Year 16 – No.46 / 2025
Jan./Feb./March/April

MIDDLE EAST glass MAGAZINE

6th edition

WINDOOREX + Glass & Aluminum
Saudi Arabia

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

05-07 MAY 2025

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Arabian United Float Glass Company (UFG) the first independent Float Glass producer in the Middle East and North Africa. UFG was founded in 2006 as a closed joint stock company by large strategic institutional investors. UFG contacted reputed Technology Providers in Europe, USA and Far East to build its 350,000 square meters plant. Our production lines are equipped with Latest technology and state of the art manufacturing facility to produce 250,000 MT annually ,ensuring the best quality glass products of a wide range of thicknesses, colours and sizes enabling us to satisfy our valued customer's needs.

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- Pattern Glass
- Sliver Mirror Glass
- Decorative Mirror Glass


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ARALUX® Millennium glass


ARALUX® Dewan glass


ARALUX® Nashiji glass


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SASO

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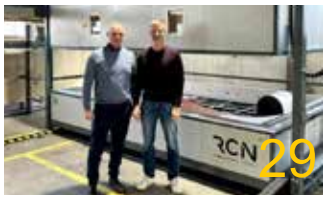

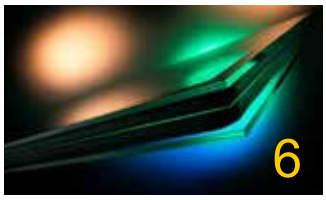

MIDDLE EAST glass MAGAZINE

Published every 4 months by

AGEX Arabian German Exhibitions & Publishing Ltd.

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Subscription rates
For one year : (3 issues)
*African & Arab Countries 56 Euro
*All other Countries 150 Euro

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Designed & Printed by

Royal Media Advertisting Agency

Tel.: (202) 012 23780475

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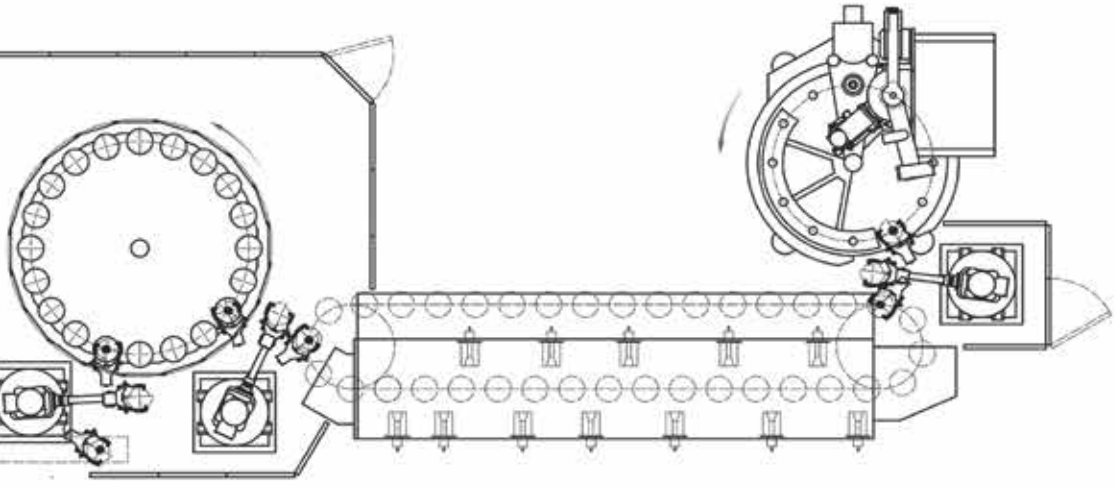

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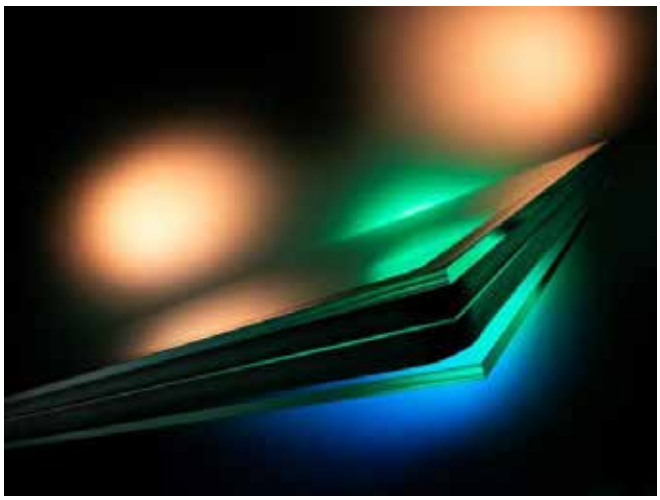
TPS® insulating glass with ultra-thin center glass down to 0.5 mm is revolutionizing the glass industry



GLASTON CORPORATION

For many homeowners and builders, the challenge is to modernize outdated windows with low efficiency without complicating the replacement process. Glaston has a solution - triple TPS® insulating glass (IG) units with an ultra-thin center glass down to 0.5 mm. A unique system configuration and a special process sequence patented by Glaston enable the automatic production of these new IG units.

Glaston is the inventor of TPS® (Thermo Plastic Spacer) insulating glass technology and introduced this leading warm edge technology to the market over 30 years ago. At glasstec 2024, Glaston presented this new manufacturing process for IG units with thin glass.

Patented manufacturing process

The development of these energy-efficient, thin triple TPS® IG units required overcoming significant technical challenges. “Traditional methods for manufacturing these triple IG with an ultra-thin center glass down to 0.5 mm proved unsuitable,” says Uwe Risle, Director of IG Product Management at Glaston. “That is why we have developed a novel production technology that has been patented since fall 2024. This approach modifies the process completely, minimizing stress on the thin center glass and reducing the risk of breakage.”

The Glaston TPS® technology plays a decisive role in the production of these thin IG units.
By ensuring exceptionally high insulation values and gas tightness, it measurably improves the performance of these IG units. In addition, the fully automated system reduces the need for manual handling - a key factor given the sensitivity of thin glass.

“This production line guarantees maximum flexibility for conventional and thin glass TPS® IG units, even in mixed operation,” adds Uwe Risle. All processing stations within the line have optimum settings for processing the ultra-thin center glass down to 0.5 mm thickness. The offset and complete encapsulation in the thermoplastic spacer and in the secondary sealing layer ensure that the thin center glass is well protected.

Conventional glass thicknesses can be produced on this TPS® line using two automatic assembly machines including gas filling in high-speed mode. In accordance with the Glaston shape catalog, a wide variety of shapes is guaranteed, including modern quadruple IG units with thin glass.

Energy-efficient IG units with thin glass

Triple TPS® IG units with ultra-thin center glass down to 0.5 mm are significantly lighter than conventional triple IG units and offer high performance glazing in a slimmer, more efficient package. These units offer up to 20% better U-values than conventional double glazing - while

also addressing the issues of thickness and weight.

Thin glass TPS® IG is particularly well-suited for residential applications in both new construction and renovation. For new builds, their reduced weight simplifies transportation and installation. And functional issues such as the closing problems of heavy sliding windows can be eliminated.

“Thin triple TPS® IG units are especially beneficial in renovations,” says Uwe Risle. “They not only provide a significant performance upgrade over less energy-efficient double units but also fit neatly into existing window frames, making them an ideal solution for easy window upgrades.”

In addition, thinner glass has higher light transmission and significantly less raw material is needed to manufacture it.

For many homeowners and builders, the combination of reduced frame support and lower U-value means a higher return on investment. Triple TPS® -IG units with an ultra-thin center glass down to 0.5 mm are a real game changer in the glass industry and make a valuable contribution to meeting the growing demand for more energy-efficient homes.

Glaston in brief

Glaston is the glass processing industry’s innovative technology leader supplying equipment, services and solutions to the architectural, mobility, solar and display industries. The company also supports the development of new technologies integrating intelligence to glass.

Glaston is committed to providing its clients with both the best know-how and the latest technologies in glass processing, with the purpose of building a better tomorrow through safer, smarter, and more energy efficient glass solutions. Glaston operates globally with manufacturing, services and sales offices in nine countries and its shares (GLA1V) are listed on NASDAQ Helsinki Ltd. For more information visit glaston.net.

Şişecam’s U.S. Move to Bring Global Leadership

Şişecam Acquires Ciner Group's Shares in U.S. Soda Ash Operations

Şişecam takes a significant step toward global leadership in soda ash industry by acquiring all shares of its partner Ciner Group in the U.S. soda investments and operations.

Şişecam, a global player in the glass and chemicals industries, has taken another significant

step toward global leadership in soda ash industry by acquiring all shares of Ciner Group, in Şişecam Chemicals Resources LLC and Pacific Soda LLC in the U.S.

With this agreement, Şişecam's ownership in Pacific Soda LLC has increased to 100%. Pacific Soda LLC manages the ongoing natural soda ash investment in the U.S., which will produce 5 million tons of natural soda ash per annum upon completion. Additionally, Şişecam's stake in the actively operational Şişecam Wyoming LLC has risen to 51%, with the remaining 49% owned by the U.S. based NRP Trona LLC. This Wyoming facility has an annual natural soda ash production capacity of 2.5 million tons.

Şişecam will pay a total of 285 million 389 thousand USD to Ciner Group for its shares. This strategic step brings Şişecam closer to becoming the global leader in soda ash and natural soda ash. Şişecam, positioning natural soda ash, which stands out with its multiple sustainability advantages, particularly in terms of production cost, carbon footprint, and water consumption, as a key area in its portfolio. Upon the realization of its ongoing investments, Şişecam's total global soda ash production capacity will go beyond 10 million tons.

Today, Şişecam ranks among the top three global soda ash producers with a production capacity of 5 million tons. Once the Pacific project, with its 5-million-ton capacity, is completed, Şişecam will achieve global leadership. Its total production capacity will exceed 10 million tons, of which 7.5 million tons will be natural soda ash.

Soda ash, essential for glass production and numerous other industries, continues to grow globally. In 2023, global soda ash demand reached 66 million tons and is expected to grow at an average annual rate of 3%, reaching 83 million tons by 2030. The share of natural soda ash, which is currently 30%, is projected to increase to 40% over the next decade.

Şişecam CEO Görkem Elverici commented on the investment decision in the U.S.: "In a world filled with uncertainties, companies are navigating a period where success depends on the ability to manage portfolios holistically, closely monitoring market dynamics, anticipating expectations, and swiftly integrating them into plans. Within our portfolio, we have decided to increase our investments in natural soda ash production, which stands out with multiple sustainability advantages including lower carbon footprint and reduced water consumption, as well as cost-efficiency. This decision marks significant progress toward our global leadership in both soda ash and natural soda ash production. We see the potential of soda ash not limited to the industries that it currently serves. Through our global-scale R&D efforts and collaborative partnerships, we are exploring its applications in rapidly growing sectors, particularly in energy storage, such as batteries. Our successful five-year partnership with Ciner Group continues to create value in the ongoing Stockton Port Management project in the U.S. Şişecam remains committed to addressing today's agenda and requirements with determined management approach while effectively pursuing strategic and structural steps that anticipate the needs of the future."

Şişecam's Journey in U.S. Soda Ash Investments

In 2019, Şişecam became an equal partner in the Pacific Soda Project, a 2.5-million-ton natural soda ash investment developed by Ciner Group.

In 2021, Sisecam acquired a 60% stake in Ciner Group's operational Wyoming facility, with an annual capacity of 2.5 million tons of natural soda ash, and a 60% stake in the Atlantic Soda project, a 2.5-million-ton natural soda ash investment under development.

That same year, Şişecam increased its stake in the Pacific Soda Project to 60% and consolidated the Atlantic project under the Pacific project, creating a single investment targeting a total capacity of 5 million tons of natural soda ash.

In 2023, Şişecam became an equal partner with Ciner Group in the Stockton Port Management project, managing logistics for a total capacity of 5 million tons.

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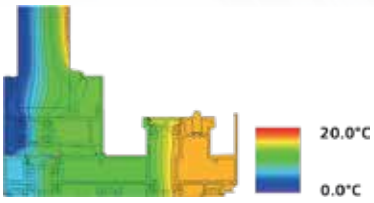
U_w = 1,37 W/m²K

Le coefficient de conductivité thermique a été calculé pour la construction : 5000 x 2500 avec Ug = 0,6 W / m²K

The coefficient of thermal conductivity was calculated for construction: 5000 x 2500 with Ug = 0.6 W / m²K



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Super Spacer® - an essential dimension of sustainable building.

The flexible warm edge can be found in two of BIG's most recent projects

Renowned Danish architect Bjarke Ingels Group (BIG) believes there is no single answer to what sustainable buildings of the future will look like. The eye-catching new BIG headquarters in the port of Copenhagen is largely made of CO2-reduced concrete, though the group chose cross-laminated timber when designing Skypark Business Centre at Luxembourg Airport. At first glance this may seem contradictory, yet the two buildings share some common qualities - high standards of sustainability, resource conservation and energy efficiency, and both feature insulating glazing with Super Spacer® spacers.

Pure brutalism at BIG headquarters in Nordhavn, Copenhagen

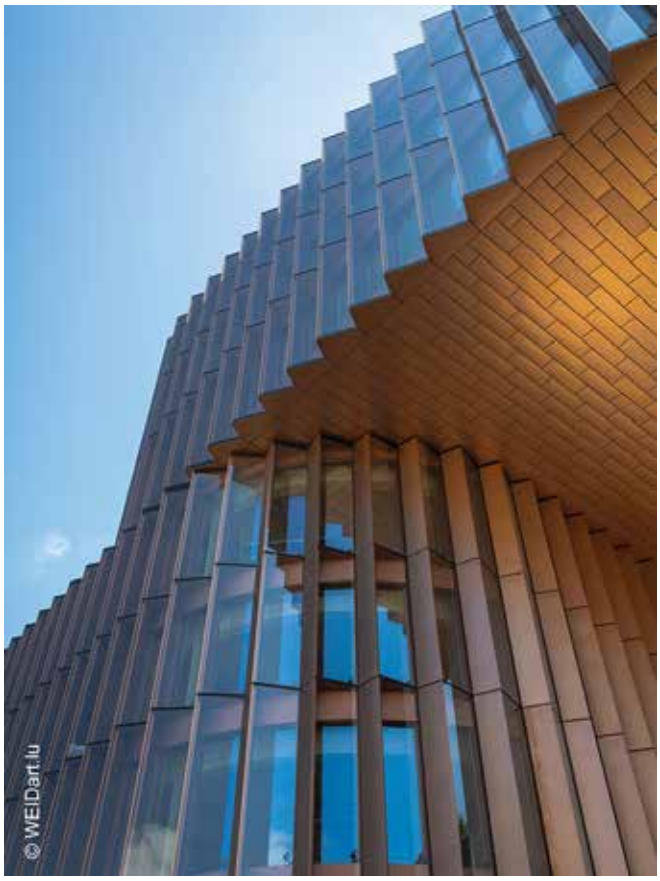
Copenhagen has completely overhauled the former harbour area of Nordhavn, transforming it into a sustainable urban district - a connected area for 40,000 people and a testing ground for cutting-edge green technologies.

