

Glass-Technology International

THE LEADING MAGAZINE FOR THE INTERNATIONAL FLAT GLASS INDUSTRY

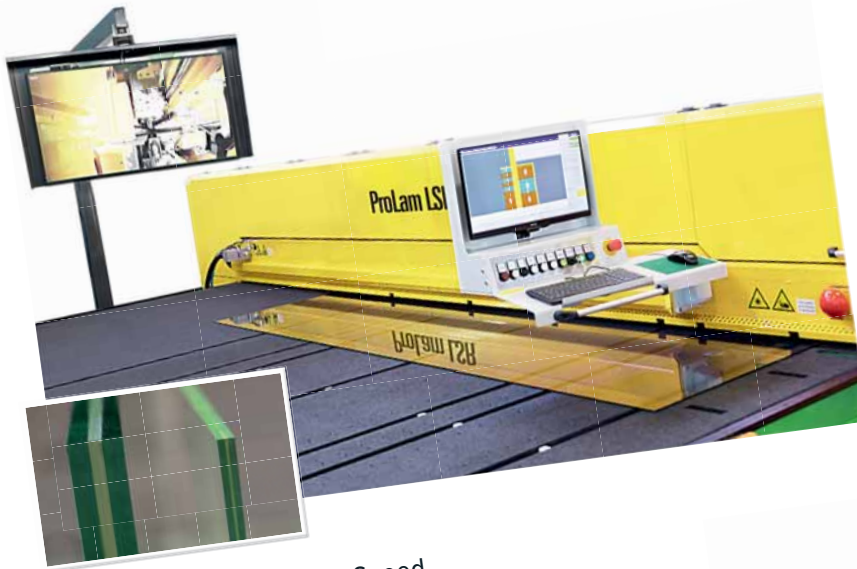
January/February • Year 33 • No. 1/2022

glass technology

HEGLA

A Cut above the Rest

The Most Productive LSG System on the Market



LSG Cutting at *Laser* Speed

Functionality and performance are our top priorities here at HEGLA, which is why we know that we don't have to go all out on flashy advertising or stylish design. Instead, with our new ProLam LSR, offering laser film separation and premium German quality, we know we're really onto something. As the most productive LSG system on the market, it never fails to achieve the most outstanding edge quality with pinpoint laser heating technology. Its many benefits include:

- A reduction of the total processing time by at least twenty per cent compared to the industry standard
- Perfect laminate edges without delamination
- Cold edges to ensure follow-up cuts can be made straight away



hegla.com

HEGLA • Industriestr. 21 • D-37688 Beverungen • E-mail: info@hegla.de

TUROMAS MACHINES
CONTINUE
TO LEAD IN HISTORIC
PARTNERSHIP

ENERGY SAVING
IN NEW YORK WITH
EDGETECH

LISEC'S DYNAMIC
LOAD BALANCING
SOLUTIONS

HIGH-PERFORMING
PORTFOLIO
FROM **FENZI**
AT VITRUM 2021

UNELKO
MICROBURST
BRINGS MAJOR
IMPROVEMENTS
FOR GLASS
COATING

Poste Italiane Spa - Spedizione in abbonamento postale - 70% - LO/MI • € 2 - Copia omaggio



www.glassonline.com

glassOnline

COLORGLASS



Roller coating machine

- Enamelling and design printing
- Ideal working tool for production lines and in-house laboratory
- Working width from 600 to 2600 mm

Rollmac is a division of Gemata S.p.A.
rollmac.it

 **Rollmac**®



MAZZAROPPI

HIGH PERFORMANCE. ALWAYS

THE FUTURE OF GLASS TEMPERING MACHINE JUST ARRIVED **VISIT OUR VIRTUAL SHOWROOM**



SCAN THIS QR CODE
TO SUBSCRIBE TO
OUR VIRTUAL
SHOWROOM.
VISIT US IN WORLD
OF THE FUTURE OF
GLASS.



REGISTER AND LOGIN
WITH YOUR AVATAR



VISIT AND INTERACT WITH
OUR EXPERTS



PARTICIPATE IN SMART TALKS AND
COMMUNICATE DIRECTLY WITH US



www.mazzaroppi.com





THE SUSTAINABILITY REVOLUTION

WATER FILTRATION SYSTEMS FOR GLASS INDUSTRY

 **FILTRAGLASS**
WATER TREATMENTS FOR GRINDING TECHNOLOGY

info@filtraglass.com
filtraglass.com





Looking to reach the highest quality for all types of tempered glass?

Here are three reasons why **Glaston tempering technology** is your best choice:

1. #1 for quality with any product or glass type
2. Lowest production costs with high energy efficiency
3. Highest automation level



> How to avoid common mistakes and succeed in the glass tempering business –

Download THE TEMPERING LINE BUYER'S GUIDE here www.glastory.net



glaston
seeing it through®

Machinery, services and solutions designed with the future in mind for the architectural, automotive, solar and appliance industries.

info@glaston.net | www.glaston.net | www.glastory.net | www.gpd.fi

**Seeing the customer with Bando's eyes
Feel the customer with Bando's heart**

YOUR DREAM REALIZED BANDO TECHNOLOGIES



ADVANCED EDGE QUALITY



INDUSTRY 4.0



SATELLITE NON-TEMPLATE BREAKOUT



AUTOMATIC GRINDING VACUUM CUP CHANGE



IoT

**FACTORY AUTOMATION FOR AUTOMOTIVE, FPD, SOLAR PANEL,
ULTRA THIN GLASS AND SPECIALTY GLASS**



ISO9001:2015 認証取得
ISO14001:2015 認証取得
ISO45001:2018 認証取得



ISO 9001 Certified

Tel: +81-88-664-5280

Fax: +81-88-664-5282

2-4-60 Kanazawa, Tokushima 770-0871-Japan

E-mail: global@bandoj.com

www.bandoj.com

Glass Company S.r.l.
www.glasscompany.com
info@glasscompany.com

GLASSCOMPANY

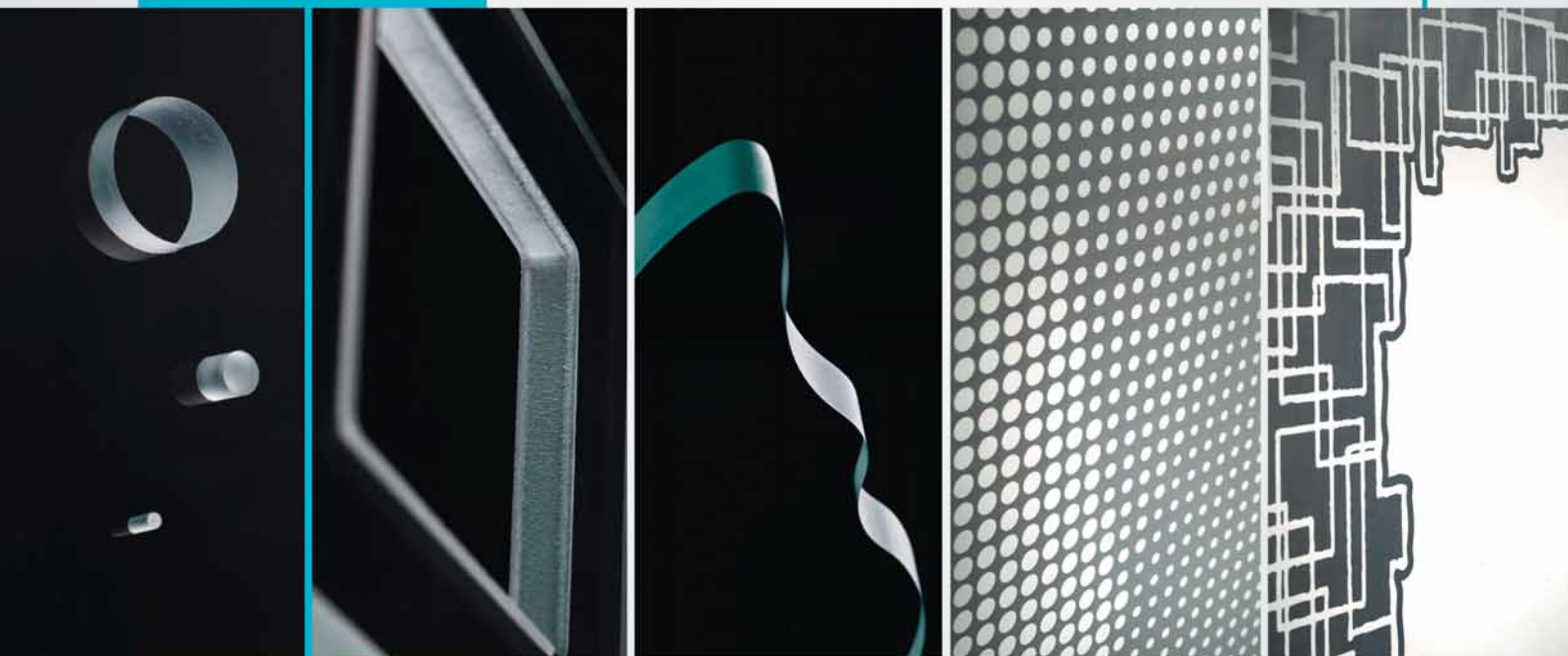


LASERMEK

Innovative Scanner Laser Technology for Glass



- ABLATION -
- ENGRAVING -
- MARKING -
- DRILLING -
- CUTTING -



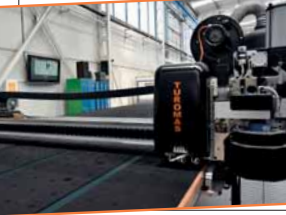
Flatbed Laser Scanner

LASERMEK

- 26** **TUROMAS** MACHINES CONTINUE TO LEAD IN HISTORIC PARTNERSHIP
- 30** ENERGY SAVING IN NEW YORK WITH **EDGETECH**
- 34** **LISEC**'s DYNAMIC LOAD BALANCING SOLUTIONS
- 39** **ISRA VISION**: INSPECTION SOLUTIONS ENSURING QUALITY AND PROFITABILITY
- 50** **NEPTUN**: A WIDE RANGE OF VERTICAL WASHERS
- 52** LANDMARK **TVITEC** CONTRIBUTIONS TO SUSTAINABLE BUILDING
- 58** HIGH-PERFORMING PORTFOLIO FROM **FENZI** AT VITRUM 2021
- 66** INNOVATIVE POWER DELIVERY TECHNOLOGY FROM **COHDA**
- 70** **CUGHER**'S TIMELESS CLASSIC FOR HOME APPLIANCE GLASS
- 72** **UNELKO** MICROBURST BRINGS MAJOR IMPROVEMENTS FOR GLASS COATING
- 76** **SATINAL**: BRESCIANI FAMILY CELEBRATES 100 YEARS IN THE GLASS INDUSTRY
- 80** PUTTING PERFORMANCE AND SUSTAINABILITY FIRST AT **MAPPI**
- 82** **CORIAN**® EXTERIORS MAKES A SPLASH IN SOFIA

GLASS CUTTING TECHNOLOGY

TUROMAS machines continue to lead in historic partnership



TUROMAS machines have managed the glass cutting process for **EDGESTARTECH** since 1981. In a historic partnership of the glass cutting industry, **TUROMAS** has been active since 1981 in the manufacturing of flat glass, printed glass, decorative glass, safety glass and manufactured glass – all for both professional and private customers alike.

EDGESTARTECH is a leading manufacturer of energy-efficient glass edge processors. While significantly reducing energy loss to the outside, these glass edge processors also prevent condensation, improve air and sound insulation and ensure maximum safety. **EDGESTARTECH** has completed a lot of successful projects in New York.

WHAT IS EDGESTARTECH'S SOLUTION? **EDGESTARTECH** has developed a range of glass edge processors that can be used for a wide range of glass types and thicknesses. The **EDGESTARTECH** solution is a highly efficient and reliable glass edge processor that can be used for a wide range of glass types and thicknesses. The **EDGESTARTECH** solution is a highly efficient and reliable glass edge processor that can be used for a wide range of glass types and thicknesses.

26

GTI 1/2022

SPACER SOLUTIONS

Energy saving in New York with **EDGETECH**



EDGESTARTECH has managed the glass cutting process for **EDGESTARTECH** since 1981. In a historic partnership of the glass cutting industry, **TUROMAS** has been active since 1981 in the manufacturing of flat glass, printed glass, decorative glass, safety glass and manufactured glass – all for both professional and private customers alike.

EDGESTARTECH is a leading manufacturer of energy-efficient glass edge processors. While significantly reducing energy loss to the outside, these glass edge processors also prevent condensation, improve air and sound insulation and ensure maximum safety. **EDGESTARTECH** has completed a lot of successful projects in New York.


WHAT IS EDGESTARTECH'S SOLUTION? **EDGESTARTECH** has developed a range of glass edge processors that can be used for a wide range of glass types and thicknesses. The **EDGESTARTECH** solution is a highly efficient and reliable glass edge processor that can be used for a wide range of glass types and thicknesses.

30

GTI 1/2022

LAMINATED GLASS

LISEC's Dynamic Load Balancing solutions



LISEC's successful VSL-8 horizontal cutting system for laminated glass processing was introduced by the market in the year of 2018. Since then, many customers have bought its top-quality, its patented 5th film heater, the significant extent to which it reduces glass waste and the reduced operator intervention accompanying its automatic calibration.

THE VSL-8 is a highly efficient and reliable glass edge processor that can be used for a wide range of glass types and thicknesses. The **VSL-8** solution is a highly efficient and reliable glass edge processor that can be used for a wide range of glass types and thicknesses.

34

GTI 1/2022

WASHING MACHINES

NEPTUN: a wide range of vertical washers



NEPTUN is a wide range of vertical washers that can be used for a wide range of glass types and thicknesses. The **NEPTUN** solution is a highly efficient and reliable glass edge processor that can be used for a wide range of glass types and thicknesses.

50

GTI 1/2022

NET ZERO TRIPLE GLAZING

Landmark **TVITEC** contributions to sustainable building



TVITEC is a leading manufacturer of energy-efficient glass edge processors. While significantly reducing energy loss to the outside, these glass edge processors also prevent condensation, improve air and sound insulation and ensure maximum safety. **TVITEC** has completed a lot of successful projects in New York.

52

GTI 1/2022



PUBLISHING DIRECTOR: Arcangelo Altamura

EDITOR-IN-CHIEF: Marco Pinetti

ASSOCIATE EDITOR
Nicolaas François Fouché | nick.fouche@glassonline.com

CONTRIBUTING EDITORS
Mauro Pagano, Jennifer Pressman, Julie Orsatti, Zoë Elaine Whitten

ADVERTISING
ITALY: Maurizio Lozza | maurizio.lozza@glassonline.com
WORLDWIDE: Luciano Molina | luciano.molina@glassonline.com

GRAPHIC DESIGN
Sonia Previato | sonia.previato@glassonline.com
Cristiano Guenzi

PRINTED BY: BICIDI ARTI GRAFICHE - Via San Felice N° 37d
16138 Genoa (Molassana) - Italy

BACK COPIES: € 29 air mail included | Italy: € 15
Entire contents © 2022 by A151 S.r.l. All rights reserved. Reproduction even partially in any form is strictly prohibited unless written permission has first been obtained from the Publisher. The magazine is open to collaboration with all, but no manuscripts or photographs will be returned. The editor's office accepts no responsibility for opinions expressed in signed articles. The Court responsible is Milan. Publication registered at no. 208 of the Milan Court Records Office on 24.3.1990 - ROC no. 34927 - **ISSN 1126-8573**

GLASS-TECHNOLOGY INTERNATIONAL, N.185, ANNO 33, 2022 - PERIODICO BIMESTRALE.

INNOVATIONS IN LIGHT TRANSMISSION

66

Innovative power delivery technology from COHDA

How to supply power through glass without heating the glass? COHDA meets this challenge with its innovative Power-Tag™ method of delivering electricity invisibly to numerous exhibits that use high-tech lighting, sensors, cameras and digital displays.

COHDA is a leader in the field of invisible power delivery technology. The company's Power-Tag™ technology allows for the invisible delivery of power through glass, enabling a wide range of applications in the display and lighting industries. This technology is used in museums, galleries, and retail environments to power sensors, cameras, and digital displays without the need for visible wires or power sources.

COHDA 1/2022

SCREEN PRINTING

70

CUGHER's timeless classic for home appliance glass

With its Compact coil-screen printing machine, CUGHER has perfected a timeless classic for the home appliance sector for the realization of coatings as well as glass for touch-screen and smart appliances - all of which have seen a long way over the years thanks to CUGHER's production within the sector.

CUGHER is a leading manufacturer of screen printing machines for the glass industry. The company's Compact coil-screen printing machine is a classic in the industry, known for its reliability and high-quality results. It is used for the production of coatings and glass for touch-screen and smart appliances. CUGHER's machines are used by many leading manufacturers in the home appliance sector.

CUGHER 1/2022

GLASS COATING

72

UNELKO Microburst brings major improvements for glass coating

The company believes it is the best product of its kind in the industry.

UNELKO Microburst is a revolutionary glass coating technology that brings major improvements for glass coating. The technology uses a microburst process to create a protective layer on the glass surface, which is highly resistant to scratches and impacts. UNELKO Microburst is used for the production of glass for various applications, including automotive windows, architectural glass, and consumer electronics. The company believes it is the best product of its kind in the industry.

UNELKO 1/2022

COMPANY CENTREY

76

SATINAL: Bresciani family celebrates 100 years in the glass industry

As Satinal celebrates the centenary so characteristic of its family spirit, here's a look through the company's century-long history up to today's production.

SATINAL is a family-owned glass company that has celebrated 100 years in the glass industry. The company is known for its high-quality glass products and its commitment to innovation and sustainability. The Bresciani family has led the company for many years, and their passion for glass is evident in every product they produce. SATINAL's history is a testament to the family's dedication to the glass industry.

SATINAL 1/2022

TEMPERING FURNACES

80

Putting performance and sustainability first at MAPPI

It is possible to reconcile environmental protection and a more sustainable future with a constant growth in production, both in terms of quantity and quality - goal achieved a better life in every way for those working within the industry? For MAPPI, the answer has come as affirmative, albeit with the caution that certain important conditions be met.

MAPPI is a leading manufacturer of tempering furnaces for the glass industry. The company's focus is on putting performance and sustainability first. MAPPI's furnaces are designed to provide high-quality tempering results while minimizing energy consumption and environmental impact. The company is committed to providing a better life for those working within the industry.

MAPPI 1/2022

regular features | regul

- 10** ADVERTISERS INDEX & COMPANIES MENTIONED
- 12** OUR FAIR CALENDAR 2022
- 14** BUSINESS NEWS
- 43** BUSINESS NEWS
- 86** SUPPLIERS GUIDE - Yellow Pages
- 94** SUBSCRIPTION SERVICE

glass technology

HEGLA

A Cut above the Rest

The Most Productive LSG System on the Market

LSG Cutting at **Laser Speed**

Functionality and performance are our top priorities here at HEGLA, which is why we strive that you don't have to get all our flexibility, performance or right-angle systems on our terms. It's our right to achieve the most productive LSG to the industry standard.

- A reduction of the total processing time by at least twenty per cent compared to the industry standard
- Reduced energy consumption
- Cost saving to ensure follow-up costs can be made straight away

HEGLA - Industriestr. 21 - D-37688 Beverungen - E-mail: info@hegla.de

www.hegla.com

cover advertiser

Hegla Gmbh & Co. Hg

Industriestr. 21
37688 Beverungen - Germany
Tel.: 0049-5273-9050
Fax: 0049-5273-905252
E-mail: info@hegla.de
www.hegla.com

...in this issue of Glass-Technology International advertisers are indicated in bold

COMPANY NAME	PAGE No.
A	
A + W.....	43
Acristalamientos Vinuesa.....	26-29
AGC Glass Europe.....	44
B	
B Solution.....	25, 86-93
Bando Kiko.....	4, 86-93
Best Makina.....	9, 86-93
C	
Canadian Premium Sand.....	24
China Glass.....	Back Inside Cover
China Glass Holding.....	45
Cohda.....	66-69
Cugher Glass.....	70-71
D	
Deceuninck.....	44
Dip-Tech.....	17
Dupont - Corian.....	66-69
E	
Edgetech.....	15, 30-33, 49, 86-93
F	
Fenzi Group.....	58-65
Filtraglass.....	2, 86-93
Forel.....	Back Cover, 49, 86-93
G	
Glass Company.....	5, 86-93
glassonline.com.....	79
Glaston.....	3, 16, 22, 86-93
GPAD-Glass Processing Automation Days.....	75
Guardian Glass.....	43
H	
Hegla.....	Front Cover, 12, 21, 86-93
Heavydrive.....	15
Helios Quartz.....	13, 86-93
I	
Isoclima Group.....	46-47
Isra Vision.....	39-42
L	
LandGlass.....	20
LiSEC.....	34-38

COMPANY NAME	PAGE No.
M	
Mappi International.....	80-81
Mazzaroppi Engineering.....	First Page, 86-93
Mir Stekla.....	57
N	
Nel Hydrogen.....	21, 86-93
Neptun.....	50-51
Northglass.....	11, 86-93
O	
Orda Glass.....	45
P	
Paragon Tempered Glass.....	16
Pilkington.....	48
R	
Ravensby Glass.....	49
RCN Solutions - RD Clean Concept.....	23
Rollmac - Gemata.....	Front Inside Cover, 86-93
S	
Satinal - TK - Strato.....	76-78
Schott.....	45
sedak.....	49
Stewart Engineers.....	45
T	
Texpack.....	19, 86-93
Thersoseal Group.....	17
Triulzi Special Equipments.....	17
Tuomas.....	26-29
Tvitec.....	18, 52-56
U	
Unelko Corporation.....	72-74
V	
Vitro.....	14
Vitrum.....	58-65
Z	
Zak Glass.....	96



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



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



- Continious line for multi processes
- Compatible for product trackings via ERP
- ≈ 1000 sqm/shift capacity

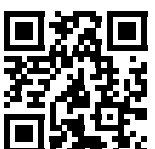


- Continious line for oversize panes
- Extandable panel press lenght via tandem press
- Heavy duty design for overweight applications.

Demirciler Mah. Makine Ihtisas
Organize Sanayi Bolgesi,
15.Sokak, No:5,
Dilovasi/KOCAELI/TURKEY
+90 262 754 02 32

sales2@bestmakina.com (EN-FR)
sales3@bestmakina.com (ES)
salesru@bestmakina.com (RU)

www.bestmakina.com
f i n t y /bestmakina



issue	exhibition/conference	date	venue	deadlines
2022 1	GPD FINLAND	postponed to 2023	TAMPERE Finland	
	GLASSPRO INDIA	3-5 March	MUMBAI India	Editorial files: 14-01-2022
	FENSTERBAU FRONTALE	postponed to 12-15 July	NUREMBERG Germany	Deadline Adv files: 24-01-2022
2022				Editorial files: 14-02-2022 Deadline Adv files: 28-02-2022
2022 2	CHINA GLASS	13-16 April	SHANGHAI China	Editorial files: 11-03-2022 Deadline Adv files: 18-03-2022
2022 3	MIR STEKLA	6-9 June	MOSCOW Russia	Editorial files: 29-04-2022
	GLASS SOUTH AMERICA	29 June/ 2 July	SÃO PAULO Brazil	Deadline Adv files: 06-05-2022
2022 4	GLASSTEC	20-23 September	DUSSELDORF Germany	Editorial files: 22-07-2022
	ALL GLASSTEC EXHIBITORS ADVERTISING IN THIS ISSUE ALSO RECEIVE A FREE GLASSTEC PREVIEW 			Deadline Adv files: 31-08-2022
2022 5	GLASSBUILD AMERICA	18-20 October	LAS VEGAS (NV) USA	Editorial files: 12-09-2022
	GLASSTECH ASIA	26-28 October	SINGAPORE Singapore	Deadline Adv files: 26-09-2022
2022 6	VETECO	10-13 November	MADRID Spain	Editorial files: 14-10-2022
	GLASSTECH MEXICO	23-25 November	MEXICO CITY Mexico	
	ZAK GLASS TECHNOLOGY	1-3 December	NEW DELHI India	Deadline Adv files: 21-10-2022



THE NEW GENERATION OF BASIC SERIES (B-SERIES) GLASS TEMPERING FURNACE



BU1B50

- Standard Gapless Forced Convection System
- NorthGlass New Heating Control System



FACEBOOK



TWITTER



LINKIN

Shanghai North Glass Technology Industrial Co., Ltd.
 No.328, Guanghua Road, Xiaokunshan Town, Songjiang District, Shanghai
 Tel: +86-21-57858658 Fax: +86-21-57858667
 Mail: sales@northglass.com Web: www.northglass.global

NEW PRODUCTS: NORTHGLASS SINEST

SiNest is a new wall material with high silicon content.

The surface of artificial stone and the cellular matrix are sintered integrally.

It has all the qualities and functions required by the wall:

- Stable and weather resistant, Lightweight and high strength, fire retardant and thermal insulation, Integrated decoration.
- Combined with the fabricated wall components made of light steel.
- The traditional wall becomes simplified and refined.



HEGLA GROUP

New managing director

Based in Beverungen, Germany, **HEGLA Group** has expanded and restructured its leadership team to take the company's long-term sustainable growth strategy to the next level.

Responsible as of 1 December 2021 for overseeing the Production, Technology, Supply Chain & Human Resources departments, Ingolf Ripberger now joins Executive Board members Jochen H. Hesselbach, Bernhard Hötger and Dr Heinrich Ostendarp - all within the scope of the company's sustainable growth strategy.

"We're delighted to have acquired Mr Ripberger, who's recognised industrywide as a professional familiar with glass as a material, including its processing," said Bernhard Hötger. "He also has personal experience with the applications and solutions of the HEGLA Group."

Mr Ripberger previously covered a technical and commercial management role for the Saint-Gobain Group in Germany and has worked internationally for over 25 years. Having already earned a degree in electrical engineering, he later completed one in business administration at RWTH Aachen.

Neo CEO of the HEGLA Group, also since 1 December 2021, Bernhard Hötger has held various positions within the company since 1984. He will continue to be re-sponsible for Sales and Marketing while supervising all operations that concern international subsidiaries and sales agencies.

Dr Heinrich Ostendarp will focus upon product development, both strategic and operational, as well as integration and further development of the subsidiaries and product areas for safety glass furnace tempering (HEGLA-TaiFin), laser applications (HEGLA boraident) and software and automation (HEGLA-HANIC).

Jochen H. Hesselbach will remain a HEGLA Executive Board member, albeit with a more intense focus as CEO of 100% parent company LEWAG Holding AG - forging ahead in this role with strategic alignment and assessment of new shareholdings or subsidiaries as well as potential partnerships.

With a view to adapting HEGLA's below-board-level structures to meet company growth, a further two senior staff members have been appointed as authorized signatories, namely Josef Kusserow (Head of Production) and Georg Dressler (Head of Strategic Purchasing), both of whom are authorised now to represent the HEGLA site in Beverungen.

In a joint meeting convened to render the authorization official, Managing Director Bernhard emphasized how much this step demonstrates the significant trust invested in the abilities and know-how of the two signatories. "By conferring these far-reaching competencies we're strengthening HEGLA still more by plotting the future course of our continued success," said Hötger.

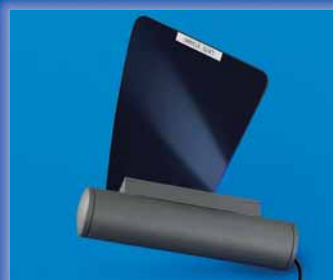
A further two senior staff members have been appointed authorized signatories as well, with Josef Kusserow (Head of Production) and Georg Dressler (Head of Strategic Purchasing) being also added now to represent the HEGLA site in Beverungen.

WWW.HEGLA.COM/EN/



GLASS INDUSTRY

INFRARED AND UV SOLUTIONS FOR EVERY APPLICATION



IR medium wave twin tubes emitters for:

- laminating lines
- mirroring lines
- dry screen printing lines

IR medium wave single tube emitters for:

- bending furnaces
- fusion furnaces

IR fast medium wave twin tube emitters for:

- laminated glass cutting machines

Helios Quartz also produces cutting edge equipment for the glass industry such as **manual and automatic tin side detectors** and **UV polymerization units**.

helios quartz®



www.heliosquartz.com

Your partner, not a simple supplier

VITRO ARCHITECTURAL GLASS

Solarban® 60 glass for Allentown's Five City Center façade

With its artistic blend of blue- and grey-tinted Solarban® 60 glass from Vitro Architectural Glass, Allentown's Five City Center in Pennsylvania, USA, features a striking façade and daylit interiors.

While Allentown-based developer City Center Investment Corp. was after a beautiful glass building for its 13-storey, mixed-use tower, North Star Construction Management was instead interested as contractor in a buildable construction that could stay in the installation and cost boundaries of a unitized system.

"We worked within those parameters to create something that could be iconic for downtown Allentown while still being clean and simple," relates Kaman Skinner, LEED® AP associate and project manager at JDavis Architects, Philadelphia.

Located in a tax-incentive district, Five City Center contributes handsomely to the city's efforts to re-invigorate a designated Neighbourhood Improvement Zone. The building offers active street views from the first three storeys as well as panoramic, 360-degree views from floors four through to 13. To successfully fulfil its design objectives, the architectural team devised the tinted mosaic design for the façade facing the city's commercial corridor.

To achieve the mosaic look, the architects reviewed multiple shading and tinting options with representatives of Vitro Glass to determine



the percentage and patterning for each colour. The 300,000-square-foot building façade incorporates rich blue Solarban® 60 Pacifica® glass, aqua-blue Solarban® 60 Azuria® glass, light sky-blue Solarban® 60 Solarblue® glass, warm-grey Solarban® 60 Opitgray® glass and coated Solarban® 60 glass upon a clear glass substrate.

On the southern façade, the firm designed mullion caps to blend Five City Center more effectively into the texture and scale of the surrounding residential area. For enhanced interior comfort and glare control, JDavis deliberately specified darker shades of glass for the southern and western façades. Initially brought in to design the residential portion of the mid-rise and the 800+-car parking structure behind the building, the developer eventually tasked JDavis with developing the entire block.

"This was a win-win for us in that we were able to work on both the Five City Center commercial tower and the residential community of Center Square Lofts to design a single urban block where interior and exterior worked hand-in-hand to create a vibrant, walkable and energetic community," said Skinner. With its advanced double-silver coating, Solarban® 60 glass offers a clear, colour-neutral appearance. When used with Pacifica®, Azuria®, Solarblue® and Opitgray® performance-tinted glasses, Solarban® 60 glass delivers solar heat gain coefficients (SHGCs) ranging from 0.23 to 0.30, and visible light transmittance (VLT) of 34 to 50 per cent, offering architects and specifiers an expansive colour palette together with performance options.

WWW.VITROGLAZINGS.COM



HEAVYDRIVE

Reliable glazing at low temperatures

The façade of the Grand Théâtre de Québec, Canada, was in need of a complete re-ovation.

The envelope around the theatre, built back in 1971 from prefabricated panels and exposed concrete elements, had been damaged by moisture. The large façade sections were installed by Heavydrive's VSGW 900 KS suction system, equipped with a winter package.

