

Glass-Technology International

November/December

Year 22 - No. 6/2011

THE LEADING MAGAZINE FOR THE INTERNATIONAL FLAT GLASS INDUSTRY

AGENTS GUIDE 2012

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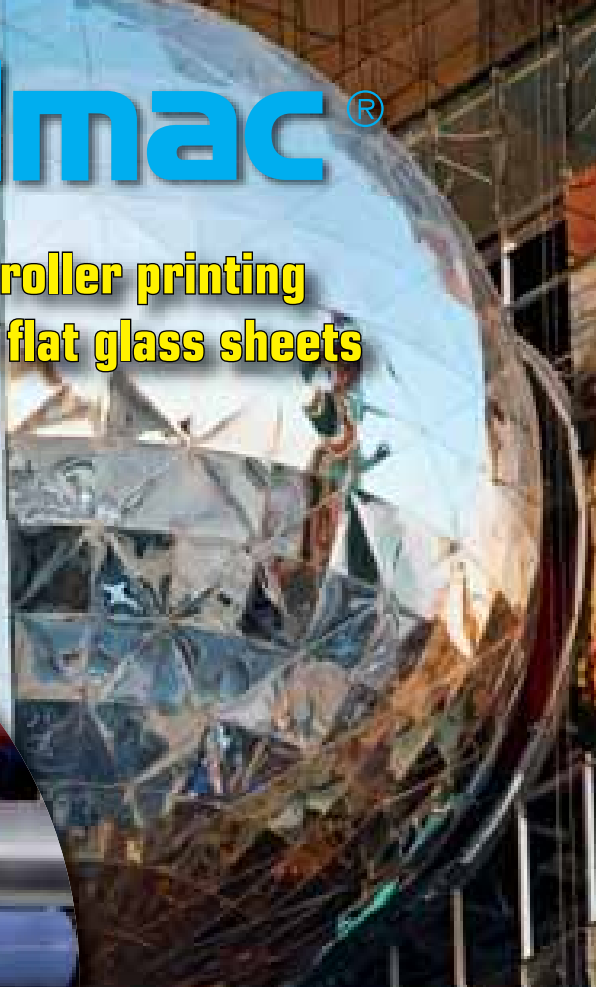
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- buffer for multiple loading with travelling feeder underneath
- variable height transport conveyor in the buffer system
- TWIN output shuttle with two air cushioned slots
- bypass conveyor for externally processed glass
- glass dimensions
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- production sequence for triple glazing provided
by the output-shuttles' second slot
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the dynamic input-shuttle,
loading panes to the buffer