When BIG presented plans for its new headquarters at the top of Sundmolenpier in Nordhavn, they were initially rejected by the city council. Decision makers considered the proposed 27-metre-high concrete tower too unactractive for the green showcase city, which aims to be carbon neutral by 2050.

At first glance, the neo-brutalist aesthetic - marked here by massive exposed concrete beams - appears to honor an environamentally high-impact material rather than sustainable design. With no plaster or cladding, the structure highlights the pure contrast of concrete supports and floor-to-ceiling glass. From roof to pier, each story ends in a diagonal balcony connected by a circular staircase, offering unique views of the Öresund. Yet, closer inspection reveals the high performance components making this a sustainable construction project.

High performance double glazing combines thermal insulation, solar control and light transmission

Eiler Thomsen Alufacader manufactured the



mullion-transom glass façade from extruded raw aluminium. Glaseksperten A/S supplied approximately 500 units, up to 2.8 metres high, for the floor-to-ceiling triple glazing, as well as a three-metre high glass sliding door and glass fire doors.

The U value of the façade is 0.18 W/(m2K), the Ug value of the glazing is 0.6 and the Uw value of the windows is 0.8 W/(m2K). The Pilkington Suncool 70/40 used in the insulating glass units is a high performance coated glass that combines excellent thermal insulation with solar control and high light transmittance - important properties for the low light Scandinavian winters and long sunny summer days.

The glazing experts chose Edgetech's Super Spacer® T-Spacer™ Premium Plus as the project's warm edge spacer. Marketing Manager Louise Præstholm comments, 'The Super Spacer is very efficient in production due to its flexible, metal-free composition, which simplifies installation and reduces the need for manual labour. Its structural flexibility also allows for an extremely precise fit, reducing the stress on the glass. Super Spacer also contributes to the energy efficiency and durability of the end product by improving thermal performance and minimising condensation'.

70 per cent of the concrete is made with a reduced CO2 content

After the building application was rejected, BIG entered into discussions to explain the sustainability concept in detail. In order to achieve the best possible lifecycle carbon footprint as part of the DGNB Gold certification, around 70 per cent of the concrete used for Sundmolenpier was carbon-reduced. Since 2017, when the initial plans for the new headquarters were drawn up, the team had been in dialogue with Danish cement manufacturer Aalborg Portland, which was researching a CO2-reduced cement. The resulting material, now marketed as FUTURECEM®, produces up to 30 per cent less CO2 emissions than conventional Portland cement, as 35 per cent of the energy-intensive clinker is replaced with limestone and calcined clay.

FUTURECEM® is more viscous than less sustainable alternatives, meaning special production and formwork procedures had to be developed in collaboration with the shell manufacturer LM Byg A/S and the concrete supplier Unicon to enable the walls to be cast in-situ. The beams, which are approximately 3.6 metres high and 20 metres long, are a sandwich construction of 500 millimetres of load-bearing reinforced concrete, 350 millimetres of insulation and 100 millimetres of fair-faced concrete.

But why concrete and not timber? The location's harsh, salty environment is tough on any material, but the BIG team felt that challenges of corrosion and moisture would have been much more difficult to solve with a timber structure. In addition, the building had to accommodate materials from the surrounding port buildings.

BIG headquarters is heated and cooled solely by concrete core activation and passive ventilation, taking full advantage of FUTURECEM®'s heat storage capacity to regulate temperature. Energy piles are used as a heat source and the heat pump is supplied with electricity from the building's own photovoltaic system.

There are reasons beyond aesthetics for leaving surfaces untreated. Over the years, exposed concrete can reabsorb climate-damaging CO2 through carbonation. The carbon dioxide reacts with the calcium hydroxide in the concrete to form calcium carbonate, or limestone. This effect also has a small impact on the ecological balance.

Skypark Business Centre South with powerful timber hybrid construction

The Skypark Business Centre South at Luxembourg's Findel Airport, also designed by the Bjarke Ingels Group, stands in stark contrast to the concrete minimalism of the BIG headquarters. While the underground areas of the low-energy building are mainly made of reinforced concrete, the 30.5-metre-high superstructure is one of the largest timber constructions in Europe. Instead of a single, elongated body, the building, which consists of two three-storey structures, meanders along the airfield over a length of 365 metres. The design not only optimises usable space, but the geometric zig-zag grid also creates separate, light-flooded courtyards for maximum daylighting. The upper structure is rotated 180 degrees, creating lush green roofs and terraces on three levels. The artificial biotopes provide space for flora and fauna, collect rainwater, reduce the building's cooling load and improve the microclimate and air quality.

Double-glazed façade to reduce heat, noise and glare

Skypark has been designed with a remarkably energy efficient double-glazed façade. The outer layer consists of a zigzag of transparent and opaque elements to provide noise and wind protection. The inner triple-glazed mullioned face provides additional thermal insulation, and the space between the façades is fitted with individually controllable blinds. The ground floor has a structural glazing look and acts as a light, transparent base for the upper floors. As with the rest of the building, the edges of the ground floor are rounded to allow uninterrupted panoramic views.

The storey-high, concave and convex curved insulating glass units for the corners of the glass façade were manufactured by the Münsterland-based glass processor Finiglas on behalf of the façade constructor Kyotec Luxembourg. Each corner consists of four panes measuring 2999 x 4861 millimetres with a radius of 7698 millimetres. Installation specialist Heavydrive was on site with its VSG 1300 KR vacuum suction system and Konter 3000 counterweight system to install the curved units under an overhang of 2602 millimetres.

The required glass performance and a Ug value of less than 0.5 W/m²K could only be achieved with triple glazing and specific thermal and solar control coatings. The pane construction, using Guardian Ultra Clear as the base glass, consists of 13.52 millimetre laminated safety glass with various solar control coatings on the weather side, a thermal insulation coating on the 6 millimetres thick centre pane and a 17.52 millimetres laminated safety glass pane, partly with an acoustic interlayer.

‘The units are not inserted into a frame, but are fixed in the edge seal using the Siltal joint, which is common in the Benelux. The glass façade is actually designed as structural glazing, since the bonding is done through the edge seal and only the laminated safety glass pane on the interior side is mounted on the mullion,' says Mirko Heeringa, project manager at Finiglas.

Production and performance are some of the benefits Super Spacer® insulating glass spacers

Although Finiglas' production is designed for large formats, triple-glazed units are something special. Each of the more than 160 curved triple insulating glass units that Finiglas supplied to Luxembourg weighs more than 1300 kilograms. The requirements for reproducibility and handling were

particularly high for this project. We had five individual panes, each weighing up to 600 kilograms, hanging from the crane for the assembly of the 130 units, which had to be precisely laminated and insulated. Given the weight and size of the panels, we adapted our processes accordingly. For example, we designed special tools and handling equipment," Heeringa continues.

Finiglas used the 16 mm Super Spacer® TriSeal™ Flex black' from Edgetech/Quanex as a spacer. 'The Flex has several advantages for us in insulating glass production,' confirms Heeringa and continues: 'It is a little stronger than the Super Spacer products we normally use, so it always remains stable and precisely in position when the second and third panes are placed.' Christoph Rubel, European Technical Manager at Edgetech Europe GmbH in Heinsberg, emphasises the properties of the Super Spacer® within the insulating glass unit: 'Wind and climatic loads can work quite hard in a 16 millimetre gap between the panes. This is where a spacer made of structural silicone foam really comes into its own thanks to its flexibility and 100 per cent resilience. The elastic silicone material keeps the edge seal intact and thus guarantees the energy efficiency and durability of the insulating glazing.'

Why Gas Filling Is Essential for Energy-Efficient Windows | Sparklike

When it comes to energy-efficient windows, the role of gas filling in insulating glass units (IGUs) cannot be overstated.

While the materials and coatings on the glass are important, the invisible layer of inert gas between panes is the secret behind enhanced insulation, reduced energy costs, and enhanced comfort. In this blog post we explore how proper gas filling transforms windows into powerful tools for energy efficiency and sustainability.

What Is Gas Filling and Why Does It Matter?
Gas filling involves injecting an inert gas, such as argon, krypton, or xenon, into the space between the panes of a sealed unit. These gases are chosen for their low thermal conductivity, which significantly slows down heat transfer. Properly filled IGUs reduce energy loss, maintain indoor temperatures, and help homeowners save on heating and cooling costs.

Xenon: The most effective but also the most expensive, used in premium applications.
Argon: Most used due to its balance of affordability and thermal performance.

Krypton: Offers higher insulation properties, especially for units with thinner gaps, but at a higher cost.

Why Gas Filling Is Essential for Energy-Efficient Windows

How Gas Filling Improves Energy Efficiency

Windows are one of the largest contributors to energy loss in a building, accounting for up to 30% of heating and cooling energy use, according to the U.S. Department of Energy. Proper gas filling helps address this issue by:

1.Reducing Thermal Transfer:

The inert gases minimize convection and conduction between glass panes, keeping heat indoors during winter and outdoors during summer.

·Double-glazed windows with argon filling can improve thermal efficiency by up to 20-30% compared to air-filled units.

2.Enhancing U-Value:

Gas fill lowers the U-value of the IGU, a critical metric for measuring thermal performance. Units with argon levels above 90% achieve significantly lower U-values compared to those with 60% or less. In other words, without gas the u-value can be 30% worse than the specified u-value. The lower the U-value, the better the insulation. For example:

·An air-filled double-glazed unit typically has a U-value of 2.8 W/m²K, while an argon-filled unit can achieve values as low as 1.2 W/m²K.

3.Supporting Energy Standards:

Gas-filled IGUs are essential for achieving certifications such as Energy Star, which promote energy-efficient building practices.

Indoor Comfort and Noise Reduction

Gas filling also contributes to:

Temperature Consistency: By reducing heat transfer, gas-filled windows maintain a more stable indoor temperature, reducing cold spots near windows.

Noise Insulation: Inert gases add density to the unit, which helps in dampening sound, making them ideal for buildings in noisy environments.

Sustainability Through Gas Fill

Gas-filled windows contribute to sustainability and greener construction practices by:

Aligning with global sustainability goals and energy directives, such as the EU's Energy Efficiency Directive.

Reducing the need for heating and cooling, lowering carbon emissions.

The Importance of Accurate Gas Filling

Achieving these benefits depends on precise gas filling and measurement during production. Key considerations for manufacturers include:

Correct Gas Concentration: Ensuring at least 90% fill levels, as required by ASTM E2190-10.

Leak Detection: Regular quality control to identify seal failures and prevent gas loss over time.

Advanced Tools: Using non-invasive gas analyzers like the Sparklike Laser ensures accuracy without damaging the unit.

Conclusion

Gas filling is not just a technical process—it's a cornerstone of modern, energy-efficient window design. By prioritizing proper gas filling and quality control, manufacturers can deliver superior IGUs that enhance energy savings, indoor comfort, and sustainability. For homeowners and builders, this means smarter investments in windows that truly perform.

76% of Thermoseal Group products manufactured in-house in 2024

Over three-quarters of all products sold by specialist IG component maker and distributor, Thermoseal Group, were manufactured in-house at its UK sites, in 2024.

Investment in the automation of Thermobar production has seen the Group's annual production capacity more than double, with further investment in tooling, injection moulding, transport, recycling and testing at its Birmingham and Wigan facilities.

Mark Hickox

Thermoseal Group's Sales Director, Mark Hickox, said: "As part of the Fenzi Group, we have access to Europe's most comprehensive product range, but we're also proud to have manufactured more than three quarters of what we sold last year, here in the UK.

"Producing the bulk of our offering in-house means we can guarantee they will meet the highest quality standards. Utilising our knowledgeable staff, extensive EN1279 lab testing facilities and decades of experience in our field, we can offer our customers, at home and overseas, the best products and service available."

According to the latest test results from IFT Rosenheim, also approved by the British Fenestration Rating Council (BFRC) in the UK, Thermoseal Group's Thermoflex product is now the best performing flexible silicone rubber spacer bar in the world, adding further testament to the quality of its warm edge products.

"The importance of the fact that we both manufacture the majority of our own products and test them in-house cannot be overstated", added Mark.

"In our R&D phase, we have full control over the testing of our new products, to ensure that they not only perform well, but that they also work perfectly with other products in a complete unit. Once they have met our testing criteria, we are then able to manufacture them to our own rigorous quality standards to deliver high-performance products for our customers – guaranteed."

76% of Thermoseal Group products manufactured in-house in 2024

Voilàp Glass acquires majority stake in Mappi International

Acquisition Enhances Voilàp Group's Position in the Glass Processing Technology Sector

Voilàp Glass, the holding company formed by Voilàp S.p.A. and Mamisa, the holding company owned by the Spezzani Family, has announced the completion of its acquisition of a 51% majority stake in Mappi International. Mappi is renowned for its expertise in designing and manufacturing equipment for glass tempering and laminating.

The remaining 49% of Mappi International's shares will remain with Nancy Mammaro, who, along with Ermanno Petitti, will continue to lead the company, ensuring its growth trajectory as President and CEO.

This strategic acquisition further consolidates Voilàp Group's presence in the glass processing machinery sector, complementing its investment in Keraglass.

The acquisition was supported by Deloitte for financial services, PedersoliGattai for legal matters, and PPI & Partners for fiscal consultancy. Mappi International received legal support from Rödl & Partner and economic guidance from Dr. Daniele Salvati.

Valter CaiumiValter Caiumi, CEO of Voilàp Group, commented: "This acquisition, which builds on the success of our partnership with Keraglass, represents a crucial step in our strategic growth. It strengthens our commitment to delivering innovative, high-quality solutions increasingly tailored to our customers' needs. With two leading brands, Keraglass and Mappi, Voilàp is poised to continue its expansion while staying true to its shared vision and values."

Nancy MammaroNancy Mammaro, CEO of Mappi International, expressed her pride in joining the Voilàp Group: " I am confident that this new partnership will bring fresh expertise, synergies, and strategic insights, guiding Mappi toward new milestones while preserving the values and mission that have always defined us."

Mappi International Srl
Founded in 1993 in Latina, Mappi International is a leading designer and manufacturer of equipment for glass tempering and laminating. With over 30 years of experience and more than 300 references worldwide, the company operates out of its modern facility in Cisterna di Latina, with a notable presence in the U.S. market (Florida).