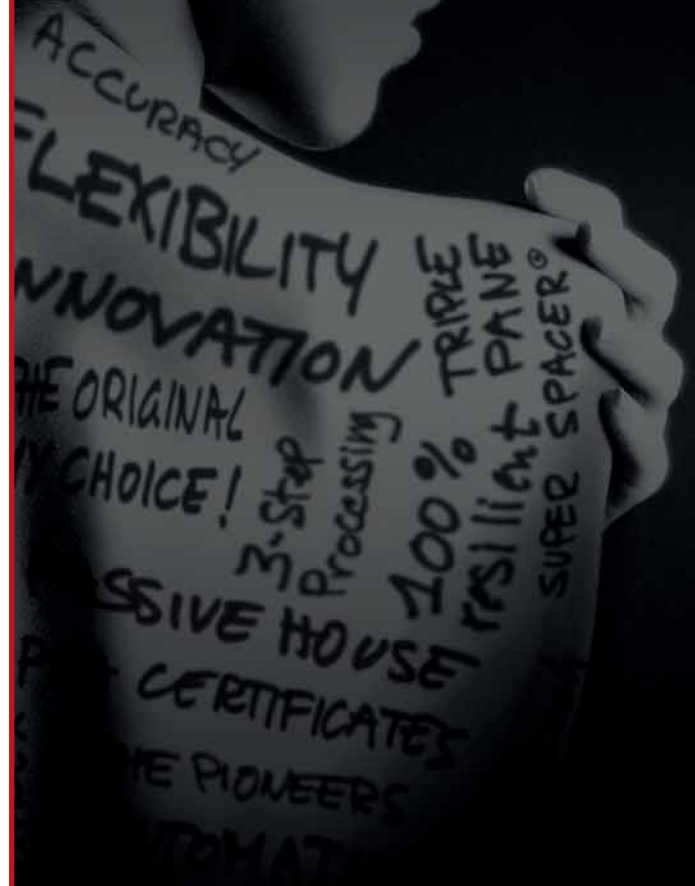
The suction system has a load-carrying capacity of 900 kilograms and boasts an extremely flat design. Its depth of just 16 centimetres makes it the ideal solution for installing and transporting sections between the façade and scaffolding. Thanks to its variable and detachable arms, the system is capable of suction sections measuring up to 4.3 by 3.2 metres.

The assignment was received during the winter months and the VSGW 900 KS had to withstand icy temperatures. Which is why Heavydrive developed special winter plates that reliably provide suction for glass panes at temperatures down to -20 C°. The large glass elements around the theatre's façade were placed in position on schedule and without any problems. The customer was so satisfied that they ordered another Heavydrive system.

WWW.HEAVYDRIVE.COM/EN

Super Spacer®

#TheOriginalmyChoice



The first ever warm edge
made of flexible structural foam.

Edgetech

A Quanex Building Products Company

The Pioneers in Warm Edge Technology

www.superspacer.com

GLASTON & PARAGON TEMPERED GLASS

Jointly meeting growing demands

“Of all the equipment we have purchased over the years, this machine came with the best packaging, instructions and top-of-the-line support,” said Paragon Tempered Glass CEO Dan Wright. “When we saw the CHAMP 25 a few years ago, we knew this was the future we should pursue for our next round of capital expenditures.”

Together with his Director of Manufacturing and fellow colleague Wes Brigner, Dan already knew Bystronic glass and Glaston well - all thanks their vast experience in the glass industry. Paragon’s two plants both have 30-year-old Bystronic glass pre-processing equipment and Glaston tempering lines.

“We know that Glaston is very reliable, and the equipment does an awesome job,” said Wes. “We’ve always thought highly of the two equipment manufacturers that are now one Glaston.”

Both men saw the CHAMP 25 about two years ago, then reached out to Glaston to learn more before deciding it was the right path for their business.



“Not only would the line give us the speed and capacity we needed,” continued Dan. “We also knew our relationship with Glaston would be excellent and the quality would be of the highest calibre.” And it all proved to be so - even down to the way the product was packaged and shipped.

Wes emphasized that “when it came to support, the Glaston team had a response for us within minutes as well as a game plan to take care of any issue within an hour. This means the world to us!”

Paragon purchased their first CHAMP 25 in October 2019. Although COVID-19 decelerated the process, the line was installed in September 2021, incorporating incorporates four different processes, namely robotic loading, cutting, grinding and drilling with two sets of drills. While this would have taken four separate pieces of equipment pre-

viously, the line now combines all processes into one and is configured with the company’s digital printer.

CHAMP automates the processes, significantly improving both yield and quality. At the same time, it helps Paragon focus upon what they’re best at, which is fabricating an elevated volume of high value-added parts.

Such is the direction in which their business is moving - providing parts with more holes and odder shapes while serving new and different cab styles that have a sharper look. “Indeed, our operators are really excited about the CHAMP line, which they see as the future. Especially at the Ohio plant, our people have adapted over the years to many changes - expecting the best,” said Dan, before enjoining: “They also know we share the business profits with our workforce, so they understand that the better we do, the better they do.”

Wes adds that the additional automation helps them grow the business in such a way as to ably excel without making personnel work more hours. “Having been short on team members, we view automation as a way for us to work to live rather than to live to work,” he concluded.

WWW.GLASTON.NET - WWW.PARAGONTEMPEREDGLASS.COM

TRIULZI & DIP-TECH

Teaming up to customize washers

Dip-Tech, the digital ceramic glass printing business unit of *Ferro*, and **TRIULZI**, leader in the glass washer industry, are both pleased to announce their new partnership, which will see TRIULZI providing Dip-Tech with tailor-made washers developed to achieve the highest quality and perfect fit for Dip-Tech's digital printers.

"We're proud and excited to have TRIULZI as our partner," said Dip-Tech Managing Director Yuval Tzoref.

"As a pioneer in the ceramic digital printing industry, it was very important for us to find an excellent leader that will guarantee quality while fully understanding our customer needs. Dip-Tech and TRIULZI share a passion for providing their customers with high-quality solutions that will fit both their needs and their budget, which is why we're confident this partnership will mark a true turning point for the market."

"It is indeed an honour for us to be part of this important project in synergy with Dip-Tech," said Triulzi CEO and Sales Manager Roberta Triulzi. "Mindful as we are that the market demands high-performance integrated solutions, we're also confident the partnership with Dip-Tech will be the game-changer that has customers always choosing the best."

WWW.TRIULZI.COM/EN/HOME - WWW.DIP-TECH.COM



THERMOSEAL GROUP

Named Spacer Bar Manufacturer of the Year

As the UK's leading manufacturer of warm edge spacer systems and distributor of over 2,500 insulated glass (IG) components, **Thermoseal Group** also won the award back in 2020 and in 2017 as well.

Completely run and decided by industry participation, The National Fenestration Awards are the fastest growing and most independent of their kind in the industry. Each year begins with a nominations phase where anyone can put forward the names of people and companies in over two dozen categories whom they believe warrant recognition. Based upon the nominations submitted the industry then votes on a shortlist in each category.

Thermoseal Group won the award with the highest percentage of the open-platform votes and were announced the winners at the NFA Awards event on 6 November 2021. Thermoseal Group Head of Marketing and Communications Samantha Hill, said:

"We're delighted and extremely grateful to win an award for which voting came directly from electors related to Thermoseal Group's business – our customers, suppliers and industry contacts. It's great to see that our UK-manufactured Thermobar and Thermoflex Warm Edge Spacers and service promises all meet expectations far enough to motivate people to vote."

"I'd like to express thanks to all who took the time to vote for Thermoseal Group. Your ballots are all much appreciated. Our teams will continue to strive to offer top quality, UK-manufactured products - ever aiming to achieve service excellence. By the same token, I extend thanks to the whole Thermoseal Group team. You've all have worked extremely hard throughout the Covid-19 pandemic – even as you've faced all the issues caused by BREXIT.

"Finally, a big thanks to Jason, and to Lee, for running the awards - now in their 9th year. The past couple of years have indeed been unparalleled for us all, given that good news has been slow in coming, so this sort of recognition certainly carries extra mileage with our teams."

WWW.THERMOSEALGROUP.COM



TVITEC

Glass for AstraZeneca's Discovery Centre

Tvitec's large-scale solutions light up AstraZeneca's magnificent Discovery Centre designed by Herzog & de Meuron. Little has been spared in the construction of AstraZeneca's new Discovery Centre in Cambridge (UK). It will be one of the three largest research centres of the Anglo-Swedish pharmaceutical company. Its grand opening was presided over by Prince Charles, accompanied by AstraZeneca's executive director, Pascal Soriot, and its president, Leif Johansson. The Swiss architects Herzog & De Meuron have come up with a breath-taking design.

Tvitec oversized glass

Of course, this is in line with the GBP 1.1 billion total investment. The building is covered with a gigantic glass structure, with eye-catching saw teeth of almost 7 metres each covering the 16 laboratories in which more than 2.200 scientists will work.

But where have these spectacular pieces of glazing been manufactured so that the aesthetic results also benefit from the insulation, energy-saving and safety sought by its backers? The answer, of course, is one of the world's leading specialists in large-scale jumbo glass manufacturing: Tvitec. Tvitec manufactured each and every one of the nearly 300 triple glazing laminate units surrounding the Discovery Centre, the UK's largest scientific laboratory.

Tvitec triple glazing for a great ecoefficiency

The triple glazing, which includes smart solar control layers of AGC Ipasol Shine and Iplus Top, along with Guardian extraclear, allows natural light to bathe the entire building organically. It's part of the eco-efficiency and sustainability concept of a project in which heat is collected from the ground and toilets are flushed with rainwater.

Tvitec's technology for processing insulating glass was combined with the expertise of its professionals to achieve maximum precision in the triangular shapes of many of the zig-zag pieces designed by Herzog & de Meuron. The main body of the AstraZeneca campus sits on six rectangular glass boxes grouped into three pairs. The result is an open courtyard formation, which references the historic universities of Cambridge and provides a central campus meeting point.

Yet Tvitec production goes far beyond jumbo glass units. In the Cubillos factory, more than 20.000 meters of high-performance glass was manufactured for façade specialists Scheldebouw. That's almost 5.000 pieces of glass from the 'Made in Spain' Tvitec brand.

[HTTPS://TVITECGLASS.COM/](https://tvitecglass.com/)



Textiles for the glass industry

Textiles for the glass industry used to cover and line rollers and ovens for tempering flat glass and for covering bending moulds and pliers for transferring hot glass.



1210N Aramtex® discontinuous filament tapes

Aramtex® tapes are produced using 100% pure paraaramidic yarns with continuous filaments, that are usually woven in several layers, using particularly fine yarns that render the positioning surface extremely homogeneous and smooth and thus preventing the still hot sheets of glass from being scratched. Aramtex tapes have excellent mechanical characteristics (excellent resistance to cutting, abrasion, tearing and compression) while their heat resistance characteristics remain unaltered.



1204CM Tenack knitted sleeve

Tenack sleeves are made by braiding AISI 316 L stainless steel wires. This sleeve, which withstands high temperatures and has excellent mechanical properties, is suitable for the glass industry as protection for parts that may come into contact with hot glass that is still soft to prevent thermal shock and microcracks. They are an excellent substitute for Aramtex products when temperatures exceed 350°C.

Ask for GENERAL CATALOGUE
to our customer service

TEXPACK®



ESA European
Sealing
Association e.V.



Texpack® srl - unipersonale - Via Galileo Galilei, 24 - 25030 Adro (BS) Italia
Tel. +39 030 7480168 - Fax +39 030 7480201 - info@texpack.it - www.texpack.it

LANDGLASS

5th tempering furnace at JinJing Group in Malaysia

LandGlass follows its innovation-oriented strategy and offers state-of-the-art glass tempering machines and solutions to help glass processing companies achieve better quality and higher energy efficiency.

With acceptance and commissioning of the fifth LandGlass' glass tempering furnace at Jin Jing Group's production base in Penang, Malaysia, August 2021 saw the group become the largest photovoltaic glass producer in South-east Asia. This marks not only the strategic industrial transformation of Jin Jing from building to photovoltaic - it's also an important measure of the group's response to the green energy development trend, with applications to seize current opportunities.

Carbon neutrality goals, green energy, energy conservation and emissions reduction have all become core keywords in the development strategy of Jin Jing. Glass production and processing are both energy-intensive industries. Consequently each is facing unprecedented emission reduction requirements and energy-saving challenges.

As an industrial leader in the R&D and manufacturing of glass tempering machine LandGlass has introduced two leading technologies in recent years that can help glass processing companies to improve efficiency while reducing energy consumption:

- The Turing 2.0 intelligent glass tempering control system can automatically adjust and optimize tempering process parameters to generate the best manufacturing data required. The system reduces both time and costs spent on product switching, commissioning and trial runs. It ensures the quality of tempered glass while lowering energy consumption during production.
- LandGlass' TIGER™ smart factory achieves energy consumption reduction by improving loading and operating efficiency. Furthermore, compared with traditional factories the smart factory greatly reduces the need for staffing, floor areas and peripherals. It improves both production efficiency and energy efficiency at all stages. Taking a small-to-medium sized traditional glass processing enterprise with an annual output of 800,000 square metres as our example, when it's upgraded to a smart factory model -and based upon a 12-hour shift system- the annual savings from reduced energy consumption and other costs can approximate CNY 3 million.

Achieving the goals of energy saving and carbon neutrality remains an arduous, drawn-out task. Beyond the energy-saving measures of the flat glass industry, it relies significantly upon R&D breakthroughs of the machine manufacturing industry. Before the current trends towards "Energy Conservation and Emission Reduction" and "Dual Control System of Total Energy Consumption and Energy Intensity," LandGlass follows its innovation-oriented strategy and offers state-of-the-art glass tempering machines and solutions to help glass processing companies to achieve better quality and higher energy efficiency.

WWW.LANDGLASS.NET



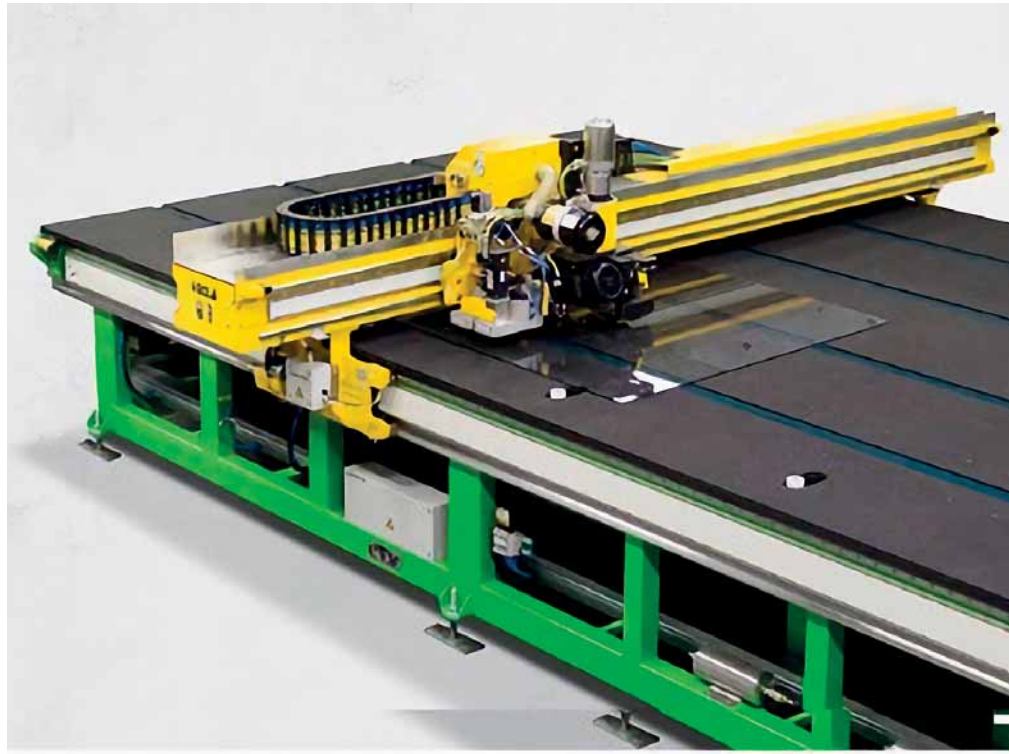
HEGLA

Introducing HEGLA Galactic

With minimal maintenance, HEGLA's new cutting system release offers maximum precision and dynamism.

The pioneering motion dynamics of its low-maintenance, electro-magnetic linear drives make it the perfect choice for use in fully-automated, industrial-scale cutting operations. Whether in a simple line installation or combined with the ReMaster and the SortJet sorting system to form a complex cutting line, HEGLA Galactic is always sure to impress.

WWW.HEGLA.COM/EN/



Reduce your carbon footprint...

With green hydrogen generated on-demand

Nel Hydrogen is leading the global decarbonization revolution and can help reduce your carbon footprint, increase plant safety, streamline operations and increase your bottom line.

- Alkaline and PEM electrolyzers
- Safe, clean and cost effective
- Consistent purity and pressure
- Eliminate hydrogen delivery and storage
- Scale to match any application

nel •

Visit us on-line or call for a consult
with one of our sales engineers today!
+1.203.949.8697
www.nelhydrogen.com



GLASTON GROUP

Deal closed for two TPS® insulating glass lines



Glaston Group has received an order for two Glaston Thermo Plastic Spacer (TPS®) insulating glass lines from French window manufacturer TRYBA. The order is booked in Glaston's Q4/2021 order book and the lines will be delivered in Q3/2022.

The French glass manufacturer TRYBA, specializing in windows, doors, verandas and pergolas, has a long customer relationship with Glaston, and the company already operates Glaston tempering, flat laminating and insulating glass lines equipped with the latest glass processing technology. As the company is expanding its operations, TRYBA had been after an automated and flexible solution for the manufacturing of insulating glass units.

The insulating glass line Glaston TPS® offers a versatile and individual production system. The fully automated line enables excellent productivity, quality and high flexibility as well as long service life due to premium quality components. The individually configurable production lines are equipped with the Thermo Plastic Spacer TPS®, a "warm edge" technology introduced to the market more than 25 years ago. "A high capacity and high reproducible quality, as well as high flexibility in mixed production, were the key criteria for TRYBA in selecting Glaston TPS® technology," said Marco Stehr, SVP Sales & Service for Glaston's EMEA region. "In addition, it was Glaston's commitment to fulfilling TRYBA's special service and support needs that convinced them to choose Glaston."

"We want our customers to succeed in their business," said Sasu Koivumäki, CSO, Glaston Corporation. "The Glaston TPS® is an excellent choice for this customer, as they are paying attention to detail and quality while at the same time looking for a combination between state-of-the-art technology and reliability."

"Progress and innovation are the driving force leading us to constantly renew our products and make them even more efficient," said Jerome Oberle, Project Manager of TRYBA S.A. Portugal. "Our team is constantly paying attention to detail – constantly ever seeking perfection while reaching a balance between technology and design. With Glaston's technology and service capabilities, we're confident we'll successfully expand our glass business."

WWW.GLASTON.NET/

CUGHER

SYMPHONIA, the new solution for glassworks

Cugher's SYMPHONIA was created to facilitate the loading and/or unloading of glass sheets onto vertical production lines. Besides offering efficient and consolidated turnkey plants, silk-screen printing machines and dryers for industrial companies, Cugher's dedicated division for the Building & Interior Design sector, the Architectural LAB, is also investing resources in the design of glass handling machinery for small and medium glassworks.

Cugher's SYMPHONIA, the newest automated harps rack sys-

tem, marks an interesting solution, being created to facilitate the loading and/or the unloading of glass sheets onto vertical production lines, such as those for insulating glass for glass dimensions reaching up to 3000 mm x 1500 mm (118,11 x 59,05 inches).

Indeed after being cut the glass is no longer placed upon a rack to be then manually loaded in the vertical line but it is instead directly placed on the harp following the production order. Each harp can contain up to 40 glass sheets. The loaded harp is inserted by the operator onto a modular ground structure that automatically raises it and activates the movement. The harp moves forward through the system, unloading the glass sheets automatically, one by one in sequence, thereby eliminating the need for manual →



Being modular, SYMPHONIA can indeed include as many positions as the production needs of every customer require. Moreover, the engineering is customized to accommodate the available space in the warehouse as well as the processed glass dimensions.

The SYMPHONIA project was developed in response to the direct request of customers,

← loading. Once the harp is empty, the operator moves it back to the cutting station for reloading. In the meantime, the harps inserted progressively within the system continue the process. This process could be implemented inversely also for the unloading of the line.

confirming that listening to customer's needs, and responding with highly customized solutions are an essential driving force for machine manufacturers – and Cugher is no exception.

WWW.CUGHER.COM/

RCN SOLUTIONS

RD Clean Concept

A year ago when **RCN Solutions** launched RD Clean Concept, an innovative product in lamination, we would hardly have imagined that attempts at imitation would immediately have arisen along with success.

This can be some reason for pride, besides being a confirmation that the product itself is deemed revolutionary among insiders and experts alike - and that it has appeal on the market.

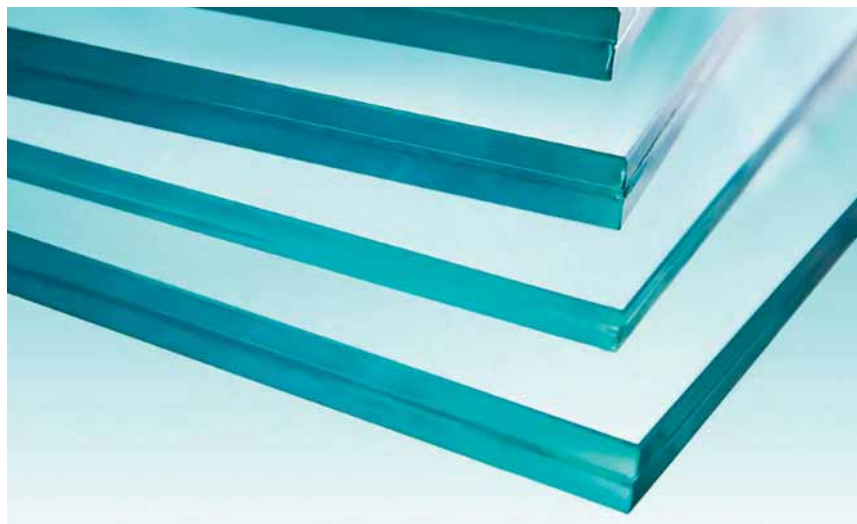
Here, RCN seeks to reassure the market that RD Clean Concept is unique and born from an idea based upon serious studies and development rather than any last-minute improvisation.

Both product and concept remain under patent, pending any other product potentially declaring itself equal and sporting the same qualities for which RD Clean Concept is appreciated, namely effectiveness and easy, safe usage - all combined with the reliability associated with a product tested over the long-term.

Construction components are of particular use from RCN, given that they're manufactured on specific demand and are inaccessible to others. Research and combination of the different components required several examinations – an equilibrium that took time to achieve, which explains why any attempt at imitation offers little value and could never yield the same product.

Finally, it's essential to trust a serious supplier that offers both technical testing and professional assistance. Likewise, it's no less important to acknowledge that the RD Clean Concept remains singular as a product and to be aware that imitations should be identified and are risky to be installed.

WWW.RCNSOLUTIONS.IT



CANADIAN PREMIUM SAND

Selkirk selected for solar glass manufacturing facility location

Canadian Premium Sand Inc. recently announced that it has chosen the City of Selkirk, Manitoba, Canada, as the preferred location for its solar glass manufacturing facility. Canadian Premium Sand's (CPS) decision follows an extensive evaluation of possible options in both Canada and the United States. Selkirk provides logistical, operational efficiency as well as environmental advantages over alternatives while meeting the following key selection criteria:

- Proximity to CPS' high grade silica sand quarry operation. The quarry is located near Hollow Water First Nation and the community of Seymourville, approximately 160 kilometres north of Selkirk;
- Access to abundant and cost-efficient supplies of natural gas, renewable hydroelectricity and industrial grade water;
- Access to end markets through rail and highway infrastructure, with direct connection to the major logistics hub in Winnipeg, Manitoba;
- Access to a sizeable labour pool encompassing management, engineering, technical, trades and semi-skilled personnel;
- Availability of industrial zoned land parcels of sufficient size to accommodate the initial manufacturing facility with room to accommodate CPS's growth ambitions for future facilities; and
- Alignment with the community's vision of sustainable and responsible commercial development over the next 30-plus years.

The company's manufacturing facility will produce high specification patterned solar glass which utilizes a rolled manufacturing process and will provide approximately 300 direct employment opportunities once in operation. CPS' products will predominately be used in the manufacture of solar panels in North America – a rapidly expanding industry driven by an objective to decarbonize the electrical grid with a proportional solar power contribution increasing from 5 percent today to as much as 40 percent by 2035. "Based on the criteria we set, it's difficult to imagine a better loca-

tion than the City of Selkirk and the Province of Manitoba for our solar glass manufacturing facility. Collaborating with the City of Selkirk has been extremely positive and highly professional and I commend their drive to realize their community's vision for sustainable economic development," said Glenn Leroux, President and CEO of CPS.

Currently, there are no facilities in North America that produce this type of glass. All solar panels manufactured in North America using patterned solar glass are made with glass imported from China and other Asia Pacific countries. Locating a solar glass manufacturing facility in Selkirk will add significantly to the sustainability and supply chain security of CPS' solar panel manufacturing clients. Additionally, CPS believes its glass manufacturing facility will be the anchor industry for an expanding centre of excellence, enabling other complementary businesses to locate in Manitoba. "We are very pleased CPS has selected Selkirk to build and operate its solar glass facility," explained Tim Feduniw, the Director of Sustainable Economic Development at the City of Selkirk. "This initiative aligns with our commitment to sustainable development and will create significant economic benefits for our community. The City of Selkirk is committed to working with CPS to secure a suitable site within urban limits that supports and enables the successful launch of this initiative."

The Company's solar glass project would not be possible without the support of its Participation Agreement partners, the Hollow Water First Nation and the incorporated community of Seymourville. These communities have a historic relationship with Selkirk and the supply of silica sand to industry from nearby Black Island, which dates back to the 1920s through to the 1980s.

"We received encouragement, understanding and patience from leadership groups in both communities as we transitioned our business plan from a focus on fracture proppant to our future Selkirk-based solar glass manufacturing facility," noted Mr. Leroux. "We will continue to work closely with the communities as we bring this project from planning to operation."

WWW.CPSGLASS.COM/



Speed Arris *Innovation*

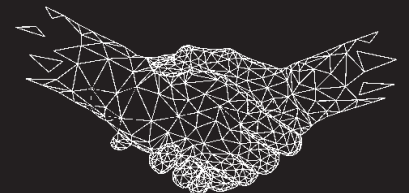
RAPID AND ACCURATE POSITIONING SYSTEM

Z-AXIS CONTROLLED

INNOVATIVE TECHNOLOGY BY BONIFERIO



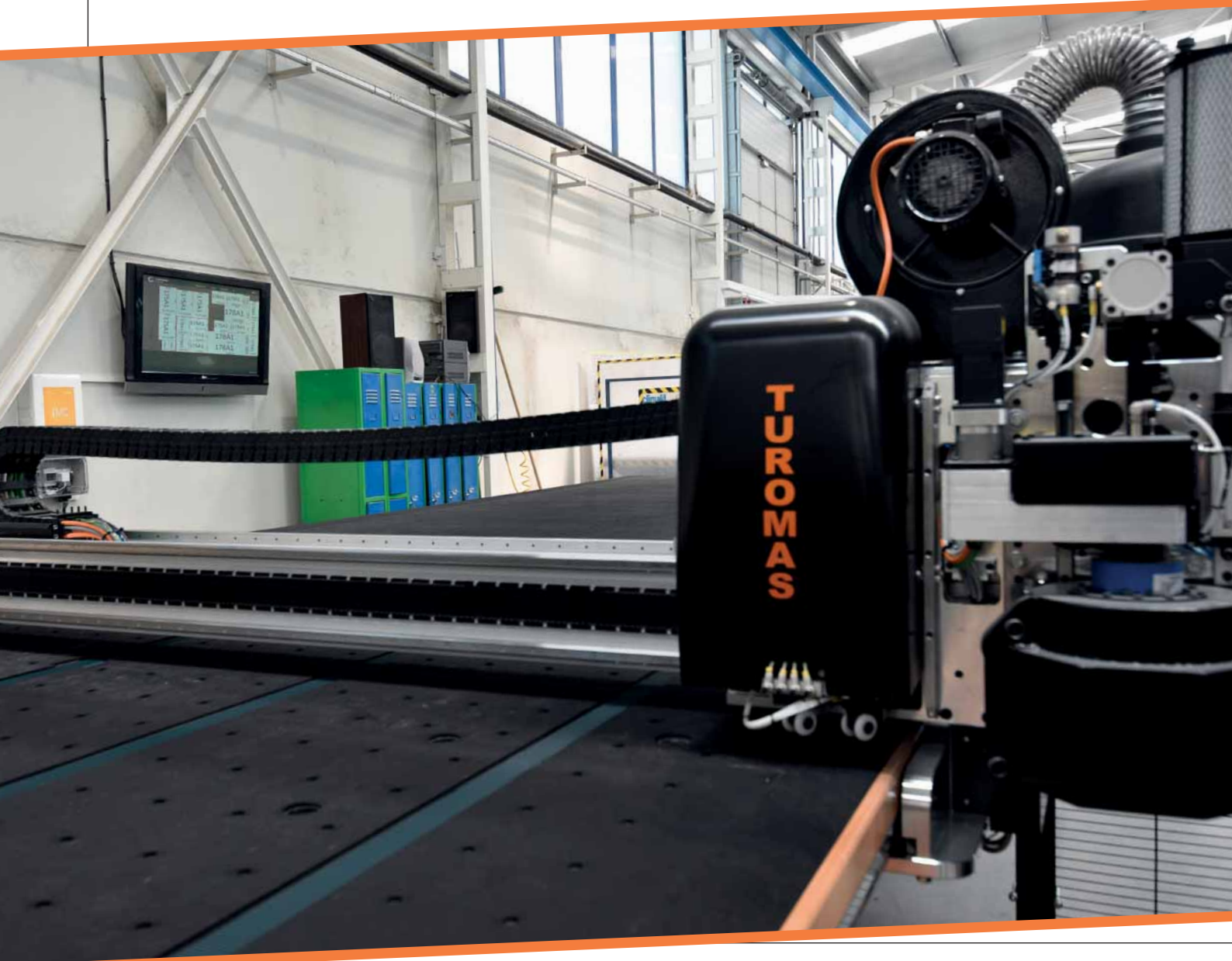
**MANUFACTURER
AND CUSTOMER
COLLABORATION**



**TOGETHER FOR
INNOVATION**



TUROMAS machines continue to lead in historic partnership



TUROMAS machinery has managed the glass cutting process for ACRISTALAMIENTOS VINUESA SA right from the latter's origins. A licensed manufacturer of the SGG CLIMALIT glass brand for Insulating Double Glazing, it has been active since 1990 in the transformation of flat glass, printed glass, decorative glass, safety glass and manufactured glass — all for both professional and private customers alike.

FROM FAMILY TO INDUSTRY

Acrystalamientos Vinuesa SA was founded in 1967 by five brothers following many years of experience in the glass industry. A subsequent need for expansion arose in 1977, whereupon facilities were extended to their current dimensions of 6,072 square metres of industrial factory, 720 square metres of offices and 30 employees.

TUROMAS recently talked to Felipe Parra, director of Acrystalamientos Vinuesa, about his business, his objectives and the development of the Spanish market.

WHAT IS ACRISTALAMIENTOS VINUESA S.A.?

Acrystalamientos Vinuesa came to the market at a time when glass had neither the presence nor the technical characteristics it enjoys today. It was my brother who, having worked at a small glassworks, was the first to propose that we start the project as a family.