the TWIN output shuttle,
providing panes just in sequence



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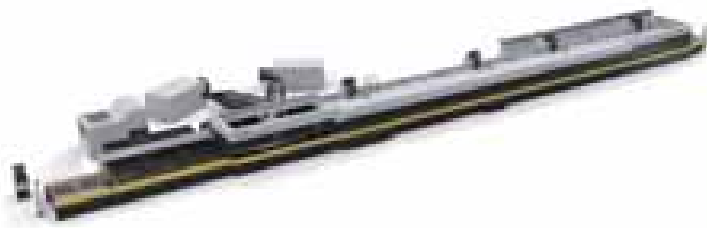
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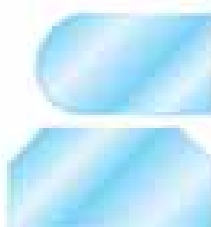
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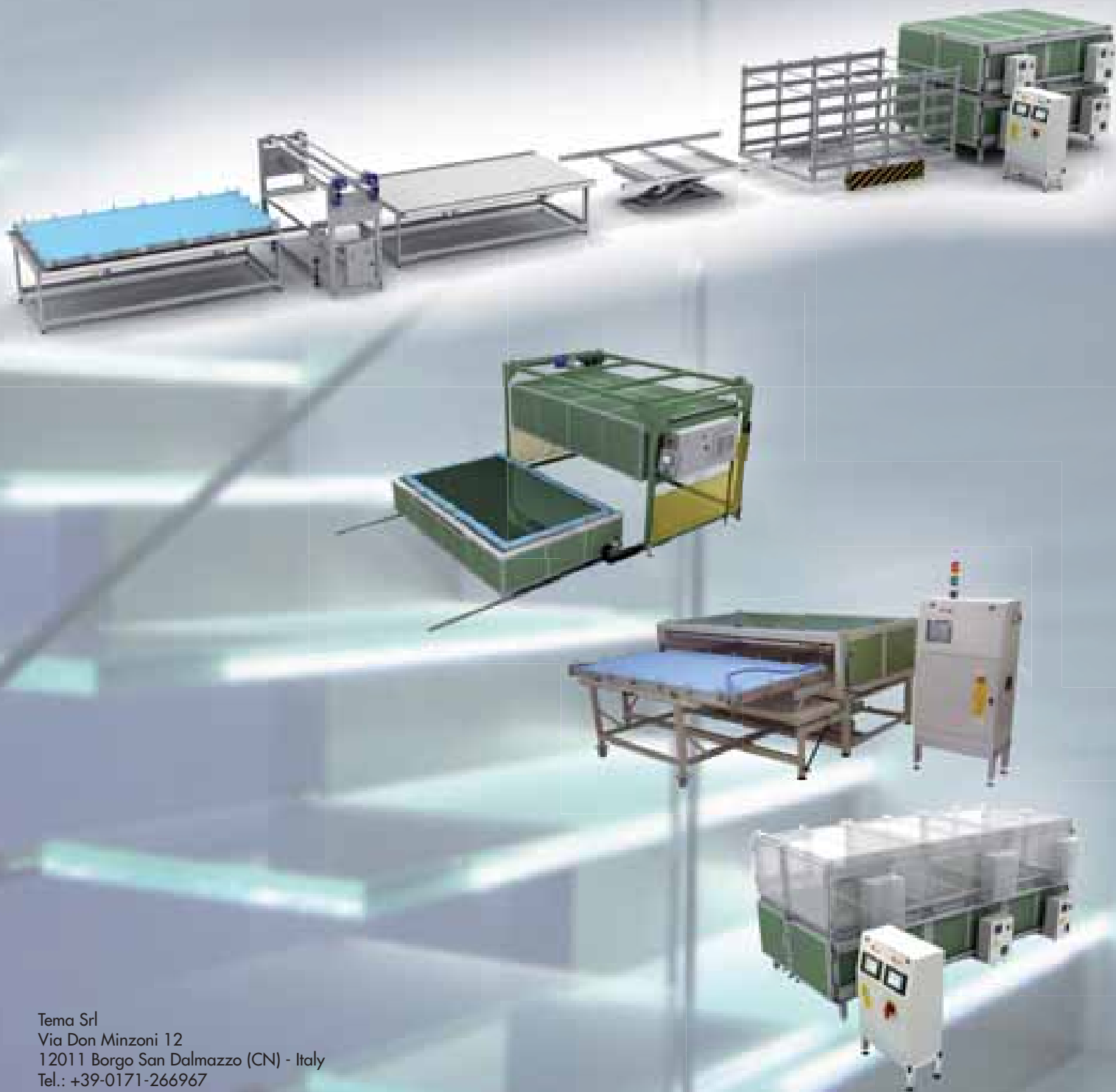