Voilàp Group
Voilàp is a multinational group that specializes in designing and manufacturing systems for smart industry and smart city applications, integrating interconnected hardware and software for data acquisition and management. A global leader specializing in the production of machines for processing materials used in sustainable buildings—such as aluminum, PVC, steel, and glass. Voilàp serves a wide range of markets, including construction (Smart Buildings) and various industrial sectors, such as aerospace, rail, automotive, lighting, renewable energy, and furniture. Through its advanced IoT solutions, the company applies its expertise in smart industry to innovate traditional sectors like retail, real estate, digital out-of-home (DOOH) advertising, and logistics. With a workforce of 1,600 employees across more than 60 countries, Voilàp reported a consolidated revenue of €390 million in 2023.

AGC invests in a new FINEO production line in Lodelinsart (Belgium)

AGC Glass Europe, the European branch of world leading glass manufacturer AGC, announces a major investment in a new insulating vacuum glass production line at its Lodelinsart site (Belgium). This ambitious initiative represents a consequent capital investment, underlining AGC's ongoing commitment to meet its customers' growing needs through innovation and high-technology.

The new production line is scheduled to start operations in the second trimester of 2026 and will enable AGC to significantly increase its production capacities of FINEO ultra-thin insulating vacuum glass in Europe, very close to its main customers.

FINEO, that has now obtained CE marking, is a new generation of insulating glass with a 0.1 mm vacuum that provides thermal insulation comparable to triple glazing, yet is much thinner and lighter. FINEO also makes it possible to significantly reduce the thickness of new window frames, thereby drastically reducing the required quantities of raw materials. These properties help to reduce CO2 emissions during both production and after installation.

According to Davide Cappellino, Chairman of AGC Glass Europe and President for Architectural Glass Europe and Americas: "FINEO will be vital for restauration and renovation of the windows and façades of Europe's vast building stock, many of which are poorly insulated but cannot easily accommodate thicker insulated glass. At the same time FINEO will also be a solution for new buildings due to its unrivalled thinness".

AGC will be working closely with its local stakeholders, customers and partners to ensure the success of this ambitious project and together shape a sustainable and innovative glass industry.

NorthGlass' First 18.3-Meter "Super Glass" Curtain Wall Successfully Installed

A Landmark Achievement in Glass Engineering

With the steady progress of the NorthGlass High-End Equipment Industrial Park (hereinafter referred to as the Industrial Park), the "Super Glass" curtain wall for the R&D Center Building—a flagship project within the park—was recently installed. This oversized, ultra-thick, and heavy glass facade is seamlessly embedded in the heart of the building, resembling a colossal silver screen. Its one-way perspective and high reflectivity make the structure both striking and unique, gleaming magnificently in the sunlight.

Unprecedented Dimensions: Maximum Height of 18.3 Meters

The facade of the R&D Center Building comprises 31 glass panels, including 19 on the south side, where the tallest piece measures an impressive 18.3 meters in height and 3 meters in width. These panels, made of 5-layer laminated insulating glass, include one that weighs a staggering 8.8 tons. This achievement sets a new benchmark in the industry for panel size, coating, and layer count.

On the north facade, 12 panels were installed, the tallest of which is 12 meters high. The lobby entrance features eight 8-layer thick glass ribs, each with a thickness of 126 mm. Additionally, a 20-meter-long and 6-meter-wide all-glass corridor connects the R&D building to the factory, adding a futuristic touch to the complex.

Pioneering Tempering Furnace Technology

Leveraging its world-leading glass processing expertise, NorthGlass has continued to push the boundaries of innovation, particularly in controlling quench marks and stress spots on ultra-large glass. By refining glass heating partitions, enhancing temperature distribution control, and incorporating advanced algorithms for precise cooling, NorthGlass ensures superior tempering quality for these massive panels.

High-Reflection Bright Silver Coating

NorthGlass has also made significant advancements in high-reflection bright silver coating and high-transparency double-silver Low-E energy-saving technology. These innovations have enabled the development of ultra-large unidirectional perspective coating products up to 24 meters in length. The result is an extraordinary combination of interior privacy and high light transmittance. The lobby and office areas on the ground floor of the R&D Center Building exhibit a seamless, mirror-like visual effect that integrates top-to-bottom design elegance.

Ingenious Pedestal Structure

This Industrial Park project marks NorthGlass' second major ultra-large glass installation, following the 19-meter self-supporting polygonal structural glass at the Culture and Art Center in Anji's "Two Mountains" Future Science and

Technology City. The installation employs an innovative pedestal connection system, incorporating spring bearings to minimize deformation under wind load. This design provides enhanced cushioning and adaptability, ensuring long-term stability and durability.

A Global Vision

As the only A-share listed company in China specializing in tempering equipment, NorthGlass' Deep Processing Division supplies ultra-large curtain wall glass to renowned buildings across over 110 countries, including the US, Germany, the UK, and France. A provincial key initiative, the Industrial Park spans 510 acres and is dedicated to R&D and manufacturing of advanced glass processing equipment, automated intelligent production lines, and groundbreaking products such as the "TriTurbo" system. The project aims to establish a global hub for high-end equipment manufacturing, international trade, and technological innovation.

With prominent global participation featuring heads of state, Nobel laureates, and UN leaders: Sheikh Nahyan inaugurates the second edition of the Human Fraternity Majlis at the Abrahamic Family House

Abu Dhabi, United Arab Emirates / February 4, 2025: His Excellency Sheikh Nahyan bin Mubarak Al Nahyan, Minister of Tolerance and Coexistence, said “As we celebrate the International Day of Human Fraternity, I would like to express our thanks and appreciation to the President, His Highness Sheikh Mohammed bin Zayed AlNahyan. With his strong support, the historic Document on Human Fraternity was issued in 2019 in Abu Dhabi, in the presence of His Holiness Pope Francis And His Eminence Grand Imam Ahmed El Tayeb. Subsequently, the United Nations recognized this important document by designating the 4th of February as International Human Fraternity Day. Under the wise leadership and guidance of the President, we are a country of peace and harmony – a country that promotes tolerance and fights intolerance – a country committed to achieving a peaceful pluralistic global society – and a country dedicated to the achievement of peace and progress for all peoples of the world. His Highness the President is a strong advocate of human fraternity and is committed to leading us towards a future where all human beings work diligently together in order to build a peaceful world, a safe world, and a prosperous world for all people everywhere. Thanks to his vision for our present and our future, we are a country that is, without a doubt, one of the most peaceful, prosperous, and tolerant countries in the world.”

His Excellency made these remarks during the inauguration of the second edition of the Human Fraternity Majlis, organized by the Zayed Award for Human Fraternity - in collaboration with the Ministry of Tolerance and Coexistence; the Muslim Council of Elders; Abrahamic Family House; the Higher Committee of Human Fraternity; and the World Summit of Nobel Laureates for Peace. In the presence of José Ramos-Horta , President of East Timor and Afra Al Sabri, Director-General of the Ministry of Tolerance and Coexistence, the event brought together world leaders, Nobel Prize laureates, policymakers, youth leaders, and changemakers from over 20 countries as part of the celebration of the sixth anniversary of the

signing of the Document on Human Fraternity, to exchange ideas on solving global challenges to human fraternity.

The forum's speakers included: President of East Timor José Ramos-Horta; Deputy of Al-Azhar Al-Sharif H.Em. Professor Dr. Mohamed Al-Duweiny; Chairman of General Authority of Islamic Affairs, Endowments and Zakat H.E Omar Habtoor Al Darei; former president of the European Council Charles Michel; First Lady of Colombia Verónica del Socorro Alcocer García; Secretary-General of the Commonwealth the Rt Hon Patricia Scotland; and representatives of the Holy See and Al-Azhar.

During opening remarks, H.E. Sheikh Nahyan bin Mubarak Al Nahyan emphasized: "A Majlis that is open to all visitors is a cherished tradition in the United Arab Emirates. It is an expression of the Arab and Islamic concept of hospitality, getting to know one another, building consensus around major issues, and creating a spirit of community and solidarity. In that spirit, I welcome all of you to the second annual Human Fraternity Majlis. I commend your energy, your intellectual engagement, and your ideals, and I am excited to anticipate all the good that will come from this Majlis."

"It is a great privilege to hold this Majlis at the Abrahamic Family House in celebration of the International Day of Human Fraternity. I am hopeful that this important symbol of our country's strong commitment to tolerance and human fraternity will be an especially motivating setting for all of us to be engines of tolerance and positive change in the world. His Excellency added.

Praising the inspiring messages of His Holiness Pope Francis, and His Eminence Grand Imam Ahmad El Tayeb, His Excellency said: "They call on us to work together in carrying out our shared responsibility for achieving tolerance, peace, and human fraternity in our world. We are strongly motivated by their strong conviction that peace and tolerance promote the qualities and experiences that unite—rather than divide—all people, and enables a collective pursuit of progress, wellbeing and happiness for all."

Expanding on these important messages, His Excellency noted: "We are acutely aware that their call for tolerance, peace, and human fraternity is challenged by many regional and global conditions. Communities across the world face challenges regarding health, the environment, economic development, education, and international peace and understanding. Wars and

conflicts persist. Cultural differences and economic difficulties derail cooperation in some cases and lead to harsh competition. Religious differences provoke suspicion, where it should promote appreciation for our common quest for spiritual fulfillment. It sometimes appears that our cultural, economic, political, and religious differences have become sources of intractable conflict, rather than the basis for mutual respect and a common ground for problem solving."

"I am, however, very optimistic thanks to the spirit of the document of human fraternity and to the messages of hope we just heard from the Pope and the Grand Imam. There is indeed hope for a new era of tolerance and peace in our world. For this new era of peace and tolerance to take root, it is supremely urgent that we not only understand the bonds that unite us as members of a global community, but that we actively promote and re-enforce them. We must also work together to promote the inclusion of all regions of the world in the progress of humanity. We must work together to eradicate religious and cultural misunderstandings. We must encourage reform in our societies – eradicate poverty, achieve safety and security, and open economic opportunities to all citizens. We must unleash the full power of education as an effective tool for building positive relationships, dispelling stereotypical attitudes, and nurturing new ways of thinking. We must also celebrate successful models around the world that demonstrate that peace and tolerance within diverse human societies is a positive and creative force for development and stability." His Excellency expressed.

His Excellency also called on attendee's to remember the collective capacity to build peace, tolerance, and coexistence through united action. He emphasised that there is more that binds people together than separates them and that similarities far outweigh differences. He urged a commitment to finding the common ground necessary to heal and prevent the conflicts that afflict humanity. At the same time, he highlighted the importance of celebrating the tremendous advances made—the countless examples of cultural exchange, cooperation, and respect that embody the hope of a new era of peace and prosperity in the world. He expressed his hope that during the discussions, there would be consensus on the necessity of regional and international cooperation in achieving shared goals for the future of the world.

President of East Timor H.E. José Ramos-Horta said: "I would like to emphasize that human

fraternity is a shared mission for all of us present here today and indeed for all of humanity. Promoting human fraternity requires all generations, all nations, all sectors of society to unite in solidarity and coexistence, we must patiently listen to each other and show empathy for the suffering of others, and engage in respectful communication."

Secretary-General of the Zayed Award for Human Fraternity H.E. Judge Mohamed Abdelsalam affrimed that the Human Fraternity Majlis aims to foster the exchange of ideas and perspectives to develop an effective strategy for implementing the principles outlined in the Document on Human Fraternity, which originated from Abu Dhabi, the capital of tolerance.

He highlighted that this historic document, signed by His Eminence Dr. Ahmed Al-Tayeb, Grand Imam of Al-Azhar, and His Holiness Pope Francis, Head of the Catholic Church, has, since its signing in Abu Dhabi in 2019, sparked a global movement that has significantly contributed to promoting the values of dialogue, tolerance, and peaceful coexistence.

He emphasized that the United Arab Emirates, under the leadership of President His Highness Sheikh Mohamed bin Zayed Al Nahyan, Patron of the Document on Human Fraternity, stands as a pioneering model in spreading and advancing the values of human fraternity.

"The Zayed Award for Human Fraternity carries forward the values of the late Sheikh Zayed bin Sultan Al Nahyan, the founder of the United Arab Emirates, whose enduring humanitarian legacy continues to inspire generations." He added.

He also expressed his deep appreciation for the efforts of His Excellency Sheikh Nahyan bin Mubarak Al Nahyan, Minister of Tolerance and Coexistence, whose actions and character truly reflect the essence of tolerance.

Commonwealth Secretary-General the Right Honorable Patricia Scotland KC, a member of the 2025 Zayed Award for Human Fraternity judging committee, stated that "it is incredibly important for those who believe in human fraternity to bind together with determination - it is by our deeds the world will know peace."

First Lady of Colombia Verónica del Socorro Alcocer García said: "True human fraternity lies in unity, not division. Love is charity, but charity is more than material giving, it is listening and standing together as one. Dialogue is the path to resolution."

Former President of the European Council and former Prime Minister of Belgium, H.E. Charles Michel said: "If we want to be fair and just, cultural diplomacy stands more important than ever. We need to encourage each other to listen actively to one another and only then will we be able to make well informed choices and decisions."

Youth Leading the Charge for Unity and Peace

The Majlis also spotlighted the role of youth as catalysts for change, with young participants sharing how they use their voices and platforms to promote unity and peace, both locally and globally.

Thirteen-year-old Ghaya al-Ahbabi, the youngest UNICEF youth advocate for COP28, addressed the majlis, saying: "I stand before you, representing the young people of today, who will be the leaders of tomorrow. Let us stand together and show the world that no matter where we come from, no matter our differences, we are all part of the same human family."

The event reinforced the importance of collaboration and dialogue across people of all generations and backgrounds as fundamental tools for building a better, more unified world. Discussions reflected the ongoing commitment of the United Arab Emirates to uphold human fraternity as a guiding principle of peace and coexistence, focusing on the UAE as the birthplace of the Document on Human Fraternity and the Zayed Award for Human Fraternity.

Discussions – which included dialogue with a youth audience – centered around various key topics, most notably the role of diplomacy in bridging global divides and addressing global challenges, building inclusive societies, and empowering youth as future leaders of human fraternity.

Hrastnik1860 provides update on hybrid glass furnace

Hrastnik1860, a member of the Vaider Group, officially launched the entry into operation phase of its hybrid furnace project at its recent sustainability event in Slovenia.

As part of the Vaider Group's Sustainable Week, Hrastnik1860 hosted a two-day event in Slovenia to commemorate the beginning of the entry into operation phase of its hybrid end-fired regenerative furnace (BEAR) project.

The hybrid furnace will help reduce carbon emissions while maintaining a high glass quality.

The technology reduces natural gas consumption by up to 50% for melting process compared to the best available technologies.

The furnace will also use a higher proportion of electricity for operation, up to 40%, which surpasses the current industry norm of 5-10%.

Over the next decade, the furnace will help to avoid more than 100,000 tonnes of CO2 equivalent emissions.

This reduction is enough to offset the total yearly greenhouse gas emissions of 20,000 households in the Zasavje region, where Hrastnik1860 resides.

