ift Rosenheim has elaborated the ift Guideline EI-06/1 "Vandalism-mushemmende Bauelemente und Einrichtungen" (Vandalism-Resistant Building Elements and Facilities) with a circle of experts; this guideline defines the typical procedure, tools, reproducible sequences of events as well as possible classifications. These are determined by deploying an array of implements to manually test a functioning installed element (with fixtures, frame, door leaf, lock, glazing etc.) to gauge its resistance to vandalism - where resistance time also counts. Also important is the added "LS (Liquid Safe)" protection requirement, where the test team attempts to create an opening in the test speci-

men, which is large enough to insert a bottle (Molotov cocktail). The aim is to protect buildings and people better against deliberate destruction and violence in public areas as well as highly frequented and vulnerable locations. The market is also displaying a trend towards higher protection classes, as Jochen Regenauer, Head of Strategic Projects & Business Development EMEA at Kuraray Europe, observes: "Security is an area experiencing global growth and one witnessing a massive increase over the last few years. In Germany, for public spaces originally subject to medium requirements, protection class P4A for glazing is already the rule today. Often in demand here are glass structures with increased resistance to projectiles, break-in/forced entry, baseball clubs and massive use of force. In the US Kuraray is already operating on the market with a tested solution involving SentryGlas, thereby complying with the ASTM F1233

standard. Beyond this, bullet-proof glazing complying with protection classes BR4-NS to BR6-NS is also increasingly in demand - for public buildings such as train stations, bank buildings and glazed entrance concourses, even in IGU applications for store fronts or foyers."

### **RISING REQUIREMENTS THROUGH EXTREME WEATHER CONDITIONS**

The KRITIS Act focuses not only on security risks but also on risks from ever more frequent extreme weather conditions such as heavy rains and floodings that no longer just affect buildings near rivers. Benitz-Wildenburg explains: "During heavy and prolonged rainfall normal windows and doors are often no longer sufficient to protect against water ingress. Here suitable structures including sealed connections to the building fabric are needed, which in turn



require correspondingly sized laminated toughened glass units.” Ift Rosenheim therefore tests these components according to the Ift Guideline FE-07 “Hochwasserbeständige Fenster und Türen” (Flood-Resistant Windows and Doors). The test results and classifications form the basis for planning and tenders for flood-barrier building elements.” Regenauer sees similar developments: “A lot has already been done in flood protection in the last few years; but since it is a local authority responsibility, measures still have room for improvement

due to budgetary restraints. The KRITIS Umbrella Act will definitely inject impetus here.” More frequent storms, hurricanes and typhoons – depending on the geographical situation – are also generating growing demand for relevant protective glazing, as Regenauer reports: “Storm-proof glazing is now necessary for a large part of the American East Coast because hurricanes hit more and more often and earlier in the year. The same applies to parts of Asia with more frequent typhoons - these are similar to hurricanes but come with more water. Kuraray



supplies various solutions for this – highly secure glass structure with SentryGlas interlayers to further increase energy absorption and penetration resistance in the glazing.” Ift Rosenheim also offers corresponding testing for this purpose

according to American standards at its Rosenheim site.

**BUILDING SKIN AS PART OF CYBER SECURITY**

The KRITIS Umbrella Act is strongly oriented towards



the requirements of NIS2, the EU Directive that already defines minimum standards for cyber and information security. Through the KRITIS Umbrella Act this Directive is transposed into German law and complemented for all relevant areas of infrastructure at the same time. This means, the understanding of security is broadened from purely digital defence to physical protection measures. One growing risk in terrorism or espionage is electromagnetic attacks, for example, where radio or radiation signals are used to tap or hack into networks. Special shielding glass produces a partial Faraday's cage effect thereby blocking the majority of electro-magnetic signals. This allows for secured and shielded rooms to be built for sensitive IT departments, authorities or data centres where radio signal can neither enter nor exit. These signals include Wi-Fi signals or electromagnetic radiation from screens and keyboards (war-driving or remote tapping). This type of glass is also used in labs and hospitals where sensitive medical equipment needs protecting from radio interference or in security areas such as conference rooms where confidentiality is key. These solutions complement classic IT security measures and follow the Defence-in-Depth principle where physical and digital protection levels are combined.

## DEMAND FOR EXCLUSIVE APPLICATIONS IS RISING

There is growing demand for toughened glass in many other areas especially in exclusive applications, says Regenauer: "Toughened glass for the armoured vehicle market is a hot ticket especially in South Africa and South America – designed predominantly to protect against kidnapping. In the narrow streets of the City of London (London's financial district) blast resistance is called for and comparatively thin LTG is used since it can react more flexibly to quick, massive pressure. Most lounges and VIP areas are equipped with bullet-proof glass and balustrades achieve a particularly high residual load bearing capacity thanks to SentryGlas interlayers. There is also rising demand for glass sky pools for hotels and private villas that have to constantly withstand very high water pressure. And, last but not least, more and more vessels and



yachts are being registered with glass structure specs needing to withstand the high dynamic impact loads from waves. These applications mostly involve structural SentryGlas interlayers for reducing the glazing thickness, or LTG with up to eightfold lamination often containing chemically toughened sheets for flawless looks." glasstec 2026

in Düsseldorf from 20 to 23 October 2026 will once again be the pivotal and leading pace-setting trade fair for exchanging ideas on the future of the glass industry featuring Artificial Intelligence & Digital Technologies, Decarbonisation and Circularity as Hot Topics. But it will also show that glass products for building skins are no longer planned solely with an eye on energy-efficiency and design quality but also increasingly with security in mind. At glasstec 2026 the trade fair company and ift Rosenheim as a cooperation partner will organise the first special show "secure – innovative – sustainable", which will place resilient and security-critical glass solutions for protected rooms and critical infrastructures centrestage.



# Regional manufacturing milestone achieved by **SWISSPACER** partnership

**W**arm edge spacer manufacturer Swisspacer is now offering solutions together with Saint-Gobain Glass India from a single source in one of the world's most dynamic markets. Indeed it is since December 2025 that the company's warm

edge spacer bars have also been produced in India, seeing the Swiss manufacturer expanding its international footprint and establishing a regional base to supply both the Indian market and other Asian countries directly from within the region. For more than 25 years, Swisspacer

has supplied customers worldwide with warm edge spacer bars for insulating glass units. The new facility represents a key element of the company's global growth

strategy. Headquartered in Lengwil, the Swiss specialist is building on the strong presence of the Saint-Gobain Group in India. As part of this network, Swisspacer

**Ceremonial ribbon cutting to mark the opening of Swisspacer production in India. A milestone in the collaboration with Saint-Gobain Glass India. Photo: © Swisspacer**



A new production facility in India marks a strategic step in the international growth of SWISSPACER. Established with Saint-Gobain Glass India, the site enables regional supply, shorter transport routes and locally adapted solutions - supporting energy-efficient building envelopes across both India and other Asian markets.



Sreedhar N., Senior Vice-President and CEO of the Asia-Pacific & India Region at Saint-Gobain, speaks at the opening of the site in India. Photo: © Swisspacer

moves closer to a rapidly developing market with increasing technical and environmental requirements.