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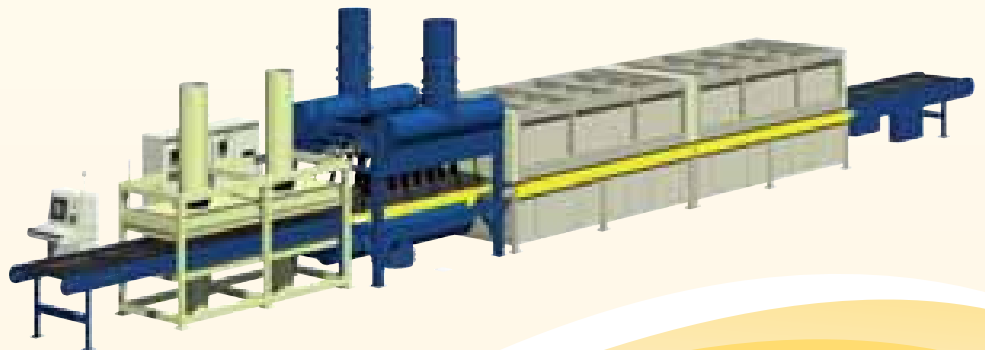
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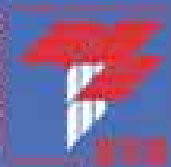
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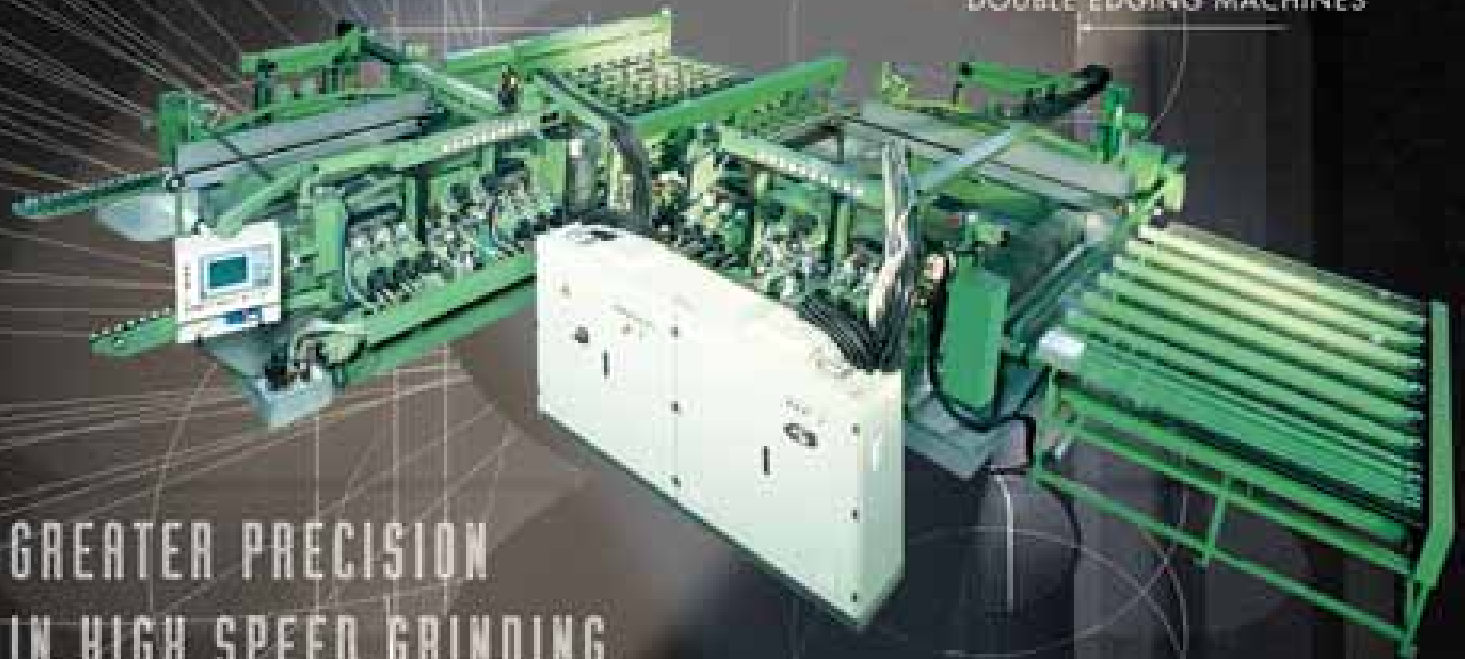
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PUBLISHER/EDITOR-IN-CHIEF