Peter Čas, CEO of the Vaider Group, said: "The Vaider Group, with Hrastnik1860 at the helm, wants to create a legacy of outstanding glassmaking that puts sustainable innovation into practice, ensures top quality and protects our planet for the future.

"Our vision is to combine centuries of craftsmanship with the power of state-of-the-art sustainable technologies to redefine the future of glassmaking."

The BEAR project has an investment value of €3,730,000, 60% of which is financed by the EU Innovation Fund.

The hybrid furnace is designed to align production with the availability of renewable energy sources, making it adaptable to the demands of a sustainable energy future.

It will be integrated into a hybrid energy storage system, coupling it with a locally available photovoltaic (PV) power plants.

This collaboration, a part of the Horizon Europe i-Stentore project, will enable renewable energy sources and glass production to further contribute to achieving the goals of the green transition.

Gorazd Krese, BEAR Project Co-ordinator, said: "Within the Horizon Europe project Citadel, we are already working to increase the boosting share of the hybrid furnace, which will enable even further decarbonisation in 2027."

In the last three years, Hrastnik1860 has expanded its own PV capacity by 1.5 MWp and transitioned to 100% clean electricity sourcing, reducing indirect GHG emissions.

In the future, the manufacturer is committed to sourcing more renewable energy locally and encourage building energy communities that promote energy independence and resilience.

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Sparklike Delivers Its 2000th Handheld Unit to Insul-Lite Manufacturing

Sparklike is proud to celebrate a major milestone: the delivery of their 2000th Sparklike Handheld device to Insul-Lite Manufacturing.

A Legacy of Excellence at Insul-Lite Manufacturing
Founded in 1988 by Ed King, Insul-Lite Manufacturing has grown into a prominent supplier of sealed insulating glass units (IGUs), serving window manufacturers, glass shops, and glaziers. Under the leadership of partners Glenn & Anne Chong, Troy Layton and Michael Andrade of Brass Equities, Insul-Lite continues to specialize in residential window solutions, maintaining an unwavering commitment to quality.

“We are known for producing high-quality sealed glass units that meet and exceed industry standards,” shared the team at Insul-Lite. “For us, quality is not just a target – it’s what defines our reputation.”

Insul-Lite Manufacturing testing IGUs with Sparklike Handheld™Insul-Lite Manufacturing testing IGUs with Sparklike Handheld™

The Challenge: Ensuring Consistent Gas Fill Quality
Before acquiring Sparklike technology, Insul-Lite relied on an automated production line that utilized the chamber fill method to achieve argon fill rates between 93% and 97%. However, they faced a critical gap in their quality control process: there was no method to verify the argon gas concentration once the units were completed.

As an IGMAC-certified manufacturer, Insul-Lite must demonstrate consistent argon gas levels of 90% or higher to meet industry standards. Without a reliable measurement solution, verifying compliance remained a significant challenge.

Implementation and Initial Impressions
The implementation of the Sparklike Laser Portable was smooth and aligned with FREOR’s goals. With this device, they can now provide transparent quality data to clients and address any concerns with measurable evidence. This capability not only strengthens their client relationships but also supports their certification processes. FREOR noted that the device is highly professional and requires routine calibration and maintenance to ensure optimal performance.

Why Sparklike Was the Perfect Fit
The search for a dependable gas measurement solution led Insul-Lite to Sparklike. Having spent over 16 years in the industry, their team was already familiar with Sparklike’s strong reputation.

“We’ve only heard positive things about the Sparklike Handheld device,” shared the team. “The fact that it’s portable and allows us to test gas fill levels directly across our production lines made this purchase a no-brainer.”

Insul-Lite Manufacturing testing IGUs with Sparklike Handheld™

Integrating Sparklike Into Production
With the Sparklike Handheld now on-site, Insul-Lite has seamlessly integrated gas fill verification into their daily production workflow.

“Each day, we test units from both our automated production line and our manual line to ensure they

meet IGMAC standards," said Insul-Lite. "This process allows us to maintain the high-quality products we're known for and gives our customers complete peace of mind."

Enhancing Quality, Performance, and Customer Trust
The ability to measure gas concentration accurately has enabled Insul-Lite to deliver on their promise of high-performing IGUs.

"The integrity of an IGU lies in both appearance and performance. The Sparklike Handheld ensures we excel in the latter," explained Insul-Lite.

By consistently validating gas fill rates, Insul-Lite not only enhances product quality but also strengthens trust with their customers, who can be confident that their orders exceed industry benchmarks.

The Future: Consistency and Quality
Looking ahead, Insul-Lite plans to use the Sparklike Handheld to address key challenges and maintain consistency in their production processes.

"Our goal is simple: to produce IGUs that meet the highest standards every single time. With the Sparklike device, we can continue to deliver exceptional quality while ensuring compliance with industry requirements."

A Milestone Worth Celebrating
The delivery of Sparklike's 2000th Handheld unit to Insul-Lite Manufacturing marks a significant achievement. As Sparklike continues to support the insulating glass industry with innovative solutions, this milestone highlights the growing global demand for reliable gas measurement technology.

Congratulations to Insul-Lite Manufacturing for joining us in this achievement and for their ongoing commitment to producing IGUs of unmatched quality.

TricorBraun to acquire Euroglas and Glaspack

TricorBraun has entered into an agreement to acquire European glass packaging suppliers Euroglas and Glaspack.

These acquisitions will expand TricorBraun's packaging footprint in the DACH region (Germany, Austria, and Switzerland).

The transaction is expected to close in the first quarter of 2025, subject to having received required regulatory approvals.

Mark O'Bryan, COO of TricorBraun, said: "Euroglas and Glaspack are known for their quality, innovation, and customer service, and they've built longstanding businesses with impressive reputations.

"Combining Euroglas' and Glaspack's expertise in key end markets with TricorBraun's own supply chain and regional presence will provide new opportunities to support our customers' growth in Europe."

Euroglas provides packaging for the food, beverage, and spirits sectors, while Glaspack provides packaging for the wine, beer, and food sectors.

Cristoph Jäckle, Managing Director, Euroglas, said: "Joining TricorBraun is an exciting new chapter for us.

"By working together, we can provide access to global resources and expertise while maintaining our dedication to quality and local customer service."

All Euroglas and Glaspack team members will remain with TricorBraun and continue to work out of the companies' existing locations.

Effective upon the close of the transaction, Euroglas will be known as Euroglas, a TricorBraun company, and Glaspack will be known as Glaspack, a TricorBraun company.

Auer Lighting relies on advanced technology from HORN

Auer Lighting GmbH continues to set benchmarks with innovative and sustainable solutions.

Auer Lighting GmbH is a leading company in the lighting industry and is known worldwide for its innovations and high quality. Speciality glasses have been manufactured in Germany for more than 75 years. Auer Lighting's high-quality products are used in numerous industries such as automotive lighting, architecture and medical technology.

As a subsidiary of HORN, JSJ Jodeit received an order from Auer Lighting in May 2023 for a new hybrid furnace for the plant in Bad Gandersheim. The order included the furnace with three forehearths and a transition to existing forehearths.

With a melting area of 19.1 m², the hybrid furnace is designed for a total melting capacity of approx. 20 t/d of borosilicate glass. It is cross-fired as a natural gas and oxygen furnace and is equipped with direct electric boosting.

To support both the melting process and the refining of the glass, several additional electric boosting systems (HORN E-Fusion Power Boosting) are installed in the bottom of the melting tank. This means that the maximum pull rate can be melted particularly flexibly with both 100% fossil energy and up to approx. 30% electrical energy.

With the commissioning of the new all electric glass melting furnace, another important step has been taken towards production with lower CO2 emissions. This hybrid furnace is an example of adapting to changing market requirements while at the same time improving performance. The furnace operator can now react extremely flexibly to energy price fluctuations by shifting the proportion of electrical energy while maintaining the same high glass quality.

The new furnace was built and commissioned from mid-June to mid-August 2024 under the supervision of JSJ Jodeit. Thanks to the excellent cooperation with Auer Lighting, the entire project was successfully completed within the specified schedule and the new 20 t/d hybrid furnace was commissioned on time.

RCN Solutions, supplier of Quendoz Glas AG, Switzerland

Quendoz Glas AG enhances production with RCN's bending and laminating solutions.

Quendoz Glas AG, located in Zurich, is an owner-managed family business with nearly a century of experience in glass construction and processing, offering a wide range of products and services. Aware that customer support is fundamental, the company has developed technical assistance from the project stage to final installation, providing turn-key solutions.

Founded by Albert Quendoz in 1927, the company specializes in custom-made products, focusing on glass design and proposals for both interiors and exteriors. Over the years, Quendoz expanded its range of services and specialized in surface technologies and bespoke products, thanks to the involvement of several family generations.

Today, Quendoz employs around 35 people, and the fifth generation has recently taken over, bringing fresh ideas and a focus on technology to the management team.

Guided by the belief that glass is “diversity and uniqueness combined,” Quendoz has enhanced its machinery by investing in a bending kiln and a laminating machine to improve its special glass product offerings.

After exploring market options, Quendoz visited RCN for a demonstration and discussion on available solutions and decided to purchase an ECO SPECIAL 3500 bending kiln (active size 3500x2100xh900mm). This kiln features six heating zones—three upper and three lower sections—that work independently to distribute heat where it's most needed, based on the curve being processed. It also includes six inspection windows, automatic opening, and remote control.

This heating system allows for the production of complex, perfectly shaped curves without imperfections or distortions, making the lamination of curved glass easier. Quendoz, a supplier for glass installations in boutiques for major Swiss brands known for luxury chocolates and watches, requires high-quality products for these installations.

For this reason, Quendoz also decided to purchase a laminating machine: the LAMMY SYSTEM 180, single shelf (active size 3000x1800mm), complete with one Silikosft bag, specially designed for lamination of curved glass, and an Eva roll-holder.

The combination of bending and lamination is particularly important for safety products and provides elegant, special installations for both outdoor and indoor settings. This is why RCN focuses on producing machines for special products, offering added value and catering to the future of the glass market.

Both kilns have been successfully installed, and we are confident that Quendoz will deliver exceptional production quality, backed by their experience and professionalism. RCN’s team provided all the necessary technical service to ensure the customer could start production immediately, without downtime, using the REVA BF laminating interlayer. The combination of RCN’s machines with REVA BF ensures accurate lamination, excellent results, and consistent quality.

RCN SOLUTIONS is grateful to Quendoz Glas for choosing RCN and for their cooperation during installation.

Saint-Gobain celebrates 360 years with the global campaign “360 Years Young”

In 2025, Saint-Gobain celebrates its 360th anniversary, marking the Group’s global influence, pioneering spirit, and holistic, circular approach.

On this occasion, Saint-Gobain is launching an unprecedented international communication campaign entitled “360 Years Young”, designed to honor its heritage while asserting its bold vision for the decades ahead.

Starting in January 2025, Saint-Gobain will roll out a rich program of activations for its 160,000 employees and external stakeholders throughout the year. This ambitious plan will spotlight the Group’s core values, iconic achievements, and commitment to building a healthier, fairer, and more inclusive world. It will also reaffirm the role of sustainable construction as a strategic solution to contemporary global challenges - including climate change, resource conservation, and providing dignified housing for all amid demographic pressures and increasing urbanization.

The campaign has multiple objectives: celebrating Saint-Gobain’s legacy, strengthening its image as a global leader in sustainable construction, and uniting employees around a shared vision. It also aims to attract tomorrow’s talent, engage with strategic stakeholders, and deepen ties with the Group’s clients and partners.

“360 Years Young embodies our ability to reinvent ourselves while honoring our heritage. It is a celebration of our pioneering spirit and collective commitment to building a more sustainable and inclusive future,” said Laurence Pernot, Saint-Gobain Group’s Chief Communications Officer. “This anniversary is a unique opportunity to amplify our global influence and share our ambition to make the world a more beautiful and sustainable common home.”

The highlights of the campaign include:

A manifesto film under two minutes long, showcasing 360 years of construction, innovation, passion, and global impact by Saint-Gobain.
A journey across nine strategic destinations. From February to November, Saint-Gobain will visit key markets - including the United States, France, Brazil, South Africa, Australia, China, India, the United Arab Emirates, and Poland - to celebrate innovation for sustainable construction. These events will gather employees, clients, and partners to highlight local and global solutions. The journey will be accompanied by the 360 Video Series, a documentary series featuring nine episodes of 360 seconds each, exploring emblematic projects and innovative initiatives reflecting the Group’s purpose: Making The World a Better Home Each stop will be revealed through a FOOH (Future Out of Home) campaign shared on social media. Stay tuned!
A special webpage for the 360th anniversary will be available on the Group’s website, accessible via the following URLs:
o www.saint-gobain.com/fr/360-ans(FR)
o www.saint-gobain.com/en/360-years(EN)

This page will include all campaign content for external audiences, including videos (360 Manifesto Film, FOOH Happenings, 360 Video Series).

To give this celebration a unique voice, Saint-Gobain has enlisted two international ambassadors: François Gemenne, a climate expert and IPCC contributor, and Charlotte Kan, a journalist renowned for her human-centric stories from around the world. Their mission is to embody the spirit of the campaign by sharing their experiences at key events, narrating the Group's initiatives, and enhancing its visibility on social media and in international media. To orchestrate this global campaign, Saint-Gobain is collaborating with the communication agency Human n' Partners, which is supporting the Group in designing and implementing this ambitious program.

AGC Glass Europe acquires SGT (Germany)

Effective 1 January 2025, AGC Glass Europe acquires Sicherheitsglastechnik Oelsnitz GmbH (SGT), Verwaltungsgesellschaft Schuler & Weiß OHG, and its subsidiary SG Transport GmbH, expanding its safety glass operations in Germany.

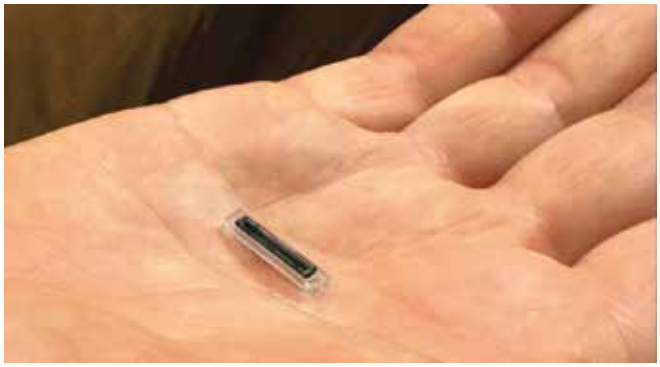
With a team of around 270 employees, SGT in Oelsnitz in the Vogtland region is manufacturing high-quality safety glass, which is used worldwide in glass facades and building interiors. With this acquisition AGC Glass Europe enlarges its European network, enhances its value chain, and strengthens its position as a leading provider of innovative glass solutions. The operations of the SGT production facilities in Oelsnitz will continue seamlessly, ensuring the supply of high quality products to all its customers.