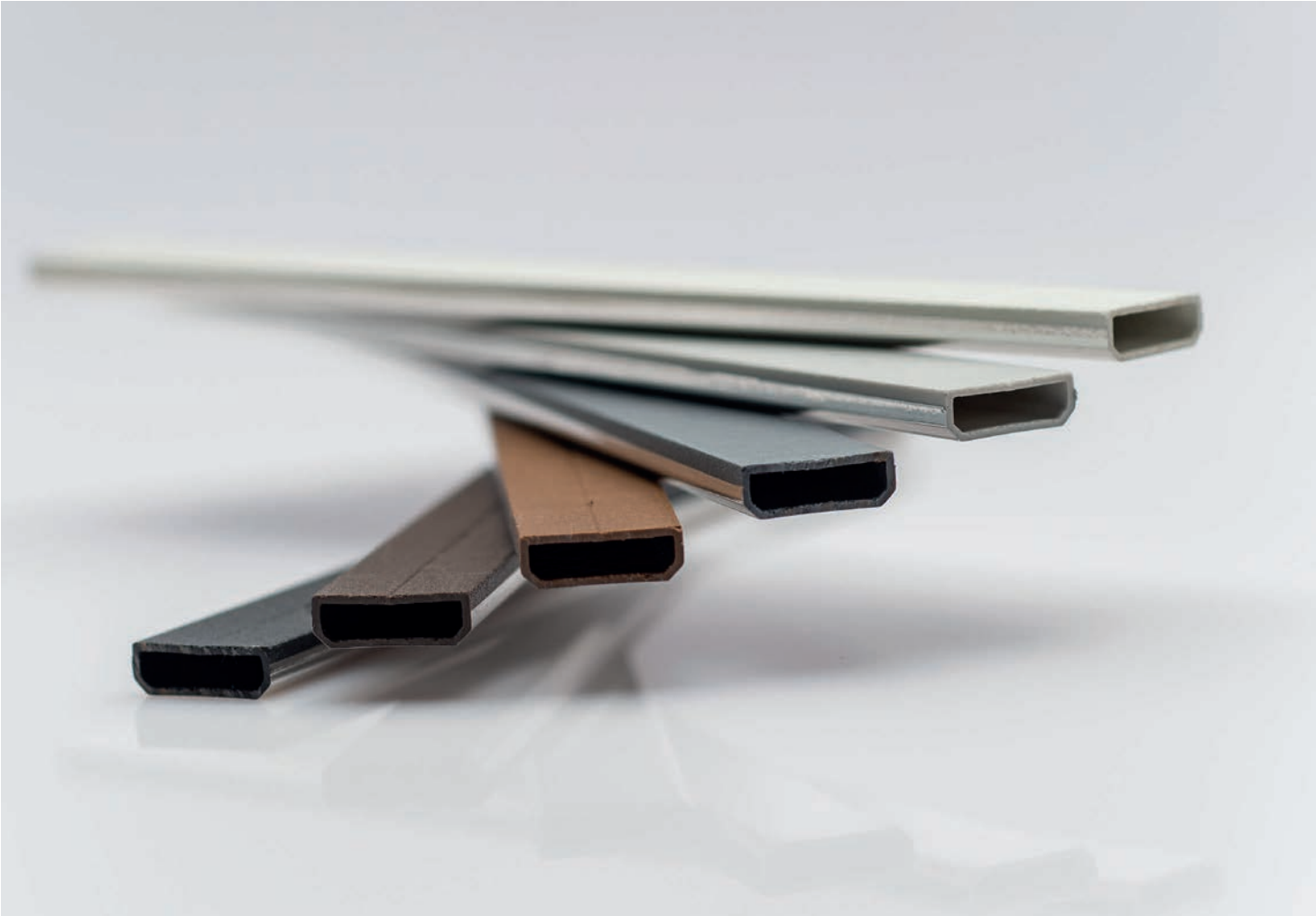
### **ADDED VALUE FOR CUSTOMERS AND THE ENVIRONMENT**

The Indian market presents specific challenges. Unlike many European

markets, its diverse climate zones demand differentiated window and façade concepts. At the same time, awareness of energy efficiency and indoor comfort is growing in both residential and non-residential construction. Since 2024, Swisspacer has worked closely with Saint-Gobain Glass India to prepare local

production. Manufacturing in India brings tangible advantages for customers and the environment alike. Shorter transport routes compared with deliveries from Europe improve lead times and help reduce transport-related emissions.

The role of the European plants remains unchanged. According to CEO Matthias Bach, the Indian site complements the existing production network, enabling Swisspacer to serve Asian demand locally while European facilities continue to focus on their respec-



tive regional markets and growth opportunities.

**LOCAL REQUIREMENTS, PROVEN EXPERTISE**

A decisive step towards local production was a detailed assessment of product performance under Indian conditions. In a dedicated project, the local team examined how Swisspacer spacer bars perform in various climatic zones and in combination with standard

window constructions used in India. The positive results provide a solid foundation for technical discussions with planners, fabricators and investors, underlining the added value of warm edge technology in the Indian context. At the new facility, Swisspacer relies on established technologies and processes already proven at other sites. This approach supports a smooth production ramp-up, ensures consistent product quality and

**Swispacer warm edge spacer bars: also produced in India since December 2025. For a more market-oriented supply of proven quality to Asian markets. Photo: © Swispacer**

maintains manufacturing efficiency from the outset.

**JOINT PROJECT IN THE SAINT-GOBAIN NETWORK**

The Indian plant is the outcome of a coordinated initiative within the Saint-Gobain Group. Swispacer contributes decades of expertise in develop-

ing and producing warm edge spacer bars, while Saint-Gobain Glass India provides in-depth market knowledge, established customer relationships and close proximity to local processors. At the inauguration, Sreedhar N., Senior Vice President and CEO of Saint-Gobain Asia-Pacific & India Region, described



the facility as a strategic expansion of regional presence. By combining global expertise with strong local execution, he noted, the collaboration advances the group's Lead & Grow strategy and strengthens its sustainable solutions portfolio. The result is an integrated offering: glass, spacer bars and services from a single source within the Saint-Gobain network. For window manufacturers, façade builders and planners, this translates into clearly defined interfaces, coordinated systems and a partner

structure spanning Europe and Asia.

### CONTRIBUTION TO ENERGY-EFFICIENT BUILDINGS

With increasing urbanisation and rising temperatures, the thermal performance of building envelopes is gaining importance in India. High-performance insulating glass units equipped with warm edge technology can make a significant contribution to reducing cooling and heating energy demand while enhancing indoor comfort. The new production site

From cold climates such as Sapporo, Japan, to warm and tropical regions across Asia, Swisspacer is used in a wide range of climatic conditions. Photo: © Kai Nakamura

therefore represents more than additional capacity. It supports the ambition to deliver building envelopes in Asia that offer greater energy efficiency and improved resilience to climatic stresses, in line with the sustainability objectives of the Saint-Gobain Group. For architects, planners and fabricators in Europe, the move underlines Swisspacer's global presence and market proximity - deliver-

ing solutions tailored to regional requirements while contributing to lower energy consumption in buildings worldwide.



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# SAINT GOBAIN drives low-carbon glass transformation

For 360 years, Saint-Gobain has built a global foundation of materials expertise supported by eight cross-business R&D centres, over 1,100 manufacturing sites

and an industrial presence that spans 80 countries and 161,000 employees. This worldwide footprint enables the Group to influence the construction sector at scale and advance a deep, measur-

able transformation toward sustainability. Saint-Gobain's approach to sustainable construction is grounded in the

full life cycle of a building. The company emphasises that buildings must enhance people's health and wellbe-

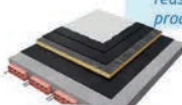
**Saint-Gobain's sustainable construction solutions include high-recycled-content materials, solar control glass and systems designed to reduce resource consumption and carbon impact.**

## A CONCRETE COMMITMENT IN TERMS OF SUSTAINABILITY

Glass fiber fabric-reinforced panels for lightweight façades (such as partition walls and ventilated façades), which allow up to 50% savings in natural resources compared to traditional construction techniques.