I joined the company five years later and I really liked the business - right from the outset. That enthusiasm for the product, coupled with



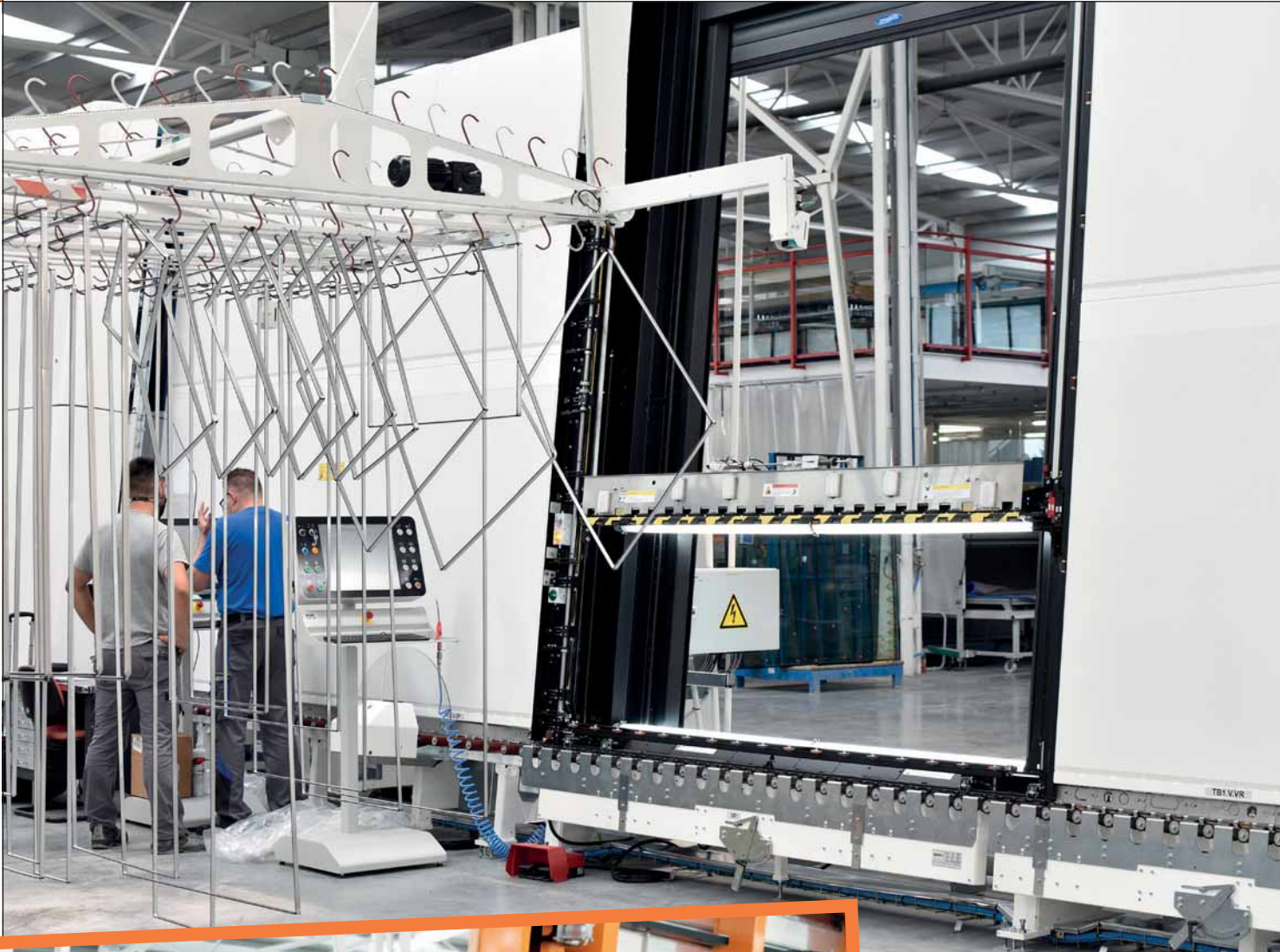
certain arising concerns, led me to seek new, more ambitious horizons. I started to visit international fairs, first in Paris, then in Germany, and I soon saw that there was machinery out there I didn't know about. At the time I decided to qualify the technology and media company. Then, after getting to know TUROMAS during a mutual foray with colleagues, we soon had contact with the company and, before long, had our first TUROMAS table.

WHAT ABOUT YOUR COMPANY'S PRODUCTS, SERVICES AND PRODUCTION PROCESSES?

Originally at Acrystalamientos Vinuesa we were glass installers: three-millimetre float glass, two-millimetre float glass, glass with glass panes. We've always sought to differentiate ourselves by offering our customers products that display an elevated technical performance. That's why we immediately started manufac-

turing IG glass. Then upon attaining sufficient capacity we signed the contract with Saint Gobain, which saw us going from more elementary machines to more modern ones equipped with improved features. With that we started producing at a higher quantity and with better quality.

Today, 50 years on, we've made our mark once again by incorporating new technology in both cutting and manufacturing insulating glass: with TUROMAS,



respecting cutting, and with another reference company in the case of double glazing.

HOW DID THE NEED FOR NEW CUTTING MACHINES ARISE?

As said before, we've always wanted to be at the forefront of our customers' demands, which necessarily means remaining no less attentive to market demands. Nowadays, products require higher performance, larger dimensions and greater



RUBI 516C

To hasten the process, it has been integrated with a second cutting bridge, namely LAM 304, which increases both cutting rate and productivity. For this purpose, a defragmenter for cross-cutting optimization has

thicknesses. That trio, taken collectively, had us realizing the machinery we had was obsolete.

Now the new machines are faster, producing with higher quality and at greater precision - which is transferred then to the rest, namely the edging, seaming and washing processes. Let's not forget here that everything starts from point zero, which is the reception, cutting and handling of glass. Such was our motivation for renewing both cutting lines.

WHY TUROMAS?

As with any business, one needs chemistry between supplier and customer and with TUROMAS that was there from day one. Although we had alternative options from manufacturers of machines that we already had in other processes, we've had the TUROMAS cutting tables from the start.

The company has always been very responsive to our needs, providing us with full support and exceptional after-sales service, which is very important to us.

Since the first machine, confidence in their products has remained absolute. It shows us that their equipment is a reference

within the market - not only nationally, but internationally as well.

That's why we had no doubt that TUROMAS' offer stood out as the most attractive.

WHICH TUROMAS MACHINE MODELS ARE MOST WINNING FOR YOU, AND WHY?

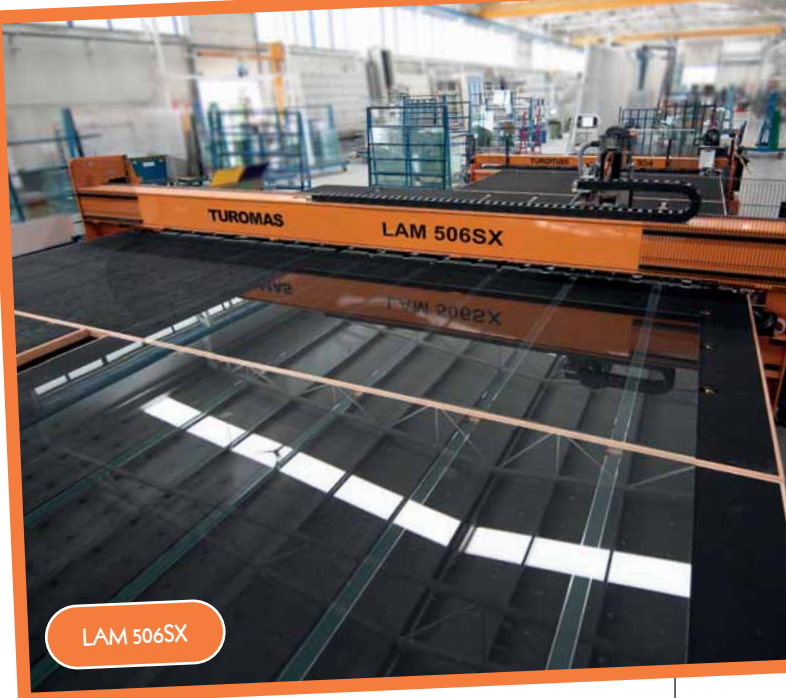
Two automatic, six-metre glass cutting lines have been installed: one for float glass cutting - RUBI 516C and the other for laminated glass cutting - LAM 506SX.

RUBI 516C

The float glass cutting table is equipped with linear motors that guarantee unprecedented performance and quality for any cut.

It incorporates a cutting system with four individual cutting tools with automatic selection. Each has its own roller, lubrication system and pressure cylinder that's specifically dimensioned for its cutting range.

In addition, an extra software - Cutting TV - has been installed to assist in the process of opening cuts. It displays optimizations automatically so that, at a glance, the operator has all the information needed for the cutting process. Once the cutting table has evacu-



LAM 506SX

ated the workpiece, the display changes automatically without the need to operate any buttons or foot pedals.

LAM 506SX

As for the LAM 506SX laminating line, it's a table that allows us to fully automatically position, rotate, strip and cut, and finally separate glass of up to 12 + 12 mm. The most important feature within this line -and what made us decide upon it- was the quality of the cut, which yields a perfect result - even with greater thicknesses.

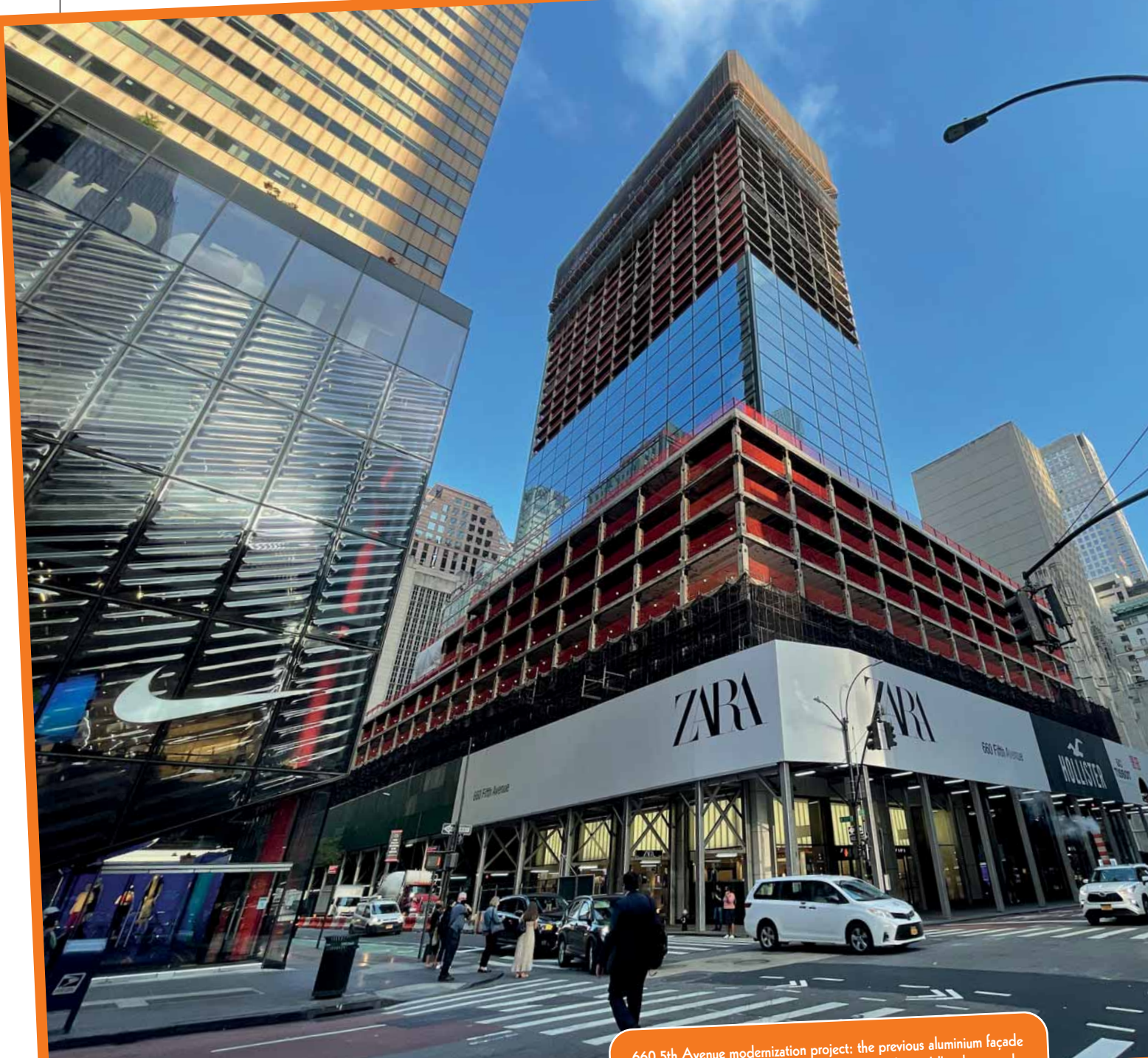
been installed upon this second line - both to distribute the cuts and to keep the two tables simultaneously productive.

Tuomas

TUROMAS
OUR PASSION, YOUR PROGRESS

Carretera Estación Km. 15, 8
44415 Rubielos De Mora
Teruel - Spain
Tel.: +34-978-804158
Fax: +34-978-804380
E-mail: info@tuomas.com
www.tuomas.com

Energy saving in New York with **EDGE TECH**



© Michael Young

660 5th Avenue modernization project: the previous aluminium façade at the tower top, the exposed steel structure in the middle, the new glass elements at the bottom and the exposed podium at the very bottom

For insulating glass windows, Edgetech's spacer systems act as energy-efficient warm edge spacers. While significantly reducing energy loss to the outside, they also prevent condensation appreciably and will prolong a window's lifetime. All these winning features contributed to the recent success of three landmark insulating glazing projects in New York.

GUARANTEE OF EDGE SEAL WITH SILICONE SEALANT AND SUPER SPACER®

Whether it's launching new products or refurbishing those already within its portfolio, AGC INTERPANE's stream of New York projects remains ever constant. Here, for the high quality insulating glass manufacturer, part of the action always includes The Super Spacer® T-Spacer™ SG warm edge spacer system, which was specially developed for glass edge sealing with silicone sealants. Trophy assets at outstanding locations invariably generate high rental income and will attract the most affluent tenants. Luxurious floors with every comfort for fine dining as well as open-air terraces and rooms for flexible events and conferences such as those of the new One Vanderbilt are all emblematic of the modern generation of office towers in Manhattan. In New York, the best location also means the best skyline vista, with the result that ageing office buildings are being brought up-to-date to include fully-glazed façades at sums reaching the three-digit millions. For decades now, AGC

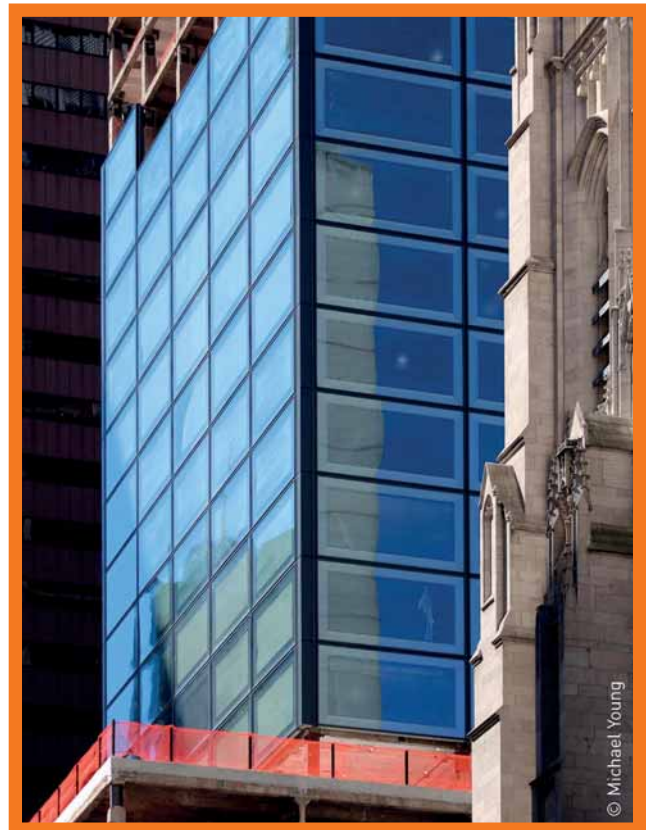
INTERPANE has been among Europe's top locations for large-area insulating glazing that's both superb in quality and multifunctional. Here, beyond its value in coating expertise and outstanding insulation, the high quality of its insulating glass is a decisive benefit as well. "There are no complaints with us. Anything other than delivering 100 per cent quality without exception is inconceivable in our business," says Daniel Bruckelt, head of insulating glass production at AGC INTERPANE. A company based in Plattling, it enjoys pride of place within an illustrious circle of those first in line for glazing requests in megaprojects the world over. Yet besides new construction, glass for energy-related façade renovation and modernization also contributes a large sales share. Here's why two exclusive office locations in Manhattan that are owned by Brookfield Properties have just been reglazed with AGC INTERPANE insulating glass.

660 5TH AVENUE: TRANSVERSE INSTEAD OF LONGITUDINAL GLAZING

First there's the 39-storey former Tishman Building on 5th Avenue, built in

1957 on the site where William K. Vanderbilt's Petit Chateau once stood. The tower, redesigned and gutted according to the designs of Kohn Pedersen Fox, will bear once again the number 660 instead of 666 following its renovation. A glass floor-to-ceiling façade together with horizontally-arranged insulating glass panes currently replaces the previous, non-insulating façade of embossed alumin-

um. Around 2000 panes of 6 x 3.2-metre glass were supplied to North America by AGC INTERPANE, each equipped with 20 mm Super Spacer® T-Spacer™ SG as spacers – totalling circa 25,000 square metres of insulating glass. As Daniel Bruckelt explains: "In the past, floors were built lower. Today, façades of high-rise buildings worldwide have a span of 1.5 to 3.0 metres in width and 3.5



to 4.5 metres in height. The existing building at 660 5th Avenue had a grid dimension of 5.8 metres in width and 3.2 metres in height. Therefore, in this particular case, the panes could be installed horizontally. The façade view makes the building unique among the other glass façades in New York.” Here, the amount of glass in the façade will nearly triple. Indeed, according to Brookfield, these are the largest, elemental windows in North America.

TWO BRYANT PARK'S CRYSTAL CLEAR, ELEGANT STRUCTURAL GLAZING FAÇADE

Completed recently, the second modernization project is that of Two Bryant Park. Former HBO headquarters at the corner of 1100 Avenue of the Americas (formerly 6th Avenue) and 42nd Street, it was remodeled to a design by New York firm MdeAS. The iconic Grace Building with its curved lower edge rises directly adjacent and is connected to Two Bryant Park on the north side by Grace Plaza, also redesigned, complete with seating, trees, retail and dining areas. World-class jazz trumpeter Till Brönner reportedly named an original composition after the intersection of ‘42nd & 6th’ with the affirmation ‘there’s absolutely nothing going on.’ In fact, the loca-

tion opposite Bryant Park and the New York Public Library is among the quieter corners in Manhattan, though ‘dining al fresco’ in the greenery will hardly come as the worst idea on a hot summer day.

Built in 1906 in the Beaux-Arts style, the original building had been raised from six to 15 storeys in several stages. Already in 1984, Kohn Pedersen Fox had completely restructured the building, cladding it with a curtain wall of dark green glass and aluminium. At that time, colour-neutral solar control glass was still unavailable. Only in 1995 would AGC INTERPANE introduce

ipasol Natura as a world premiere. With ipasol Platin 46/31, a highly selective ‘descendant’ with an elevated daylight transmission was used in the building’s new all-glass façades.

AGC INTERPANE produced 9,000 square metres of insulating glass for the project in two different variants. The main type had the structure 10 mm Clearlite™ (TVG) outside and 6 mm Clearlite™ (TVG) inside. For the podium, around 1,000 square metres of glass with the structure 1010.4 white glass (TVG) and ipasol coating Platinum 46/31 was installed on the outside and 1010.4 white

glass (ESG+HST) on the inside. The latter had dimensions of up to 3.20 x 4.60 metres with a weight of around 1,500 kilos. All in all, AGC INTERPANE delivered 450 tons of glass in overseas containers to the façade builder W&W Glass. The glass is installed with a light grey Super Spacer® T-Spacer™ SG spacer and is sealed with gray silicone.

SPECIAL SPACER WITH SILICONE SEALANT PROCESSING

The Super Spacer® T-Spacer™ SG is the latest product from Edgetech and was



© Michael Young

Two Bryant Park after rehabilitation: an elegant, light-filled glass block

One Vanderbilt with AGC INTERPANE glazing for the four floors of 'The Summit' observation deck

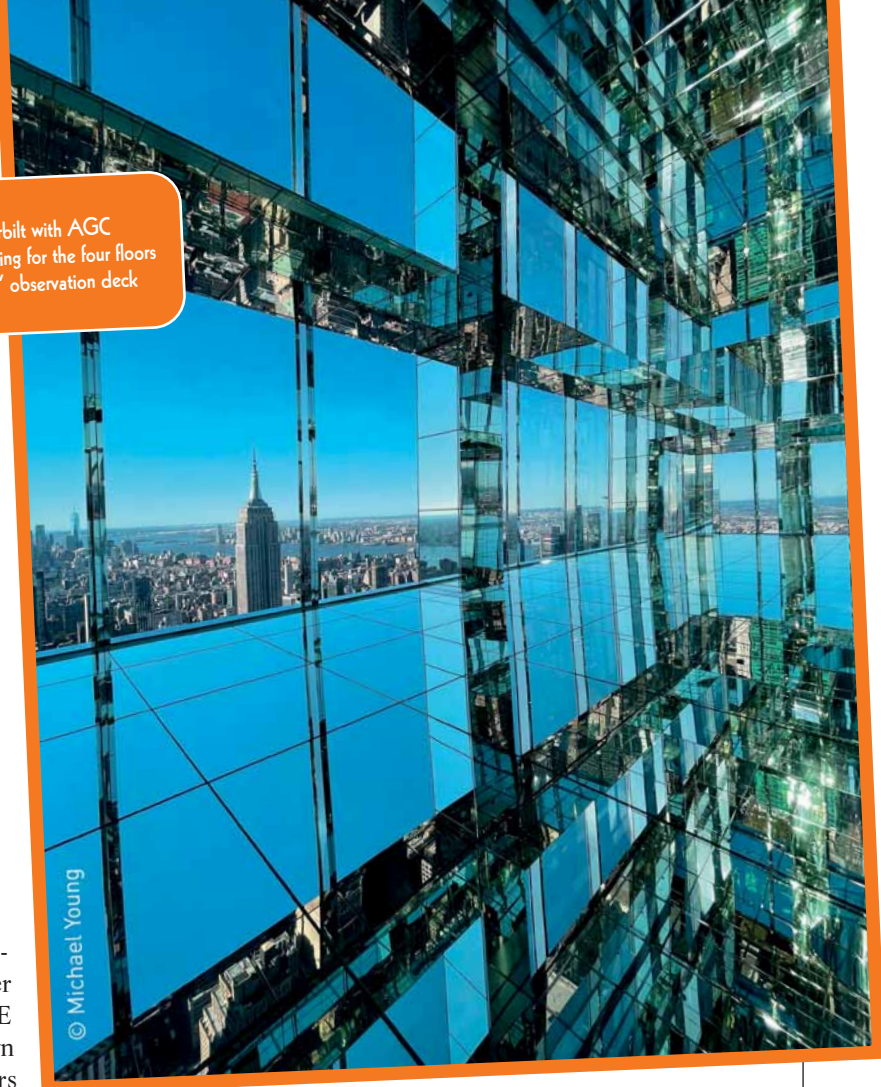
specifically developed in close coordination with AGC INTERPANE for structural glazing and XXL glazing. "Quality manufacturers like AGC INTERPANE provide long warranties on insulating glass units. This means no visible ageing, no thermal breakage, no water vapour diffusion, no relevant gas loss, no migration of the butyl seal," explains Christoph Rubel, European Technical Manager at Edgetech Europe. "The refurbishing projects in New York used a UV-resistant and a gas-permeable silicone secondary sealant. So, the primary sealant bears the brunt of keeping the edge seal gasket," he continues.

For this reason, the lateral areas of the Super Spacer® T-Spacer™ SG are enlarged for application of the polyisobutylene as compared with the Super Spacer® T-Spacer™ Premium Plus. The spacer design also supports millimetre-precise application of the spacer in the automatic ISO line. "The parallelism of the spacer to the glass edge and minimal tolerances are not only optical criteria for large panes with narrow joints to which architects and façade construction customers explicitly pay attention, since these properties contribute to the stability of the entire element," says Daniel Bruckelt. "The decision to use Super Spacer as spacer is also a strategic one. We

know from experience that we can use it without hesitation to give assurances for edge seal service life, even in silicone applications," continues Bruckelt.

ONE VANDERBILT: FOURTH TALLEST TOWER IN THE CITY

Completed in summer 2021, another AGC INTERPANE project in Midtown Manhattan offers a perfect view of Two Bryant Park. Just a few buildings away, right next to Grand Central Station, One Vanderbilt rises 77 storeys and 427 metres high, ranking it the fourth tallest tower in the city. Here, at a height of 335 metres, AGC INTERPANE supplied the glazing for the four floors of 'The Summit' observation deck. Cantilevered glass boxes, a digital art installation by Kenzo, a restaurant flanked by a bar and, above all, glazed elevators that rise up from Grand Central on the outside of the building to the platform all characterize New York's latest spectacular attraction. The tower was designed by KPF, Snøhetta designed the interior of The Summit and Permasteelisa Group was responsible for the com-



© Michael Young

plete façade construction. To ensure that the view of Madison and Vanderbilt Avenue is not only safe but also completely clear, LSG panes of 4 x 10 millimetre Clearvision white glass with SGP interlayers and ClearSight™ layers were installed at positions 1 and 8 for the terrace area and cantilevered glass boxes. For the interior areas of the four floors the double-insulating glass units consist of laminated safety glass 1010.4 with Sentry interlayer and have dimensions of up to 2 x 5.3 metres.

As proudly affirmed by Joachim Stoss, Managing Director of Edgetech Europe GmbH and Vice President International Sales at Quanex: "Our Silicone Glazing Spacer is a prime example of how suc-

cessful customer-supplier relationships are based on much more than product reliability and quality. Developing custom-fit solutions together with the customer is the supreme discipline in any business. We are naturally honoured by the trust placed in our work."

Edgetech Europe GmbH

Edgetech
A Quanex Building Products Company

Glabbacher Strasse 23
52525 Heinsberg - Germany
Tel.: +49-2452-964910
Fax: +49-2452-9649111
E-mail: info@edgetech-europe.com
www.superspacer.com

LiSEC's Dynamic Load Balancing solutions

LiSEC's successful VSL-A horizontal cutting system for laminated glass processing was introduced to the market at the end of 2018. Since then, many customers have lauded its output qualities, its patented SIR film heater, the significant extent to which it reduces glass waste and the reduced operator intervention accompanying its enhanced automation.



The laminated glass cutting machine can be connected to a downstream sorting system. An additional automatic rotating device ensures entirely automatic cutting of laminated glass.



VSL-A tandem

laminated glass cutting solution
with **Dynamic Load Balancing**

To better meet individual customer needs, LiSEC's solutions have included development of a modular laminated glass cutting system solution that can be adapted and expanded step-by-step, as required. At the final stage of expansion, two VSL-A stations can be consecutively combined to cut glass down to size on the second VSL-A Tandem. Also, an hourly output approximating up to 140 units of fully-cut sheets can be

achieved jointly with intelligent Dynamic Load Balancing. Here, the past two years has seen extensive development of VSL-A's production control logic and engineering - all in keeping with the coveted dictum of P. Rosenthal: "If you stop getting better, you stop being good."

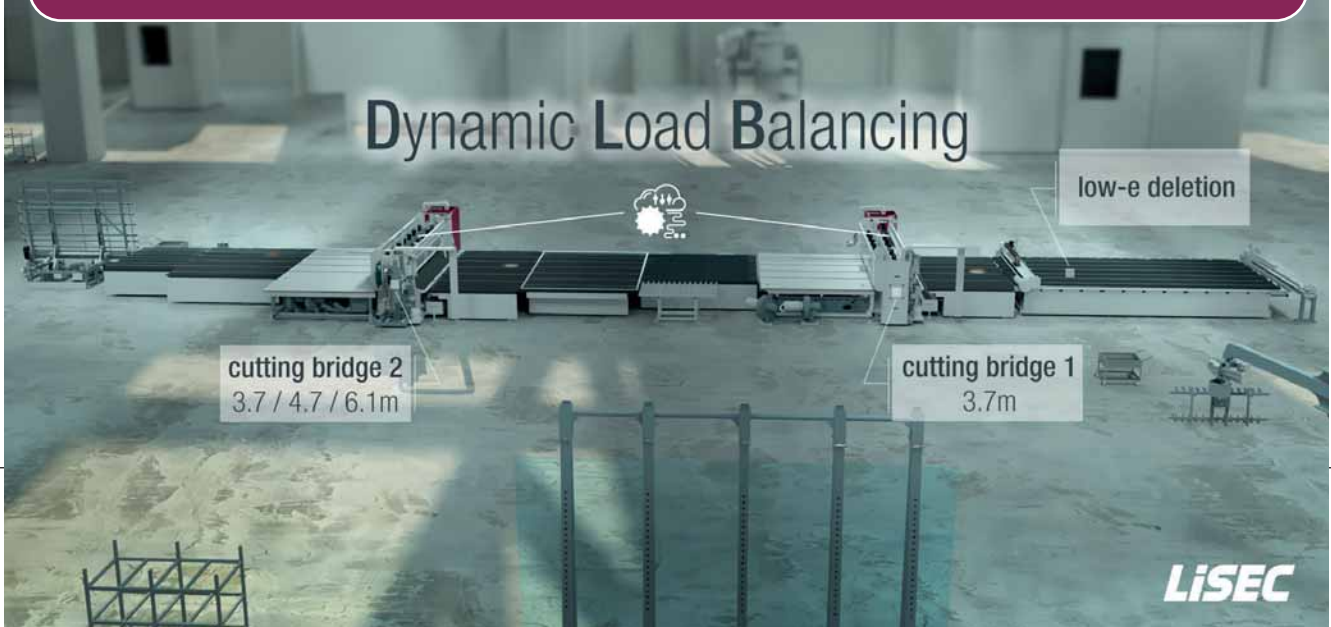
FULLY AUTOMATED GLASS-CUTTING

In the company's glass cutting department, product manager Daniel Schör-

ghuber introduces future laminated glass-cutting solutions that are almost fully-automatic and which exhibit both high output and optimum cut quality. Commenting upon the focus of current developments in LiSEC's VSL-A cutting technology, he says: "We've taken into account the growing portion of laminated glass, especially at companies that process insulating glass. This allows for higher output in less time with reduced

waste. Not only. Over the past two years and following much project planning, we've jointly assessed with our customers their production data while analysing existing situations in the production facilities - all of which has led us to conclude that a glass storehouse will usually supply two to three cutting lines at most. Generally, there's no space for any width-wise expansion that makes no allowance for structural adaptations to the produc-

Laminated glass cutting with dynamic load balancing: The VSL-A system solution for especially fast laminated glass cutting by LiSEC (Type A customer system). Intelligent Dynamic Load Balancing ideally supplies both cutting bridges, which maximizes output with low space requirements.



tion hall. That's why with the necessary increase in automation coupled with a high quality that remains sustained regardless of the raw glass quality, LiSEC's new system solution meets market demand at a time when labour is especially tight. Here, with the laminated glass cutting capacity increased by a modular concept based on VSL-A technology, the VSL-A system solutions mark an important step toward fully automatic systems."