By integrating SGT operations, AGC is also reinforcing its worldwide leadership position in the façade projects business, enabling AGC INTERPANE to supply all kinds of complex structures and coatings, as dreamed of by architects and building owners.

"With the acquisition of our long-standing partner SGT, we are increasing our European market share and strengthening our worldwide position, sending a strong signal to the global stakeholders of building projects", says Mr. Dany D'Hont, AGC's Vice President Downstream, Architectural Glass Europe and Americas.

"We have enjoyed an extraordinarily pleasant and successful collaboration with SGT for some decades, for which we would like to sincerely thank in particular Wolfgang Weiß and Joachim Schuler. They have created a solid company that stands for high quality, innovation and reliability - values that we at AGC fully share." highlights Sebastian Schmidt, Member of the Executive board of AGC INTERPANE.

Brain implant created using glass



A brain implant created using glass packaging from Schott will aid in the treatment of neurological conditions.

Medical technology company Kitea Health has developed a miniaturised brain pressure sensing device through its collaboration with Schott Primoceler.

The device will transform the treatment of neurological conditions such as hydrocephalus, the abnormal buildup of fluid in the brain.

It was implanted in a human brain for the first time in June 2024.

Simon Malpas, CEO of Kitea Health, said: “The outcome of the trials conducted so far give us the confidence that the implant can remain in the brain for the patient's lifetime.”

The device monitors intracranial pressure in real-time, helping prevent severe complications before they occur.

Schott’s Proteon all-glass encapsulation enabled the implant to be reduced to an unprecedented size.

Measuring a few millimetres and weighing 0.3g, it is an entirely wireless device with no built-in battery.

The Proteon packaging solution uses laser techniques without additives or environmental heat, making it ideal for protecting sensitive implant electronics.

Antti Peltonen, Business Development Manager at Schott Primoceler, said: “Our all-glass package can enable a new generation of smart medical devices that can improve patient outcomes while pushing the limits of what’s possible in medical implant designs.

“Nearly one million Proteon housings have already been produced for a range of applications, and we are excited to see what innovations are ahead.”

Kitea Health’s implant provides patients with pressure measurements at home by transmitting data to their smartphones.

This data can be shared with healthcare providers, allowing more informed decision-making and earlier interventions.

Mr Malpas believes this technology will reduce emergency hospital visits and improve the quality of life for patients.

He said: “Our implant is already showing great promise in initial trials.

“We are confident that as we continue to grow and scale, this technology will impact millions of lives around the world."

Kitea Health is conducting clinical trials with 20 patients and plans to expand to 150 patients in 2025.

By 2027, the company expects to secure FDA and CE mark approvals, allowing the device to enter global markets, including Europe, the US, and Asia.

Vitro Initiates Investment Plan to Produce Patterned Solar Glass

Vitro Architectural Glass has initiated a substantial investment plan to expand its Wichita Falls location for the production of patterned solar glass.

Vitro Architectural Glass has initiated a significant investment plan to expand its Wichita Falls, Texas, location to allow for the annual production of up to 25 million patterned solar glass lites upon completion. A $67.6 million investment tax credit allocation from the Internal Revenue Service (IRS) will enable this investment.

The Wichita Falls expansion will establish a new patterned solar glass facility, including a new furnace, a roll-forming chamber, and a cooling and production line.

“Today marks a significant milestone in Vitro's future,” said Adrian Sada, Vitro CEO. “We’ve completed several Department of Energy (DOE) and General Services Administration (GSA) awards and are ready to fulfill this new award at our Wichita Falls location, which has the necessary infrastructure, supply chain, glass operations and maintenance expertise to support current architectural glass production and a new patterned solar glass facility. We’re proud to be the only well-established and reputable company to receive an investment tax credit allocation of this type.”

This initiative demonstrates Vitro's commitment to innovation and addresses the rising demand for American-made solar glass products. By expanding its Wichita Falls location to accommodate a new patterned solar glass facility in the U.S., Vitro would be setting the industry standard, contributing to economic growth in Wichita Falls and creating approximately 290 new full-time jobs. Vitro would also collaborate with local and state agencies to provide apprenticeship opportunities for students from diverse economic backgrounds.

Vitro is in ongoing discussions with U.S.-based solar photovoltaic module manufacturers about sourcing patterned solar glass and is confident that it will shortly finalize binding agreements with customers seeking a reputable partner with more than a century of glass-making experience.

"Current partners and potential clients are enthusiastic about supporting the production of patterned solar glass made in America,” said Ricardo Maiz, President of Vitro Architectural Glass. “Sourcing this crucial component for solar modules domestically will reduce supply chain complexities and ensure product delivery reliability. This will also help U.S. installers meet the requirements for the Domestic Content Bonus of the Investment Tax Credit (ITC).”

In the Inflation Reduction Act of 2022, Congress appropriated $10 billion to the DOE, which announced $4 billion of round one funding in March 2024 and $6 billion of round two funding in January 2025. Solar glass is an eligible component under IRC Section 48C(e), Qualified Advanced Energy Project Credit, which includes property designed to produce energy from the sun.

Finstral & LiSEC Partnership

Discover how Finstral and LiSEC join forces to deliver sustainable solutions and ensure reliable window production.

Finstral is a family business that was founded in 1969 by the Oberrauch brothers and, with over 50 years of company history to reflect back on, can rightly claim to be a pioneer in window construction from South Tyrol. With around 1,650 employees and 14 sites – including four in Germany and ten in Italy – Finstral covers the entire value chain of window construction and has been run by the family's second generation since 2020, with a focus on sustainable success. Its portfolio ranges from profile development and glass production to final assembly. The company has been using LiSEC products since 1980 and has continuously expanded its LiSEC machinery.

Finstral: Quality, sustainability and innovation are key

Finstral offers a broad spectrum of products. These include the FIN-Window and FIN-Project products in various materials and designs, as well as front doors (FIN-Door), sliding doors (FIN-Slide) and glass walls (FIN-Vista). The products offer Finstral's customers a decisive advantage when it comes to modularity, quality, durability and aesthetics.

But the South Tyrolean company not only focuses on top quality products with high delivery reliability; it also considers sustainability and forward-looking future planning to be key – for example, Finstral plans to be climate-neutral by 2030. This goal has been supported by continuous monitoring since 2012 and ISO 50001 environmental certification. The company has already succeeded in bringing down its carbon emissions by around 80% and is only using green electricity. Furthermore, the organisation is also putting the buzzwords "digitalisation" and "automation" into practice and giving these solutions to the employees as tools. The aim is to increase employee motivation and replace redundant work processes with more challenging tasks using digital tools.

LiSEC & Finstral: Innovation, expertise and reliability

The co-operation between Finstral and LiSEC is a long-standing and fruitful partnership that began in the 1980s. Finstral sees LiSEC as a competent, innovative and reliable partner. "LiSEC designs and builds nothing without looking to the future, something that requires the right expertise – and LiSEC certainly has this in-house. This applies to production at LiSEC itself, production planning at the customer's premises and the handling of new projects," enthuses Florian Oberrauch, one of the managing directors at Finstral. "LiSEC's long-standing employees are an important factor in the company's expertise and therefore also its success. The company is constantly trying out new things and working on innovations. The connection between the machines and the software is just one way in which you can see the company's true innovative strength – just like the all.in.one:solutions. LiSEC's reliability is reflected

in the longevity of its machines; they run faultlessly over long periods of time and in doing so contribute to the company's efficiency and productivity."

Finstral at the Oppeano site: Highly automated glass processing for efficiency and quality
One of Finstral's most impressive production facilities is located near Verona in Italy. This plant uses highly automated production processes with machines from LiSEC and is not only a showpiece for LiSEC – Finstral is also delighted with this production facility and is proud to show off its perfectly designed system to its customers.

The plant includes a large glass storage facility with LiSEC crane solution PKL / SBH (fly-over). A special feature of this is the inloader removal system, where an HGV drives directly into the warehouse, sets down a glass storage rack and drives out again. The PKL / SBL suction bridge removes the sheet directly from the HGV rack and either takes it to the loading tables for cutting or stores it elsewhere in the glass storage facility. This process is fully automatic and requires no manual intervention by the operator.

A central remnant plate storage system (RPS) can be operated from all three cutting lines, which means that only one RPS is required. A GFB with VSL-A double bridge solution is available for glass cutting. This fully automatic configuration enables precise and efficient cutting of laminated glass. Another LiSEC GFB with VB for combined cutting is equipped with a breakout table on which the glass is processed manually. The finished sheets are then fed to the sorting system by the operator via a vertical measuring and feeding station. Pure

float cutting using ESL-RS offers automatic X and Y breaking, which further increases efficiency. The operator at the breakout table is only responsible for the Z-breaks and residual fractures, after which they push the sheets horizontally on the air cushion table into the sorting system. The situation is similar with the VSL-A: Once cut, the sheet is simply pushed along the air cushion to the tilting table and then fed into the sorting system. Another advantage of this system is that the operator can simultaneously check the quality of the sheets during transport on the air cushion. This not only increases efficiency, but also ensures high product quality.

After cutting, the sheets undergo various processing steps and can either be used directly for IG production or further processed using a LiSEC KSD machine, a LiSEC washing machine and a scanner for quality control. The sheets are then sent to the sorting area, and from there to the insulating glass line. Finstral operates two insulating glass lines, each with its own processing machine. Downstream of the washing machine is another quality scanner on both lines.

A production highlight for Finstral is the LiSEC VSL-A for laminated glass cutting. The logic with which the two cutting tables work and communicate together underwent continuous improvement in the first few months. "When you work with LiSEC, you are part of a team. Both parties seek to identify the best solution during joint meetings. We greatly appreciate the open relationship with LiSEC," says Florian Oberrauch, Managing Director at Finstral. The resulting optimisations led to a considerable increase in production volume; today, Finstral produces up to over 30 jumbo plates per shift. Optimum utilisation of the two cutting systems is a major step forward and means that as much can be cut on two cutting systems as would normally be possible on three systems. This saves on both space and investment volumes.

GS-MR Robotics PRO:Load to Load LiSEC Automated IG Lines

GS-MR's latest PRO:Load installations are all set to robotically load insulated glass onto LiSEC Automated Flexible Spacer IG manufacturing lines at Press Glass UK.

Two further GS-MR PRO:Load systems are replacing the standard manual glass loading process onto two of Press Glass UK's latest specification LiSEC Automated IG lines at their high-tech manufacturing site in Port Talbot, south Wales.

GS-MR's PRO:Load recently won the Robotics and Automation 2024 Industrial Innovation award and is patented in both the UK and USA with further global patents pending. It has been further developed to specifically accommodate the increase in demand within the IGU domestic market at Press Glass UK.

Robert Owen, GS-MR Director said, "Our original discussion with Press Glass UK in 2018 regarding what the future held for the glass industry highlighted the issues now being experienced by many glass processors. Press Glass UK maintain their industry lead as they continue to incorporate GS-MR's unique, proactive and meaningful automation within their day-to-day processes".

GS-MR Robotics are UK based designers and manufacturers of bespoke and production robotic automated solutions. Specialists within the global glass industry with unique, cost-effective, proactive solutions offering tangible returns on investment, solutions which are based around what the customer needs and not what the industry thinks they should continue to have.

A Kawasaki Robotics UK Preferred Integrator and member of the US National Glass Association.

A Unique Partnership: Commercial Display Systems and LiSEC Revolutionize the Refrigeration Door Industry

CDS partnered with LiSEC to enhance productivity and quality, strengthening its position in the refrigeration door industry.

In the heart of the refrigeration door industry, a unique opportunity was spotted by three partners with over 75 years of combined experience. They noticed a niche market of customers who were often overlooked by larger suppliers. Recognizing the potential, they founded Commercial Display Systems (CDS) in 2002 in Los Angeles, California. Today, CDS stands as independent refrigeration door company, experiencing strong growth year after year. When looking to increase productivity CDS came across LiSEC, which had the right solution for their special use case – an insulating glass line.

A Unique Partnership: Commercial Display Systems and LiSEC Revolutionize the Refrigeration Door IndustryA Unique Partnership: Commercial Display Systems and LiSEC Revolutionize the Refrigeration Door Industry

About the company Commercial Display systems
CDS specializes in manufacturing display doors and windows for refrigeration with 75 dedicated employees. How one can recognize this dedication? Every CDS Employee was sporting their best company outfits adorned with their logo, when the LiSEC team visited for this interview! Chapeau! The company sells most of its products in the USA, Canada and Mexico, as well as Central and South America through their Mexican

distributor. Their focus is on small customers and specialty applications. For CDS, 100 small customers are more important than one large customer. This customer-centric approach has been the driving force behind their success and growth making the company unique. Refrigerator display doors and windows with heating, often used in commercial establishments, are designed to keep products at low temperatures while providing clear visibility to customers. Their products may seem simple but there is a lot of technology behind them, as the doors and windows have integrated lightning and anti-condensation-heaters, so the glass does not frost up when the door or window is opened.

A Unique Partnership: Commercial Display Systems and LiSEC Revolutionize the Refrigeration Door IndustryA Unique Partnership: Commercial Display Systems and LiSEC Revolutionize the Refrigeration Door Industry

Tailored for Success: CDS's Unique Use Case with LiSEC's Glass Processing Machinery
In 2016, CDS began its cooperation with LiSEC, a leading provider of glass processing machinery. The partnership was initiated at the GlassBuild trade show in the United States, where CDS was impressed by LiSEC's insulating glass line and its accompanying software. After visiting a glass processing facility in Northern California, CDS was convinced that LiSEC was the equipment of choice. CDS Partner Fernando Calderon states: "We were falling behind our production schedule, so we looked at equipment to increase our productivity. At first, we did not consider a glass assembly line for our special use case. We just considered achieving a higher output through multiple glass washers with the ability to assemble more glass units. At that time glass assembly lines were introduced to us at a trade show, and we began to investigate. The response from LiSEC was very positive and we got the opportunity to see the equipment at a customer. We were very satisfied and impressed with the quality of the LiSEC equipment that we immediately decided what equipment we were going to purchase. That's where our relationship with LiSEC began."

A Unique Partnership: Commercial Display Systems and LiSEC Revolutionize the Refrigeration Door IndustryA Unique Partnership: Commercial Display Systems and LiSEC Revolutionize the Refrigeration Door Industry

How LiSEC Products Enhanced CDS's Production and Productivity
For the frame processing of the refrigerator doors and windows, CDS uses a LiSEC A1RL-F desiccant filler and a LBH-25V semi-automatic coating extruder for butyl. The LiSEC BSV-45NK is an automatic spacer bending machine, which helped CDS to more efficiency. Mr. Calderon highlights: "Before having a LiSEC bender we used to manufacture the spacer in four pieces, which was quite time consuming. The bender is excellent and allows us to be more efficient." The bending head is designed with a maximum expansion stage, allowing for the processing of various materials. In addition to aluminium, it can also handle stainless steel and plastic materials, which are cold bent. The machine is equipped with a profile magazine that has 4 slots and clamping mechanisms. These mechanisms relieve the lowest profile bars, ensuring frictionless removal.