Solutions for roof insulation and waterproofing that reuse waste materials from our production processes



Solar control glasses



External Thermal Insulation Composite Systems (ETICS) and plasters for thermal and acoustic insulation.



Screeds and sealing adhesives with a high content of secondary raw materials.



In reshaping the future of façades with the world's first low-carbon glass, SAINT-GOBAIN is reducing embodied carbon through high recycled content and renewable electricity while preserving aesthetics and performance. The company's industrial scale, sustainability pillars and real-world projects position it as a catalyst for low-carbon construction worldwide.

ing while reducing environmental impact, all while delivering strong economic value and long-term reliability. These objectives are interdependent: aesthetics, durability, productivity and cost of ownership are inseparable from responsible resource use, energy performance and indoor comfort.

### EMBODIED CARBON IMPERATIVES

Within this framework, the company identifies several

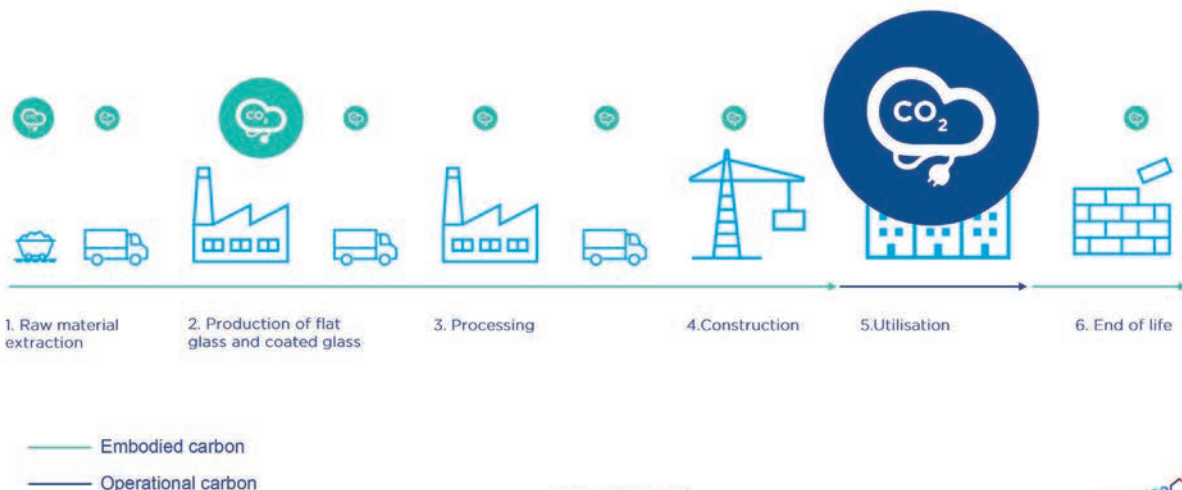
essential drivers. On job-sites, safety and the reduction of exposure to hazardous substances support healthier working conditions. Indoors, better air quality, superior acoustics and elevated thermal and visual comfort shape environments that contribute positively to occupants' wellbeing. In parallel, energy efficiency, increased reliance on renewable sources and the active reduction of embodied carbon define a path toward climate-

aligned construction. Furthermore, responsible resource management - including reduced freshwater consumption, minimised waste and the preservation of non-renewable materials - underpins a transition to more circular and resilient building systems. The urgency of addressing embodied carbon is central to Saint-Gobain's glass strategy. By 2050, as opera-

tional emissions decline, as much as half of the emissions associated with new buildings could arise from embodied carbon alone. Façades play a significant role: in 2022, Saint-Gobain Glass and Arup conducted a study demonstrating that glass represents between 24 and 60 percent of façade-level embodied carbon, amounting to roughly 4

Carbon emissions across the building life cycle show the growing importance of embodied carbon as operational emissions decline.

## CARBON EMISSIONS DURING THE ENTIRE BUILDING LIFE CYCLE





to 12 percent of a building's total. As regulators and developers increasingly set embodied-carbon thresholds, the need for lower-impact materials becomes both inevitable and immediate.

### A LOW-CARBON FLOAT GLASS BREAKTHROUGH

Saint-Gobain's mission in response is clear: to drastically reduce the carbon footprint of glass while maintaining the same quality, performance and aesthetics as the company's reference clear float glass,

### PLANICLEAR®.

Crucially, this reduction must be achieved at an industrial scale to ensure meaningful change across global supply chains. The breakthrough enabling this shift lies in two pillars: high-recycled content and renewable electricity. Saint-Gobain's low-carbon glass integrates 64 percent recycled content -a significant proportion enabled by high-quality cullet -and is produced using renewable electricity throughout the process. The impact of cullet is particularly powerful.

Every tonne used avoids 700 kilograms of CO<sub>2</sub> emissions across Scopes 1, 2 and 3, preserves 1.2 tonnes of raw materials including 850 kilograms of sand and requires 30 percent less melting energy than a batch made from virgin materials. These combined benefits establish cullet as a cornerstone of circularity and carbon reduction. This approach materialises in ORAÉ®, the world's first low-carbon glass manufactured by Saint-Gobain. The product achieves a 42 percent reduction in carbon footprint compared with PLANICLEAR® for 4-millimetre thickness,

corresponding to 6.64 kg CO<sub>2</sub>eq/m<sup>2</sup>. When integrated into glazing -whether coated, double or triple assemblies-ORAÉ® reduces the overall carbon footprint by roughly 30 to 40 percent, even when transport is included.

This represents a substantial and verifiable improvement at both product and system levels.

### FROM INDUSTRIAL SCALE TO REAL-WORLD IMPACT

Crucially, ORAÉ® achieves these reductions without altering the characteristics architects and fabricators depend on. Its

Each tonne of cullet avoids 700 kg of CO<sub>2</sub> emissions, preserves 1.2 tonnes of raw materials including 850 kg of sand and reduces melting energy by 30 percent.

### CULLET BENEFITS

The use of cullet in new glass production contributes positively to our sustainability goals.