Concerning the structure of the modular design, Schörghuber explains that it all starts with automatic glass storage, operating simultaneously with a system for edge deletion or removal of the LSG film overhang where the first VSL-A is cut with conveyor belts. "Then," says Schörghuber, "depending upon production quantity and variety, users can choose between two different variants. Customer Type A, who has much product mix variation in (X-Y-Z cuts) can already reach an hourly output of approximately 75 sheets with an additional VSL-A station without Tandem, downstream from the first VSL-A station in line - and all that is completely automatic. Here optimal dynamic use of the two VSL-A system solutions plays a major role. Moreover, new operating modes have been developed, such that sport mode can be switched to comfort

mode at any time. With comfort mode, the system will continuously produce fully-cut glass sheets on the conveyor belt with almost no human intervention, while sport mode will provide additional production capacity. Here the operator assists the station, especially in separating scraps, which again makes for higher output - a special advantage during production peaks. Customer Type B, who often produces identical products (X-Y cuts), can expect an hourly count of approximately 140 sheets with a VSL-A station in Tandem design. In Tandem mode, two sheets can be simultaneously cut on the second VSL-A - automatically."

DYNAMIC LOAD BALANCING (DLB)

As to how the dynamic load planning works, Schörghuber describes two consecutive VSL-A laminated glass cutting bridges during development, for which he underscores the importance of loading them intelligently and as well as possible in order to both maximize output and reduce waste. Schörghuber says: "We achieved this through mutual dynamic production control, which - depending upon the specific optimization - dynamically distributes the processes on three individual laminated glass cutting bridges. This Dynamic Load Balancing (DLB) loads the

STANDARD FUNCTIONS

- Approximately 45 units of trimmed sheets per hour with one VSL-A cutting bridge (X-Y-Z cuts) - fully automatic;
- Approximately 75 units of trimmed sheets per hour with two consecutive VSL-A cutting bridges (X-Y-Z cuts) - fully automatic;
- Approximately 140 units of trimmed sheets per hour with two consecutive VSL-A cutting bridges (X-Y cuts), plus tandem function on second station - fully automatic;
- Version with Dynamic Load Balancing (DLB) of two cutting bridges for maximum output and minimum waste;
- Version with one, or a maximum of two, laminated glass cutting bridges with 3.7 metres, 4.7 metres or 6.1 metres - special space-saving design;
- Cutting of laminated glass from 22.1 (4.38 millimetres) to 1212.12 (28.56 millimetres) glass thickness, at cutting speed precision of circa 0.4 millimetres and up to 140 metres/minute;
- Approximately 10 per cent higher edge-strength through reduced heat transfer into the glass - thanks to a patented SIR heater, cutting wheel design and pressure regulation;
- Up to at least 20 millimetres fully-automatic cutting, breaking and separating of laminated glass;
- Automatic sub-plate rotation to the maximum dimensions and maximum glass thickness;
- Electronic cutting pressure control and cutting wheel consumption analysis;
- Very low maintenance and high system availability;
- Simple operation thanks to a graphic touchscreen interface.



The VSL-A system solution provides consistent cut edge quality with fluctuating quality of laminated glass mostly without operator intervention, ensures ± 0.4 mm tolerance, and verifiably reduces false breaks.

bridges very well, reducing throughput time for each optimization while increasing the hourly output of completed units.”

Schörghuber speaks of the advantages offered by two consecutively arranged VSL-A laminated glass cutting bridges, describing ‘the high mechanical stability of the VSL-A cutting bridges, which form the basis for consistent, precise cutting results.’ He continues: “The first VSL-A station optionally has the front edge cutting to at least 20 millimetres before automatically disposing of it within a container. The X sub-plate cut follows, which is precisely rotated to 90 degrees without operator intervention by the VSL-A’s integrated rotation function. Then, at the trailing edge of the sub-plate, the Y scrap is automatically removed



OPTIONAL FUNCTIONS

- Cutting of custom shapes and W sub-plates;
- Automatic processing of float glass and two-sided film coated float glass possible - cutting, film separation and breaking;
- Rotating device for finished cut glass sheets for automatic connection to a sorting system;
- Version with automatic laminated glass scrap disposal (GSA-A) — laminated glass scraps are crushed quietly, and dust-free, before being disposed of in handy containers;
- Expansion option from one cutting bridge (VSL-A) to a system solution with two VSL-As and a tandem option.

and disposed of. The sub-plates prepared on the first VSL-A station are now further processed at the VSL-A bridge. Depending on the dynamic load plan, the first station can also make Y cuts. The next

step sees both the Y and Z cuts done, with the scraps removed without operator intervention. Automatic outfeed then follows, together with removal of the finished products either by an operator or by auto-

matic transfer to a downstream sorting system.”

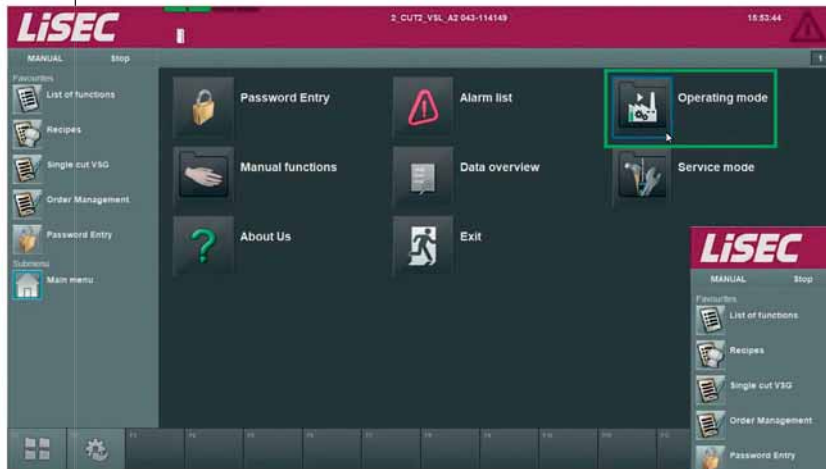
PERFORMANCE FEATURES

Laminated glass cutting with dynamic load balancing: The VSL-A system solution for especially fast laminated glass cutting by LiSEC (Type A customer system). Intelligent Dynamic Load Balancing ideally supplies both cutting bridges, which maximizes output with low space requirements.

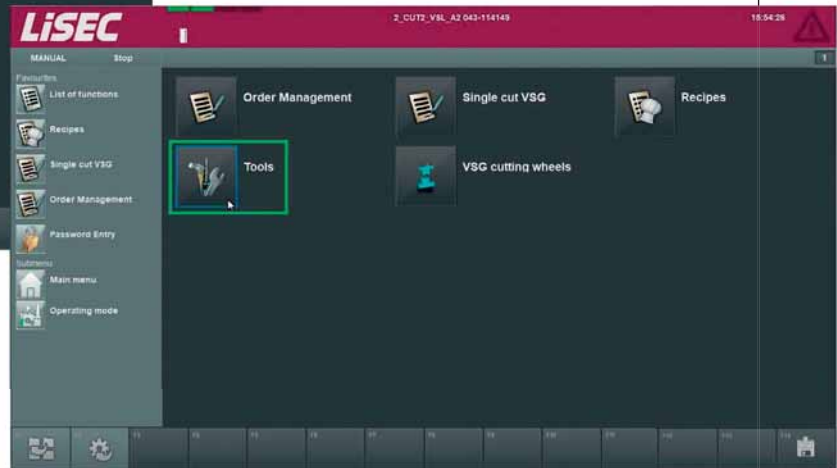
The laminated glass cutting machine can be connected to a downstream sorting system. An additional automatic rotating device ensures entirely automatic cutting of laminated glass.



The patented SIR (selective infrared) heating modules are 900 mm long and reduce heating time to about 4 seconds at 44.2 (8.76 mm) of laminated glass and thereby the heat load to the glass, which improves edge strength by at least approx. 10%.



Always have an overview, thanks to intuitive operation and display. Various operating modes, such as comfort mode and sport mode, ensure maximum flexibility and performance, based on current requirements.



Consistently high edge quality and strength with VSL-A technology from LiSEC. Elimination of grind additions and significant reduction of spontaneous breakage, thanks to especially high edge quality of cut laminated glass on the VSL-A from LiSEC.

The patented SIR (selective infrared) heating modules are 900 millimetres long and reduce heating time to about 4 seconds at 44.2 (8.76 millimetres) of laminated glass, thus reducing heat load to the glass as well, which also improves edge strength by at least approximately 10%.

The VSL-A system solution provides consistent cut edge quality with fluctuating quality of laminated glass, mostly without operator intervention, so

ensuring ± 0.4 millimetre tolerance, while verifiably reducing false breaks.

An overview is rendered always possible thanks to intuitive operation and display. Various operating modes, such as comfort mode and sport mode, ensure maximum flexibility and performance, based upon current requirements.

HIGHLIGHTS

Fast, flexible LSG cutting

Use of a VSL-A system solution with two cutting bridges extended with dynamic load balancing (DLB) affords the VSL-A Tandem the ability to provide continuous high output and process safety under any conditions. Depending upon the version (with or without the Tandem option) and optimization (cutting plan), this

allows up to approximately 140 completed sheets per hour.

Fully automatic production

Laminated glass is cut, broken and separated entirely automatically. Rotation and further feed requires no operator intervention. Laminated glass, fully cut, is consistently delivered 'just in time' as a result of independent, operator-free cutting of reduced environmental impact.

Consistently high-quality cutting results

A specially-developed SIR film heater for current and future laminated glass cutting requirements, which reduces heat stress to the cut edges while ensuring an edge strength that is (at least) approximately 10% greater.

Double precision-guided cutting heads with direct drive and dynamic cutting pressure control which includes cutting wheel consumption monitoring and will reduce oblique breaks and sliver formation - all of which forms the basis for successful, scratch-free LSG cutting while significantly reducing added grind.

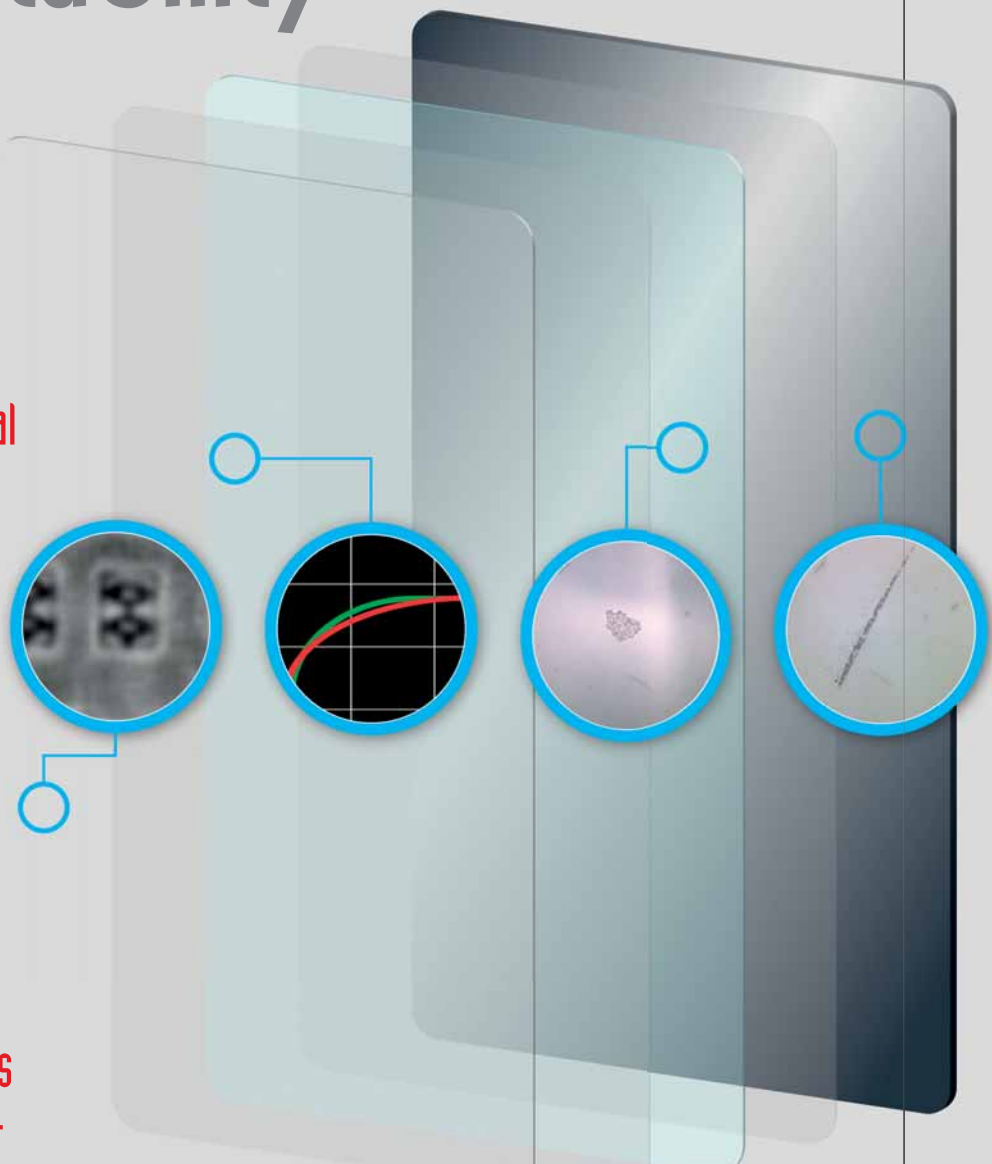
LiSEC Austria GmbH

LiSEC

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

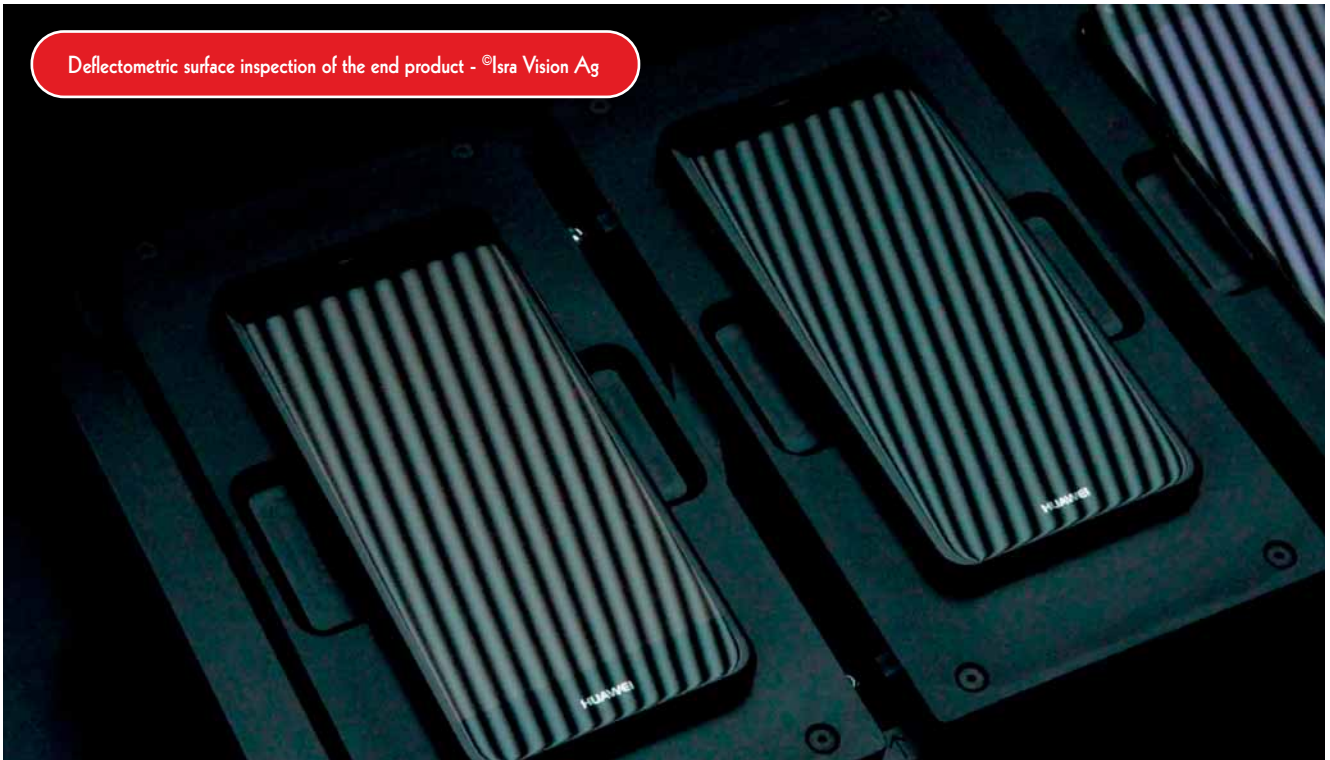
ISRA VISION: Inspection solutions ensuring quality and profitability

Ever thinner touchscreen displays in films, foils or finished products are accompanying both rising functionality and added optical quality requirements. These go hand-in-hand with greater vibrancy of quality as well as outlandish shapes and new applications. All this is testified by our daily interactions with such displays in operations with smartphones, coffee machines and ATMs - not to mention our cars and workplaces.



Defect detection from the raw material to the finished display - ©Isra Vision Ag

Deflectometric surface inspection of the end product - ©Isra Vision Ag



360° DEFECT DETECTION

Touch displays enable operations that are convenient and intuitive in both devices and machines. They are also robust and easy to clean. As such, they are becoming increasingly widespread in production plants, medical technology and other industrial application areas. Today the automotive industry is a trendsetter in this area with its introduction of pillar-to-pillar displays that span entire vehicle width in new vehicle generations. These furnish important cockpit functions, facilitating the operation of all car communication and infotainment systems. In addition, they are perfectly fitted and often feature curved shapes and integrated sensors. Going forward, this trend is expected to con-

tinue in other applications, which will require new procedures for glass processing and finishing as well as corresponding inspection processes during manufacturing. Such quality inspection is essential to meeting stringent requirements respecting robustness before mechanical loads as well as trouble-free functioning and operability, fit and optical quality.

QUALITY ASSURANCE ALREADY AT RAW MATERIAL STAGE

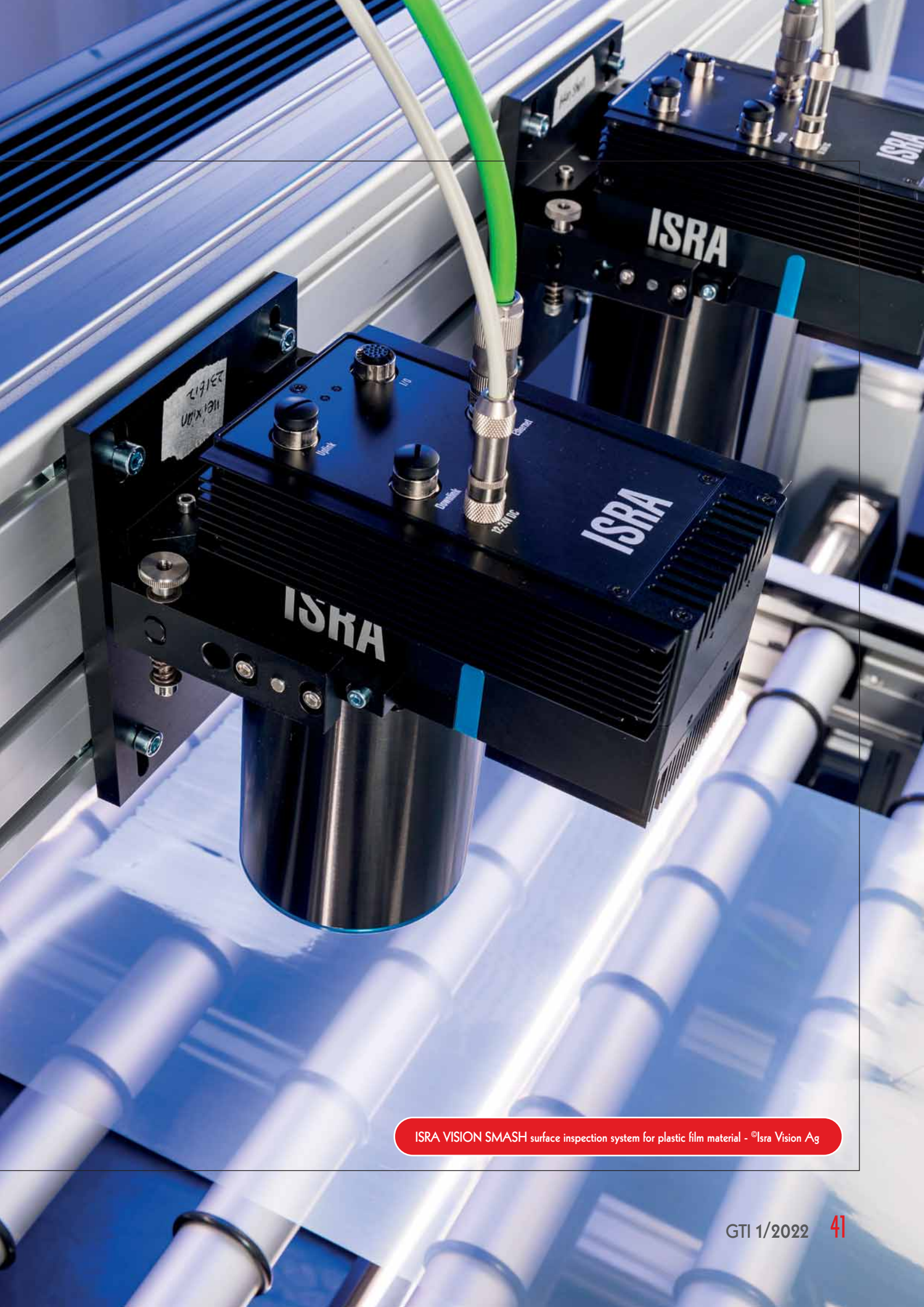
Whether they employ TFT or OLED technology, modern displays consist of many layers comprising different materials that are usually extremely thin. Optical films, thin-film and thin-glass in the actual TFT or OLED display and cover glass are all joined together

er during the production process, thereby achieving perfect union of form and function. However, even the smallest defects in one of the layers can compromise the properties and function of the display. For each single layer ISRA VISION is an industry leader both in optical inspection and defect detection. Its solutions identify and reject defective materials prior to installation, minimizing the number of imperfect end-products produced and increasing production profitability. As a system, ISRA VISION's SMASH inspects optical film surfaces, where it detects defects - including minute scratches, marks and production residue upon film materials as well as coatings on web materials. Line cameras guarantee a high inspection

speed of up to 1000 metres per second while enabling the highest image resolution. At the same time, customized lighting supports the reliable detection and intelligent classification of defects that would be otherwise invisible to the naked eye. In turn, this allows conclusions to be drawn regarding causes or defective process parameters that can be continuously monitored and optimized.

RELIABILITY AND PRECISION: 100 PER CENT QUALITY CONTROL OF END PRODUCTS

The raw glass and foils are impeccable, with no flaws occurring at the adhering together of the parts, and the finished display is then fitted within the end product. At this point a fi-



ISRA VISION SMASH surface inspection system for plastic film material - ©Isra Vision Ag



nal check is performed to ensure the finished product remains fault-free and is of perfect appearance. Often this is performed still as a cosmetic inspection that's conducted manually with all its associated disadvantages, such as subjective judgment and dependency of the inspection result upon the person carrying out the test coupled with the general limitation of our human ability to recognize quality deviations only minimally. This final inspection has great influence upon production profitability: Minimal defects that are screened too strictly reduce profit whereas excessively relaxed quality inspection will lead to complaints and result in dissatisfied customers. Here a fast, fully automatic and 100 per cent optical inspection solution will solve the problem. This is easy to integrate while detecting such typical cosmetic defects as scratches, bubbles, indentations and polishing marks, and it delivers objective and reliable results. The SpecGAGE3D inspection system from ISRA VISION is used during the final control stage as well and it's ideally suited for the measurement and inspection of all transparent and reflective surfaces. Inspecting flat or curved displays, as well as 2D/3D cover glass, glass back panels of smartphones and other glossy housing parts is also possible with the inspection system. This sys-



tem immediately decides how to sort goods, based upon pre-set tolerance ranges as well as automated defect classification.

CRYSTAL-CLEAR QUALITY THANKS TO END-TO-END PROCESS MONITORING

Increasingly larger and thinner glasses, flexible materials, and complex shapes begin to impose ever stricter requirements upon displays manufacturing. In order to meet these stringent standards and ensure the best possible quality while also achieving high productivity and process reliability, companies need end-to-end processes and quality control. These begin with the inspection of raw materials, accompanying the entire production process right through to the end product. When defects are detected during this process, their associated inspection solutions ideally facilitate a precise link to their cause

during upstream production steps. This also enables the effects of parameter changes on all further processes to be tracked and monitored. ISRA VISION offers a broad portfolio of optical inspection solutions at every step of display manufacturing. Thanks to the inspection data gathered, plant operators can continuously optimize their processes - so achieving optimum product quality, production stability and, ultimately, profitability. As a result, they deliver flawless products and materials while delivering high customer satisfaction. Moreover, the deployment of fully automatic inspection systems in production plants ensures compliance with current and future quality standards - as required, for example, in the automotive industry. Such 100 per cent optical inspection offers the further guarantee of also meeting future requirements dur-

ing production as regards shape, appearance and display function. To this end, ISRA VISION collaborates closely with leading manufacturers and customer development departments within all key industries and can count upon a tight-knit network of experts and engineers, both in Asia and worldwide. Flanking their development, new materials, technologies, and applications necessitate further advancement in such inspection solutions, which typically finds ISRA VISION already at work on their implementation within existing and new quality assurance systems.

Isra Vision AG

**ISRA
VISION**

Industriestrasse 14
64297 Darmstadt - Germany
Tel.: +49-6151-9480
Fax: +49-6151-948140
E-mail: info@isravision.com
www.isravision.com

A+W SOFTWARE

A re-entry for Renaud Schmitt

Having worked for A+W for 14 years from 2005 to 2019, Renaud Schmitt is an A+W veteran who returns now to the North American team as a Cantor Customer Support Specialist. Renaud brings unrivalled knowledge of A+W's software solutions with a goal to help all our customers grow.

In his new position at **A+W Software**, Renaud is tasked with supporting the grow-ing North American customer list. He will help customers troubleshoot any arising issues, including remote and onsite visits to customers to implement upgrades or new software solutions. With Renaud's years of knowledge, he is capable of immediately jumping in and helping A+W's customers prepare, thrive, and grow.

According to John Staiano, COO of A+W Software North America, "As the North American division continues to grow and take market share, we're proud to bring Renaud aboard, also since he can make such an immediate impact. With extensive knowledge

of A+W's software solutions, Renaud has already started taking on cases and providing solutions for customers. With the ability to speak three languages, he can help in the expanding French Canadian market as well. We are very excited to welcome him back to the team! We look forward to watching our customers grow with his guidance, knowledge, and problem-solving abilities."

As Renaud said, "I'm excited to rejoin A+W Software. I'm passionate about my work and helping our customers grow! A+W has been a great place to work for years, so it feels like coming home. I hope my presence can continue to aid the North American team as we grow, bring on new customers, and help current customers grow to meet the new challenges of the future."

WWW.A-W.COM/UK/



GUARDIAN GLASS

Pema 2 project

Designed by LAAC, the 50-metre-high structure covers almost 19,000 square metres and is a true masterpiece of architectural flair and originality. EMA's P2 building is a multifunctional commercial and residential building located in Innsbruck, Austria. Glass plays a very important role in the design and function of the building. The glass chosen for this stunning façade is **Guardian SunGuard® Solar Light Blue 52**, which reduces glare from the sun and helps to reduce demands upon the building's air conditioning while aiding improvements to temperature control within the structure. On the inner pane the glass is coated with **Guardian ClimaGuard® 1.0**, which provides enhanced thermal insulation during the colder months.

The design of P2 combines a range of functions within a consciously architectural and yet spatially restricted building. P2 consists of a two-storey base building – which accommodates the new City Library – topped with an eleven-storey disc-shaped tower that houses 173 student apartments. Acting as a cultural platform, one floor between the base and tower is open to the public. There is also a public space on the roof that offers additional space for restaurants.

WWW.GUARDIANGLASS.COM/EU/EN



DECEUNINCK & AGC GLASS EUROPE

A strategic partnership

Deceuninck, specialised in the development and production of PVC and aluminium window and door profiles, and **AGC Glass Europe**, a European leader in flat glass, have entered into a strategic partnership.

The combination of their know-how and expertise in their respective fields has re-sulted in new innovative solutions that enable the integration of Fineo vacuum glass into the PVC and aluminium profiles of the Elegant and Decalu series respectively. This way architects, building contractors and owners have access to solutions that meet the ever stricter requirements in the field of thermal and acoustic performance and light transmission. The first systems solutions will be presented during the Poly-close fair at the stands of both brands.

Deceuninck integrates ultra-slim glazing into PVC and aluminium profiles

Although the two elements have been inextricably connected for centuries, window frames and glazing were two very distinct things until recently. Lately, manufacturers and suppliers of both components have started working together in order to offer high-quality comprehensive solutions.

"In late 2014 we already reached an agreement with AGC Glass Europe to launch innovative solutions together. Over the years, we renewed our successful cooperation a few times, and made it stronger," said Bernard Vanderper, sales manager Western Europe at Deceuninck.

"On 12 October of this year, we took this cooperation a step further and signed a strategic partnership, enabling us to now offer the Elegant PVC and Decalu aluminium window profiles with Fineo vacuum glass. Our R&D division revised and adjusted the sealing concept for these different series, so that we can now integrate this ultra-slim glazing into our profiles without losing the unrivalled level of thermal and acoustic insulation and light transmission."

The development of vacuum glazing is the solution for the future

Stefan Lips, sales director Fineo with AGC Glass Europe, added, "Contemporary architecture is characterised by large windows. In order to comply with the stricter demands where insulation is

concerned, we need to constantly adjust and develop our glazing solutions. One of the things we did is replace double glazing with triple glazing. Obviously, this has an impact not only on the cost, but also and especially on the weight of the window systems.

"We are approaching the limits that can be supported by the hardware. In addition, the concept of circular economy not only includes window profiles, but glazing as well. The Fineo vacuum glazing, with a thickness as from 6 mm, offers a solution with characteristics comparable to, and even better than, those of triple glazing but which has only two panes of glass. This type of glazing requires less raw materials, is much lighter and is 100 percent recyclable."

Innovative solutions presented for the first time at Polyclose

Over the past few years, both of these strong brands have made major investments in the optimisation of their solutions so as to be able to respond to market demand. With the Elegant series, Deceuninck has developed an innovative product platform for window and door solutions, incorporating iCOR as a revolutionary building block and modular heart of the profiles. Apart from the seals on the inside and out-side of the profile, this solution also has a central seal, which acts as an additional barrier for heat and cold.

"This way we achieve better results where thermal and acoustic insulation, wind resistance and water-tightness are all concerned. We have gone even further by combining these profiles with the Fineo vacuum glazing," concluded Bernard Vanderper. "We want to inform architects, building contractors and owners of the advantages of these systems. Today our focus is on the Benelux, but we also plan to introduce the systems in other European countries. The first results of our partnership will be presented at our stands (1400 and 1018) at Polyclose, as well as at the stand of AGC Glass Europe (1210)."

WWW.AGC-GLASS.EU/EN - WWW.DECEUNINCK.COM/



Bernard Vanderper, Sales Manager Western Europe Deceuninck, and Serge Martin, CEO Fineo, seal the strategic partnership between both parties - © AGC Glass Europe

CHINA GLASS HOLDINGS

Acquisition of Orda float glass manufacturing facility

China Glass Holdings Limited and Stewart Engineers announced the completion of an acquisition through China Glass' associated company of the equity interest previously owned by Stewart in the Orda Glass Complex, resulting in 100 percent ownership by the Chinese company. Over the past few months, relevant parties collectively worked together to execute a mutually agreed settlement that satisfied all parties.

CTIEC, a renowned company headquartered in China with expertise in the construction of glass and concrete manufacturing facilities, will lead completion of the construction of the Orda Glass Complex. CTIEC expects to complete the construction and start the factory soon, so it will be fully operational later this year.