A Unique Partnership: Commercial Display Systems and LiSEC Revolutionize the Refrigeration Door Industry

The IG line is equipped with a VHW-D20/V6 automatic washing and drying system, which guarantees that each glass pane is cleaned and ready for the next stage of processing. The SAF-1000 filter system significantly reduces water consumption and efficiently supplies the VHW-D20/V6 with recycled pure water. For the purposes of frame mounting and inspection, an RSV N-25/20S is utilised. The FPS-25/20U2B gas filling press with lifting spindle drive and fixed seal bar is employed for the assembly and gas filling of the units. Subsequently, the units are conveyed to the LiSEC VL-1N sealing system, which guarantees a perfect seal. Due to its uncomplicated mechanical construction, the sealing station ensures process safety and stability, as well as a high degree of operator and service-friendliness. The line also has LiSEC software integrated to guarantee the highest quality of the processed units. GPS.perfectscan enables the inspection of each individual glass sheet for visual defects. “At the insulating glass line, we insert a low-e-glass with a clear piece of glass, and with the glass spacer into the line. The glass is processed by the IG line and we end up with a completed sealed glass unit. Then we transport the glass units to the door assembly area, and we assemble the glass door,” says the CDS Partner Calderon about the production process at the insulating glass line.

A Unique Partnership: Commercial Display Systems and LiSEC Revolutionize the Refrigeration Door Industry

The LiSEC machinery has led to a notable increase in productivity at CDS. Prior to the introduction of the LiSEC insulating glass line, each piece was washed and sealed by hand. The production time for what previously took a week has now been reduced to just three days. The quality of the glass units produced has also improved, providing CDS with a competitive advantage in the market. Calderon of CDS states: “From the washer all the way to the final sealing of the glass unit, that whole piece of equipment is very impressive, and it is able to do what we require.” At CDS they take very good care of the LiSEC equipment. Each machine is cleaned at the end of the day, so the six-year-old insulating glass line looks like it was placed in operation last week. As mentioned above, the products of CDS are complex and electrical components need to be installed before sealing the unit. This special case showed that LiSEC machines can master this challenge successfully.

A Unique Partnership: Commercial Display Systems and LiSEC Revolutionize the Refrigeration Door IndustryA Unique Partnership: Commercial Display Systems and LiSEC Revolutionize the Refrigeration Door Industry

A Commitment to Future Growth and Excellence with LiSEC

But the partnership between CDS and LiSEC is not just about machinery. It’s about shared values and a commitment to customer service. CDS appreciates LiSEC’s excellent customer service and maintenance support. When a part needs replacement, it arrives at CDS’s facility the next day, ensuring minimal disruption to their production. As CDS continues to grow, they look forward to further collaboration with LiSEC.

Satinal to expand in Southern Italy with new production hub of STRATO® SOLAR PV Encapsulants

Satinal Spa invests in a new solar encapsulant plant opening in Italy in 2025.

Satinal Spa unveils an investment to open, in 2025, a new manufacturing plant and to expand its STRATO® EVA, STRATO® POE and STRATO® TPO encapsulants production for the lamination of solar panels.

The new factory be located in Apulia Region, south of Italy, in the strategic Italian solar valley, and the production line will be dedicated to STRATO® SOLAR, a new division of Satinal Group, based on EVA, POE and TPO solar encapsulants.

According to Satinal Group, the innovative project consists in a 4-years business growth plan divided into 2 stages that, by 2029, aims at an extension of the production site of STRATO® SOLAR up to 20.000 sqm, able to host an annual production capacity of 10 GW, equivalent to 100 million square meters of EVA films and it expects to create up to 100 jobs once fully ramped up.

In Erba Headqurters, STRATO® SOLAR already launched the first CarbonLight™ and ISCC+ certified EVA encapsulant in 2023. Moreover, starting from 2025, 1 production lines of STRATO® SOLAR PV Encapsulants will start to operate with an annual production capacity of 2 GW, corresponding to 20 million sqm of production capacity, dedicated to EVA, POE and TPO solar encapsulants.

Moreover, Erba HQ will remain the leading production hub for the production of STRATO® Safety Glass interlayers for architecture and interior design, in its 10.000 sqm factory hiring up to 60 employees. Three production lines for safety glass interlayers production will keep on running in Erba, corresponding to a production capacity of 20 million square meters Italian quality STRATO® EVA films, in order to expand STRATO® COLOUR product range, included STRATO® CarbonLight™ version, and meeting the rising demand of international markets.

Satinal's business plan also includes an upgrading of its R&D Lab, a continuous cooperation with European leading research centres and universities. Once again, the mission of the Company remains that of consistently invest in innovation and research, the best way to offer the right mix of top-quality, alternative, sustainable and green solutions to its clients.

Establishing this factory is a key milestone: STRATO® Solar is a leading Company and the production hub in Europe of EVA, POE and TPO solar encapsulant films for the photovoltaic industry. A 100% Italian production, synonymous with high-quality and first choice materials.

Premium Architectural Façade Products

Alcobond® aluminum composite panels are meticulously crafted using top-grade raw materials and cutting-edge technology, yielding superior products that surpass industry benchmarks. Our commitment to excellence is reflected in our comprehensive warranty that can range upto 20 years, covering potential risks, including delamination, deformation, deglossing, and color fidelity loss. Each panel undergoes rigorous quality control measures, with constant oversight throughout the production process by a team of seasoned experts. With an extensive network of affiliates strategically located in key construction hubs worldwide, we ensure adherence to the highest international standards.

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Reuse, remanufacturing, recycling: the case of glass for buildings

Review of the technical feasibility and sustainability potential of the different end-of-life options for various building glass products

In March 2020, the European Commission (EC) adopted a new Circular Economy Action Plan (CEAP) (COM (2020) 98 final) that promotes greener manufacturing, waste reduction, reuse, remanufacturing, and recycling of construction products. This action plan is part of the EU Green Deal agenda, which aims to support the EU climate neutrality objective and strengthen sustainability practices in Europe.

As expressed in Glass for Europe's 2050 vision document, the European flat glass sector is committed to maximizing its contributions to the EU climate neutrality objective and seeking constant sustainability advances in all its activities.

The adequate end-of-life management of building glass products can be key in advancing these two objectives. For this reason, Glass for Europe issues this paper to shed light on the end-of-life management options for the different types of building glass products. The paper outlines how the different concepts of 'reuse' and 'remanufacturing' could apply to flat glass products and explains the technical possibilities and challenges of the different options. It also emphasizes the importance of promoting the closed-loop recycling of flat glass, which has the potential to become the most sustainable end-of-life option for much larger quantities of end-of-life flat glass.

1. What is to be understood as reuse and remanufacturing?

Considering that building glass products are covered by the EU Construction Products Regulation, the following definitions are used in this paper:

'used product' means a product that is not waste or has ceased to be waste in accordance with Directive 2008/98/EC, and which has been installed at least once into a construction work, and that:

has not undergone a process going beyond checking, cleaning or repairing recovery operations, by which the product or components of products are prepared so that they can be used for construction purposes without any other pre-processing; or

has been subject to a transformative process going beyond checking, cleaning and reparing recovery operations which according to the applicable harmonised technical specification is qualified as non-essential to the product's performance;

'remanufactured product' means a product that is not waste or has ceased to be waste in accordance with Directive 2008/98/EC, which has been installed at least once into a construction work, and that has been subject to a transformative process going beyond checking, cleaning and repairing recovery operations which according to the applicable harmonised technical specification are qualified as essential to the product's performance;

In addition, 'remanufacturing' means an industrial process that produces a product from used products where at least one change is made that influences the product's safety, original performance, purpose or type. The product created by the remanufacturing process may be considered a new product when placed on the market.

Considering the definitions given above, 'reusing' a product would mean using it for its original purpose more than once without further processing. Preparing for reuse then means checking, cleaning, or repairing retrieval operations, by which products or components of products are prepared so that they can be reused without any other pre-processing.

Glass for Europe recognizes the interest in

reusing/remanufacturing flat glass when it is technically achievable and can effectively reduce CO2 emissions during the whole life cycle. There are, however, considerations to apprehend and technical constraints that can limit the potential for reuse and remanufacturing of flat glass products. These are outlined in the following sections.

2. Potential and recommendation for the reuse of flat glass

Glass products for building and construction applications are generally custom-made. The glass product is selected to satisfy legal requirements and the individual preferences of the building owner, considering the building design, usage, climatic zone, etc. The characteristics of the glass (e.g., size, type) are bespoke, except for certain specific applications like glass doors or roof windows where standard glass sizes exist. As a result, a window or a roof glazing suitable for one building is unlikely to be suitable for another building or another location.

The possibilities for reusing are thus limited, and the legal requirements related to the new application need to be carefully checked and compared with the product requirements. From a technical perspective, the elements to be verified when preparing a product for reuse depend on the glass type:

a) Annealed monolithic glass

Monolithic annealed glass can last several centuries, depending on the product's environmental conditions. However, the glass surface properties may change throughout its life.

Mechanical impacts over a long period of time may result in scratches of randomly distributed length, depth, and orientation that may or may not be visible, depending on the observation conditions. Surface lacerations that may not be disturbing under a certain installation and observation condition may well become obtrusive under other conditions, especially when the glass surfaces are coated.

In case of chemical attacks or deterioration, changes in the surface chemistry will appear. Depending on the type of chemical attack, the surface structure and/or the refractive index at the glass surface may result in colour changes of the reflected light, increased roughness, variations in wettability, haze, or cloudiness.

b) Thermally pre-stressed glass

There are several thermally pre-stressed glass products:

Thermally toughened safety glass
Heat soaked thermally toughened safety glass
Heat strengthened glass
These products have a lifetime that is like the one of monolithic glass.

c) Laminated glass

Laminated glass has a shorter lifetime than monolithic glass as it includes organic interlayers, which, even if not visible, may change the safety and security properties of the products when exposed to UV radiation, moisture or high temperature over a long period.

d) Insulating glass units (IGUs)

The expected lifetime of insulating glass units is 25-30 years. This is because the edges are sealed using organic sealants. Moisture, which permeates through the edge seal, is usually absorbed by desiccants, which are incorporated in the spacer bars, keeping the glass sheets at the desired distance. If the desiccant is saturated, the ingress of additional moisture in the IGU will leach off the inner glass surfaces and possibly attack silver-based coatings. These processes will lead to a deterioration of the product properties and adversely affect the visual appearance of the IGU.

When discussing IGUs, one also needs to ensure that the performance of the product is still adapted for today's needs. An IGU can be considered "high-performance" and thus adequate for incorporation in buildings from an energy efficiency perspective if it has a U-value of about 1,0 to 1.4 W/m²K in case of double glazing and 0,5 to 0.9 W/m²K in case of triple glazing. Up-to-date insulating glass units usually incorporate coated glass and can be filled with gas, mostly with argon and less frequently with krypton. Both operations

improve the U-value and the g-value of the IGUs to allow adequate energy efficiency in the buildings where the IGUs are installed. For gas-filled IGUs, a small percentage of the gas will be lost over time due to permeation through the edge seal. The loss is less than 1% per annum but may deteriorate the U-value of about 0,1 W/m²K after 30 years. Considering these points, even if a used product might have a low U-value (< 1,5 W/m²K), it is most likely unsustainable to reuse it since it will limit the energy performance of buildings.

The market penetration of high-performance glazing is not identical everywhere in the EU and depends on local climates, market availability of products, and national legislation requirements. To assess whether the remaining expected lifetime of the product meets the customer's needs, it is necessary to know at least the year of production and the place of first installation.

The constraints described in this section mean that glass products often cannot be reused, and other end-of-life processes must be considered.

3. Potential and recommendation for remanufacturing flat glass

Due to the requirements indicated in the previous section, remanufacturing may be more adapted than reusing glass. The following remanufacturing processes can be considered depending on the type and state of glass:

Edge processing
Cutting to smaller sizes
Pre-stressing, including enameling
Bending
Laminating
IGU manufacturing
Sandblasting
Acid etching
Painting

These manufacturing processes can only be applied to certain used glass types; Annex A provides an overview of processes which can be applied per type of used glass.

Note that even when one of the above processes can be applied to a used product, the mechanical and chemical properties of the surface of the used product can have changed compared to when it was first installed. Although these changes may not be visible, they can influence the process and the success of the remanufacturing, e.g., due to an increase of surface haze and modification of adhesion properties and on the mechanical resistance.

The following processes are never recommended for remanufacturing:

Coating: A possible change in surface chemistry will influence the optical properties of the coating and may also compromise the adhesion. Scratches may become more visible after coating.
Silvering: mirrors are very sensitive to any optical defect
Chemical strengthening: This process is expensive, and research would be necessary to confirm that it is suitable for used glass.

4. Assessment of flat glass products for reuse/remanufacturing

When assessing if a used product made of flat glass can be reused or remanufactured, the following impacts must be considered:

Human safety
Environmental safety and environmental impact
Product durability
Excessive costs
Risks to machinery
Safety for the building, etc.

Keeping these impacts in mind, a quality protocol should also be prepared for each project and focus on the following actions when relevant:

1. Assessment of relevant product properties/functions (bending strength, safety properties, U-value, light and solar characteristics, etc.), as well as aesthetic expectations

2. Deconstruction processes

3. Disassembly processes

4. Preparation for reuse

5. Preparation for remanufacturing

6. Remanufacturing process

7. Handling (in all stages)

8. Transport (in all stages)

Finally, the quality protocol should be accompanied by proof that reuse/remanufacturing has a significantly lower CO2 impact compared to the use of a new product. This evaluation should be based on the harmonized methodology outlined in EN 15804:2012+A2:2019+AC:2021 and EN 17074. Considerations going beyond product-related emissions are also needed. If installing reused/remanufactured glass products in a building reduces the efficiency of this building and increases the building's operational emissions, using reused/remanufactured products may cause more CO2 emissions overall.

When reusing and remanufacturing are not possible, other end-of-life treatment options should be considered, such as recycling, which can reduce CO2 emissions during the production of new glass. Annex A provides all end-of-life possibilities for different glass product types.

5. Closed-loop recycling should become the predominant sustainable end-of-life option for flat glass products

While the reuse and remanufacturing of products offer specific sustainability benefits and stand higher in the waste hierarchy (see Figure 1), recycling is likely to become the predominant end-of-life option for most flat glass products. This is due to the various limitations to the reuse and remanufacturing of flat glass products, which are explained in the previous sections of this paper

Figure 1 – Waste hierarchy as laid down in the EU Waste Framework Directive[8]Figure 1 – Waste hierarchy as laid down in the EU Waste Framework Directive.