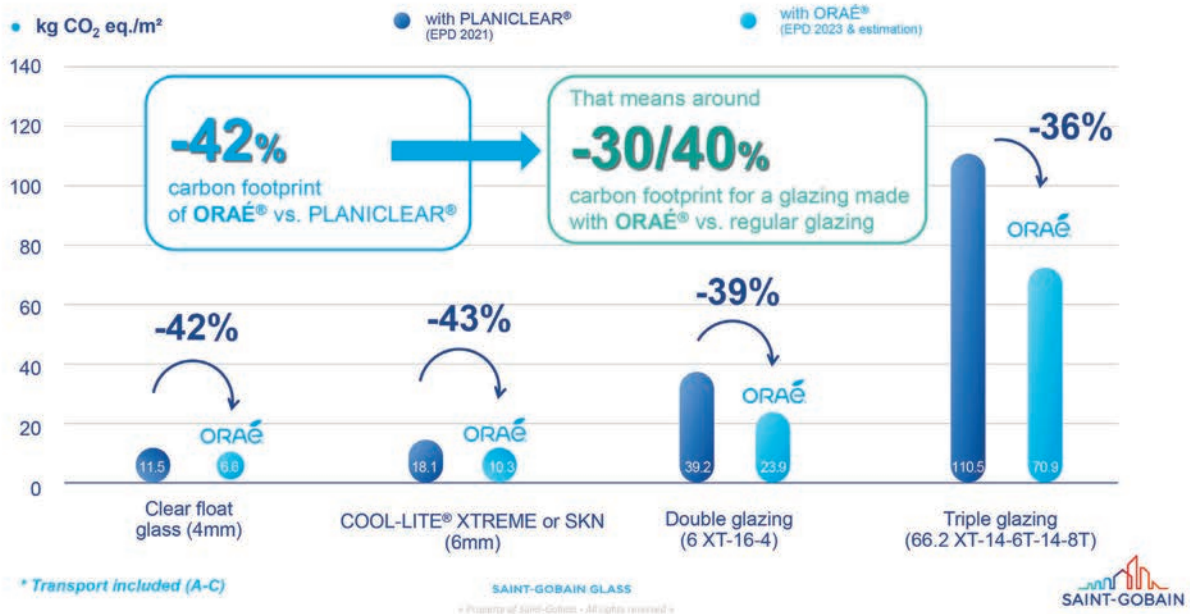
Each ton of cullet used allows us to reduce the CO<sub>2</sub> emissions of our glass by 700 kg (including Scope 1, 2, and 3 emissions), preserves 1.2 tons of raw materials (including sand), and reduces the energy required to melt the glass cullet by 30% compared to melting raw materials).

<p>1 ton of cullet = 700* kg di CO<sub>2</sub> of avoided emissions *Scope 1, 2, 3</p>	<p>1 ton of cullet = 1,2 ton of preserved raw materials* *including 850 kg of sand</p>
--------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------

SAINT-GOBAIN GLASS  
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## CARBON FOOTPRINT ESTIMATIONS



Compared with conventional float glass, ORAÉ® reduces carbon footprint by 42 percent at product level and by approximately 30-40 percent when integrated into glazing systems.

aesthetics, performance and lifetime align with the standards of conventional float glass, allowing low-carbon alternatives to be adopted without compromise. The glass is already produced in seven plants worldwide to serve a broad range of markets. For façades, it is available through coated solutions such as COOL-LITE® XTREME and SKN; for windows, it is offered within the PLANITHERM® INFINITY range. To date, more than 35,000 tonnes of ORAÉ® have

been manufactured, avoiding 17,500 tonnes of CO<sub>2</sub> emissions compared with the same quantity of regular PLANICLEAR®. Major projects across Europe have already begun to integrate ORAÉ®, including developments in Paris, Caen, Gothenburg, Malakoff and multiple sites in Italy. Their adoption demonstrates not only feasibility but momentum: as embodied-carbon requirements tighten, low-carbon glass is shifting from an innovation to a necessity. By

supplying a material solution that aligns with evolving environmental imperatives while preserving performance, Saint-Gobain positions itself as a driving force in the transition to more sustainable façades. In redefining the carbon profile of glass without altering its qualities, Saint-Gobain is contributing to a fundamental realignment of construction practices. ORAÉ® stands as both a technological milestone and a practical enabler, helping the industry move decisively toward buildings that are better for people,

better for the planet and better for long-term performance. The future of low-carbon construction will depend on materials that balance circularity, quality and scale - and Saint-Gobain's innovation is already laying that groundwork.



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# Cutting-edge glass applications emerge at CHINA GLASS 2026

At the 35th CHINA GLASS exhibition in Shanghai, 889 exhibitors and 147,575 professional visitors examined advances in intelligent manufacturing, low-carbon furnaces and AI-driven production among other highlights - reflecting four decades of industry development and stronger global cooperation across key application sectors worldwide.

From April 7 to 10, 2026 the 35th China International Glass Industrial Technical Exhibition, China Glass 2026, took place at the Shanghai New International Expo Centre. Since its first edition in 1986, China Glass has grown with China's glass industry, witnessing its shift from technology introduction to independent innovation and from scale expansion to high-quality development. Over four decades, it has linked China's glass industry

with the world, supporting technological iteration, upgrading and international cooperation. The exhibition covered more than 90,000 square metres and occupied halls N1 to N5 and W4 to W5. A total of 889 exhibitors from 31 countries and regions participated, including 697 domestic and 192 international companies. Germany and Italy appeared through national pavilions, presenting achievements from smart factories and low-carbon technologies to functional glass.





ed the resilience of China’s glass industry, the appeal of the Chinese market and recognition for China’s open, cooperative approach.

**HIGHLIGHT SECTORS**

**High-End Functional Glass Materials: From Building Material to Functional Substrate**

This year the role of glass materials showed a shift. No longer used only for daylighting and enclosure, glass was presented as a functional layer for consumer electronics, new energy, aerospace and other advanced fields, underscoring differentiated demand.

**Intelligent Manufacturing: From Standalone Automation to Fully Automated ‘Lights-Out Factory’**

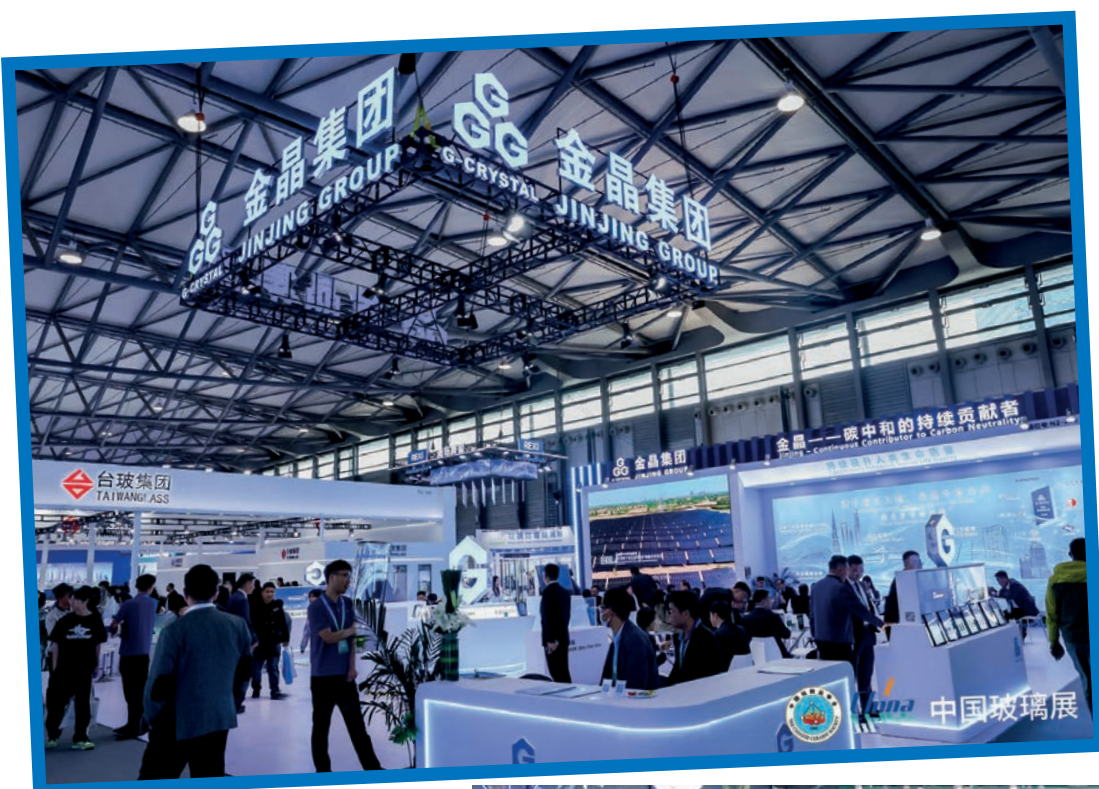
Intelligent manufacturing was the sector with the highest technological density and