Marco Pinetti
marco.pinetti@glassonline.com

ASSOCIATE EDITOR

Valerie Anne Scott
valerie.scott@glassonline.com

CONTRIBUTING EDITOR

Jennifer Pressman

ADVERTISING

Italy
Maurizio Lozza
maurizio.lozza@glassonline.com

Worldwide
Luciano Molina
luciano.molina@glassonline.com

GRAPHIC DEPARTMENT

Sonia Previato
sonia.previato@glassonline.com
Elisabetta Turani
betty.turani@glassonline.com

SUBSCRIPTIONS

Magazines
Elisa Ronchi
publications@glassonline.com
glassonline.com
Barbara Maresca
services@glassonline.com

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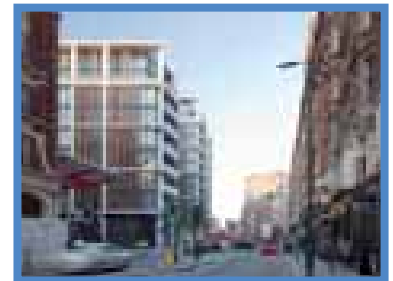


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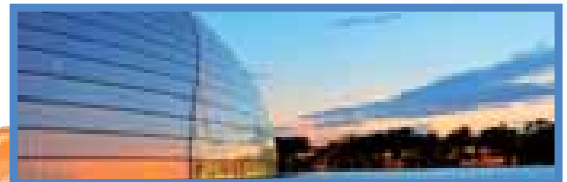
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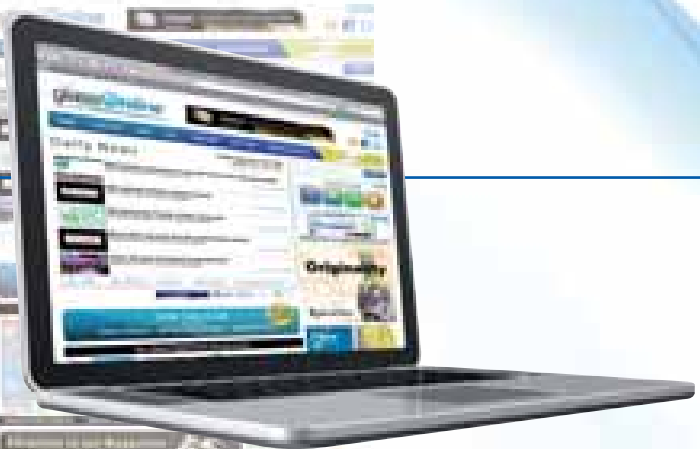
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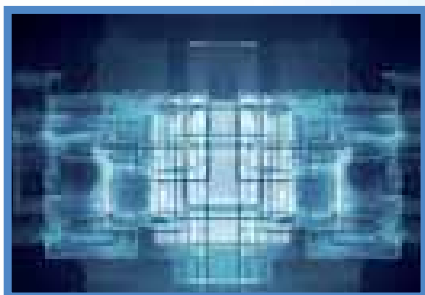
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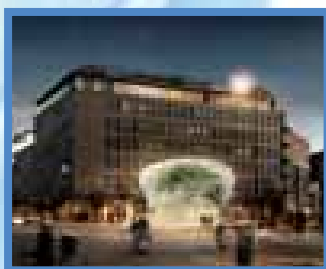
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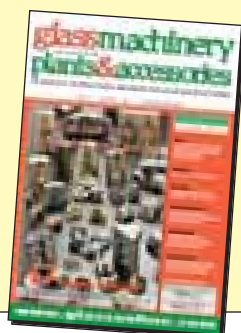
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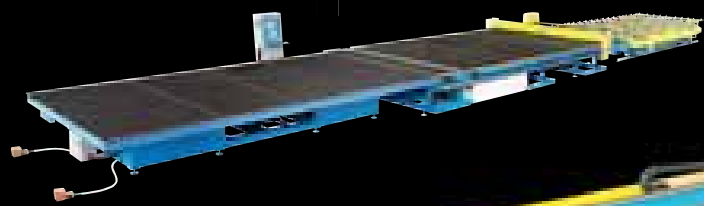
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UKRAINE energy-saving glass production



The Ukraine Ministry of Regional Development and construction of housing and communal services is reportedly ready to support four large-scale investment project aimed at reducing the Ukrainian market's dependence on imports of building materials, including those related to the production of energy-saving glass.

The Ukraine is said to be ready to take an equal partnership with public and private capital in the following projects: construction of enterprises for the production of energy-efficient windows, reconstruction of a plant for making cement, building a plant for the production of cement clinkers and increased production of composite materials.

Moreover, in connection with these plans in Ukraine, the Ministry also took a course in developing regulatory frameworks with high demands on operating characteristics of building materials.

Energy-saving glass in double-glazing is an important element of modern energy-efficient homes. Most governments today have advocated the introduction of

energy efficient technologies in buildings, creating a stable civilized approach to conservation of our planet's resources.