The Orda Glass Complex is located in Kyzylorda, Kazakhstan, and aims to be the most modern industrial float glass facility in the world using the latest float glass technology designed and supplied by Stewart. This facility will produce 600 metric tonnes per day of high quality architectural and automotive glass.

Andrew Stewart, President of Stewart Engineers, said, "With all parties mutually satisfied, Stewart is confident that Orda will be realized as the jewel of Kazakhstan. Looking to the future, Stewart will continue to support and assist the Orda project as needed and look forward to the possibility of working with China Glass and CTIEC on other projects."

Guo Lyu, CEO of China Glass, commented, "Through this deal we expect to tap into the great potential of Kazakhstan's glass industry. We thank Stewart for paving the way and moving to where we are today, and we welcome future opportunities of cooperation."

Yerzhan Sagimbayev, Chairman of Management Board, Orda Glass, added, "Orda Glass is the first float glass facility in Kazakhstan, and as such has made trail-blazing efforts in this new territory, with help and support from all relevant parties. We are now well-positioned to move to a bright future."



SCHOTT

Divestment of Flat Glass operations in North America

SCHOTT AG, a leading international technology group in the areas of specialty glass and glass-ceramics, announced the closing of the divestment of its Flat Glass operations in North America.

SCHOTT Corp., together with its JV Partner AGC Flat Glass North America Inc., a subsidiary of AGC Inc., entered into definitive agreements to divest its shares in SCHOTT Gemtron Group to SSW Advanced Technologies LLC, a port-

folio company of Trive Capital LLC. The parties agreed not to disclose any transaction details.

SCHOTT Gemtron is specialized in the production and sale of flat glass products mainly for the home appliance industry in North America.

WWW.SCHOTT.COM/EN-US





ISOCLIMA GROUP

Gefran chosen to manage production facilities

Isoclina – a world leader in the design and production of high-performance customised glass solutions – entrusts Gefran with the control and thermoregulation of its flat glass processing plants. A collaboration arising from the supply of components and consolidated over time thanks to Gefran Soluzioni's experience and know-how in the design and construction of automation systems, electrical panels and customised software, both for new systems and retrofits.

Founded in 1977, Isoclina represents excellence in the development of technologically advanced transparent windows, combining style and design with high ballistic resistance thanks to the winning combination of glass and polycarbonate or other acrylic products. It has different fields of application: from the automotive sector, with products intended for supercars and military vehicles, to railway, the naval and aerospace sectors, and construction.

The quest for perfection and meticulous attention to detail are the basis of a design philosophy that translates into the Company's ability to create customised solutions certified by third parties in terms of mechanical and ballistic performance, sun protection and energy control.

"Our bullet-proof glass industry requires compliance with the highest quality and safety standards. A requirement that is also reflected in our choice of suppliers," said Luigi Rosina, Isoclina's Purchasing Manager. "Here, Gefran has proven to be the ideal partner: in addition to the excellent products available for power control, its Soluzioni division was able to translate our needs, with high precision and professionalism, into software."

Among the main challenges Gefran Soluzioni has overcome are the creation of electrical diagrams and the automation language for the retrofit of 4 autoclaves and the revamping of a 21-module oven. In addition to the achieved goal of user-friendly systems, using the same components and interface for ovens and autoclaves provides a double advantage.

On the one hand, the interchangeability of operators includes simplification in terms of staff training. On the other, there is greater flexibility in production planning since identical results can be obtained from ovens of different sizes without changing the "recipe". Optimising existing →

← spare parts is another important aspect, providing positive results at the maintenance level too.

Isoclima has also chosen Gefran equipment for its largest bending oven for sheets reaching up to 10 metres. The management of the heat treatment process is entrusted to the GPC range, the new generation of power controllers, with an increasing number of performing functions from the perspective of Industry 4.0 and predictive maintenance. The series, available with a current range from 40A to 600A, can interact with the most recent communication protocols and is distinguished by its size - being the most compact on the market.

Furthermore, these power controllers will be used in the world's largest chemical hardening plant, for 10 m sheets, currently under construction. Finally, for various ovens the GRS-H single-phase solid-state relays for controlling electrical resistances are also particularly appreciated. The range integrates diagnostic features and over-heating or interrupted load alarm output: available for all models, from 15A to 120A, to guarantee maximum production efficiency.

"Isoclima and Gefran share an approach based upon the value of the Made in Italy trademark, as well as on the efficiency in responding to customer requests," continued Luigi Rosina. "We greatly appreciated Gefran Soluzioni's ability to create systems based on our specifications, respecting the agreed deadlines. In addition, being able to count on a manufacturer and technical commercial figures with whom we immediately struck a rapport is of infinite added value for us."

"We are very satisfied with the perfect harmony established between our industries," commented Renzo Privitera, Sales Director for Italy for Gefran's Sensors and Components. "Isoclima's in-depth knowledge of the processes and construction of the ovens themselves was essential to correctly interpreting its needs in developing the most suitable solutions for increased plant performance."

"This is a real plus, thanks to which the customer/supplier relationship has evolved into a real long-term partnership."

WWW.ISOCLIMAGROUP.COM/EN/



PILKINGTON

Pilkington: the future is Gold

Facing the Bay and Mount Vesuvius, Hotel Britannique Naples has become an example of creativity and functionality – thanks to its widespread use of Pilkington Eclipse™ Gold.

When planning the interiors, glass featured prominently in the design, not only as a finishing material, but also as a structural and technological element. But for the key role – that of making the interior environment unique and welcoming with a touch of refinement – only Pilkington Eclipse™ Gold, with its rich reflective properties, fitted the bill. Its properties fulfilled the overarching vision of Gnosis design studio – that of providing the hotel with a seamless flow of natural light from the rooftop gourmet restaurant to the bar counters at ground floor.

The glazed surface version of Pilkington Eclipse™ Gold 8 mm provides a distinctive golden reflection that works wonderfully with decorative motifs to produce astonishing light effects and shapes at different hours of the day.

Even more surprising effects are created throughout by the use of 'Linen' – a partial glaze finish complete with a geometrical decoration created by *OmniDecor*. Its fingerprint



and scratch-proof with an irregular surface mesh blends perfectly with the surrounding environment – providing rich golden reflections at every angle.



Elettra Bresciani, Marketing Manager at *OmniDecor* said, “The reason for choosing Pilkington Eclipse™ Gold is clear. Glass is a solid barrier, very thin and permeable to light: these properties allow you to separate and distinguish spaces in a delicate, non-invasive way. However, since partitioning in many cases must also be a visual and enriching experience, transparent glass is unsuitable.”

Pilkington Eclipse™ Gold made it possible to create perfect partitions, which combine creativity and functionality, while maintaining the brightness of the interior spaces while simultaneously providing an attractive aesthetic result. “The reflective side of the pane provides a depth that is created between the polished and the glazed finishes and enhances the glass with golden reflections,” concluded Bresciani.

Pilkington Eclipse™ Gold is available in 6 and 8 mm thickness through the usual supply channels. Thanks to its highly durable pyrolytic coating, the product can be toughened to provide a safe interior glass in accordance with current national legislation.

WWW.PILKINGTON.COM/EN - WWW.OMNIDECOR.IT/EN

EDGETECH & FOREL

Super Spacer® TriSeal™ line

By investing substantially in state-of-the-art manufacturing technology and as leading IGU manufacturer based in the UK, Ravensby Glass has responded to growing demand for high-performing commercial IGUs by installing its new automated Forel line to apply Edgetech's Super® TriSeal™.

Ravensby Glass has been providing quality IGUs to businesses throughout the commercial, residential, public and medical sectors for over 30 years now. Today the company processes and toughens its own glass at two high-tech facilities in Dundee.

Now, thanks to installation of the new TriSeal line, Ravensby Glass has significantly increased its ability to provide high-performing IGUs for its demanding commercial clients.

"We use TriSeal because we know it guarantees the kind of long-lasting, top quality IGUs that commercial projects require," said Managing Director Gordon Dickson. "Having seen demand from the commercial sector grow in recent years, investment in an automated TriSeal application line was naturally the next step. It's fully up and running now,



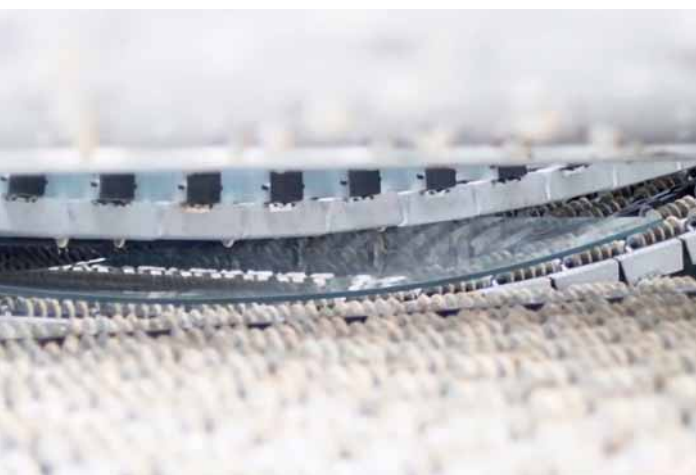
and we're already delighted with the speed, efficiency and consistent quality it can offer."

The same confidence was expressed by Edgetech Managing Director Chris Alderson. "It's hugely gratifying to see long-standing customers like Ravensby Glass succeeding and investing in the future," said Alderson. "With their new TriSeal line, they're excellently positioned to reach new heights over the months and years ahead."

WWW.RAVENSBYGLASS.CO.UK - WWW.FORELSPA.COM
WWW.EDGETECHIG.CO.UK

SEDAK

Curved glass up to 18 metres



SEDAK is expanding production capacity in the field of glass bending. The company's existing tempering furnace has been upgraded with a bending unit. In the future it will also be possible to thermally-bend glass at the Gersthofen location with a C-bender (heat-strengthened glass and fully-tempered glass).

Thanks to the expansion of the bending competence, it will be possible to bend formats as large as 3.6 metres by 18 metres. Depending on glass width, a minimum radius of 1.000 millimetres can be achieved.

With the help of this new technology, previous bending defects such as straight ends can also be remedied.

WWW.SEDAK.COM/EN/

NEPTUN: a wide range of vertical washers

In just few years, NEPTUN has positioned itself among the major players in the glass washing industry, offering the market a wide range of available vertical washers.

Closely following the continuous development of glass products while remaining attentive to market needs, the company's latest four series of washing machines meet all production and investment requirement types.

LV TOP

Starting from the entry level LV Top, built with a solid supporting structure in stainless steel for long-lasting reliability LV Top is an easy-to-use machine that needs only minimal maintenance, having been conceived for those who need efficient washing and drying and do not require automation.

Being among the best and more reliable 'entry level' washers of the market, it's

industrially built with a keen eye to both functional and aesthetic details at budget price. Suitable for small-to-medium size companies or even as a back-up washer for large industries, LV Top is available in 1.6, 2.0 and 2.6 m sizes.

LV EVO

Next in line is the LV Evo, which maintains the simplicity of LV Top while adding a

an elevated level of automation and superior performances with an 80 percent higher working speed. The main characteristics of LV Evo include its complete structure in stainless steel with the base frame in hot-dip galvanized steel, 140 mm diameter brushes with 350 RPM speed (500 RPM with brush inverter option), automatic water quality control and management, and energy and sound reduction function -thanks to ECOSAVE- with precise graphic indication and energy consumption recording. LV Evo also offers a touch screen PLC to manage all functions and optionals. A further possibility of in-line integration with other upstream or downstream machines is afforded (Neptun or other brands). Remote assistance and production data export via

ethernet qualifies this model as Industry 4.0-ready. LV Evo is ideal for CN lines, with 3 ÷ 30 mm workable glass thicknesses, automatically adjustable from the CN control or by means of a thickness sensor. Speed regulation is at 1 ÷ 8 m per minute by inverter. It's ideal for end users of all types that seek automation and reliability with a good production load and is available in 1.6 m Open Top, 2.3 and 2.8 m sizes.

THE WAVE SERIES

For companies needing more intensive processing, Neptun offers the Wave series, which is characterized by a truly robust structure and allows maximal flexibility of configuration while being "Industry 4.0" suitable. Wave can be enriched

LV EVO





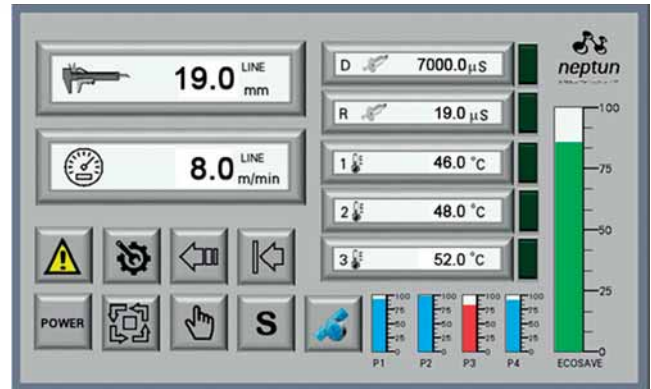
WAVE

with several solutions, up to total automation, as well as superior performances with-in all fields: output, washing quality, integration in business processes. Wave's main characteristics are the motorization of brushes on top of the machine and the wide range of workable glass thicknesses - up to 80 mm. Wave has an innovative opening frame system for optimal water containment during the washing cycle, according to processed thickness. It's also equipped with a powerful touch screen control unit that has several innovative functions: A-Qual water quality control, an energy saving patented Ecosave system, Smart-Speed for automatic speed management and optimal drying of the glass edge at any given speed, and Night-care for water preheating as well as water tank automatic cleaning and re-filling cycle at night-time. Glass moves inside the drying section through a touchless belt for perfect drying of the entire surface. This is a good washer for a 'heavy' working cycle, 24/7 and glass dimension. With HD configuration, too, it can handle jumbo sheets of up to 350 Kg/m with 80 mm thickness and it's available in

sizes of 2.3, 2.8 and 3.3 m in height.

THE SUPERINOX VERSION

Finally, Neptun offers the fully-optional, top performance Superinox version, which is designed to drive intensive use for customers after an uncompromised cleaning system. With all the above-mentioned features included, Superinox has transport motorization and brushes on top of the machine with a diameter of 180 mm and the possibility to adjust the rotation (RPM) of any single brush with a dedicated motor as well as an inverter to ensure maximum washing efficiency. A sensor detects low-e glass side and the opening of the first pair of brushes, when supplied with hard bristle – thereby adjusting brush rotation speed accordingly. Superinox also has a powerful touch screen control unit for machine management, including error diagnostics, scheduled maintenance, water quality and temperature control, as well as production data and energy saving management.



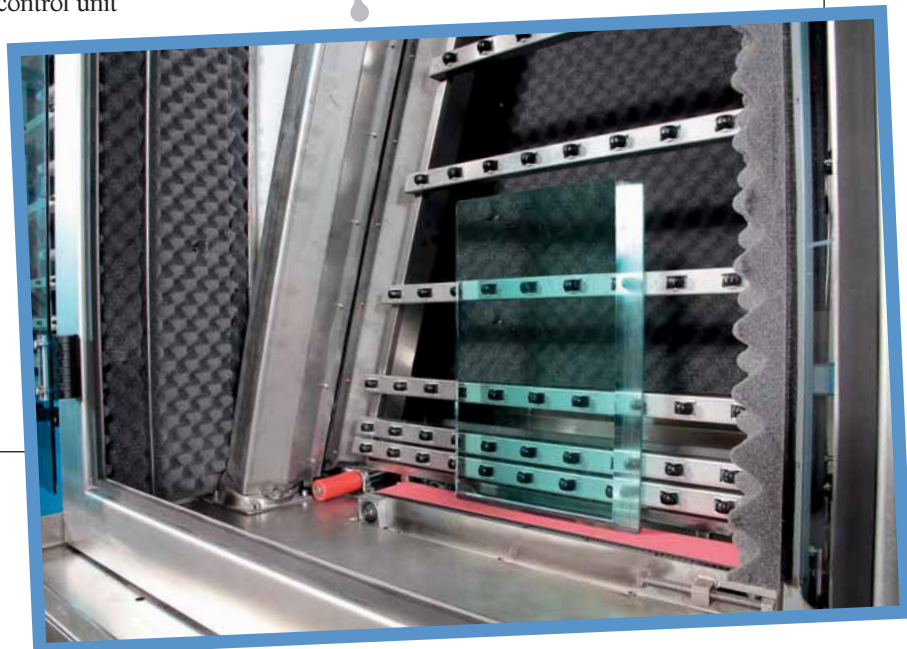
Even though this is a very heavy duty machine, its technical features allow for more specific cleaning performance, such as IG panels, low-e soft coating glasses and ultra-thin glasses up to a minimum thickness of 1.8 mm. It's available in 2.0, 2.6 and 3,3 m sizes. With more than 90 technical configurations, not to mention its added options, Neptun can indeed offer a suitable solution for any processing type, company size and investment budget.

Neptun Srl



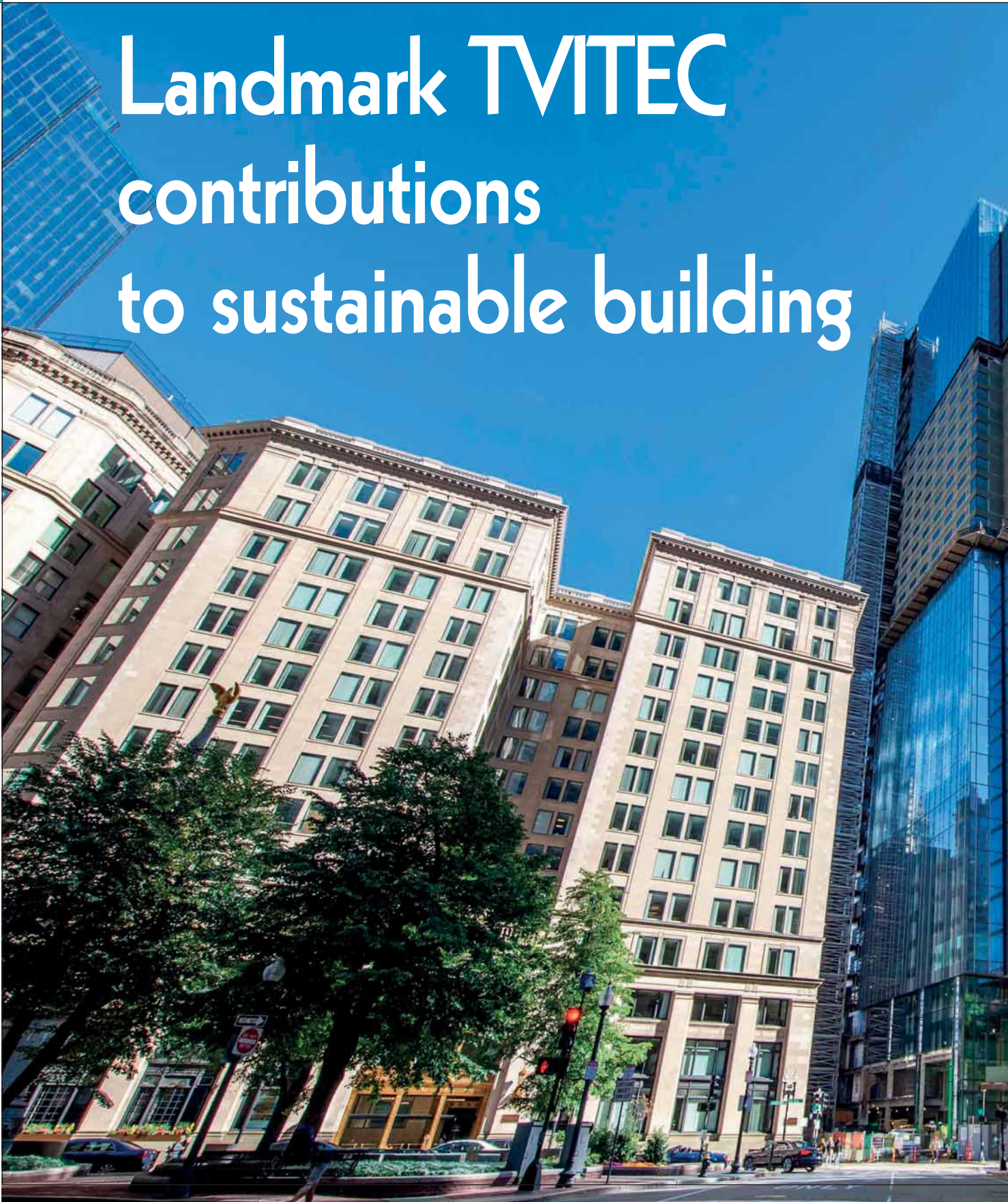
ADVANCED PROCESSING SYSTEMS

Via Mazzini n. 63 E/F
22070 Rovello Porro (CO) - Italy
Tel.: +39-02-96979011
Fax: +39-02-96754375
E-mail: info@neptunglass.com
www.neptunglass.com





Landmark TVITEC contributions to sustainable building



In view of the environmental goal of globally reducing carbon emissions via Net Zero Energy Building construction (NZEB), the use of triple glazing is crucial today for perfect insulation and energy saving in single-building construction. As major contributor within the high-performance glass industry, TVITEC triple glazing now exemplifies this trend in the following six architectural projects from around the world.





1. MACKIMMIE TOWER. CANADA'S LARGEST NET ZERO CARBON BUILDING

Located at the centre of the University of Calgary's library complex, the design of this tower by Dialogue Architects studio renders the building 85 per cent more energy efficient than its original - making it the first in Canada to receive Zero Carbon Building certification. Here Tvitec supplied over 5,000 metres of triple glazing for its client Ferguson Corporation, with each unit tempered

and heat-strengthened for maximum safety and security and incorporating Guardian Climaguard high-performance coatings. The building also stands out for the unique shapes of its façades, with Tvitec continuing to manufacture triple glazing insulation for the ongoing expansion of this superproject.

2. ECAVENIR. SWITZERLAND LEADS THE WAY IN TRIPLE GLAZING USE

Given both the climatic conditions and the coun-

try's general environmental awareness, many projects in Switzerland rely heavily upon triple glazing to complete such buildings as that of ECA's headquarters in Lausanne. The offices of the Vaud canton fire insurance consortium include geothermal heating, breathable façades and roof solar panels. The space is clad with over 3,500 metres of Tvitec triple glazing, which was designed by Architrám Architecture et Urbanisme. Overseeing installation of the façade was Sottas - with the glass, tempered and laminated, combining

Low Iron and a IPlus Top 1.1 solar control layer from AGC, all ensuring natural light, solar absorption and high insulation.

3. ONE POST OFFICE SQUARE. BOSTON'S GAME-CHANGING OFFICE TOWER

Now with its refurbishment nigh completed, One Post Office is already attracting attention in Boston thanks to its elegant aesthetics and eco-efficient, sustainable design. Here Tvitec manufactured nearly 30,000 metres of architectural glass for façade specialist

Benson, most of which was triple glazed, tempered and heat-strengthened as well as coated with Guardian HP Neutral and HP Silver 43/31. Not only. Tvitec also incorporated screen printing into much of the project. Following the design of architecture studio Gensler, the floor-to-ceiling glass captivates major firms today, boasting the highest LEED environmental certification available as each seeks to establish its workplace within this centrally-located skyscraper - also given its comfort and energy efficiency.

4. INFINITY. INTEGRAL INSULATION WITHIN THE GRAND DUCHY

Located in the centre of Luxembourg, the Infinity complex office centre was supplied by Tvitec with a large volume of triple

glazed units, each one of tempered and laminated glass and featuring acoustic Pvb besides. Apart from the thermal insulation of triple glazing, the building project is set with maximum security and almost complete noise mitigation. Here Tvitec supplied its top-grade insulating glass for Italian façade specialist AZA, with the building project partly completed by the firm Kyotec. The design of Infinity's was a joint work of Arquitectonica and M3 Architects studio. The use of quality materials, systems and highly sustainable networks have all earned this residential, commercial and office complex a BREEAM Excellent rating.

5. GRAND MORILLON. KENGO KUMA'S COMPLETE STUDENT RESIDENCE

In Geneva, Kengo Kuma

BETTER WITH TRIPLE GLAZING

Not surprisingly, thermal performance is the most significant. In some regions it may be worthwhile to install triple glazing in order to reduce heat loss and increase temperature of the inside panes. In general, triple-glazed windows improve comfort, reduce condensation and minimize noise. Indeed, its temperature coefficient of resistance (R-value) is much higher than that of double glazing. This partly explains why triple-glazed products can be up to 50 per cent more efficient than their double-glazed counterparts. Triple glazing is also very heavy, which requires strong, specially-designed window profiles to support its weight – failing which, window lifespan could be reduced.





has designed a student residence that's state-of-the-art in every sense of the term. The prestigious Graduate Institute opted for a concept that is simple in design yet complex in its execution. The residence's metal façade of large shutters surrounds both its 700 rooms and multitude of communal spaces. Tvitec's triple glazing for façade specialist Sottas allows maximum natural



light to enter the building as well as full indoor climate control, especially in winter. Tvitec supplied around a thousand metres of glass for the project, half of which was triple-glazed, tempered and laminated with a unique solar control coating from Glastroesch, namely Combi Neutral 61/32 with Low Iron. Laminates were also produced for large balustrade areas.

6. HAREN PRISON. BULLET-PROOF

GLASS REPLACING BARS AND MAXIMUM ECO-EFFICIENCY

Haren prison in Belgium will soon be welcoming its first inmates who, with glass replacing bars on the outside of its cells, will get to experience an alternative prison concept. However, being BR6-certified as well as tempered and laminated, this isn't simply any glass. It's resistant to repeated, close-range impact from assault rifles. Here Tvitec's bullet-proof glass is incorporated into the triple glaz-

ing supplied for Spanish façade specialists Proinller and Ferga, who have been working for construction company FCC. Almost 4,000 metres of these insulating glass units were manufactured by Tvitec, each one boasting a truly impressive thickness. Sustainable too, the glass will cool or heat the entire prison complex, since it's coupled with such systems as geothermal storage.



TRIPLE GLAZING ADVANTAGES

1. Can reduce heat loss in homes, leading to potentially lower energy bills;
2. More efficient at heat retention than double glazing, thereby yielding warmer spaces;
3. Less prone to condensation build-up between the panes than double glazing;
4. Harder to break, resulting in safer buildings;
5. The extra glass pane blocks out more outside noise than double glazing.

Tvitec System Glass

tvitec
SYSTEM GLASS

Polígono Industrial el Bayo,
Parcela 19
24492 Cubillos del Sil (León)
Spain
Tel.: +34-98-7021925
Fax: +34-98-7021924
E-mail: comunicacion@tvitec.com
www.tvitecglass.com

6 – 9 June
2022

EXPOCENTRE
Fairgrounds,
Moscow,
Russia



Mir Stekla

PRODUCTION • PROCESSING • APPLICATION

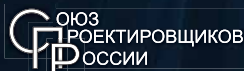
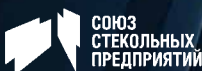
23rd International
Exhibition for Glass Products,
Manufacturing,
Processing and Finishing
Technology

Advertising 12+



www.mirstekla-expo.ru/en

Supported by



Under auspices of



Organised by





High-performing portfolio from **FENZI** at Vitrum 2021

The first 'post-pandemic' edition of Vitrum 2021 was hosted by Fiera Milano Rho. A top-ranking event for glass industry insiders, it saw key players come together from 5-8 October to dynamically demonstrate their joint response to challenges posed by the coronavirus. With numerous companies flocking to its stand, Fenzi brought its most recent innovations - spanning all its business units as leading Group in chemicals for secondary glass processing.

ty." Such was the praise this year's Vitrum earned from Matteo Padovan, Managing Director of Fenzi SpA. Fenzi's contribution to the event included innovative products as well as high-tech solutions designed to boost thermal performance of windows while ensuring the utmost in living comfort as the company expands the

possibilities of glass decoration. From primary and secondary sealants with the most advanced eco-compatibility features to the broadest range of warm edge profiles, from decorative paints for all fields of application to mirror-backing paints - and including chemical-silvering solutions that leverage the most cutting-edge technology for

digital printing on glass. "As always," continued Padovan, "the very core of our business is invested in quality, specialization within the glass industry and optimization of product performance, with particular attention to eco-compatibility - all resulting in across-the-board appreciation of our



A N IMPORTANT EVENT FOR GLASS

"The entire industry showcased its vitality, attracting both Italian and international buyers while demonstrating its willingness to actively participate in global growth with its immense spirit of innovation and responsibili-





innovations on display. Given our focus on the current glass industry needs, we're able to offer highly technological products that coincide perfectly with market demand for quality - a commitment acknowledged by visitors to the Group's stand, much to our satisfaction. Here's why Vitrum was such a major event for us, drawing visitors Europe-wide whose specializations led to innumerable business discussions with highly-qualified industry insiders." Concluding on a positive note, Padovan affirmed that "although many overseas profes-

sionals were unable to attend owing to pandemic-related restrictions, the 22nd edition of Vitrum had a very productive outcome for all the Group's companies."

IG UNIT SEALANTS SHOWCASED AT VITRUM 2021

Fenzi's broad, diversified array of sealants facilitates production of IG units that will hold an impeccable seal indefinitely. Despite the fact that each product is already an industry leader, Fenzi research never stops, striving continually to improve performance while ensur-

ing maximal practicality and ease-of-use.

Thiover

A top-selling, reliable polysulphide sealant around the globe:

- Excellent thermal insulation performance in climates of every kind, delivering significantly improved living comfort. Perfect for high-performance, energy-saving windows;
- Suitable at all latitudes, this product will adapt best to any and all extrusion systems and processing conditions;
- All Thiover sealants conform to the most cutting-edge criteria for

eco-compatibility, being entirely solvent-free and containing neither heavy metals nor other harmful ingredients;

- Superior mechanical properties, excellent levels of gas retention and a low permeability to water vapour.

Butylver TPS

The latest-generation thermoplastic spacer perfectly synergistic with commercially available automatic applicators:

- For IGUs with superior quality, warm edge performance, produced with the highest levels of industrial automation;

- Outstanding workability and excellent thermal performance, flexible design and absolute uniformity of colour;
- One-part, polyisobutylene base with integrated desiccants, ensures flawless adhesion with minimal permeability as well as excellent rigidity and stability;
- Makes it possible to achieve ultra-high performance IGUs of various types and sizes, with an elevated added value in terms of quality, aesthetics and, above all, durability over time.

Butylver

The butyl-based, primary sealant combining maxi-

mum quality and minimum permeability:

- High-quality polyisobutylene, one-component, solvent-free seal, achieves the lowest MVTR and GPR values;
- High resistance to ageing, excellent adhesion to glass, aluminium, steel and stainless steel, perfect processability;
- Broad spectrum of compatibility with insulating glass components and building materials;
- Maximum durability and seal, even under the most severe climatic conditions.

Hotver

The one-part, hot-melt sealant ideal for manufacturing

windows with the utmost efficiency of energy:

- The newest, most cutting-edge hot-melt sealant in the Fenzi range;
- Exceptional physical-chemical properties, excellent resistance to low and high temperatures and easy to process;
- Flawless adhesion to glass and to all traditional and warm edge spacer profiles;
- Extremely high gas leak rate performance.

Poliver

The secondary barrier polyurethane sealant, a consistent market leader, available in various versions, based

upon the needs of each operator and manufacturing system:

- Specifically formulated polyurethanes for manufacturing IGUs, exceptional ease of application;
- Entirely solvent-free;
- Can be used to manufacture double or triple IG units;
- High degree of adhesion to all glass types, extremely low permeability to water vapour and gas, excellent UV resistance.