**STRONG VISITOR TURNOUT**

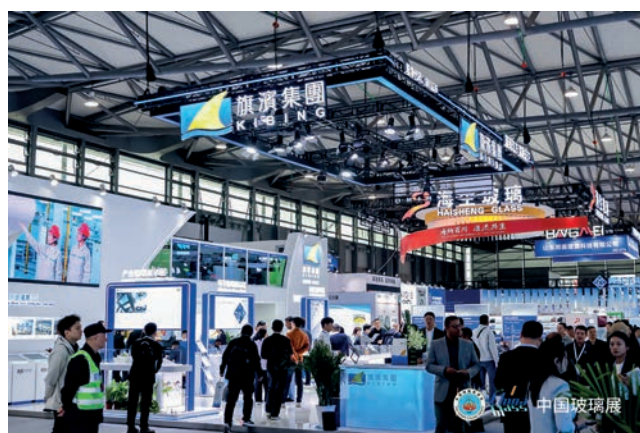
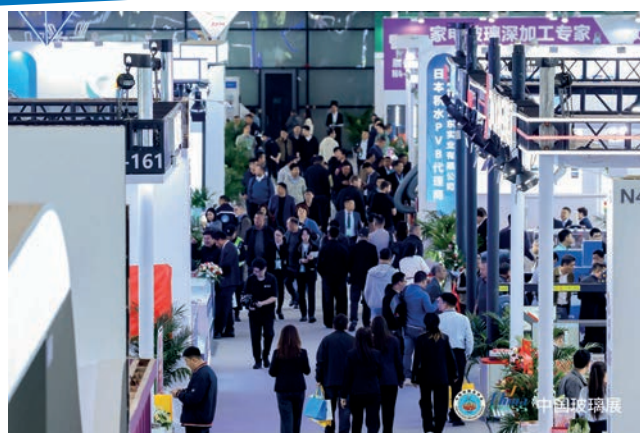
The exhibition attracted 147,575 professional visitors from 138 countries and regions, including 17,885 from overseas. They represented sectors including photovoltaics, construction, automotive, displays and home appliances. More than 20 overseas visitor delegations were active, as were domestic delegations from Shandong, Hebei, Henan, Anhui, Guangdong and other provinces. Arriving with clear technical requirements and procurement intentions, visitors engaged in networking and booth discussions. Corporate decision-makers and professional visitors gathered at key booths to discuss products and technologies, while cooperation proposals changed hands throughout the venue.

Against a complex global economy and trade environment, manufacturers from Europe and the United States participated actively. Their presence demonstrat-





the most diverse exhibits. The trend was the upgrade from equipment automation to whole-factory unmanned operation. LiSEC's super insulating glass line can accommodate rigid, flexible and thermoplastic spacers, enhancing flexible production. Hanjiang's super spacer stacking machine simplifies the complex insulating glass process into a single operation through an automated integrated process, improving efficiency and consistency. In tempering and edging, North Glass showcased its fourth-generation tempering furnace and a 78-metre continuous photovoltaic tempering furnace. Its smart factory solution has achieved 24-hour continuous operation across cutting, sorting, tempering and coating.



Luoyang Mountain covered tempering and laminated glass, exhibiting a five-curve tempering furnace, a double-curved tempering unit and a fully automated laminated glass production line. Intelligence has reached less visible but essential links such as batching and conveying. Shanghai Precision's raw material batching system covers storage, weighing, mixing, conveying and dust removal. Grenzebach's turn-key solution for thin glass has been deployed in more than 20 production lines, addressing scratch-free conveying and high-precision cutting. Yinrui Intelligence presented software and hardware solutions for full-chain intelligent production, including flexible intelligent glass deep-processing connection systems, MES, ERP, SCADA data acquisition systems, industrial cloud platforms and irregular glass optimisation software.

**Smart Home and System Integration: Glass as the 'Intelligent Interface of Living Spaces'**

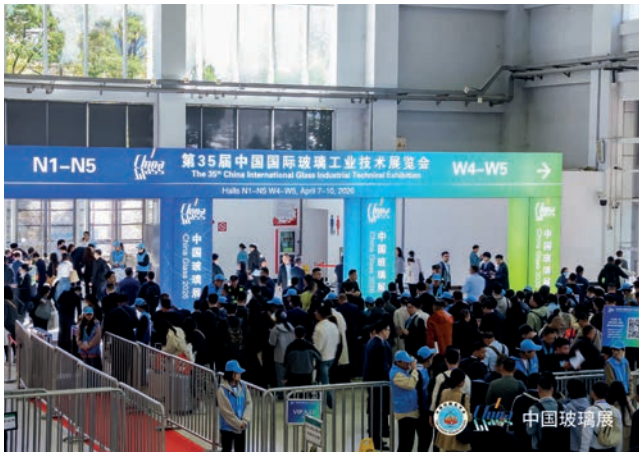
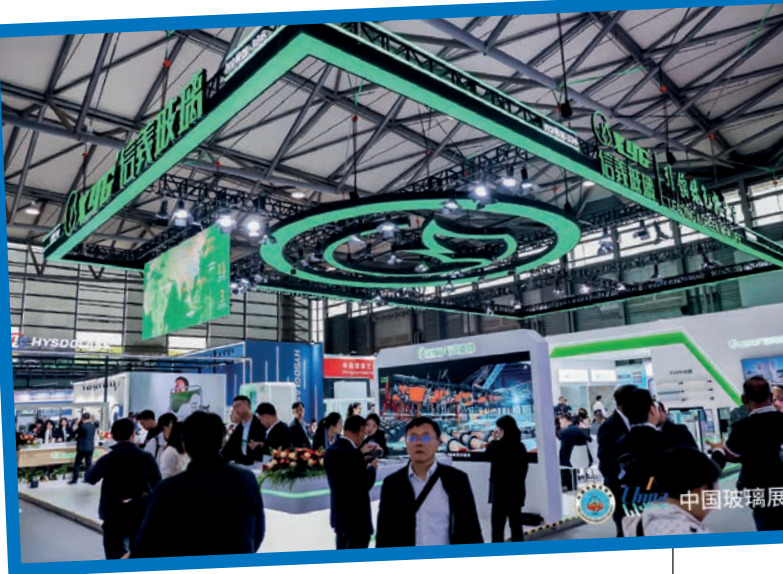
This year's exhibition presented the transformation of glass from a passive component into an active interactive interface. Yaohua Glass launched the 'Yaohua Home Smart Glass Cabin' smart home system, embedding IoT technology into glass. The system can adjust light transmittance in response to ambient light and temperature, with a response time of less than 0.5 seconds. It can

also connect with home appliances. Glass is no longer a fixed window or partition, but a responsive gateway to the smart home.