The closed-loop recycling of flat glass products offers many benefits in terms of CO2 emissions reduction and saving resources from virgin raw materials. The use of 'cullet', i.e., recycled glass, as raw material is critical for the glass industry. Because it requires less energy to melt, it contributes to reducing energy consumption and 'heat-related CO2 emissions. It also helps reduce 'process emissions' as using cullet saves 1.2 times the same amount of raw materials.

The share of recycled glass (i.e., cullet) used as raw material has increased over the last decade thanks to collection schemes set in place by the industry with transformers and recyclers. Moving from 20 to 26% of cullet has made possible a further reduction of 6% of CO2 emissions.

The flat glass industry is actively looking for ways to recover more flat glass cullet to produce new flat glass. This requires better dismantling, sorting and cleaning of end-of-life glazing to reach quality levels good enough for remelting into new flat glass products. Glass for Europe is collaborating with EU authorities to that end.

To reap all the sustainability benefits of flat glass recycling, Glass for Europe supports 'closed-loop' recycling whereby end-of-life building glass products are recycled into new flat glass products (see Figure 2). Recycling flat glass into other types of glass products or recovering it for use as aggregate are forms of downcycling and should be avoided.

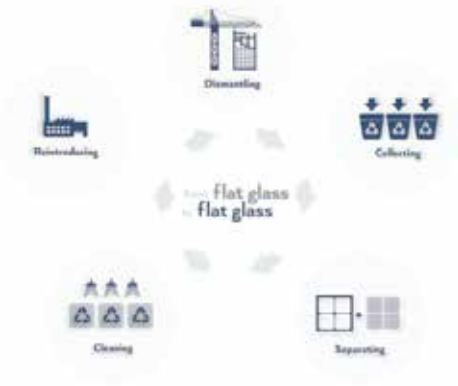

Figure 2 – Closed-loop recycling process for flat glass.Figure 2 – Closed-loop recycling process for flat glass.

6. Conclusions

Glass for Europe recognizes the interest in reusing/remanufacturing flat glass when it is technically achievable and can effectively reduce CO2 emissions during the whole life cycle. There are, however, many considerations to apprehend and technical constraints that limit the potential for reuse and remanufacturing of flat glass products.

Technically speaking, choosing whether to reuse, remanufacture, or transform old glazing in cullet to produce new glass panes (recycling) depends on the quality of the used product, which cannot be known upfront when dismantling buildings. Besides, the industry has little practical experience with reuse/remanufacturing practices. For instance, the protocol to follow for reuse has not yet been researched extensively. As of today, used products need to be assessed by flat glass experts with the competence and experience to evaluate what is feasible.

The industrialization of different processes needed for reuse and remanufacturing may also be difficult or even impossible in some cases.

From a sustainability point of view, evaluating whether reuse/remanufacturing activities are advantageous must be done for each project, considering the whole life cycle of products and buildings in which the glass will be used and be declared following European standards (EN 15804:2012+A2:2019/AC:2021 and EN 17074).

Finally, this paper does not address the legal aspects surrounding the reuse/remanufacturing of used products, which is something needed. Various aspects would need to be scrutinized, e.g., the assessment procedures to guarantee the performance of flat glass products, the distribution of responsibilities for the making and usage of dismantled products or the rules regarding their transport among EU member states.

For the reasons explained above, reuse and remanufacturing, although potentially highly sustainable end-of-life treatments are likely to remain niche practices, adapted for very specific end-of-life flat glass products to be used in bespoke applications. The most sustainable option for managing large quantities of end-of-life flat glass rather lies in closed-loop recycling. Glass for Europe calls on EU authorities to work with industry to develop adequate closed-loop recycling infrastructures.

***

Please note that this does not cover the whole portfolio of glass types. Other types of glass products might be adapted for reuse or remanufacturing provided that the needed processes are applicable and that the final product satisfies legislative requirements and customer expectations.

Annex A

End-of-life possibilities and potential for remanufacturing of used flat glass products

The potential for remanufacturing depends on the operations that the used product can withstand. Table 1 informs about the remanufacturing processes that can be used on various glass types and indicates the possible treatment at the end-of-life of glazing products.

Table 1 – End-of-life possibilities per glass type & details on processes that can be considered for remanufacturing

Table 1

Glass type	Processes that can be considered suitable for remanufacturing	End-of-life possibilities
Annealed glass (float, patterned glass, acid etched glass, sandblasted glass)	cutting, edge processing, lamination, thermal prestressing, chemical strengthening, printing, IGU assembly	Reuse, Remanufacturing, Recycling
Wired glass **Annealed painted glass** **Mirrors**	cutting, edge processing	Reuse, Remanufacturing, Other waste industry
Magnetron coated float (annealed)	not applicable[12]	Recycling
Magnetron coated float (Thermally prestressed)	not applicable	Recycling
Pyrolytic coated float (annealed)	cutting, edge processing, lamination, thermal prestressing, chemical strengthening, printing, IGU assembly	Reuse, Remanufacturing, Recycling
Pyrolytic coated float (Thermally prestressed)	not applicable	Reuse, Recycling
Laminated glass	cutting, edge processing, IGU assembly	Reuse, Remanufacturing, Recycling
Laminated glass made with thermally prestressed glass panes	not applicable	Reuse, Recycling (not all laminated glass can be recycled yet), Other waste industry
Insulating glass units (IGUs)	Disassembled glass components of IGUs shall be processed according to their glass types' possibilities.	Reuse, Other waste industry
Prestressed glass types	not applicable	Reuse, Recycling
Note on the end-of-life possibilities: Reuse: Systems & components may be suitable for reuse. Remanufacturing: Systems & components may be suitable for remanufacturing. Recycling: Scrap material can be of high value and processed in a recycling facility. Other waste industry: Unsorted scrap material that cannot be recovered for glass recycling can be sent to other waste treatment facilities (e.g. landfills).		

[12] Glass with Class A and B coatings according to EN 1096-1 can sometimes be remanufactured.

How VASGLASS Optimized IGU Gas Measurement with Sparklike Laser Portable

Vasglass continues to push the boundaries of quality and innovation. Here's how they tackled a key challenge in insulating glass verification.

VASGLASS, a family-owned business, the biggest in Greece glass processing since 1965, it is renowned for its high-quality architectural and marine glass solutions. With a commitment to quality and reliability, VASGLASS operates under both European, North American & Canada norms and guidelines, reflecting the high standards through which it operates. Their expansive industrial base, coupled with state-of-the-art equipment and innovative processing techniques, allows the manufacturing of valued glass products.

The Challenge
Vasglass's commitment to delivering superior products led to a unique challenge: ensuring precise gas filling levels in their IGUs. A customer required reliable verification of insulating gas levels for a project. This demand exposed the limitations of Vasglass's Sparklike Handheld gas measurement device, which was used daily but lacked the capability to measure triple-glazed units.

With rising demand for precision and quality control, Vasglass sought a more advanced solution to meet these needs while upholding its commitment to excellence.

The Solution
In 2024, Vasglass made a strategic decision to invest in the Sparklike Laser Portable (LP). This device provides non-invasive gas measurement capabilities from double and triple units with coating and lamination, ideal for ensuring the accuracy and quality of IGUs without compromising their integrity. With the new device Vasglass is able to continue to measure IGUs fast and provide proof to their customers about the product quality and in the same time be sure that the gas fill works properly.

Vasglass testing IGUs with Sparklike Laser Portable™
Vasglass testing IGUs with Sparklike Laser Portable™

Seamless Implementation and Training
In January 2025, Sparklike's Sales Manager, Antti Koski, conducted in-person training at Vasglass's facilities. During the session the Vasglass team, led by Quality and R&D Manager Giannis Nikolias, quickly mastered its operation.

"The training provided by Sparklike was thorough and effective. Our team feels confident in using the Laser Portable to maintain the high standards our customers expect," said Giannis Nikolias.

The Outcome
The Sparklike Laser Portable now supports Vasglass's quality assurance processes, allowing the company to meet customer demands with greater accuracy and confidence. The device ensures compliance with industry standards and supports Vasglass's commitment to delivering premium IGUs for both domestic and international markets.

First Solar Generation project in Vitro

The first Solar Generation project in Vitro was successfully launched, located on the roof of Coater 8 in Mexicali, Baja California

On December 18, the first Solar Generation project in Vitro was successfully launched, located on the roof of Coater 8 in Mexicali, Baja California; It is a system of 1,135 solar panels of 550 W each, whose total installed generation capacity is 629 kW, which will allow the generation of 1,091,700 kWh/year of renewable energy that will be consumed within the same plant. This project will mitigate the emission of 478 tons of CO2 annually, equivalent to planting 39,800 trees to reduce the same impact.

First Solar Generation project in Vitro

This system has a lifespan of approximately 25 years, which reinforces Vitro's commitment to the environment and the search for sustainable and more efficient solutions in its energy consumption.

First Solar Generation project in VitroFirst Solar Generation project in Vitro

Currently, two other renewable solar generation projects are being managed for the same capacity as the one in Mexicali, at the CLT Laminate and CLT Templado plants in the city of Tepeji del Río, Hidalgo, Mexico, which are awaiting approval. authorization by CFE (electricity distribution company) so that they can later be put into operation.

First Solar Generation project in Vitro

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Los Angeles Office Tower Wrapped in Solarban® 70 Solargray® Glass by Vitro

(W)rapper is an impressive new office building showcasing contemporary architecture that aligns with the latest advancements in sustainable design.

This structure is part of an ongoing revitalization initiative that has been in motion for 35 years, aimed at transforming a once-thriving industrial and manufacturing area into a vibrant urban hub in Central Los Angeles and Culver City, California.

Situated along the Expo Line light rail, which serves as a vital connection between West Los Angeles and Downtown, this project aligns with the City's long-term strategic planning objectives to enhance density along mass transit corridors. The area in question has traditionally imposed a height limit of 45 feet, making this development particularly noteworthy.

Standing at an impressive 235 feet, (W)rapper introduces a new architectural scale and density to the neighborhood. Featuring Solarban® 70 Solargray® glass by Vitro Architectural Glass, (W)rapper serves as a functional workspace. It contributes to the community's aesthetic and economic growth, reflecting a commitment to reimagining the region's landscape.

Due to its clarity, consistency and exceptional solar control performance, Solarban® 70 glass has become the industry's most trusted, proven and specified triple-silver-coated low-e glass, maximizing energy efficiency and cost savings. Thanks to Solarban® 70 glass, smaller HVAC systems can be specified, leading to significant savings on initial equipment and a return on investment within months.

Solargray® glass is an excellent option for commercial buildings, thanks to its appealing medium-gray color. It effectively regulates solar heat gain and minimizes glare, enhancing occupant comfort. Additionally, its versatility complements various building materials, contributing to a sleek and modern architectural profile.

The Solarban® 70 Solargray® glass combination shields 81% of the solar heat gain while allowing 32% visible light, which creates a welcoming and vibrant space filled with natural light and thermal comfort.

Photography: Jim CunninghamPhotography: Jim

Cunningham

(W)rapper is a distinctive high-rise building that utilizes curvy bands instead of traditional columns. These bands wrap around the building's straight edges and fold at the corners. It is supported by a base-isolated foundation, enhancing its resistance to earthquakes. In fact, (W)rapper is capable of withstanding significant earthquakes and can be safely used again the following day. This building is the only high-rise office structure in the USA featuring this type of base-isolated design.

Additionally, its innovative design combined with Vitro's low-embodied carbon glass, contributes to a reduced carbon footprint compared to conventional buildings. With modern amenities and a focus on creating a collaborative environment, (W)rapper plays a pivotal role in the evolution of this dynamic area.

Project credits include:
Architect: Eric Owen Moss Architects
Glass Fabricator: Glasswerks LA, Inc.
Glazing Contractor: Steel City Glass, Inc.
General Contractor: Matt Construction
Photography: Jim Cunningham

Stölzle Lausitz expands Cerrion's video AI agents across glass plant

Glassware producer Stölzle Lausitz has implemented Cerrion's video AI agents across its entire Weißwasser plant in Germany.

This expansion reflects the company's dedication to operational excellence and innovation.

Leopold Grupp, CEO of Stölzle Lausitz, stated: "We are glad to be pioneering the world of AI together with Cerrion in the crystal glass tableware sector.

"Cerrion has already enabled us to respond much faster to process disruptions, and we are only at the beginning of our work together. We are looking forward to what is to come."

In high-end glass manufacturing, challenges such as transport blockages, fallen and broken glass, and jams can disrupt operations. These pose risks to operator safety, increase scrap, and cause equipment damage or fires.

By deploying Cerrion's video AI agents across all four production lines, Stölzle Lausitz has ensured its operations run at peak efficiency and product quality, underscoring its commitment to safety, sustainability and continuous improvement.

A successful pilot of Cerrion's video AI agents on one production line delivered a 36.5% reduction in reaction times and scrap.

The AI agents monitor production lines in real time through video cameras and detect issues such as glass jams or fallen glasses.

When problems are identified, the system triggers automated responses, including sound alarms, to address anomalies quickly and maintain operations.

Beyond real-time monitoring, Cerrion's video AI agents provide detailed incident analytics and anonymised video streams.

These features empower production teams to resolve issues faster and tackle the root causes of production losses, driving continuous improvement across the plant.

Sparklike: Why Gas Levels Are Key to Reliable Double-Glazing Solutions

This article explores the importance of maintaining proper gas levels, the technology behind accurate measurements, and the impact on customer satisfaction and industry standards.

Ensuring the quality and performance of double-glazing units (IGUs) is a critical responsibility for glass manufacturers. While aesthetic and structural aspects often take center stage, the invisible yet essential role of gas levels within sealed units must not be underestimated. Measuring and maintaining proper gas fill rates is fundamental to delivering reliable and high-performance insulating glass units (IGUs) that meet both industry standards and customer expectations.

The Critical Role of Gas in Double Glazing Units
Inert gases like argon, krypton, and xenon are essential to the thermal efficiency of IGUs. Their low thermal conductivity helps minimize heat transfer, significantly enhancing insulation and reducing energy costs for end-users. Studies have shown that:

Argon-filled IGUs improve thermal insulation by up to 20% compared to air-filled units.
Krypton, while more expensive, offers a further improvement in units with narrow spacers.
These gases also reduce condensation risks, ensuring a clearer, more aesthetically pleasing unit for years.

Case Study: Ensuring Gas Fill in Production

Company Profile: Szkłoland LLC is a European manufacturer of building, decorative and furniture glass.

Challenge: They have not been able to verify if their gas press for insulated glass work properly.
Solution: They invested in non-invasive gas measurement device, Sparklike Laser Portable for end-of-line testing and implemented to the existing processes successfully.
Result:

Able to proof their IGUs are filled with gas and the exact gas fill rate.
100 % sure their gas press in the insulated glass process line functions.
Provide the market with better-quality products – Customer are more satisfied.