Molver

High-quality molecular sieve specifically designed for manufacturing IG units:

- Formulated to guaran-





tee maximum absorption capacity; its chemical structure ensures longer-lasting performance within the glass;

- Particularly efficient absorption, given that moisture stays inside the granule without rising to the surface;

- Can be used in any insulating glass system that calls for perimeter sealing with polysulphide, silicone, polyurethane or hot-melt sealants.

LATEST-GENERATION WARM EDGE SYSTEM

In addition to sealants,

Fenzi Group also supplies IG unit manufacturers with aluminium, hybrid and warm edge spacer profiles produced at the Alu Pro and Rolltech plants and sold around the world by the Glass Alliance network. Alu Pro and Rolltech produce aluminium, steel

and stainless-steel spacers as well as steel combined with special plastic materials and various latest-generation warm edge spacers. All are cutting-edge products for every application – thanks, in part, to combined efforts of the companies' individual research



and development centres. The range includes some of the most state-of-the-art solutions for warm edge systems.

Chromatech Ultra

An innovative warm edge spacer that meets the most demanding requirements



for energy efficiency:

- Stainless steel and special blends of plastic comprise this exclusive, patented structure to guarantee long life, durability and state-of-the-art insulating performance; Ensures an extremely low level of thermal transmittance and exceptional ease of use, essential features for processors; furthermore, it bends easily without

any need for expensive machinery.

Multitech G

The latest-generation rigid spacer for achieving the best possible thermal performance today:

- Crafted without any use of metal and enhanced with an extremely thin, extraordinarily insulating special multi-layer barrier;
- The distinctive transparency of this multi-layer

barrier allows the original colour of the spacer profile to be maintained on all sides, making it superbly-suited to any architectural design.

Thermix Tx Pro

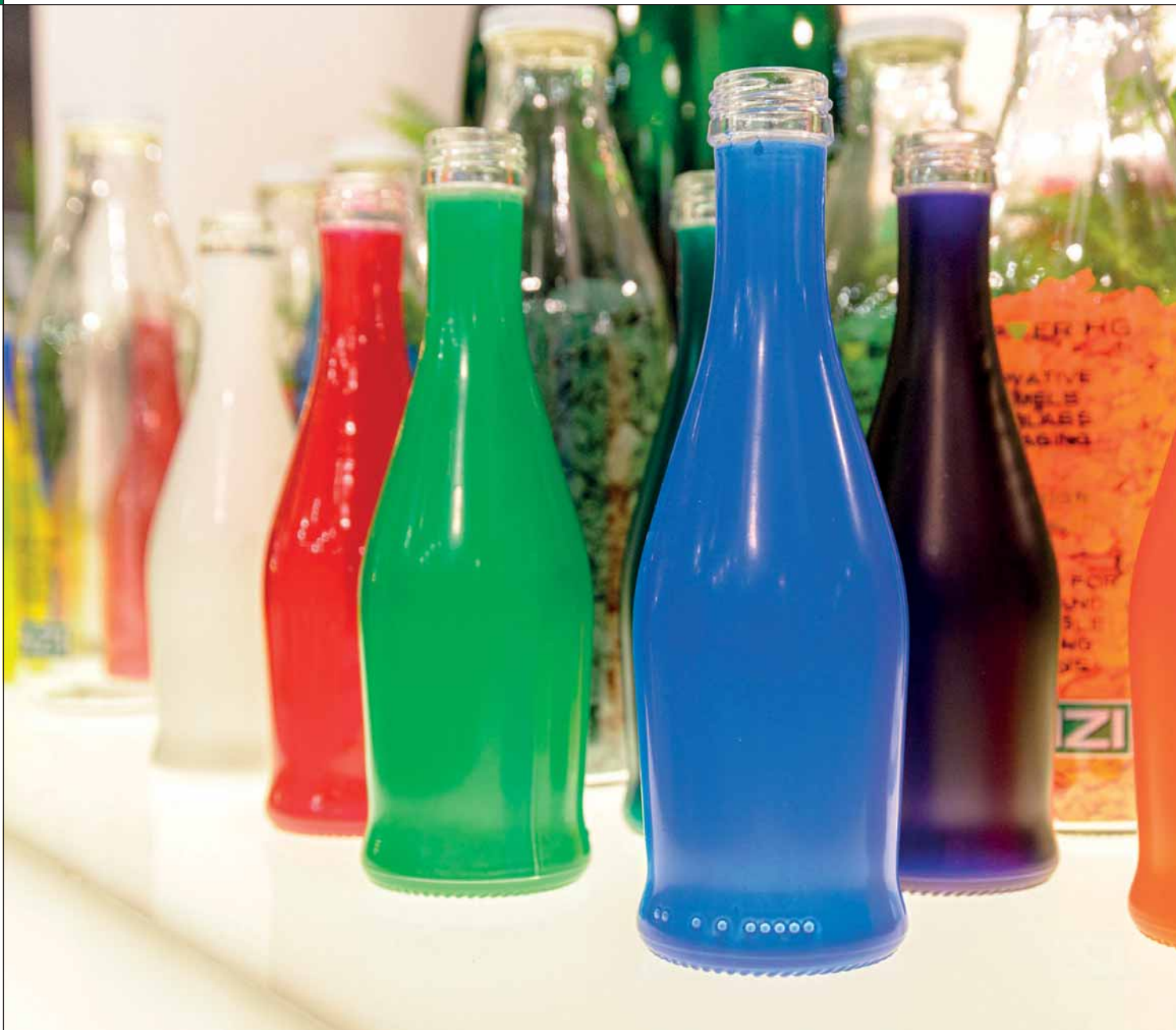
A modern profile made with a special technopolymer and stiffened with two highly resistant stainless-steel wires bearing exceptional thermal properties and with excellent Uw-values:

ACQUISITION OF ADVANCED GLASS TECHNOLOGIES

As key chemical player within the glass processing industry headquartered in Italy, **Fenzi Holdings SPV SpA ("Fenzi Group")** announced on 24 November 2021 the acquisition of **Johnson Matthey's ("JM") Advanced Glass Technologies ("AGT")**, a leading global provider of specialist glass enamels and precious metal pastes mainly supplied to the automotive sector.

"We are delighted to welcome the AGT organization to the Fenzi Group," said Fenzi Group's Chief Executive Officer Alessandro. "Fenzi AGT leadership in glass enamels for the automotive and industrial sectors fits perfectly with our strategy to be the largest and most complete partner for the glass industry worldwide. This partnership brings new innovative technologies to our global customer base. We believe that AGT's growth will be enhanced under the Fenzi Group."

The acquisition is expected to close in the spring of 2022.



- Partially-coated with super-thin, stainless steel foil with the dual purpose of providing bonding support for the sealants and acting as a barrier against gas loss;
- Can be cut to form frames with plastic corner keys or else bent by any of today's commercially available bending machines.

AQUAGLASSXPACK, THE INNOVATIVE RANGE OF WATER- BASED, ECO- FRIENDLY PAINTS FOR HOLLOW GLASS

The Fenzi range of paints developed for the hollow glass industry is currently expanding with a new line of organic, water-based paints designed for glass

packaging. Perfect for producing surfaces with transparent, opaque and metallic colours of extremely high resistance according to industry tests and customer specifications.

Organic, one-part and water-based for decorative use, AquaglassXpack paints comprise a combination of resins and select

pigments that not only lend exceptional hardness, durability and elasticity to the paint but also unique colours. While maintaining intact all those features that have made Fenzi paints such a sought-after product in the marketplace, the new AquaglassXpack range guarantees excellent glass adhesion, exceptional



mechanical properties of the painted film, singular coverage, exemplary stability and durability of the colour over time, outstanding UV resistance and optimum colour brilliance. The AquaglassXpack line includes transparent, coloured, opaque and metallic water-based paints. With an unlimited and flexible

ABOUT FENZI GROUP

The Fenzi Group is a worldwide leader in chemicals for the glass processing industry. Founded in Milan in 1941, where the Group still has its headquarters, it now has 12 factories within strategic markets across the continents from which it delivers high-quality mirror backing paints, IG sealants and spacers and decorative glass paints.

colour palette, Fenzi delivers innumerable customization options - even with special effects. Fenzi's lab solutions successfully render a series of virtually infinite shades and colours achievable from among the international colour scales - all faithfully reproducible. Moreover, custom colour samples requested by customers are ready in all promptness. Also, the RAL, RAL DESIGN, RAL EFFECT E2, NCS, Pantone, Dulux, Sherwin William, Sikkens, Benjamin Moore, British Standard, Taubmans and Guittet formulas are always available on the company's website for fast, independent production of the desired colour shade.

DURALUX WATER BASED: FENZI'S NEW MIRROR-BACKING PAINT LINE

The most recent frontier in terms of mirror-backing paints is that of the new, latest-generation Fenzi line of products that can ably contribute to the production of high-quality, eco-friendly mirrors with outstanding reflectivity, safety and chemical resistance properties. Using a water base, the

labs at Fenzi Group have developed Duralux Water Based, a complete range of lead-free, glass-silvering, mirror-backing paints with extremely low VOC emissions - chemical agents that are potentially harmful both to one's health and to the environment.

This marks a major innovation for mirror manufacturers, processors, end users and the environment at large.

Compared with other commercially available mirror-backing paints, the special Duralux Water Based formulation makes unique performance possible including a VOC level five-times lower than that of the market standard, a use of solvents with reduced environmental impact, extraordinary chemical resistance and greater product durability. This is a one-coat, user-friendly painting system that's convenient for either curtain or spray application, completely lead-free, perfect for use on copper-free mirrors. It can also be applied on most existing mirror lines that use traditional solvent-based paints.

The Duralux line ensures a

high-performance product that's tried and true while being also constantly updated. Over 80 years in business, the Group has become a global leader in glass-processing chemicals, offering a complete range of products as it sets the standard for the entire glass industry. Thanks to its considerable prowess with innovation and based upon its know-how, acquired over so many years in the market, as well as its research and development activities consistently focused on customer needs, the Group has created a complete product range that's always cutting-edge, thereby so ranking it among the preferred partners for mirror manufacturers around the world.

Fenzi SpA

FENZI

Via Trieste 13/15
Zona Industriale
20067 Tribiano (MI) - Italy
Tel.: +39-02-906221
Fax: +39-02-90631216
E-mail: info@fenzigroup.com
www.fenzigroup.com



Innovative power delivery technology from COHDA

How to supply power through glass without intruding on user experience. Cohda meets this challenge with its innovative Power-Tap[®] method of delivering electricity invisibly for museum exhibits that use high tech lighting, sensors, cameras and digital displays.



A HISTORY OF INNOVATION

Founded in 2003, Cohda has spent over 17 years dedicated to research, experimentation and product innovation, creating revolutionary products for

global clients. Indeed, it was the company's history of working on some of the world's most innovative Museum projects, such as the revolutionary Jean Nouvel designed Louvre Abu Dhabi, that had it spot-

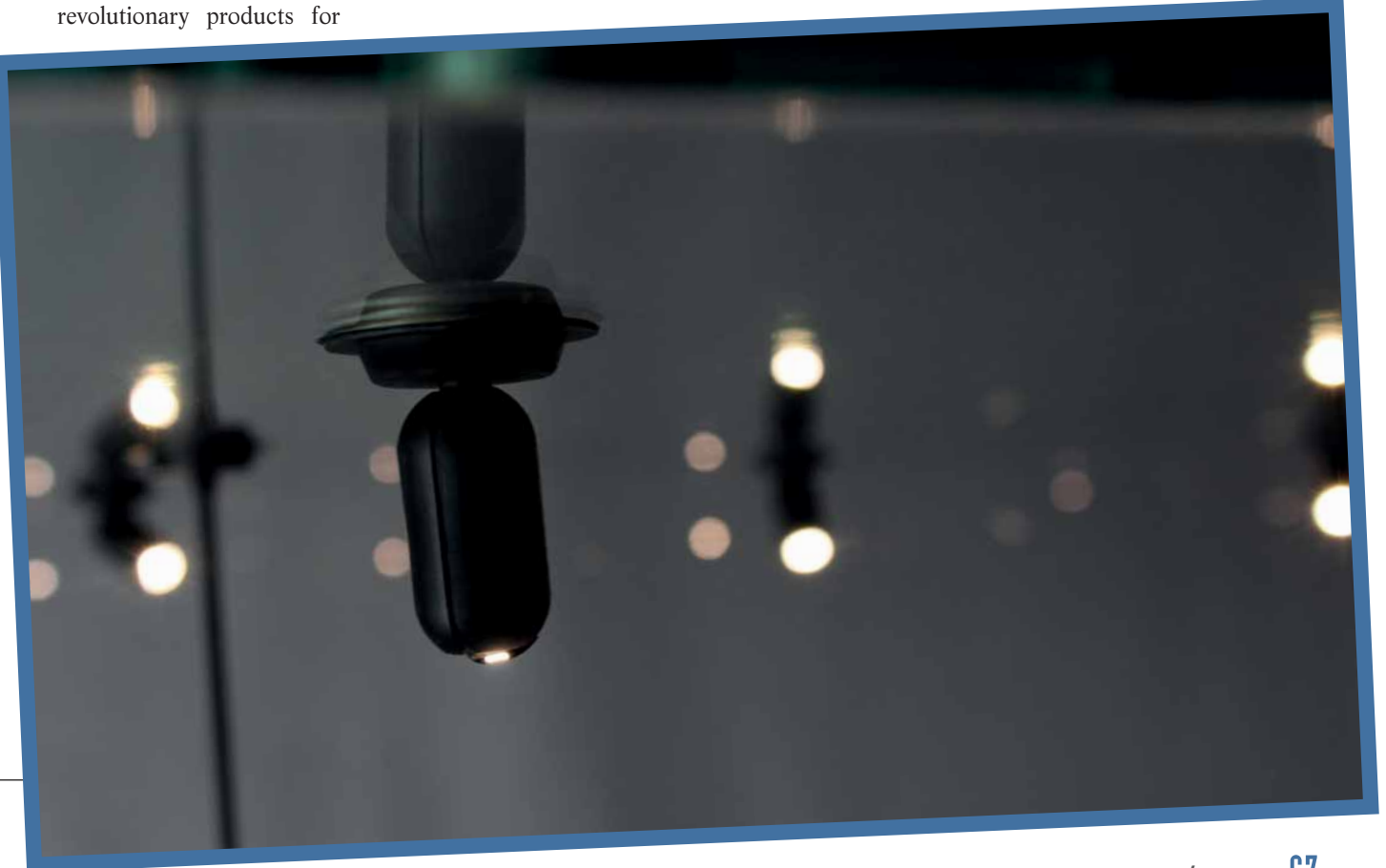
ting an opportunity to solve a key challenge facing this market.

Like many industries, the Museum Showcase sector is undergoing its own digital transformation. However, unlike other markets exhibits are generally encased in a secure glass structure. Maintaining transparency remains imperative, which creates the issue solved by Cohda of developing a power supply technology that will not compromise user experience. Here devices are traditionally powered by cable or rod systems, which can be both obtrusive and distracting. Adding more systems necessitates more power and data cables, which results in greater visual distraction to the viewer.

It was felt that if transparent power delivery were achieved and the need for wires removed, then the ability to locate devices in premium locations within a glass structure as opposed to locations dictated to by a wiring loom would offer limitless new design opportunities to the museum market. Preliminary user research suggested that any device powered through the glass would also need to be as minimal and unobtrusive as possible in order to further enhance the invisibility and value of the system.

TEAMWORK IN RESEARCH

With a diverse studio team of Designers, Engineers and Material Experts,





gy. The first from this range is the magnetically connected micro spotlight system for the museum market, named CompassLED. The CompassLED system is made up of two main assemblies:

1. a two-sided magnetic plug socket embedded into the Power-Tap® glass panel
2. a lighting spot that magnetically connects to either side of the socket and instantly draws off power.

Both the locations of CompassLED lights and the number of CompassLED sockets within a panel are fully customisable, giving designers and users



Cohda was able to undertake this challenge as a secretive in-house brief. Over a five-year period the evolving project generated more than 300 prototypes and test rigs before a final solution emerged, codenamed P-Tap®.

Key challenges during the development process were:

- a Creating a stable power delivery system that could deliver different power requirements;
- b Maintaining the integrity and security of the showcase; and
- c Offering a stable microclimate for any delicate display works.

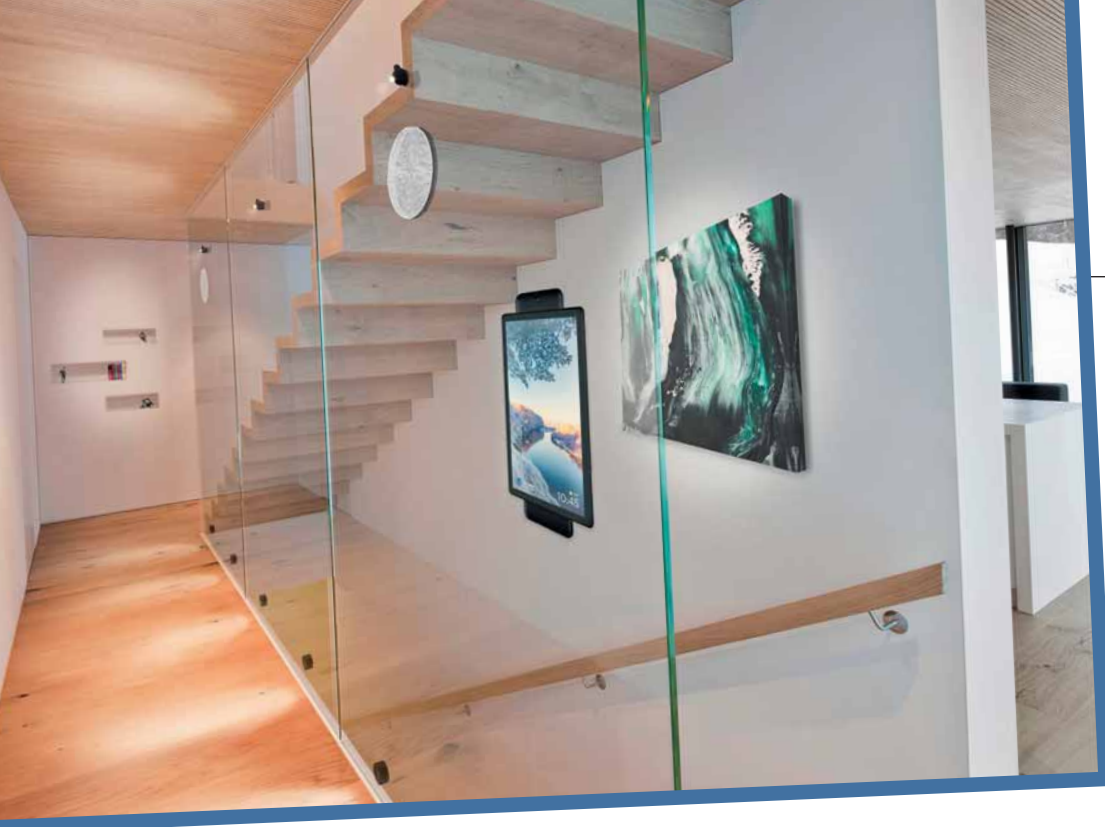
The manufacture of Power-Tap® glass panels, too, was hardly a straightforward process. Requirements for high tolerance and specialist processing techniques being beyond that of a most glass processors warranted partnerships with companies in the glass sector that operate to the very tightest tolerances, namely those within the touch screen market.

EMERGING PRODUCTS

The final outcome to this challenging project is the now patented Power-Tap® Glass Tech. Power-Tap® is a transparent lamination of

conductive and non-conductive glass. This arrangement allows power or data signals to be transferred across individual layers within the lamination. Pre-machined apertures create taps in the glass that supply power delivery to embedded devices with showcases and glass displays. These connected devices appear as free floating within an optically clear glass panel with no visible means of power connection.

Coinciding with the launch of Power-Tap®, Cohda developed a range of products to marry seamlessly with the Power-Tap® glass technolo-



Commercial agreements to utilise the Power-Tap intellectual property and technology are currently underway. Initial partnerships include leading touchscreen display manufacturer Zytronic and global glass company NSG Group.

Cohda
Design Limited

COHDA™

William Street Felling
Gateshead Tyne & Wear
NE10 0JP - United Kingdom
Tel.: +44-191 423 6247
E-mail: studio@cohda.com
www.cohda.com

the freedom to place lights wherever they wish. The final system offers easy installation, light replacement and adjustment of 360-degree full rotation in all axes, individual or group dimming and the ability to

illuminate through the Power-Tap® glass panel offering previously unseen lighting flexibility. Additional products from this range are set to be released throughout 2022 and will include fixed spotlights, strip lights (for museum and retail shelving), induction charges, USB plugs, touch payment devices, rotating display tables, audio resonators, magnetic locks, digital remote cameras and alarm systems.

NEW MARKET OPENINGS

Since its public release Power-tap has gained interest from other market, including: Retail, taking the form of Point of Sale Tables powering-Induction chargers, USB sockets, charge stands, electro magnets, proximity sensors and alarms. Automotive, where there is a market shift in the autonomous and electric vehicle sector toward increasing the size of automotive glassing and a consequent need to directly embed devices onto the glass. Architecture, where alarms, sen-

sors, cameras and safety equipment can become part of the glazing of a building. Domestic goods, where embedded devices can inter-communicate through glass while maintaining full transparency. Other highlighted markets include Aviation, Defence, Security, Renewables, Farming and Commercial Lighting.



CUGHER's timeless classic for home appliance glass

With its Compact silk-screen printing machine series CUGHER has perfected a timeless classic for the Home Appliance sector for the realization of cooktops as well as glass for kitchen ovens and other household appliances - all of which have gone a long way over the years towards satisfying key producers within the sector.

FLEXIBILITY

Among the product's successful characteristics is its great flexibility, given that different Compact versions have been designed for use as machines that are both stand-alone and integrated within the entire plant. More specifically, for the former of these versions the machine has an extractable printing table to manually load and unload the glass, which is then immediately centered and

brought to print, whereas the semi-automatic version has the same extractable table for manual loading as well as an automatic belt transportation for unloading the glass directly within the dryer. Lastly, the fully-automatic version is equipped with a belt system perfectly integrated within the other line components which allows for automatic loading and unloading of the glass - all closely following production times.

FROM 100X300 MM TO 1300X700 MM

From the vantage point of production, and depending upon glass dimension, process or operator speed, the Compact Series printing machine can produce from 500 to 700 pieces per hour for huge batches. And as for meeting different glassmaker needs, Cugher has designed Compact models that can manage minimum glass dimensions ranging from 100 x 30 mm (i.e. 3.93 x 1.18 inches) to models capable of processing glasses of 1300 x 700 mm (i.e. 51,18 x 27,55 inches). The machine allows for the printing of both squared and rectangu-

lar glasses, each of which is typical within the home appliance sector, but it's also able to manage glass of different shapes - whether for a more attractive design or for productions tailored to other sectors such as the automotive or nautical industries. As to its use, the Compact is extremely practical, allowing for easy maintenance as well as simple command access - both of which rank among the leading features for small production batches that require a swift changeover.

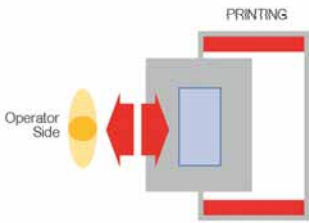
OPTIMIZED PRINT QUALITY

Studies conducted by Cugher on silk-screen printing



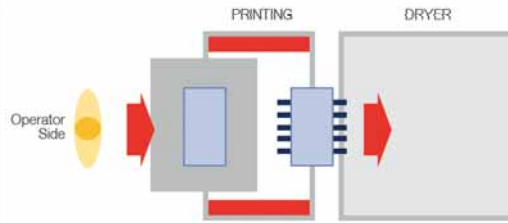
Stand-Alone

Manual loading and unloading, on the operator side, with extractable printing table.



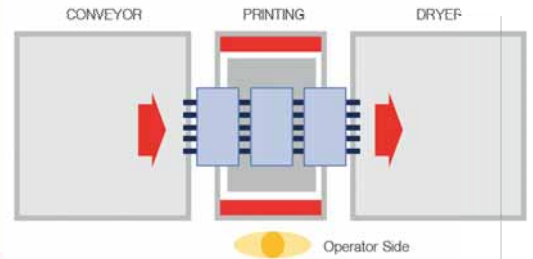
Semi-Automatic

Manual loading and unloading of the glass, on the operator side, with extractable printing table. Automatic rear discharge with transport belts.



Full-Automatic

Automatic glass loading and unloading by a belt transportation system.



over the years have led to the application of advanced technologies which guarantee excellent printing that can boast perfect image definition, a uniformity of ink over the entire surface, high coverage, as well as a product that's both durable and efficient.

The Compact Series has generated great interest from players within the Home Appliance industry - from big market leaders to middle-sized glassworks - thereby stimulating the kind of continuous improvement regarding engineering that can ably afford the product a

high level of automatism and performance - both of which are characteristics that enjoy high acknowledgement within the market.

Cugher Glass Srl



Via G. di Vittorio, 70
20026 Novate Milanese (MI)
Italy
Tel.: +39-02-66207762
E-mail: info@cugher.com
www.cugher.com

UNELKO Microburst brings major improvements for glass coating



The company believes it is the best product of its kind in the industry

Unelko Corporation, a Phoenix, Arizona (USA) based manufacturer of speciality cleaners and protective coatings for more than 40 years, is quite proud of the new Invisible Shield® Microburst™ (Two-Sided) Vertical Glass Coating Machine, which is so far unmatched from an operational, performance and safety standpoint. Used with the advanced Invisible Shield PRO 15 Glass Coating it is being called the most effective solution to prevent scratching, pitting, staining and other environmental corrosion and damage to glass for easier cleaning, long-term preservation and improved appearance.

The machine was designed for all sizes of glass fabricators and manufacturers who are looking for high output, space saving and energy efficient automated systems to protect volume glass including shower glass, windows, façades, IG units, doors, partitions, railings, skylights, sand blasted/etched glass, art glass, windshields and much more.

Its many features include:

- A space saving and fully automated coating system
- Built-in safety features, fully vented-contained unit emits zero fumes

- Treats one or both sides simultaneously
- Height capacity can be customized for any height and/or width of glass
- Adjustable feed rate with durable UV & IR curing
- Separate touch screen control with remote access
- Glass is clean, sealed and protected due to quick “rinse/dry” feature
- Made of “corrosion free” aluminium
- Fitted with automatic “self-cleaning” spray feature
- WIFI diagnostics for remote, on-site support & service

STATE OF THE ART PROTECTIVE COATING EQUIPMENT

Designed by Unelko and Perfect Score Technologies, a well-known glass equipment manufacturer in Dallas, Texas (USA), the compact, high output, two-sided vertical coating machine is extremely efficient. It can treat and protect more than 800,000 square metres of glass annually at a rate of 390 square meters per hour.

Glass is guided into the cabin for coating with a V groove and urethane guide roller and mount railing. The design allows for

working on a multitude of glass thicknesses without adjustments or setup by the operator, and the delivery system can feed sheets without scratching the surface. The upper rail system is CNC software controlled to accommodate for a variety of glass heights. Built-in sensors automatically detect and treat only the glass in the cabin, eliminating any waste. Treated glass sheets can be offloaded with an auto-exit feed, further reducing operator interaction.

Dual spray heads mounted within a CNC motion system provide a uniform and

precise spray pattern, while ultraviolet (UV) and infrared (IR) curing can rapidly bond Unelko’s top rated Invisible Shield PRO 15 coating to both sides of almost any size commercial glass. To lower operation and maintenance costs, the IR and UV lamps are activated based on the actual glass height curing needs. Motion control sensors enable fine tuning for both the speed of the coating’s application and overlap pattern, and the operator can override speed settings to test speciality applications. The use of dual spray heads also enhance reliability of



the machine and lowers maintenance when compared to a stationary spray head configuration.

DURABLE PROTECTION WITH UV AND IR CURING

Once fully cured and bonded, Invisible Shield PRO 15's high performance, hydrophobic and oleophobic coating leaves the glass durably protected, increasing scratch resistance up to 93 percent compared to untreated glass. Treated glass exits the cabin 99 percent clean and ready to install thanks to a unique power rinse and drying feature.

Invisible Shield PRO 15 is the most effective, low-cost solution to the problem of glass degradation, able to prevent scratching, pitting, staining and other environmental corrosion and damage while offering improved long-term preservation of residential and commercial glass. The coating also helps reduce cleaning time up to 75 percent annually and improves the overall appearance up to 99 percent.

UNPARALLELED SAFETY FEATURES

The Microburst coating machine is fully vented, emits zero fumes, and is extremely safe. It is made of 100 percent corrosion free aluminium, has NEMA 4 rated Polymer Coated air and pressure sensitive enclosures and

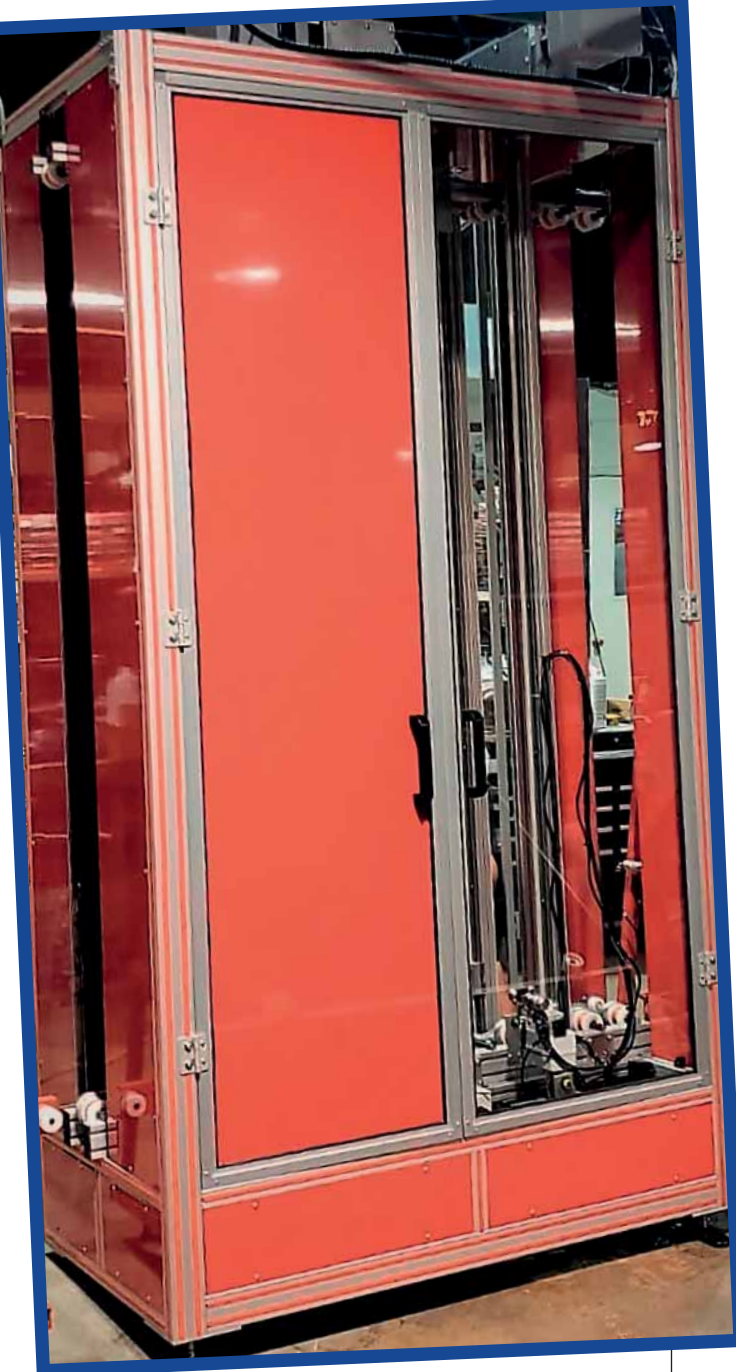
electrical boxes. Circulation inlet fans provide ambient convection cooling coupled with an exhaust duct fan to remove residual fumes from the chamber. Fumes exit the top of the chamber, and the company offers an optional duct hose to exit through the building ceiling as an option for the operator. Additionally, the operator console is a stand-alone enclosure separate from the coating machine, a design that isolates the interior electronics from dirt, debris or fume exposure. All electronic components are explosion proof and come with a built-in safety system.