**Concurrent technical exchange events**

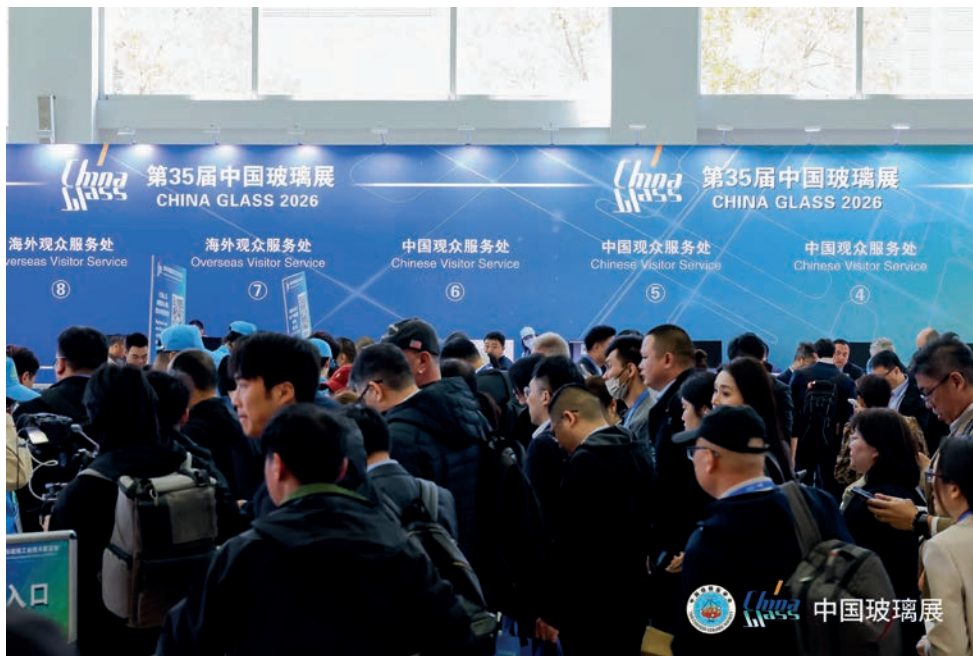
During the 35th China Glass Exhibition, the Chinese Ceramic Society, with leading industry enterprises, hosted technical seminars, creating an atmosphere of

exchange. Chengdu Guibao Science and Technology Co., Ltd. shared insights on insulating glass sealing systems, exploring ways to improve airtightness and service life. ROSS Controls China presented glass industry solutions and products, covering technologies from equipment selection to production line optimisation. Luoyang LandGlass Technology Co., Ltd. deliv-



ered two seminars, focusing on tempering solutions for construction and automotive applications and case studies of LandGlass titanium vacuum glass. The sessions drew domestic and international visitors. Henan Chiefway Electrofusion Technology Co., Ltd. explained vacuum-cast fused cast brick technology for extending furnace life. Jinan Lijiang Automation Equipment Co., Ltd., under the

theme ‘The Speed and Passion of China’s Glass Deep-Processing Industry,’ presented a review of the industry’s journey from following to leading. Throughout the seminars, professional visitors engaged with speakers, making the programme a platform for technical exchange and industrial cooperation. The 35th China Glass Exhibition was both a microcosm of the 40-year development of China’s glass industry and a new departure point for the global glass industry as it moves toward an intelligent, green and high-end future. With its record-breaking scale, top-tier exhibitors, cutting-edge technologies and strong visitor turnout, the exhibition reinforced its leading position as the ‘bellwether of the global glass industry.’ Looking ahead, China Glass will continue to uphold openness, cooperation, innovation and mutual benefit, joining industry peers from around the world in writing the next 40-year chapter of the glass industry.





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Emar  
**Forel**  
Glaston Group  
**Itech**  
Lisec Group  
Marval  
Neptun  
Schiavo  
Thermoseal Group

### HOT-MELT EXTRUDERS

Bavelloni  
**Best Makina**  
Easy Automation  
Emar  
Fenzi  
**Forel**  
**Itech**  
Lisec Group  
Marval  
Neptun  
Schiavo  
Thermoseal Group  
Triulzi

### POLYURETHANE EXTRUDERS

Bavelloni  
**Best Makina**  
Easy Automation  
Emar  
Fenzi  
**Forel**  
Glaston Group  
**Itech**  
Lisec Group  
Marval  
Schiavo

### POLYURETHANE ENCAPSULATION

Emar  
Glaston Group  
Lisec Group  
Marval  
Schiavo

### SILICONE EXTRUDERS

**Best Makina**  
Emar  
Fenzi  
**Forel**  
Glaston Group  
**Itech**  
Lisec Group  
Marval  
Schiavo  
Triulzi

### POLYSULPHIDE SEALANT EXTRUDERS

**Best Makina**  
Emar  
Fenzi  
**Forel**  
Glaston Group  
**Itech**  
Lisec Group  
Marval  
Schiavo  
Triulzi

### GAS FILLING EQUIPMENT

Emar

Fenzi  
**Forel**  
Glaston Group  
**Itech**  
Lisec Group  
Marval  
Neptun  
Schiavo  
Sparklike  
Thermoseal Group

### DESICCANT SALTS

Emar  
Fenzi  
Neptun  
Schiavo  
Thermoseal Group

### SPACERS/PROFILES

Edgetech Europe  
Fenzi  
Schiavo  
Thermoseal Group

### GEORGIAN BARS

**Hegla**  
Thermoseal Group

### BUTYL

Fenzi  
Thermoseal Group

### POLYSULPHIDE SEALANTS

Fenzi

### HOT MELT

Fenzi  
Thermoseal Group

### OTHER SEALANTS

Fenzi

### PANTOGRAPHS

Fratelli Pezza

### ACCESSORIES

**Deltamax Automazione**

**Forel**  
Helios Quartz  
Schiavo  
St.Ste Trading  
Sparklike  
Tesir Makine  
Triulzi

## Tempering

### TEMPERING FURNACES (ARCHITECTURAL GLASS)

**Glass Company**  
Glasstech Inc.  
Glaston Group  
**Pujol Group**  
Jinglass  
**Keraglass**  
Landglass Technology

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Lisec Group  
Luoyang Fuchong Machinery  
Mappi International  
Marposs  
North Glass Technology  
Schiavo  
Tecnosens  
**TK**  
**Tekno Kilns/Pujol**  
**Texpack**

## TEMPERING FURNACES (AUTOMOTIVE GLASS)

**Glass Company**  
Glasstech Inc.  
Glaston Group  
Jinglass  
**Keraglass**  
Landglass Technology  
Luoyang Fuchong Machinery  
Mappi International  
Marposs  
**Mazzaroppi Engineering**  
North Glass Technology  
**Satinal**  
Taifin  
Tecnosens  
**Texpack**

## CHEMICAL TEMPERING EQUIPMENT

**Glass Company**  
R.C.N. Solutions  
**TK**

## ROBOT FOR CLEANING SILICA ROLLERS

Eurotech Way

## ACCESSORIES

**Deltamax Automazione**  
Fenzi

**Glass Company**  
Glaston Group  
Helios Quartz  
**Pujol Group**  
**Keraglass**  
Landglass Technology  
Mappi International  
**Mazzaroppi Engineering**  
R.C.N. Solutions  
**Satinal**  
Taifin  
**Tekno Kilns/Pujol**  
Torgauer Maschinenbau

## Bending

## BENDING FURNACES (ARCHITECTURAL GLASS)

**Pujol Group**  
Jinglass

**Keraglass**  
Luoyang Fuchong Machinery  
Mappi International  
Marposs  
**Mazzaroppi Engineering**  
R.C.N. Solutions  
Tecnosens  
**Tekno Kilns/Pujol**  
**TK**  
**Texpack**