GLASS TEXPO 2012 event to take place in San Antonio



Glass TEXpo™ will return to San Antonio, Texas, at the El Tropicano Riverwalk Hotel, 12-13 April 2012. The event, which is co-sponsored by the *Texas Glass Association* and *USGlass, Door & Window Manufacturer* and *Window Film* magazines, will consist of two days of educational seminars and exhibitions for the architectural glass industry with prime networking events. The event will start on 11 April with a Texas Glass Association golf tournament, while Glass TEXpo™ attendees will be able to meet and greet at the Glass TEXpo™ welcoming cocktail party on 12 April.

Fenestration Day™ 2012 will be co-located with Glass TEXpo on 12 April, thus also providing fenestration specific educational sessions.

DIGIGLASS official reseller named



DigiGlass has appointed *EURO Windowfilm AB* as the official reseller of its innovative products in Sweden. This appointment follows a number of key strategic reseller appointments around the world to meet the growing demand for the company's commercial printed window film.

Per Järnebrink, managing director of *EURO Windowfilm AB* commented, "We found DigiGlass during a search for groundbreaking, innovative products within our field of expertise. With a drive towards a greener future the opportunity DigiGlass provides to upgrade existing windows is a perfect fit."

Dave Macdonald, managing director of DigiGlass added, "Having a strategic partner in Sweden opens up a huge potential market to DigiGlass. Our decorative window film offers a number of energy saving and security benefits that will certainly appeal to the Scandinavian market." He went on to say, "EURO Windowfilm AB are a growing and well respected provider of window film in Sweden. We are delighted that they have approached us to become an official reseller of DigiGlass and we're looking forward to a long and successful working relationship."

FA GLASS UAE custom built factory




Future Architectural (FA) Glass, a joint venture between Singapore conglomerate Lim Fa and Indian glass processing group *Fishfa*, has invested in a custom built factory based in Ras Al Khaimah in the United Arab Emirates. The facility incorporates British and European technology, including: a *Hegla Optimax* Cutting Table with auto loading; *Forvet* CNC; *Busetti* double edge polishing; *Lisec* Sealing Line; *Lisec* Spacer Bender; and a fully automatic *SeamMaX-X* arising line.

FA Glass also chose *Jotika Software*, specifying *Jotika's Gtrak3* and *OptimiserX* products so as to make the best use of the new factory and manage enquiries and sales orders.

The standard *Gtrak3* quotation entry product was adapted to allow for cost estimations, meeting the needs of the unique pricing methods. Each job or project is priced individually, taking into account material costs, labour costs, breakage factor, predicted waste and profit margin, among other factors.

VIRACON president named

 Officials from **Viracon** have, according to a company release, named Kelly S. Schuller as president. Schuller, who served as Viracon senior vice president, sales and marketing since 2010, reports to Joseph F. Puishys, chief executive officer of *Apogee Enterprises*, parent company of Viracon.

“Since joining Viracon last year, Kelly has led development of its strategic plan which focuses on the values that have historically made Viracon a great choice for architecturally-significant commercial buildings, including industry leading quality, new product development, architectural design assistance, and complete and on-time delivery,” Puishys said in the release. “At the same time, he has spearheaded Viracon’s efforts to expand its international presence, and has successfully managed operations of its recently acquired Brazilian subsidiary.

Before joining Viracon, Schuller served as Apogee

vice president, strategy and business development for four years, working with Apogee’s executives and board, and was responsible for two architectural segment acquisitions, including the Brazilian architectural glass business. He also worked with Apogee’s three largest business units, including with Viracon on its international operations strategy. Prior to starting with Apogee in 2006, he held operational positions within United Health Group, Innovex and Pillsbury; as well as with McKinsey & Company and Ernst & Young.

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BENEQ

2011 Millennium Distinction Award



Beneq has been presented with the Millennium Distinction Award, an accolade presented by Technology Academy Finland (TAF) to Finnish scientists and growth companies for outstanding technological achievements in the field of the most recent Millennium Technology Prize Winner.

The 2010 Millennium Technology Prize was won by Professor Michael Grätzel for his invention of dye-sensitized solar cells, and hence, the 2011 Millennium Distinction Awards were presented to scientists and companies working in the solar energy sector.