CUSTOMIZATION OPTIONS

The system has a default height capacity over 2 metres, but units can be customized for almost any glass height depending on product and production requirements. Flexible wing dimensions are available for added glass staging capacity.

WARRANTY

Perfect Score Technologies offers 24/7 full remote, diagnostics service and coverage within a period of either 2,000 hours of usage or twelve months from the date of machine delivery. The warranty covers all non-consumable parts to include – blower unit, circulation fans, drive motors, power supplies, electronic drive controllers/amplifiers, motion bridge,



infrared red and ultraviolet lighting units. Consumable or expendable parts from normal wear and tear is not covered within this warranty period. The Microburst was designed for regular use cycles, 8 hours a day, 5 days a week. With this feature-packed machine and a broad spectrum of protective product offerings, Unelko Corporation seems well positioned to serve the needs of glass makers all over the

world, leaving the company's future wide open for even more innovation in the field of glass coating and protection.

Unelko Corporation



Advanced Surface Technologies

Unelko Corporation
1616 W. Williams Dr.
Phoenix, AZ 85027 - USA
Tel.: +1-480-991-7272 E-mail:
info@unelko.com

www.unelko.com
www.glasscareexperts.com

WHERE
THE BEST
MINDS
MEET

GLASS PROCESSING AUTOMATION DAYS

GPAD

FUTUREPROOFING
GLASS
FABRICATION

March 29 – 30, 2022
Grand Hyatt Nashville

Two days with the best minds in glass fabrication to network and investigate new & innovative technologies—**find the solutions you need now to prepare for the future.**

FEATURING ‘BRIDGING THE SUPPLY CHAIN’ –

A half-day of solution sharing on Mar. 29 that straddles the BEC Conference and GPAD, providing a unique and timely opportunity to bring you together with your glazing contractor customers and suppliers to tackle common pain points in our supply chain.

LEARN MORE AND REGISTER AT [GLASS.ORG](https://www.glass.org)

NGA

NATIONAL GLASS ASSOCIATION with GANA

SATINAL: Bresciani family celebrates 100 years in the glass industry

The activities of the Bresciani family commenced in the 1920s just as the glass industry was encountering its great historical moment of tradition and values. Then in 1921, Luigi Bresciani began working at a Milan artisan workshop where, following the owner's unexpected death, he'd take over the entire business that would subsequently transfer to his son Ferruccio.

BEGINNINGS

The earliest industrial process, namely crys-

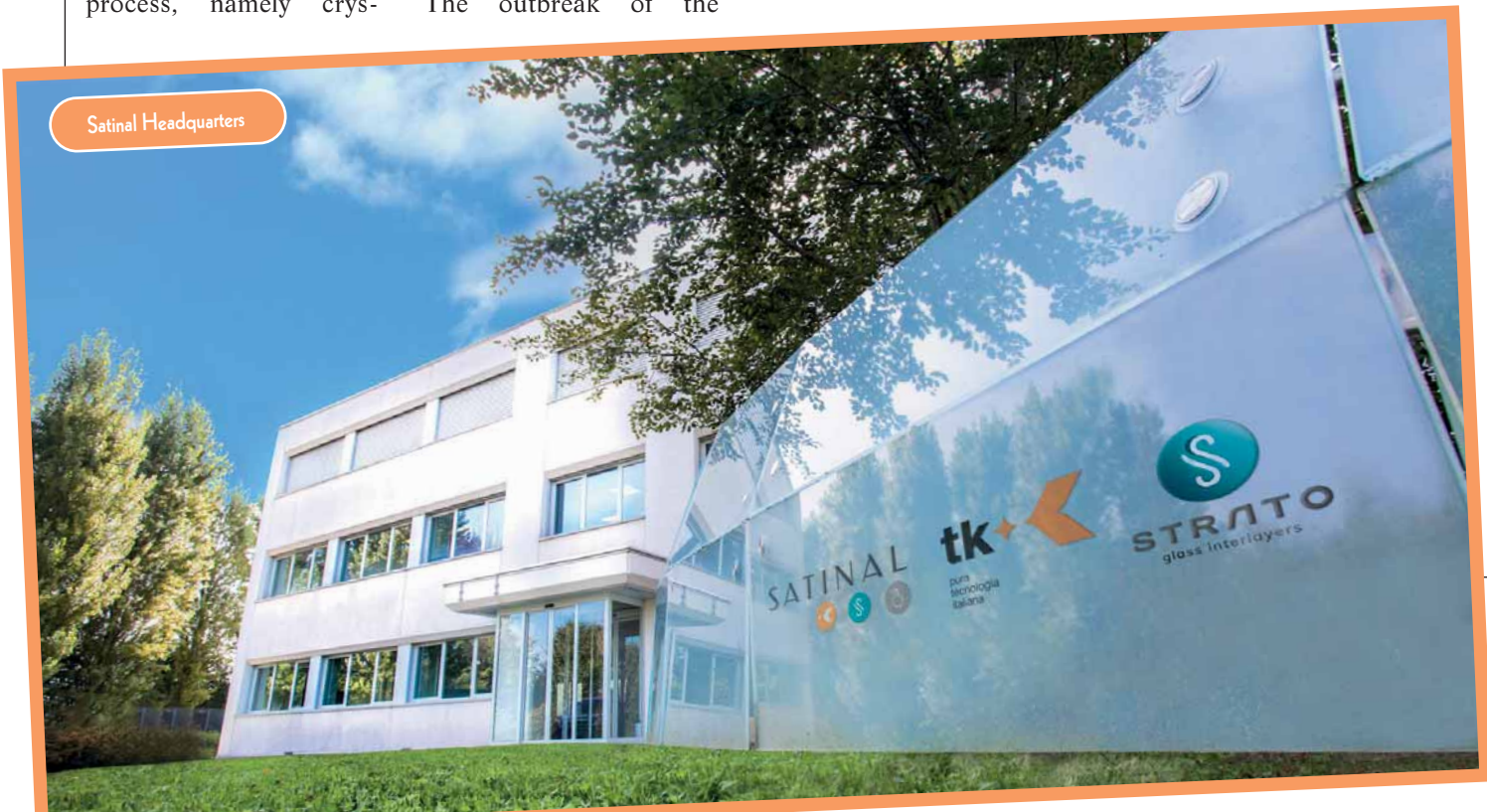
tal glass flattening, dates back to the '30s. Glass was handcrafted at that time and, in consequence, the twin faces it composed were never quite regular. With the image getting deformed, it was hardly an aspect conducive to mirror production - which all prompted Ferruccio to flatten the glass with some abrasive machines so as to ensure the glass sheet would have two regular faces for the production of good quality mirrors. The outbreak of the

As Satinal continues the innovations so characteristic of its family spirit, here's a walk-through of the company's earliest history reaching up to today's production

Second World War saw the death of Ferruccio, with the result that his sons, Anto-

nio and Luigi Bresciani -both in their early twenties- would assume full responsibility for the

Satinal Headquarters





Luca, Marco and Alfredo Bresciani

processed glass like mirrors (via the first modern, 'float' systems) in addition to transparent glass. It also led to a deep crisis that saw many, if not all, small mirror manufacturers having to rethink their business - including Antonio and Luigi. However Antonio fought on. With a view to obtaining fresh textures and decorative glass, one new idea was to work the glass sheets with very aggressive acids. Here the first years were very difficult even if business grew remarkably by the mid 70s. In the 90s Alfredo and Ferruccio Bresciani, Antonio's sons, took over the business - subsequently setting up a new company for the production of decorative, acid-etched glass that was destined to become a world leader. Satinal Spa was born in 2001. Special-

business. The two soon produced mirrors for the furniture industry, begun at Brianza - even if, notwithstanding the rebirth and reconstruction that characterized the period, everything was still made in an artisanal manner.

A TRAJECTORY OF SUCCESS

At this point Antonio departed for the United States where he would purchase an automatic industrial mirror production plant - the only one of its kind in Europe. That

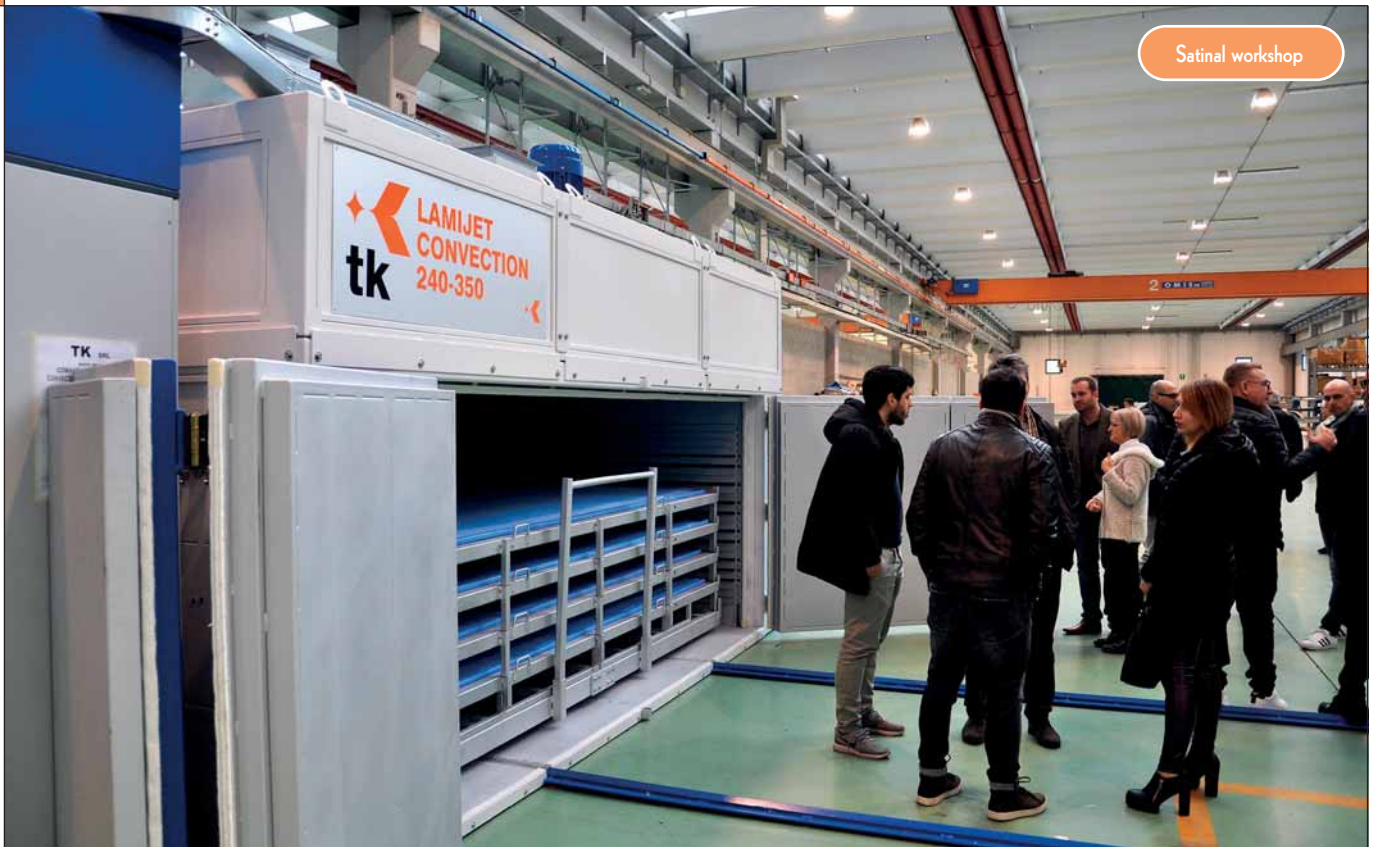
led to some major business development thanks to an increase in production capacity as well as to a price reduction in sales. Not only. It marked a success that lasted until the end of the 60s, when multinational manufacturers initially began offering



Luigi Bresciani



First factory of the Bresciani family in the 1920s



izing in the production of chemical compounds for glass frosting, at that time it belonged to the same group. Then in 2011 Alfredo founded the new Satinal-TK group. This included a new business operating in the field of furnaces and machinery for safety glass manufacturing and before long it would go on to promote its commercial expansion towards international markets.

As of 2017 the new generational change had gained traction as Alfredo's sons, Luca and Marco, founded STRATO®, the first production line for safety glass interlayers in Italy - which quickly established it as technology and market leader for safety glass lamination films.

CORE VALUES

Over these past 100 years, the development of industrial processes and activities offering support to glass processors is still unchanged, with reliability, experience, customer satisfaction and innovation all remaining the same core values upon which the Bresciani family was originally founded. Here the importance accorded to sharing the entire experience with the customer has always afforded Satinal the opportunity to be a partner with glass factories whilst providing high quality products and excellent technical service.

LOOKING AHEAD

Satinal is now a reference

name within today's glass industry, boasting an enduring industrial and entrepreneurial track record as an innovation-driven Italian company that operates worldwide to deliver advanced solutions. It seeks to become the most esteemed interlayer and machinery manufacturer for safety glass laminators as well as the most highly-experienced acid-etching chemicals and machinery supplier globally.

Ill-satisfied with just manufacturing products, Satinal also builds product ecosystems, together with 360° solutions to advance customer satisfaction. It engages in close partnerships that provide full technical assistance and support - all to render businesses more profitable.

Such was the close involvement with both internal and external collaborators as well as Satinal's main customers and suppliers that led it to jointly celebrate this important milestone at the Satinal headquarters in December 2021.



SATINAL SPA
TH - STRATO

SATINAL

Via del Lavoro, 1
22036 Erba (CO) - Italy
Tel.: +39-031-870573
E-mail: customer@satinal.it
www.satinal.it

Follow us online!



glassOnline **SEE HOW EASY IT IS TO CREATE DIGITAL TEMPLATES WITH THE PROLINER**

Fonderie Valdelsane

Special cast irons & alloys for glass moulage

Daily Newsletter

glassOnline **THE WORLD'S LEADING GLASS INDUSTRY WEBSITE**

Just some of today's news on GlassOnline...

GLASS SERVICE - 16th Int'l Seminar on furnace design

Every two years GLASS SERVICE sponsors an educational furnace design... operation & process simulation seminar in the Czech Republic, for the benefit of its customers. The next Seminar will be held on 22-23 September 2021 at the Hotel Horní mountain resort in Velká Karlovice, Czech Republic. The Seminar will be open to everyone wanting to learn more about industry...

Libbey to invest 30 million USD in Toledo, USA, operations

Libbey Glass (Libbey), one of the world's largest glass beverage manufacturers, will expand production in Toledo, OH, USA, with an additional 30 million USD investment in the facility. With the assistance from JobOhio, Libbey plans to invest nearly 30 million USD over the next four years to maintain the plant and move the production line to the Glass City. "We...

NGA cancels the Building Envelope Contractors Conference for 2021

"With the ongoing pandemic, state-sanctioned quarantine initiatives and related travel barriers, the NGA Board of Directors once again prioritized safety with participants in mind." says NGA President & CEO Nicole Harris. "The BEC Planning task group will reach its tentative content line-up to present education sessions Executive Forum at Glasbuild America 2021..."

Glassonline interview with Stoelzle Pharma, unit of Stoelzle Glass

In this video, glassOnline asks Alexander Stern, Head of the Pharma Business Unit, about the production of Stoelzle Glass, and in particular about pharmaceutical glass and Stoelzle's innovation.

Heye International -advantages of process visualisation

Ardagh Group's Knowlridge glass container facility in the UK is benefiting from the recent conversion of an existing production line to Simulon®. A rugged, trademark of Simulon, serial drive and FMT control technology. Installed and commissioned by production machinery specialist Heye International, the highly flexible control system is based on the multi-axis Simulon® drive system from Siemens. Independently operating...

WE HAVE THE IDEAL SOLUTION

YouTube **Glass Industry network**

163 subscribers

LinkedIn **Attività di Glass Industry**

Online publications

Glass Technology International International no. 1/2021

DOWNLOAD PDF | MAGAZINE ONLINE

CONTENTS - Regular Articles
CONTENTS - Regular Features
Category: Glass Technology International

GLASSONLINE DAILY NEWS

British Glass to host the first annual UK Glass Recycling Summit

The event will be held, 17 March 2021, virtually and bring together the entire glass supply chain - from glass container manufacturers, brands, retail...

Packaging Industries Coalition welcomes EU support to circular economy

The Association of Producers of Steel for Packaging (APFAL), European Aluminium, the European Container Glass Federation (FEVE) and Metal Packaging Europe, members of...

Ardagh to release Q4 and FY 2020 results

Ardagh Group S.A. will publish its fourth quarter and full year 2020 results on Tuesday, February 16, 2021. A results release will be posted to...

Stoelzle Masnières Parfumerie: Working closely with brands, using an eco-responsible approach

Stoelzle Masnières Parfumerie is working closely with brands, using an eco-responsible approach...

Glaskon installs two IG lines by Forel

One of the most remarkable and growing companies in Polish glass business, Glaskon has been established in the eighties, focusing on glass processing and...

Focus On

STONE WORKING SOLUTION
A+W A+W iQuote
5000 THE CUMULATIVE SALES VOLUME
WALTEC FOR THE GLASS INDUSTRY
Insight Services
Cold - End Lines Solutions
22nd INTERNATIONAL EXHIBITION
See you at VITRUM 2021

glassOnline **SPECIAL CONTENTS - COMPANY VIDEOS - VIDEO INTERVIEWS**

Company videos

See all the contents

Mappi: what a great experience at the NGA Conference

13 February 2021

Anders Dahlblom's first weeks as President & CEO of Glaston

13 February 2021

New FORVET video: a story of entrepreneurial and human success

13 February 2021

WALTEC FOR THE GLASS INDUSTRY
Insight Services
Cold - End Lines Solutions
22nd INTERNATIONAL EXHIBITION
See you at VITRUM 2021





Putting performance and sustainability first at **MAPPI**

Is it possible to reconcile environmental protection and a more sustainable future as we experience constant growth in production -both in terms of quality and quantity- whilst bettering in every way the lives of those working in the industry? For MAPPI the answer yes, as long as certain important conditions are met.

In order to achieve these goals, the industry would first need the right commitment, planning, creativity, innovation and, above all, clear objectives. Thanks to far-sighted companies which never stop innovating, significant steps are already being made to realize that future. Among these, one which stands out consistently in the sector, as it has done for years now, is the Italian company Mappi - by now a historic leader in the field of glass tempering furnaces.

FURNACE FEATURES

Thanks to a series of patents and exclusive innovations, Mappi's tempering furnaces have simultaneously managed for many years to be solid allies to





both the environment and to the glassmaker.

Yet whether or not everyone would agree on that score, many would acknowledge it as a reality experienced by anyone who's chosen a new generation Mappi furnace. Here's why:

- It consumes less energy. Thanks to the coordinated use of multiple software solutions (such as Mhs, ESS, GHBS, etc.) the furnace heats to the correct temperature only at the location where glass is to be tempered. Not only. The furnace is perfectly isolated thanks to excellent



insulating materials and a state-of-the-art construction - so much so that you can even touch it with your hands while it's in operation. Here energy saving can be as high as 40%.

- It minimizes installed power, given that lower power consumption also means lower installed power, which results in significant savings on fixed energy costs.
- It guarantees high production, since set-up times for each workload are almost at zero. Equally important is that the time required to cold start the tempering furnace is minimized to just an hour. That translates to many more production hours saved each year which, when multiplied over the lifespan of the Mappi furnace itself (estimated at 20 years at least) - best expresses its superb production efficiency.

The furnace interfaces with the management systems so that, thanks to full compatibility with the most advanced 4.0 management systems, planning work or procuring statistics reports or quality

certifications all become simple and efficient in "Just-in-time" mode.

PUTTING SAFETY FIRST

We wish at this stage to add a further consideration to the many innovations we've summarized here so briefly:

During the hardening process Mappi furnaces use no SO₂, indicating again how respect for the environment and productivity are able to go hand-in-hand.

Being dangerous and corrosive, the use of SO₂ deteriorates the glass handling rollers and requires that the machine be stopped for maintenance every 15 days. Last but not least, it represents a health hazard to workers given that Sulphur Dioxide is very irritating to the throat and eyes and can result in serious health problems if inhaled.

COST SAVINGS

Mappi's innovations involve both the 'tempering furnace' product and the 'glass tempering' process, which jointly translate into truly considerable economic advantages and which, above all, accom-

pany the furnace throughout its long life (ere we're talking hundreds of thousands of Euros - data in hand).

All this, and much more besides, affords us the opportunity to make excellent, high quality glass which is also very resistant and exceedingly efficient - thus demonstrating once again that technology and the environment can indeed move in the same direction while leaving the world in better shape. Such has always been a target towards which Mappi has worked.

MAPPI INTERNATIONAL SRL

MAPPI
BEYOND GLASS PERFECTION

Via Alfredo Fieramonti
04012 Cisterna di Latina (LT) - Italy
Tel.: +39-06-96873284
E-mail: info@mappi.it
www.mappi.it



CORIAN® EXTERIORS makes a splash in Sofia

B73 BUILDING PROJECT

Besides the fun fact that B73 has the building's name coinciding with its location at number 73 of James Bourchier Boulevard, a main road within Sofia's city centre, it's also - by sheer coincidence - the client's 73rd completed project. With a furniture design store occupying both the ground and first floors of the building, B73 was made to meet all the requirements of a top-quality contemporary urban construction. Its four apartments, one upon each floor and a penthouse on the last two, come fully-furnished and equipped with every comfort. The building's innovative design is showcased by its superb Corian® Exteriors façade whose material comprises the



Photo by Dian Stanchev, all rights reserved.

With flowing lines and rounded corners, a new multi-purpose building now graces the heart of Bulgaria's capital, catching the eye of visitors to the city with its amazing futuristic Corian® Exteriors façade. Designed by Bulgarian architectural studio STARH, the eight-storey B73 building aims to become a landmark for the nation's capital, thanks to its innovative aesthetic approach and construction process.

first ever exterior cladding system to receive the CE mark - thereby guaranteeing a durable exterior that will maintain its optimum performance for many years to come.

Both the outer shape and façade display distinctive flowing lines while drawing characteristic elegance from their automotive-inspired design details. Here the STARH architects needed extraordinary design accuracy, coupled with the exceptional skill of the fabricators and contractors during on-site implementation. Joint expertise by all the professionals involved included a futuristic design approach supported by a visionary investor and enabled by Corian® Exteriors as advanced material.

THE FAÇADE

The B73 building façade is clad with a horizontal

black and white pattern made by Corian® Exteriors whose visual impact is enhanced by streamlined tapers of the window front. At these points, the façade also deepens gently into concave recesses within the building walls. In addition to the rounded corners of the building, this extraordinary design solution is only possible due to the superior thermoformability of Corian®. Masterfully fabricating the complex three-dimensional shapes of the façade was the Bulgarian company Soliform Ltd, an Exterior Cladding Converter within the Corian® Quality Network. In embracing the challenge, the company successfully met both client and architect requirements respecting functionality and aesthetics. The building was clad with Corian® in the pristine Glacier White (1,000



Photo by Dian Stanchev, all rights reserved.

square metres) white colour, beautifully contrasting the dark Deep Titanium colour (350 square metres).

COLLABORATION IN DESIGN

“B73 isn't the only project

we've carried out using Corian®,” says STARH's Svetoslav Stanislavov. “So already during the project development phase it was the ideal cladding solution for our design concept. In fact, without Corian® we'd have been unable

STARH

Bulgarian architect Svetoslav Stanislavov is recognized nationwide as one of the most esteemed figures in contemporary architecture. Specializing in residential, hospitality and office architecture on a wide scale of variety he founded STARH, his own practice, in the city of Varna. Recognized for its quality of design, STARH has since the time of its founding created an impressive portfolio of completed projects countrywide. By its work, the studio has successfully exceeded all expectations in affecting the context positively while applying its formula to ever strive for a lasting balance between architectural aesthetics, functionality and quality - stepping out from the design comfort zone to experiment with innovative materials is a key STARH characteristic.



CORIAN® DESIGN

Corian® Design, a division of the DuPont company, is a global organization which creates, manufactures and markets advanced materials, products and solutions for interior design and architecture, originating from a solid foundation of world-class technologies and expertise. Marketed under the Corian® brand and the Make your Space™ tagline, its materials, products and solutions meet the most demanding requirements in terms of beauty, functionality and durability. The Corian® Design global portfolio is continuously evolving and currently includes Corian® Solid Surface, Corian® Quartz, Corian® Endura and Corian® Exteriors.

to achieve these shapes, neither the smooth, sleek look nor the precision of detail.” Stanislavov continues: “The biggest challenge in design and execution was the façade’s ‘swallowtail’ pattern, which comes from the transition between staircase landings and floor slabs. In order to achieve the smooth lines and their accuracy, the ‘swallowtail’ had to be twisted along all axes. This required a complex manufacturing process of thermoforming moulds and then exceptional on-site skills to join these to the other panels of the façade. Thanks to the great engineering skills and professionalism of a trio of companies, namely Soliform, TAL Engineering and Bigla Detail, we were able to achieve extraordinary results, which helped us implement our ideas. Performance-wise, the offer of Thermoformability by Corian® Solid Surface is fundamental. It’s also durable, colour-fast and can be renovated in the event of scratches and graffiti.”

Corian® Solid Surface is the first and only solid surface in the world to be CE-marked for Exterior Cladding. In early 2020, the Corian® Design business completed a European Technical Assessment (ETA) certification process concerning Corian® Solid Surface in collaboration with Deutsches





Photo by Dian Stanchev, all rights reserved.

Institut für Bautechnik (DIBT). This certification means that customers can count on a durable exterior cladding system that will maintain the original high performance for many years ahead.

BEAUTY MEETS VERSATILITY WITH CORIAN® EXTERIORS

Based on Corian® Solid Surface, Corian® Exteriors solutions bring personality to virtually any type of environment while enhancing and facilitating the lives of those who use and enjoy its unique potential. It can be crafted into almost any shape, for any place or purpose, and its availability spans a wide colour range, offering the freedom to design, explore and create. Long-lasting, durable and elegant, such Corian® Exteriors solutions as cladding panels have a three-dimensional formability that has been liberating inventive and artistic minds for over 40 years.

DUPONT

DuPont is a global innovation leader with technology-based materials, ingredients and solutions that help transform both industries, even everyday life itself. Employees apply their diverse science and expertise to help customers advance their best ideas while delivering essential innovations in key markets, including electronics, transportation, construction, water, health and wellness, food and worker safety.

DuPont™, Corian® and the Corian® logo system are all registered trademarks or trademarks of affiliates of DuPont de Nemours Inc. Other logos, trademarks and registered trademarks remain the property of their respective owners.

Corian®

CORIAN®
SOLID SURFACE

www.corian.com

SUPPLIERS GUIDE Yellow Pages

Reserved for advertisers | www.glassonline.com | Reserved for advertisers | www.glassonline.com

COMPANY

website



B SOLUTION
www.bsolutionsrl.com



BANDO KIKO
www.bandoj.com



BEST MAKINA
www.bestmakina.com



EDGETECH EUROPE
www.superspacer.com



FILTRAGLASS
www.filtraglass.com



FOREL
www.forelspa.com



GLASS COMPANY
www.glasscompany.com



GLASTON
www.glaston.net

COMPANY

website



HEGLA
www.hegla.com



HELIOS QUARTZ
www.heliositalquartz.com



MAZZAROPPI ENGINEERING
www.mazzaroppi.com



NEL HYDROGEN
www.nelhydrogen.com



SHANGHAI NORTH GLASS TECHNOLOGY INDUSTRIAL
www.northglass.global



ROLLMAC DIVISION OF GEMATA
www.rollmac.it



TEXPACK
texpack.it



Listing in this section is reserved for advertisers.

FOR FURTHER INFORMATION PLEASE CONTACT OUR ADVERTISING DEPARTMENT.
Tel: +39 - 02 - 6630686

E-mail: publications@glassonline.com • www.glassonline.com

Listing in the "Suppliers Guide - Yellow Pages" is free of charge and reserved to advertisers. Advertisers of this issue are listed on the opening pages of this section, along with their logo, and listed in **bold** on the following pages. The "Suppliers Guide - Yellow Pages" promotes their products and services worldwide.