## BENDING FURNACES (AUTOMOTIVE GLASS)

**Glass Company**  
Glasstech Inc.  
Glaston Group  
Jinglass  
**Keraglass**  
Luoyang Fuchong Machinery  
Mappi International  
Marposs  
**Mazzaroppi Engineering**  
R.C.N. Solutions  
**TK**  
Taifin  
Tecnosens  
**Texpack**  
**ACCESSORIES**

Ayrox  
**Deltamax Automazione**  
**Glass Company**  
Glasstech Inc.  
Glaston Group  
**Pujol Group**  
**Itech**  
**Keraglass**  
Mappi International  
**Satinal**  
Softeco  
**Tekno Kilns/Pujol**  
**TK**

## Laminated glass production

## COMPLETE PLANTS

**Best Makina**  
Bovone  
Bottero  
**Forel**  
**Glass Company**  
Glaston Group  
GPM Automation  
**Pujol Group**  
IOCCO Group  
Italmatic  
Lisec Group  
**Mazzaroppi Engineering**  
R.C.N. Solutions  
**Texpack**  
**TK**  
Triulzi

## LAMINATED WINDSCREEN BENDING FURNACES

ECOL  
**Glass Company**  
Glasstech Inc.  
Glaston Group  
**Keraglass**  
Mappi International  
Marposs  
Taifin  
**Texpack**

## AUTOCLAVES

**Glass Company**  
Glaston Group  
GPM Automation  
**Pujol Group**  
Italmatic  
Lisec Group  
Triulzi

## CLIMATIC CABINS

**Forel**  
Glaston Group  
GPM Automation  
IOCCO Group  
Lisec Group  
Triulzi

## INFRARED OVENS

ECOL  
**Forel**  
**Glass Company**  
Glaston Group  
GPM Automation  
**Pujol Group**  
IOCCO Group  
Lisec Group  
**TK**  
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**  
Si.Ste Trading  
Tecnosens

## PVB

Everlam  
Kuraray - Trosifol

Marposs  
Si.Ste Trading  
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

## ACCESSORIES

Ayrox  
Bottero  
**Deltamax Automazione**  
Eurotech Way  
Glaston Group  
Helios Quartz  
**Pujol Group**  
IOCCO Group  
Lisec Group  
**Satinal**  
Si.Ste Trading  
Softeco  
Taifin  
Triulzi

## Drilling

## AUTOMATIC DRILLING LINES

B Solution  
**Bando Kiko**  
Bavelloni  
Biesse Group  
Glaston Group  
IOCCO Group  
Neptun  
**Schiatti Angelo**  
Schraml  
SKG - Skill Glass  
**Systron**  
Teknik Elmas  
Tesir Makine  
Vismara

## MULTI-SPINDLE DRILLING MACHINES

B Solution  
**Bando Kiko**  
Bavelloni  
Biesse Group  
CMS  
**Glass Company**

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Glaston Group  
IOCCO Group  
Neptun  
Schiavo  
**Schiatti Angelo**  
Schraml  
SKG - Skill Glass  
**Systron**  
Teknik Elmas  
Tesir Makine  
Vismara

## DRILLING MACHINES WITH OPPOSITE DRILLING HEADS

B Solution  
**Bando Kiko**  
Bavelloni  
Bottero  
CMS  
Fenzi  
Glaston Group  
IOCCO Group  
Lovati  
Neptun  
Schiavo

**Schiatti Angelo**  
Schraml  
SKG - Skill Glass  
**Systron**  
Teknik Elmas  
Tesir Makine  
Vismara

## COLUMN DRILLING MACHINES

B Solution  
Bottero  
Fenzi  
Neptun  
Schiavo  
Tesir Makine  
Vismara

## PORTABLE DRILLING MACHINES

CMS  
Fenzi  
Schiavo  
Si.Ste Trading  
Teknik Elmas  
Tesir Makine

## DRILLING AND MILLING MACHINES

Bavelloni  
Bottero  
Biesse Group  
CMS  
IOCCO Group  
Lovati  
Neptun  
Schiavo  
Teknik Elmas  
Tesir Makine

Vismara

## DIAMOND DRILLS

ADI - Surface Group  
Bovone  
Diamut - Biesse  
Fenzi  
Glaston Group  
Mole Moreschi  
Neptun  
Schiavo  
Si.Ste Trading  
Teknik Elmas  
Tesir Makine  
Vetrolux

## ACCESSORIES

CMS  
Fenzi  
Neptun  
Schiavo  
Si.Ste Trading  
Teknik Elmas

## Other equipment and plants

### TURNKEY PLANTS / ENGINEERING - FOR BUILDING GLASS

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

### TURNKEY PLANTS / ENGINEERING - FOR AUTOMOTIVE GLASS

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

### KEY PLANTS / ENGINEERING - FOR DISPLAY GLASS

**Bando Kiko**  
Cugher Glass  
Marposs  
Torgauer Maschinenbau

## EDGES ROLLER COATING MACHINE

Eurotech Way  
**WORK CENTRES - CNC CONTROLLED**

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

## FLOAT PLANTS / LINES (EQUIPMENT & ACCESSORIES)

Bovone  
Horn  
IOCCO Group

## CULLET HANDLING SYSTEMS

ECOL

## COMPLETE BATCH PLANTS

Zippe

## VACUUM COATING EQUIPMENT AND PLANTS

Giardina Group Glass Division  
**Glass Company**  
North Glass Technology  
Unelko

## ENAMELLING EQUIPMENT AND PLANTS

Giardina Group Glass Division  
**Glass Company**  
Rollmac division of GeMaTa

## DRYERS AND ENAMELING FURNACES

Giardina Group Glass Division  
Tecglass

## SPRAYING TECHNOLOGY

Giardina Group Glass Division

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

Giardina Group Glass Division

## SANDBLASTING SYSTEMS, EQUIPMENT AND PLANTS - OPTIMIZERS

Fenzi  
Fratelli Pezza  
**Glass Company**  
Schiavo  
Schraml  
SKG - Skill Glass

## DIGITAL INKJET PRINTERS

**Glass Company**  
System Ceramics  
Tecglass  
TecnoFerrari

## SCREEN PRINTING EQUIPMENT AND PLANTS

Ayrox  
COMSS  
Cugher Glass  
**Deltamax Automazione**  
ECOL  
Eurotech Way  
**Glass Company**  
**Keraglass**  
North Glass Technology  
Rollmac division of GeMaTa  
Softeco  
Studio 1 Automazioni  
TecnoFerrari

## SCREEN PRINTING FRAMES

COMSS

## SCREEN PRINTING DRYING SYSTEMS

COMSS  
Cugher Glass  
**Glass Company**  
Rollmac division of GeMaTa  
Studio 1 Automazioni

## EDGES ROLLER COATING MACHINE

Giardina Group Glass Division

## ACIDING GLASS EQUIPMENT AND PLANTS

Lisec Group  
Rollmac division of GeMaTa

## LASER DECORATING MACHINES

**Glass Company**

## Artistic glass production

### CERMAMIC INKS

**Glass Company**  
Tecglass

### CHAMBER ELECTRIC KILNS

**Glass Company**  
**Keraglass**  
**Tekno Kilns/Pujol**

### ACCESSORIES

**Deltamax Automazione**  
Helios Quartz  
**TK**

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## Miscellaneous

### ADHESIVES FOR GLASS BONDING

Si.Ste Trading

### AUTOMATION

Easy Automation  
Horn  
IOCCO Group  
Marposs  
Studio 1 Automazioni  
Tecnosens  
Torgauer Maschinenbau  
Zippe