Consequences of Insufficient Gas Levels
Poor gas fill rates can lead to:

Reduced Insulating Performance: A loss of just 10% argon reduces thermal insulation by approximately 5%.
Higher Energy Costs for End-Users: Studies have shown that insufficient gas fill can increase heating and cooling bills by 10-15%.
Customer Dissatisfaction: Improper gas fill can be responsible for a significant portion of customer complaints, directly impacting reputation.

The Role of Technology in Quality Control
Advanced tools such as Tunable Diode Laser Absorption Spectroscopy (TDLAS) are reshaping quality control for gas measurement. For example, the Sparklike Laser Portable is a non-invasive gas analyzer capable of accurately measuring argon and krypton concentrations, even in triple-glazed units. Testing conducted by ift Rosenheim demonstrated that Sparklike Laser achieved measurement accuracy within ±2% when compared to gas chromatography.

Building Trust Through Quality
For manufacturers, ensuring optimal gas levels in double glazing units is not just about meeting regulatory standards. It is a commitment to delivering reliable, energy-efficient solutions that

satisfy end-users and build long-term brand loyalty. Incorporating advanced gas measurement tools into your production process ensures your IGUs remain compliant, competitive, and credible.

Conclusion

The science of gas-filled IGUs is fundamental to the glass industry. Manufacturers who prioritize accurate gas measurement set themselves apart, not only by delivering superior products but also by protecting their reputation and fostering customer trust. With technologies like non-invasive gas analyzers and robust quality control protocols, the future of double glazing remains firmly in your hands.

Maltha Glass Recycling invests in laminated glass recycling

New production line to drive recycling rates towards 100%

Maltha Glass Recycling, a European leader in glass recycling and subsidiary of waste-to-product company Renewi, is proud to announce an investment in PVB (polyvinyl butyral) recycling on its site in Lommel, Belgium. This investment marks a significant milestone for Maltha, enabling the company to continue fostering the circular economy in various industries across Europe. This investment will also result in an increase of Maltha's recycling rate.

Maltha as sustainability partner

PVB is a type of resin mainly used in laminated glass for automobile windshields. By investing in its recycling, Maltha is providing a more sustainable solution for a stream that until now has generally been destined for landfill. In doing so, Maltha is increasingly positioning itself as a partner for upstream customers, helping them to achieve their long-term environmental objectives as part of their sustainability journey. In addition, Maltha can bring back to the market a product for which there is strong demand and which can be used in high-quality end-products.

Through this new process and technology, additional glass can also now be extracted from PVB, preventing it from going to landfill, improving the glass-to-glass circular economy further.

"We are thrilled to make this investment in PVB recycling," said Kevin Bell, Managing Director at Maltha Glass Recycling. "Maltha is committed to help advancing the circular economy across a range of industries in Europe. This achievement is also perfectly aligned with our waste-to-product strategy and our focus on recycling".

Maltha processes around 6,000 tonnes of PVB per year at its Lommel site and this milestone is deemed to increase the site's recycling rate by 4,2%. Overall, Maltha's recycling rate is set to increase by 0.4%, from 97.4% to 97.8% and with this inching closer to the 100 percent mark.

The total investment amounts to €2.89 million, 30% of which is supported by the Flemish Government.

SunGuard™ Low-E Coated Glass Helps Elevate Performance, People and Possibilities for 30 Years and Counting

Guardian Glass is marking the 30th anniversary of the SunGuard™ architectural low-E coated glass product line in 2025.

In its anniversary year, SunGuard is poised to unveil product innovations that deliver enhanced performance, greater efficiencies and unique aesthetics. In addition to product advancements, the Guardian team is committed to driving continued digital transformation, with new tools and services that inform smart decisions on glass and low-E coatings.

In 1995, Guardian Glass launched the SunGuard brand in the United States, bringing its first high-performance glass coater online in Carleton, Michigan. Today the company operates 16 glass coaters around the world, bringing high-quality commercial glass to every continent.

SunGuard glass helps elevate the look and performance of some of the most ambitious, iconic structures – including the Burj Khalifa, erected in 2004 and still world's tallest building 24+ years later, a vertical oasis for commerce and culture that manages light and heat in the sunny desert climate of downtown Dubai.

In 2018, Guardian Glass installed its first jumbo coater in Carleton, making oversized SunGuard low-E coated glass available in more places – with 130" x 204" jumbo and 130" x 240" super jumbo coated sheets of glass (compared to standard 96" x 130" coated glass sheets). Guardian Glass jumbo coating capabilities also include the application of coatings on glass lites up to 12mm thick.

People are also a big part of the SunGuard brand. In 2007, Guardian Glass introduced its Guardian Select™ Fabricator program – identifying and supporting expert partners capable of achieving the most exacting standards in fabricated commercial glass.

SunGuard glass innovation continues to lead the way on aesthetic trends. In 2023, the brand introduced SunGuard™ SNX 70+ coated glass to a North American market eager for extremely clear, color neutral glass that meets increasingly stringent energy codes. SNX 70+ preserves a low solar heat gain coefficient (SHGC) of 0.28 and a winter night U-value of 0.28 while achieving a transparent, neutral aesthetic with low exterior reflectivity. This launch further enhanced "neutrality" as it was known across the industry by providing a more consistent visual appearance whether the glass is viewed directly or at an angle.

"I'm proud of the ways the SunGuard product family has helped empower architectural innovation and creativity over the past 30 years," said Alan Kinder, Director of Demand Creation, Guardian Glass. "I'm even more excited about what we'll achieve in partnership with architects, fabricators and glaziers in the months and years ahead."

Guardian Industries Guardian Industries, a global

company headquartered in Auburn Hills, Michigan, operates facilities throughout North and South America, Europe, Africa, the Middle East and Asia. Guardian companies employ 11,800 people and manufacture high-performance float glass; coated and fabricated glass products for architectural, residential, interior, transportation and technical glass applications; and integrated, functional decorative systems for the automotive, mobility, and commercial truck industries. Guardian's vision is to be a preferred partner to our customers, suppliers, employees, and communities based on a foundation of mutual benefit. This drives our relentless focus on improving people's lives by providing products and services they value more highly than their alternatives and doing so responsibly while consuming fewer resources. Guardian is a Koch company. Visit guardian.com.

Guardian Glass, a major business unit of Guardian Industries, is one of the world's largest manufacturers of float, coated and fabricated glass products. At its 24 float lines around the globe, Guardian Glass produces high performance glass for use in exterior (both commercial and residential) and interior architectural applications, as well as transportation and technical products. Guardian glass can be found in homes, offices, cars and some of the world's most iconic architectural landmarks. The Guardian Glass Development & Technology team continuously works to create new glass products and solutions using the most advanced technology to help customers See what's possible™.

Change in the management of A+W Software

Peter Dixen to leave A+W Software; Eric Herrmann takes over as Portfolio Manager

A+W Software announces that Mr. Peter Dixen, Managing Director of A+W Software and Portfolio Manager of the Comas Group, is leaving the company at his own request on March 31, 2025, after 10 successful years in the pursuit of new professional challenges.

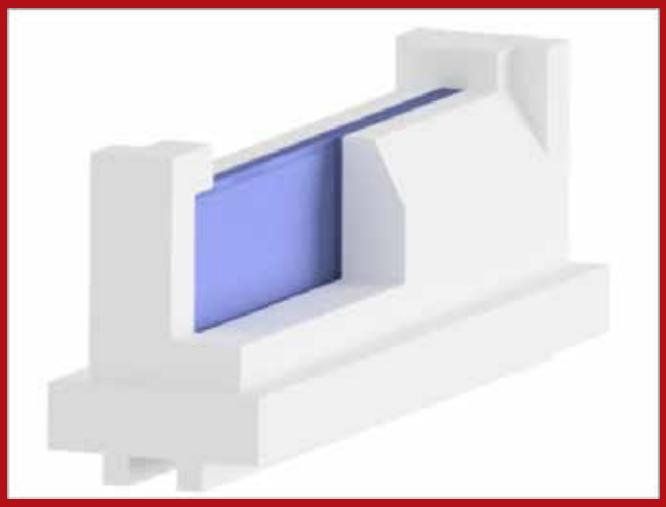
During his time at A+W Software and the Comas Group, Mr. Dixen has made significant contributions to the further development and growth of A+W Software and Comas Group. His strategic leadership, commitment, and expertise have sustainably strengthened A+W Software's position as a leading provider of software solutions for the glass, window, and door industry. Management and the entire team would like to thank Mr. Peter Dixen for his valuable work and wish him all the best as well as continued success in the future.

Continuity in the business relationships remains assured: The previous contacts for A+W Clarity and A+W Cantor business units, Mr. Dennis Tiegs and Mr. Hubert Woźniak, will continue to be available to customers and partners as usual. Additionally, A+W's Global team remains unchanged and committed to your success.

Mr. Eric Herrmann succeeded Mr. Dixen as Portfolio Manager of the Comas Group on January 1, 2025, which means he will also oversee the continued growth of A+W Software. Mr. Herrmann brings more than 24 years of experience within the Constellation Software group of companies and was closely involved in the acquisition process of A+W Software.

Help us wish Mr. Peter Dixen success in his future endeavors and welcome Mr. Eric Herrmann to A+W Software.

Molybdenum Wall: Flow Barrier for optimal glass quality in melting furnaces



The molybdenum wall is a crucial component in melting furnaces, enhancing glass quality by preventing short-circuit flow and ensuring optimal refining processes.

The molybdenum wall is used in basins of melting tanks in the area after the hot spot to separate the melting part from the refining part and thus prevent a short-circuit flow. It acts as a flow barrier, forcing the bottom glass to rise into the hot area of the hot spot, where it dissolves the last relics from the batch to refine bubbles in the glass. This ensures a better quality of the molten glass with a comparable energy input and/or a higher melting capacity with the same glass quality.

The molybdenum wall is installed in the basin of the furnace across the entire width of the basin between refractory bricks placed in front of and behind it. The molybdenum wall is anchored in the floor and stands stress-free between these bricks.

It consists of individual molybdenum plates that are held in molybdenum rods. The rods are anchored in the ground. The design takes into account the different thermal expansion of the various materials.

The Mo-Wall is characterised by the fact that its function remains unrestricted until the end of the furnace journey.

The wall is suitable for all standard glass types and all fossil-heated furnaces with and without boosting.

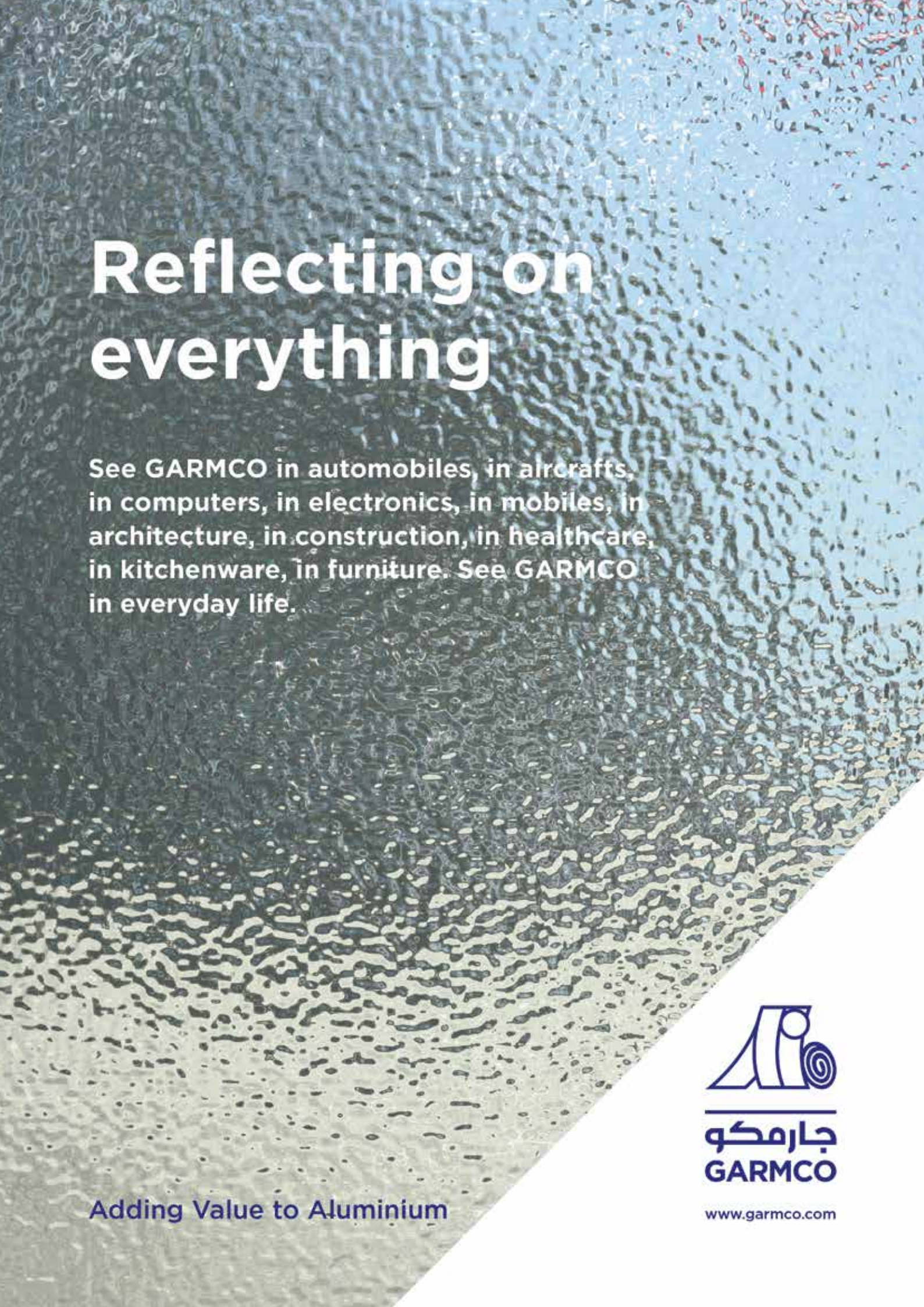
The exact dimensions are determined depending on the application.

During tempering and until the furnace is completely filled, the space between the AZS blocks is provided with a safety layer to prevent unwanted oxidation and sublimation of the molybdenum metal.

Features:

Improved glass quality
Greater flexibility
Permanently secured function until the end of the furnace service life
Simple design and installation
Can be used in fossil-fuel heated furnaces, also with boosting
Technical data:

Width of the wall: can be adapted to any width of the furnace
Operating temperature: ... 1630 °C
Glass types: Alkali - lime - glass, borosilicate glass, aluminosilicate glass, etc.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UFG Overview

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UFG ARALUX® product range

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- Decorative Mirror Glass


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ARALUX® Dewan glass


ARALUX® Nashiji glass


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