Glass manufacturing and Processing

FLOAT GLASS

Sisecam

Stocking, handling and movement

COMPLETE STOCKING LINES / ENGINEERING

Cugher Glass
ECOL

Glaston Group Hegla

IOCCO Group
Keraglass
Lisec Group

North Glass Technology

Macotec
MOVETRO
Schiavo
Torgauer Maschinenbau
Tuomas

COMPLETE HANDLING AND MOVEMENT LINES

Bando Kiko

Bottero
Cugher Glass
CMS
ECOL
Forvet

Glaston Group Hegla

IOCCO Group
Keraglass
Lisec Group
Macotec

North Glass Technology

Schiavo
Torgauer Maschinenbau
Tuomas

MACHINES FOR HANDLING GLASS SHEETS

Ashton Industrial Sales

Bando Kiko

Bavelloni
Bottero
CMS
Di Gregorio
ECOL

Forel

Glaston Group

Hegla

IOCCO Group
Italcarrelli
Keraglass

Lisec Group
Macotec
Schiavo
Torgauer Maschinenbau
Tuomas

HANDLING ROBOTS

Ashton Industrial Sales
Bavelloni
Bottero
CMS
ECOL

Hegla

IOCCO Group
Lisec Group
Neptun
Schiavo
Torgauer Maschinenbau
Tuomas

HANDLING EQUIPMENT FOR FLOAT GLASS

Bovone Elett.
Bottero
Di Gregorio
ECOL

Glaston Group Hegla

IOCCO Group
Italcarrelli
Lisec Group
Schiavo
Torgauer Maschinenbau
Tuomas

TROLLEYS AND CLASSIFIERS

CMS
Di Gregorio
Forel

Hegla

Lisec Group
Macotec
MOVETRO
Schiavo
Si.Ste
Tecno Glass
Torgauer Maschinenbau
Tuomas

TRANSPORTATION SYSTEMS/ TRUCKS

Hegla

Italcarrelli
Lisec Group
Schiavo

VACUUM LIFTING EQUIPMENT

Bottero
CMS
Di Gregorio
ECOL
Fenzi
Forel

Glaston Group

Hegla

Lisec Group
Schiavo
Si.Ste
Torgauer Maschinenbau
Tuomas

CRANE SUCTION CUPS FOR LARGE SHEETS

Bottero
Di Gregorio
Fenzi

Glaston Group Hegla

Lisec Group
Schiavo
Tuomas

TRANSPORTATION TONGS

Bottero
Fenzi
IOCCO Group
Schiavo
Tuomas

SUCTION CUPS

ADI - Surface Group
Bottero
CMS
Fenzi

Glaston Group Hegla

Schiavo
Si.Ste
Tuomas

CONVEYOR BELTS

Ashton Industrial Sales
Cugher Glass
Di Gregorio
ECOL

Glaston Group

Schiavo
Tuomas

PACKAGING MATERIALS AND SYSTEMS

ECOL
Hegla
Schiavo
Vismara

ACCESSORIES

Bottero
CMS
Fenzi
Hegla
Helios Quartz
Mole Moreschi
Schiavo
Tuomas

Straight-edge and shape cutting

COMPLETE STRAIGHT-EDGE LINES

Bando Kiko

Bavelloni
Bottero
CMS
Euromec
Forvet

Glaston Group Hegla

Lisec Group
Neptun
Schiavo
Schiatti Angelo
North Glass Technology

COMPLETE SHAPE CUTTING LINES

Bando Kiko

Bavelloni
Bottero
CMS

Glaston Group Hegla

Lisec Group
Macotec
Schiavo
North Glass Technology
Tuomas

AUTOMATIC CUTTING MACHINES FOR AUTOMOTIVE GLASS

Bando Kiko

Bottero
CMS

Glaston Group

IOCCO Group
Lisec Group
Macotec
Schiavo

LOADING AND TILTING MACHINES

Bando Kiko

Bavelloni
Bottero
CMS
ECOL
Euromec

Forel

Glass Company Glaston Group

Hegla

Intermac - Biesse
IOCCO Group
Lisec Group
Macotec
Neptun
Schiavo
Tuomas

CUTTING TABLES

Bando Kiko

Bavelloni
Bottero
CMS
Euromec
Fenzi

Forel

Glaston Group

Hegla

IOCCO Group
Lisec Group
Macotec
Schiavo
Tekno Kilns
Triulzi
Tuomas

CUTTING OPTIMIZERS

Bando Kiko

Bavelloni
Bottero
CMS
Deltamax Automazione
Euromec

Forel

Glaston Group

Hegla

IOCCO Group
Lisec Group
Macotec
Optima
Schiavo
Tuomas

CUTTING PATH OPTIMIZERS

Bando Kiko

Bottero
CMS

Euromec

Glaston Group

IOCCO Group
Lisec Group
Macotec
Optima
Schiavo

CAD SYSTEMS

Bavelloni
CMS
Lisec Group
Prodim
Schiavo

ARMoured AND LAMINATED GLASS CUTTING MACHINES

Bando Kiko

Bavelloni
Bottero
CMS

Glaston Group

Hegla

Lisec Group
Macotec
Schiavo
Tuomas

ROUND OR SHAPE CUTTING MACHINES

Bando Kiko

Bavelloni
Bottero
CMS

Fenzi

Glaston Group

Hegla

Lisec Group
Macotec
Schiavo
Tuomas

CUTTING ACCESSORIES

ADI - Surface Group
Arox

Bando Kiko

Bottero
Fenzi
Lanzetta
IOCCO Group
Macotec
Schiavo
Softeco
Talamoni
Tuomas
Vincent - Surface Group

SAW MACHINES

Di Gregorio
Schiavo
Tecno Glass

AUTOMATIC SAWS FOR CUTTING LAMINATED AND BULLET-PROOF GLASS

CMS
Schiavo

BREAKING SYSTEMS

Bando Kiko

Bavelloni
Bottero
CMS

Euromec

Glaston Group

Hegla

IOCCO Group
Lisec Group
Macotec
Schiavo
Tuomas

CUTTING MACHINES WITH BREAKING AND EDGE DELETING DEVICES

Bando Kiko

Bottero
CMS

Euromec

Glaston Group

Hegla

IOCCO Group
Lisec Group
Macotec
Schiavo
Tuomas

GLASS CUTTING FLUIDS

Schiavo
Tuomas

ACCESSORIES

Schiavo
Schiatti Angelo
Talamoni
Tuomas

Edging and bevelling

COMPLETE EDGING LINES

Adelio Lattuada
Ashton Industrial Sales
B Solution
Bando Kiko
Bavelloni
Bottero
CMS
Forel
Forvet
Hiseng Glass Machinery
IOCCO Group
Neptun
Schiavo
Schiatti Angelo
SKG - Skill Glass

COMPLETE BEVELLING LINES

Adelio Lattuada
Bando Kiko
Bottero
CMS
Hiseng Glass Machinery
IOCCO Group
Schiavo

COMPLETE AUTOMOTIVE GLASS EDGING AND BEVELLING LINES

Adelio Lattuada
Bando Kiko
Bavelloni
Bottero
Glaston Group
Hiseng Glass Machinery
Intermac - Biesse
IOCCO Group

SKG - Skill Glass

DOUBLE-EDGE GRINDING MACHINES

Ashton Industrial Sales

B Solution

Bando Kiko

Bavelloni
Bottero
CMS
Forvet
Hiseng Glass Machinery
Intermac - Biesse
IOCCO Group
Schiatti Angelo

VERTICAL-EDGE GRINDING MACHINES

Adelio Lattuada

B Solution

Bando Kiko

Bavelloni
Bottero
Di Gregorio

Forel

Glass Company

Glaston Group

Hiseng Glass Machinery
Neptun
Schiavo
Schiatti Angelo
SGM - Special Glass Machinery
North Glass Technology
SKG - Skill Glass

GRINDING SPINDLES

Schiavo
Tecno Glass

BEVELLING MACHINES FOR ROUND AND SHAPED GLASS

Adelio Lattuada

Bando Kiko

Bavelloni
CMS
Hiseng Glass Machinery
Intermac - Biesse
Schiavo

STRAIGHT-EDGE BEVELLING MACHINES

Adelio Lattuada

Bando Kiko

Bavelloni
Bovone Elett.
CMS
Glass Company
Hiseng Glass Machinery
Schiavo
Schiatti Angelo

BEVEL POLISHING MACHINES

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

STRAIGHT-EDGE ENGRAVING MACHINES

Bavelloni
 Bottero
 CMS
 Intermac - Biesse
 SKG - Skill Glass

SHAPED GLASS ENGRAVING MACHINES

Bavelloni
 Bottero
 CMS
 Intermac - Biesse

CORNER GRINDING MACHINES

Adelio Lattuada
 Ashton Industrial Sales
B Solution
 Bavelloni
 CMS
 Intermac - Biesse
 SGM - Special Glass Machinery
 SKG - Skill Glass

SHAPED GLASS GRINDING MACHINES

Adelio Lattuada
 Ashton Industrial Sales
Bando Kiko
 Bavelloni
 Bottero
 CMS
Forel
Glass Company
 Hiseng Glass Machinery
 Intermac - Biesse

BELT GRINDING MACHINES

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

LATHES - VERTICAL AND HORIZONTAL

CMS
 Fenzi

EMBOSSING MACHINES

CMS
 Fenzi

PORTABLE MACHINES

Fenzi
Helios Quartz
 Si.Ste
 Tecno Glass

DIAMOND TOOLS

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

DIAMOND BELTS

Mole Moreschi

SEAMING LINES

Ashton Industrial Sales

MANUAL LINES

Ashton Industrial Sales

POLISHING WHEELS

Adelio Lattuada
 ADI - Surface Group
Bando Kiko
 Bovone Diamond Tools
 Diamut - Biesse
 Fenzi
Glaston Group
 Italmole
 Marrose Abrasives
 Mole Moreschi
 RBM Italia - Surface Group
 Schiavo
 Si.Ste
 Vincent - Surface Group

POLISHING AGENTS AND OXIDES

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

POLISHING BELTS

Di Gregorio
 Fenzi
 Schiavo
 Si.Ste

COOLANTS

Adelio Lattuada
 Bovone Diamond Tools
 Fenzi
 Schiavo

GLASS GRINDING AND BEVELLING COOLANTS

Schiavo

SEPARATORS FOR GLASS-SOLIDS

Ashton Industrial Sales
 Dieffe Macchine
Filtraglass
 Schiavo
 Vitrosep

ACCESSORIES

ADI - Surface Group
 CMS
 Fenzi
Helios Quartz
 IOCCO Group
 Lanzetta
 Mole Moreschi
 Schiavo
 Schiatti Angelo
 Vincent - Surface Group

Washing

HORIZONTAL WASHING MACHINES

Ashton Industrial Sales
Bando Kiko
 Bavelloni
 Bovone Elett.
 Di Gregorio
 ECOL
Forel
Glass Company
Glaston Group
 Hiseng Glass Machinery
 IOCCO Group
 Lisec Group
 Neptun
 Schiavo
 SGM - Special Glass Machinery
 Si.Ste
 Triulzi

VERTICAL WASHING MACHINES

Adelio Lattuada

Ashton Industrial Sales
 Bavelloni
Best Makina
 Di Gregorio
 ECOL
Forel
Glass Company
Glaston Group
 Hiseng Glass Machinery
 IOCCO Group
 Lisec Group
 Neptun
 Schiavo
 SGM - Special Glass Machinery
North Glass Technology
 Si.Ste
 S.T. Group
 Stefiglass
 Triulzi

WASHING MACHINES FOR AUTOMOTIVE GLASS

Bando Kiko
 ECOL
Glaston Group
 IOCCO Group
 Triulzi
WASHING PURIFICATION SYSTEMS

Dieffe Macchine
Forel
Glass Company
Glaston Group
 IOCCO Group
 Schiavo

LIQUID WASHING CONCENTRATES

Schiavo

ACCESSORIES

Helios Quartz
 Idrotecnica
 Neptun
 Schiavo
 S.T. Group

Mirror production

COMPLETE PLANTS & CONVEYORS FOR MIRROR PRODUCTION

Bovone Elett.
 IOCCO Group
 Triulzi

PAINTING EQUIPMENT

Fenzi
 IOCCO Group
 Triulzi

DRYING OVENS

Bovone Elett.
CMS

AUTOMOTIVE MIRROR BENDING FURNACES

Bovone Elett.

MANUAL SILVER- SPRAYING EQUIPMENT

Fenzi
Glass Company

PAINTS AND CHEMICAL PRODUCTS

Fenzi

ACCESSORIES

Fenzi
Helios Quartz

Insulating glass

COMPLETE INSULATING GLASS LINES

Ashton Industrial Sales
Bavelloni
Best Makina
Di Gregorio
Forel
Glass Company
Glaston Group
Neptun
Schiavo
SGM - Special Glass Machinery
S.T. Group
Thermoseal Group
Triulzi

AUTOMATIC SEALING LINES

Bavelloni
Forel
Glaston Group
Lisec Group
S.T. Group

AUTOMATIC SPACER BENDING MACHINES

Bavelloni
Best Makina
Fenzi
Forel
Glaston Group
IOCCO Group
Lisec Group
Schiavo
S.T. Group

Thermoseal Group

DESICCANT SALT FILLING MACHINES

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

SPACER CUTTING SAWS

Ashton Industrial Sales
Bavelloni
Best Makina
Di Gregorio
Fenzi
Forel
Lisec Group
Neptun
Schiavo
S.T. Group
Tecno Glass
Thermoseal Group

BUTYL EXTRUDERS

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

HOT-MELT EXTRUDERS

Bavelloni
Best Makina
Di Gregorio
Fenzi
Forel
Lisec Group
Neptun
Schiavo
Si.Ste
Stefani
S.T. Group

Tecno Glass
Thermoseal Group
Triulzi

POLYURETHANE EXTRUDERS

Bavelloni
Best Makina
Fenzi
Forel
Glaston Group
Lisec Group
Schiavo
S.T. Group
Tecno Glass

POLYURETHANE ENCAPSULATION

Glaston Group
Lisec Group
Schiavo

SILICONE EXTRUDERS

Best Makina
Di Gregorio
Fenzi
Forel
Glaston Group
Lisec Group
Schiavo
S.T. Group
Tecno Glass
Triulzi

POLYSULPHIDE SEALANT EXTRUDERS

Best Makina
Fenzi
Forel
Glaston Group
Lisec Group
Schiavo
Stefani
Tecno Glass
Triulzi

GAS FILLING EQUIPMENT

Di Gregorio
Fenzi
Forel
Glaston Group
Lisec Group
Neptun
Schiavo
Si.Ste
Sparklike
Stefani
S.T. Group
Tecno Glass
Thermoseal Group

DESICCANT SALTS

Ashton Industrial Sales
Di Gregorio

Fenzi
Neptun
Schiavo
Stefani
S.T. Group
Tecno Glass
Thermoseal Group

SPACERS/PROFILES

Ashton Industrial Sales
Edgetech Europe
Fenzi
Schiavo
S.T. Group
Tecno Glass
Thermoseal Group

GEORGIAN BARS

Ashton Industrial Sales
Hegla
Tecno Glass
Thermoseal Group

BUTYL

Ashton Industrial Sales
Fenzi
Stefani
Thermoseal Group

POLYSULPHIDE SEALANTS

Fenzi
Stefani

HOT MELT

Ashton Industrial Sales
Fenzi
Stefani
Thermoseal Group

OTHER SEALANTS

Fenzi
Stefani

PANTOGRAPHS

Fratelli Pezza

ACCESSORIES

Ashton Industrial Sales
Deltamax Automazione
Forel
Helios Quartz
Schiavo
Sparklike
Stefani
S.T. Group
Triulzi

Tempering

TEMPERING FURNACES (ARCHITECTURAL GLASS)

Glass Company

Glasstech Inc.
Glaston Group
 Hornos Industriales Pujol
 Jinglass
 Keraglass
 Landglass Technology
 Lema
 Lisec Group
 Mappi International
 Schiavo
North Glass Technology
 Tekno Kilns
Texpack

TEMPERING FURNACES (AUTOMOTIVE GLASS)

Glass Company
 Glasstech Inc.
Glaston Group
 Jinglass
 Keraglass
 Landglass Technology
 Mappi International
Mazzaroppi Engineering
 Satinal Spa
 SGLASS
North Glass Technology
 Taifin
Texpack

CHEMICAL TEMPERING EQUIPMENT

Glass Company
 R.C.N. Solutions

ROBOT FOR CLEANING SILICA ROLLERS

Eurotech Way

ACCESSORIES

Deltamax Automazione
 Fenzi
Glass Company
Glaston Group
Helios Quartz
 Hornos Industriales Pujol
 Keraglass
 Landglass Technology
 Mappi International
Mazzaroppi Engineering
 R.C.N. Solutions
 Satinal Spa
 SGLASS
 Taifin
 Tekno Kilns
 Torgauer Maschinenbau

Bending

BENDING FURNACES (ARCHITECTURAL GLASS)

Hornos Industriales Pujol

Jinglass
 Keraglass
 Mappi International
Mazzaroppi Engineering
 R.C.N. Solutions
 SGLASS
 Tekno Kilns
Texpack

BENDING FURNACES (AUTOMOTIVE GLASS)

Glass Company
 Glasstech Inc.
Glaston Group
 Jinglass
 Keraglass
 Mappi International
Mazzaroppi Engineering
 R.C.N. Solutions
 Satinal Spa
 Si.Ste
 Taifin
Texpack

ACCESSORIES

Ayrox
 Deltamax Automazione
Glass Company
 Glasstech Inc.
Glaston Group
 Hornos Industriales Pujol
 Keraglass
 Mappi International
 Satinal Spa
 Softeco
 Tekno Kilns

Laminated glass production

COMPLETE PLANTS

Bovone Elett.
 Bottero
Forel
Glass Company
Glaston Group
 Hornos Industriales Pujol
 IOCCO Group
 Lisec Group
Mazzaroppi Engineering
 R.C.N. Solutions
 Satinal Spa
 Si.Ste
Texpack
 Triulzi

LAMINATED WINDSCREEN BENDING FURNACES

ECOL
Glass Company
 Glasstech Inc.
Glaston Group
 Keraglass
 Mappi International

Taifin
Texpack

AUTOCLAVES

Bürkle
Glass Company
Glaston Group
 Hornos Industriales Pujol
 Lisec Group
 Triulzi

AUTOCLAVE-FREE LAMINATED GLASS PRODUCTION

Bürkle

CLIMATIC CABINS

Forel
Glaston Group
 IOCCO Group
 Lisec Group
 Triulzi

INFRARED OVENS

ECOL
Forel
Glass Company
Glaston Group
 Hornos Industriales Pujol
 IOCCO Group
 Lisec Group
 Satinal Spa
 SGLASS
 Triulzi

PRESSES/BENDING MACHINES

Forel
 IOCCO Group
 Lisec Group
 Triulzi

RESIN LAMINATING MATERIALS AND EQUIPMENT

IOCCO Group
 Satinal Spa
 Torgauer Maschinenbau

EVA (ETHYLENE VINYL ACETATE)

Satinal Spa

PVB

Everlam
 Kuraray - Trosifol

PVB - SHAPING AND CUTTING EQUIPMENT

Ayrox
 ECOL
Forel
Glaston Group
 IOCCO Group
 Lisec Group
 Softeco

PVB - WIRING TECHNOLOGY FOR HEATABLE LAMINATES

Ayrox
 ECOL
 Softeco

ACCESSORIES

Ayrox
 Bottero
 Deltamax Automazione
 Eurotech Way
Glaston Group
Helios Quartz
 Hornos Industriales Pujol
 IOCCO Group
 Lisec Group
 Satinal Spa
 Softeco
 Taifin
 Triulzi

Drilling

AUTOMATIC DRILLING LINES

B Solution
Bando Kiko
 Bavelloni
 Forvet
Glaston Group
 Intermac - Biesse
 IOCCO Group
 Neptun
 Schiatti Angelo
 SKG - Skill Glass
 Vismara

MULTI-SPINDLE DRILLING MACHINES

B Solution
Bando Kiko
 Bavelloni
 CMS
 Forvet
Glass Company
Glaston Group
 Intermac - Biesse
 IOCCO Group
 Neptun
 Schiavo
 Schiatti Angelo
 SKG - Skill Glass
 Vismara

DRILLING MACHINES WITH OPPOSITE DRILLING HEADS

B Solution
Bando Kiko
 Bavelloni
 Bottero
 CMS
 Di Gregorio
 Fenzi
 Forvet

Glaston Group

Hiseng Glass Machinery
Intermac - Biesse
IOCCO Group
Neptun
Schiavo
Schiatti Angelo
SKG - Skill Glass
Vismara

COLUMN DRILLING MACHINES

B Solution

Bottero
Di Gregorio
Fenzi
Neptun
Schiavo
Si.Ste
Vismara

PORTABLE DRILLING MACHINES

CMS
Fenzi
Schiavo
Si.Ste

DRILLING AND MILLING MACHINES

Bavelloni
Bottero
CMS
Forvet
IOCCO Group
Neptun
Schiavo
SGLASS
Vismara

DIAMOND DRILLS

ADI - Surface Group
Bovone Diamond Tools
Diamut - Biesse
Fenzi
Glaston Group
Lanzetta
Mole Moreschi
Neptun
Schiavo
Si.Ste
Vincent - Surface Group

ACCESSORIES

CMS
Fenzi
Neptun
Schiavo
Si.Ste

Other equipment and plants

TURNKEY PLANTS / ENGINEERING - FOR BUILDING GLASS

Bando Kiko

Bottero
Cugher Glass
Glaston Group
Horn
Intermac - Biesse
IOCCO Group
Keraglass
Lisec Group
Torgauer Maschinenbau

TURNKEY PLANTS / ENGINEERING - FOR AUTOMOTIVE GLASS

Bando Kiko
Bottero
Cugher Glass
Horn
Glaston Group
Intermac - Biesse
IOCCO Group

KEY PLANTS / ENGINEERING - FOR DISPLAY GLASS

Bando Kiko
Cugher Glass
Torgauer Maschinenbau

EDGES ROLLER COATING MACHINE

Eurotech Way

WORK CENTRES - CNC CONTROLLED

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

FLOAT PLANTS/LINES (EQUIPMENT & ACCESSORIES)

Bovone Elett.
Horn
IOCCO Group

CULLET HANDLING SYSTEMS

ECOL

COMPLETE BATCH PLANTS

Zippe

VACUUM COATING EQUIPMENT AND PLANTS

Glass Company
North Glass Technology

ENAMELLING EQUIPMENT AND PLANTS

Glass Company
Rollmac division of GeMaTa

DRYERS AND ENAMELING FURNACES

Bürkle

SPRAYING TECHNOLOGY

Bürkle

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

Bürkle

SANDBLASTING SYSTEMS, EQUIPMENT AND PLANTS - OPTIMIZERS

Di Gregorio
Fenzi
Fratelli Pezza
Glass Company
Schiavo
SKG - Skill Glass

DIGITAL INKJET PRINTERS

Glass Company
System Ceramics

SCREEN PRINTING EQUIPMENT AND PLANTS

Ayrox
COMSS
Cugher Glass
Deltamax Automazione
ECOL
Eurotech Way
Glass Company
Keraglass
Rollmac division of GeMaTa
North Glass Technology
Softeco

SCREEN PRINTING FRAMES

COMSS

SCREEN PRINTING DRYING SYSTEMS

COMSS
Cugher Glass
Glass Company
Rollmac division of GeMaTa

ACIDING GLASS EQUIPMENT AND PLANTS

Lisec Group

Rollmac division of GeMaTa

LASER DECORATING MACHINES

Ashton Industrial Sales
Glass Company

LASER MARKING

Ashton Industrial Sales

Artistic glass production

CERMAMIC INKS

Glass Company

CHAMBER ELECTRIC KILNS

Glass Company
Keraglass
Tekno Kilns

ACCESSORIES

Deltamax Automazione
Helios Quartz

CUTTERS

Si.Ste

CUTTING WHEELS

Si.Ste

MANUAL GRINDING MACHINES

Di Gregorio

UV ADHESIVES

Si.Ste

Miscellaneous

ADHESIVES FOR GLASS BONDING

Si.Ste

AUTOMATION

Ashton Industrial Sales
Horn
IOCCO Group
Torgauer Maschinenbau
Zippe

AUTOMOTIVE GLASS APPROVAL SERVICES

Ayrox

Softeco

AUTOMOTIVE GLASS QUALITY CONTROL

Ayrox
Bando Kiko
 Cugher Glass
 Deltamax Automazione
Glaston Group
 IOCCO Group
 Softeco

CE MARKING - QUALITY CONTROL EQUIPMENT FOR GLASS IN BUILDING

Ayrox
 Softeco

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

Bürkle

COLOURS & ENAMELS - OTHER APPLICATIONS

Ayrox

DEIONIZING AND WATER SOFTENING EQUIPMENT

Fenzi
Forel
Glass Company
 Idrotecnica
 Lisec Group
 Triulzi

FLAT GLASS QUALITY CONTROL DEVICES

Ayrox
 Deltamax Automazione
Forel
 IOCCO Group
 Softeco

FURNACES

Glass Company
 Horn
Texpack

FURNACES / HYDROGEN GENERATORS (WATER ELECTROLYSERS)

Nel Hydrogen

GLASS COATING AND TINTING

Bürkle
Glass Company
Rollmac division of GeMaTa

GLASS TREATMENT FILMS

Glass Company

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

Horn
 Keraglass
Texpack

HINGES FOR GLASS DOORS

Si.Ste

METAL ACCESSORIES

Si.Ste

INFRARED TUBES

Helios Quartz
 Deltamax Automazione

KILNS

Glass Company
 Keraglass
 Lisec Group
 Tekno Kilns
 Fenzi

METALLIC SECTIONS

Fenzi

NUMERICAL CONTROL SYSTEM (CNC) FOR ALL GLASS PROCESSING MACHINES

Glass Company
 IOCCO Group
 Prodim

OPTICAL DISTORTION ANALYSERS FOR AUTOMOTIVE GLASS

IOCCO Group
 Keraglass

OPTICAL INFRARED THERMOMETERS

Optris

POWDER OR LIQUID APPLICATION SYSTEMS FOR PROTECTING FLOAT GLASS

Cugher Glass
Glass Company

PUMPING AND APPLICATION SYSTEMS (AUTOMOTIVE GLASS)

IOCCO Group

PURIFIERS FOR REFLUENT WATER

Dieffe Macchine

PUTTIES AND SEALANTS

Fenzi

QUARTZ EQUIPMENT

Helios Quartz

SHAPE CHECKING DEVICES

IOCCO Group

SHOWER ENCLOSURES

Vismara

SIC HEATERS

Helios Quartz

SOFTWARE SYSTEMS FOR PRODUCTION CONTROL

A+W Software
 CMS
 Cugher Glass
 Deltamax Automazione
Edgetech Europe
Forel
 Lisec Group
 Optima
 Prodim

SOLDERING EQUIPMENT FOR ELECTRICAL CONNECTORS FOR WINDSCREENS AND BACKLITES

Ayrox
 Softeco

SORTING SYSTEMS

Glaston Group
 Lisec Group

SURFACE STRESS MEASUREMENT INSTRUMENT

Ayrox
Glass Company

TESTING FOR SOLDERINGS

Ayrox
 Softeco

TESTING DEVICES OF BACKLITES ELECTRICAL HEATING

Ayrox
 Softeco

THERMAL IMAGING SYSTEMS

Glass Company
 Optris

TIN FLOAT BATH FURNACES

Horn
 IOCCO Group

UV LAMPS

Helios Quartz

UV PORTABLE MACHINES

Helios Quartz



[click here](#)

SUBSCRIBE NOW TO THE WORLD'S LEADING

Glass Magazines



1988



GLASS MACHINERY PLANTS & ACCESSORIES is the leading international magazine for glass manufacturing, and is targeted at glassworks involved in the production and processing of hollowware and special glass (bottles, containers, household, lighting, technical, scientific, industrial and medical glassware).

GLASS MACHINERY PLANTS & ACCESSORIES is a bi-monthly periodical with about 100 pages of product news, current world news, focus on..., technical articles and dossiers, worldwide exhibitions, glassworks in the world, Yellow Pages, etc.

Annual Guides



1989



GLASS-TECHNOLOGY INTERNATIONAL is the leading international magazine for professionals involved in the flat and bent glass industry, from building to automotive, and from furniture to household appliances. **G-TI** is useful for those working in float glass plants as well as glass processors/fabricators, glazing contractors, automotive glass installers, window and door manufacturers, glass merchants, wholesalers, etc. With about 100 pages per issue, it is the bi-monthly tool for keeping abreast of new technology, new products, company life and all innovations in the world of flat and bent glass.



1990



The **GLASS INDUSTRY DIRECTORY** is a unique international annual guide which gives a complete overview of international glassworks and suppliers involved in hollowware and special glass manufacturing. About 300 pages of complete company profiles: addresses, management, sister companies, plants, number of employees, turnover, banks, year of company foundation, capital, trademarks, areas of activity, innovations, product-by-product and country-by-country breakdowns. The **GLASS INDUSTRY DIRECTORY** is the annual reference point for the international glass manufacturing industry comprising bottles and containers, domestic glassware, tubing, vials and ampoules, lighting glassware, technical and industrial glassware, scientific, laboratory and medical glassware and much more.



2013



The **FLAT GLASS WORLD DIRECTORY** is a unique international annual guide providing a complete overview of glassworks and suppliers for the flat glass sector. More than 150 pages of company profiles and information about worldwide glassmakers, glass processors and suppliers, including addresses, management, sister companies, plants, number of employees, turnover, banks, year of company foundation, capital, trademarks, areas of activity, innovations, sales network, exhibitions, and, of course, interactivity in digital format, make the **FLAT GLASS WORLD DIRECTORY** the annual reference point for the international flat glass industry.

10% DISCOUNT

FOR MULTIPLE SUBSCRIPTIONS

Digital Media

1996



The World's Leading Glass Industry Website

WWW.GLASSONLINE.COM



PRINT & DIGITAL

VIDEO INTERVIEWS



SECTOR PUBLICATIONS

Subscription order form

ALL OF OUR PUBLICATIONS ARE ALSO AVAILABLE IN DIGITAL FORMAT FREE-OF-CHARGE

- I wish to subscribe for **ONE YEAR** (6 issues) at **€ 130,00**, air mail included
- I wish to subscribe for **TWO YEARS** (12 issues) at **€ 220,00**, air mail included
- Please **SEND ME** no. back copy/ies of issue no. year (single copy **€ 29,00** post free)



- I wish to subscribe for **ONE YEAR** (6 issues) at **€ 130,00**, air mail included
- I wish to subscribe for **TWO YEARS** (12 issues) at **€ 220,00**, air mail included
- Please **SEND ME** no. back copy/ies of issue no. year (single copy **€ 29,00** post free)



- Please **SEND ME** no. back copy/ies of this year's edition at the price of **€ 30,00** each, air mail included



- Please **SEND ME** no. back copy/ies of this year's edition at the price of **€ 30,00** each, air mail included



PAYMENT

**FOR ORDERS SENT BY EMAIL,
PLEASE COMPLETE THE FORM BELOW
PAYMENT BY BANK CREDIT TRANSFER ONLY**

BANK CREDIT TRANSFER payable to
A151 srl has been sent to
A/c No. 100000067167
BANCA INTESA SANPAOLO SPA, Agenzia 353
Milano (MI), Italy
Bank coordinates:
ABI 03069 - CAB 01603 - CIN N
Swift code: BCITITMM
IBAN code: IT 43 N 03069 01603 100000067167

Name

Job Title

Company

Street

Post Code City

Country

Tel. (int. + /)

Fax

E-mail

www.

**ALL COMPANIES MUST ENTER: VAT
OR UST ID / FISCAL ID / TAX ENROL /
FEDERAL IDENTIFICATION /
COMPANY REGISTRATION NUMBER
NUMBER:**

PLEASE TYPE OR PRINT IN CAPITAL LETTERS

N.B. AFTER RECEIPT OF PAYMENT WE WILL SEND YOU AN INVOICE. ALL BANK TRANSFERS MUST INCLUDE YOUR COMPLETE COMPANY ADDRESS AND THE MAGAZINE TITLES OR THE SERVICES REQUESTED. PLEASE ALSO NOTE THAT A151 SRL IS NOT RESPONSIBLE FOR ANY BANK EXPENSES, COMMISSION OR OTHER COSTS.

Date Signature

**SEND BY FAX OR EMAIL TO:
+39 - 02 - 66305510
publications@glassonline.com**

TOTAL €

TOTAL PRINTED GLASS PUBLICATIONS €

TOTAL, LESS 10% DISCOUNT (FOR MULTIPLE SUBSCRIPTIONS) €



DEM

- Direct E-mail Marketing

SOCIAL MEDIA

Glass Industry

network



A151 Srl - Via Antonio Gramsci, 57
20032 Cormano (Milano) - Italy
Tel.: +39 - 02 - 66306866
E-mail: publications@glassonline.com
www.glassonline.com

ACCELERATING NEW TECHNOLOGIES IN GLASS PROCESSING



After a resounding success at the first post pandemic edition, Zak returns to New Delhi with the 19th edition of India's leading expo on glass processing and its allied technologies. Be a part of the display of latest advancements in the field with industry pioneers.

01-03 DEC 2022
PRAGATI MAIDAN
NEW DELHI



Organised by: ZAK TRADE FAIRS & EXHIBITIONS PVT. LTD.
For enquires contact: Sulaiman Khan | +91 98999 52189
skhan@zakgroup.com | www.zakglasstech.com
Follow us on: [f](#) | [t](#) | [i](#) /zakglassexpo #zakgte

CONCURRENT SHOWS





CHINA GLASS 2022

32nd China International Glass Industrial Technical Exhibition

Shanghai New International Expo Centre

13-16th April, 2022

Organizer: The Chinese Ceramic Society
Supporter: Shanghai Ceramic Society
Contractor: Beijing Zhonggui Exhibition Co., Ltd.

Tel: +86-10-57811261, 57811409
Fax: +86-10-57811262
E-mail: ceramsoc@chinaglass-expo.com
<http://www.chinaglass-expo.com>



WeChat ID: CHINAGLASSEXPO

FOREL

THERMOPLASTIC SPACER APPLICATOR
ART. TA

WATCH THE NEW VIDEO!



www.forelspa.com



The new ThermoPlastic Spacer Applicator Art. TA by Forel has been developed to perfectly position the product, on the basis of two key principles: **productivity and ease of use.**

This solution already includes all the most widely used production settings and the various options for thermoPlastic products: the interface it's simple, intuitive and user-friendly. According to the production schedule entered in the line server, the Applicator automatically adjusts all the working parameters involved, proceeding quickly and reliably.