### AUTOMOTIVE GLASS APPROVAL SERVICES

Ayrox  
Marposs  
Softeco  
Tecnosens  
Teknik Elmas

### AUTOMOTIVE GLASS QUALITY CONTROL

Ayrox  
**Bando Kiko**  
Cugher Glass  
**Deltamax Automazione**  
Glaston Group  
IOCCO Group  
Marposs  
Softeco  
Tecnosens  
**CE MARKING - QUALITY CONTROL EQUIPMENT FOR GLASS IN BUILDING**

Ayrox  
Softeco

### COLOURS & ENAMELS - OTHER APPLICATIONS

Ayrox

### CUTTERS

Si.Ste Trading

### CUTTERS WHEELS

Si.Ste Trading

### DEIONIZING AND WATER SOFTENING EQUIPMENT

Fenzi  
**Forel**  
**Glass Company**  
Idrotecnica  
**Itech**

Lisec Group  
Triulzi

### DEIONIZING AND WATER SOFTENING EQUIPMENT

Immehes

### DIAMOND ROUTER EQUIPMENT - PORTABLE

Teknik Elmas  
Tesir Makine

### DISTRIBUTORS

Si.Ste Trading

### FLAT GLASS QUALITY CONTROL DEVICES

Ayrox  
**Deltamax Automazione**  
**Forel**  
IOCCO Group  
Marposs  
Softeco  
Tecnosens

### FURNACES

**Glass Company**  
Horn  
**Texpack**

### FURNACES / HYDROGEN GENERATORS (WATER ELECTROLYSERS)

Nel Hydrogen

### GLASS COATING AND TINTING

**Glass Company**  
Rollmac division of GeMaTa  
Unelko

### GLASS TREATMENT FILMS

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

Horn  
**Keraglass**  
**Texpack**

### INSPECTION INSTRUMENTS & INTENSIMETERS

Marposs  
Tecnosens

### INFRARED TUBES

Helios Quartz  
**Deltamax Automazione**

### KILNS

**Glass Company**  
**Keraglass**  
Lisec Group  
**Tekno Kilns/Pujol TK**  
Fenzi

### METAL ACCESSORIES

Si.Ste Trading  
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 GMBH

### POWDER OR LIQUID APPLICATION SYSTEMS FOR PROTECTING FLOAT GLASS

Cugher Glass  
**Glass Company**  
**PUMPING AND APPLICATION SYSTEMS (AUTOMOTIVE GLASS)**

IOCCO Group

### PURIFIERS FOR REFLUENT WATER

Dieffe Macchine  
Immehes

### PUTTIES AND SEALANTS

Fenzi

### QUARTZ EQUIPMENT

Helios Quartz

### REFRACTORIES

Rath

### SHAPE CHECKING DEVICES

Easy Automation  
IOCCO Group

### SHOWER ENCLOSURES

Si.Ste Trading  
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

Glaston Group  
GPM Automation  
Lisec Group  
Studio 1 Automazioni

### SURFACE STRESS MEASUREMENT INSTRUMENT

Ayrox  
**Glass Company**  
Tecnosens  
**WINDSCREEN STRESS MEASUREMENT INSTRUMENT**

Tecnosens

### WINDSCREEN AND BACKLITES

Marposs  
Tecnosens

### TESTING FOR SOLDERINGS

Ayrox  
Easy Automation  
Softeco

### TESTING DEVICES OF BACKLITES ELECTRICAL HEATING

Ayrox  
Easy Automation  
Softeco

### THERMAL IMAGING MSYSTEMS

**Glass Company**  
Easy Automation  
Optris GMBH

### TIN FLOAT BATH FURNACES

Horn  
IOCCO Group

### TIN FLOAT BATH SIDE DETECTION DEVICES

Tecnosens

### UV ADHESIVES

Si.Ste Trading

### UV LAMPS

Helios Quartz

### UV PORTABLE MACHINES

Helios Quartz

### WATER REPELLENT SPRAY COATING MACHINES

**Best Makina**



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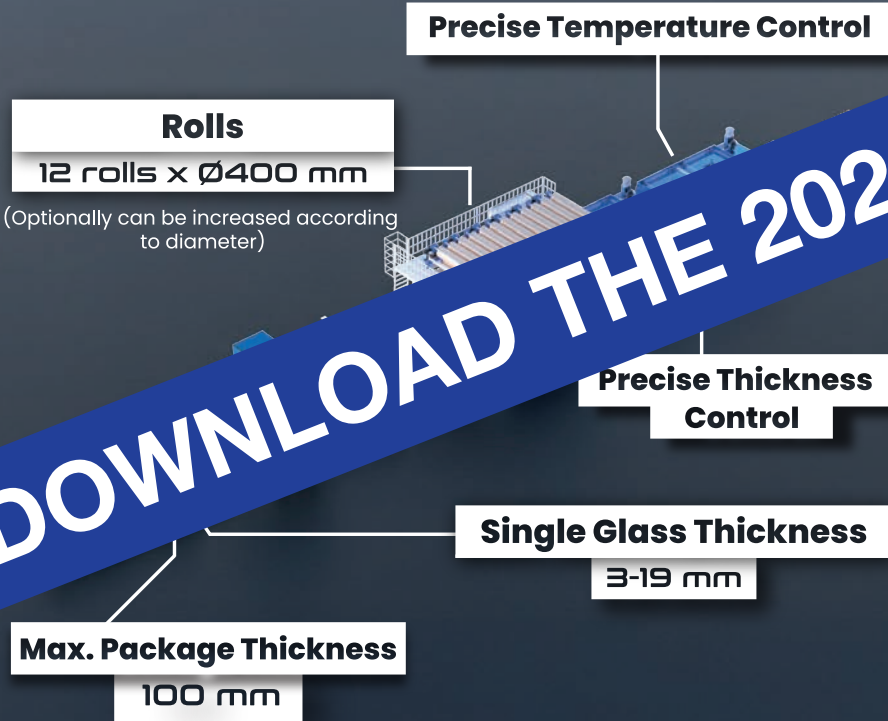
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Common Language Of Glass World

\*Image of the machine may vary according to selected options.

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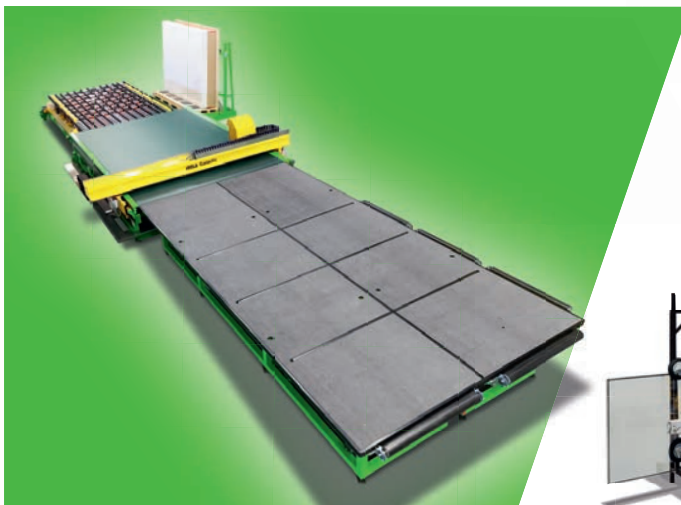
🌐 [www.bestmakina.com](http://www.bestmakina.com)

📍 Makine İhtisas Organize Sanayi Bölgesi, 15. Sokak, No:5, 41455 Dilovası/Kocaeli/TÜRKİYE



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