The Millennium Distinction Awards celebrate Finnish innovations and technological achievements. The selection process involves several criteria including pioneering work in research or business activities, distinguished contributions to higher education and significant achievements in the commercialization of innovations based on new technologies.

Beneq CTO Tommi Vainio said: "This prize is a great honour and we are grateful to Technology Academy Finland for being acknowledged in this way. The award itself serves two causes for Beneq. On the one hand it con-

firms that the hard work we have behind us, six incredible years of growth, innovation and discovery, have been successful. On the other hand, it is a promise for the future, a definite piece of evidence that the route we have chosen is the right one."

Ainomaija Haarla, President and CEO of Technology Academy Finland comments: "The selection committee analyzed information on both researchers and companies from all over Finland, and I was happy to discover that there were so many good candidates. The winners represent a true cross-section of expertise in Finland's solar energy sector."

PPG

Glass fabrication plant to begin operation



PPG Industries' new 80,000-square-foot plant in Ontario, Canada, will begin operations in January 2012, providing 20 full-time jobs in glass cutting, fabrication of insulating glass units, and distribution. The new site has been set up to replace a PPG facility near Toronto, where PPG has operated for 60 years.

"The Barrie plant will provide better access to our customers and enable us to operate more efficiently," said Frank Caporiccio, general manager for PPG's flat glass trade products in Canada.

PPG operates similar Canadian glass plants in Halifax, Nova Scotia, Winnipeg, Manitoba, and Calgary, Alberta, as well as a warehouse facility in St. John's, Newfoundland.

Agreement to purchase Dyrup A/S finalized, closing date set

PPG Industries has announced that it has finalized the purchase agreement to acquire European coatings company **Dyrup A/S**, based in Copenhagen, Denmark, from its owner, Monberg & Thorsen, a public holding company. The final transaction value, including assumed debt, has been set at EUR 115 million (USD 160 million), based on final due diligence. Both parties have agreed on a closing date of 5 January 2012.

"Once finalized, the acquisition of Dyrup will enable

PPG to continue to expand its geographic reach within Europe as well as its product portfolio to include Dyrup's established strong brands, particularly in wood care products," said J. Rich Alexander, PPG executive vice president who leads all of the company's architectural coatings businesses. "We look forward to integrating Dyrup and its many highly skilled employees into our European business and to securing the future for Dyrup's brands and customers."

Viktor R. Sekmakas, president, PPG Europe, added that the acquisition "will help to grow PPG's presence in key countries such as Poland, France and Denmark, and to establish PPG in Portugal, Spain and Germany, where PPG today has little or no architectural coatings presence. We look forward to completing the transaction in early January 2012."

Jørgen Nicolajsen, president and CEO, Monberg & Thorsen, said, "We are pleased that we have now reached a final and binding agreement with PPG following the due diligence process. Dyrup and PPG represents a strong strategic combination with possibilities for further growth and synergies."

Dyrup, a European producer of architectural coatings and specialty products, had 2010 sales of approximately EUR 190 million (USD 270 million). It employs about 950 people and operates six manufacturing facilities in Europe. Dyrup's brands include Bondex, Gori and Xylophene, and its products are sold primarily in Denmark, France, Germany, Portugal, Poland and Spain through professional and do-it-yourself channels.

SOLYNDRA CEO steps down



According to a bankruptcy court document filed this week, **Solyndra** CEO Brian Harrison left the company Friday 7 October. The company said Harrison left “as scheduled”, without giving further details.

To replace Harrison, Solyndra aims at hiring R. Todd Neilson, and, if approved by the court, Neilson will serve as Solyndra’s chief restructuring officer, shepherding the company through the Chapter 11 process.

Harrison was head of Solyndra for just over a year, and when he joined the company in July 2010, it was already in difficulty.

In 2009, Solyndra was granted a federal loan guarantee worth up to USD 535 million to build a factory for its tube-shaped solar modules. However, by the time Harrison arrived, the company had already cancelled plans for an initial public stock offering. Harrison was unable to stop the company’s slide, due to

the high number of low-priced solar panels entering the market from China.

The company filed for bankruptcy on 6 September of this year, igniting a political firestorm. FBI agents interviewed Harrison two days later, as part of an investigation into the accuracy of Solyndra’s financial statements.

Harrison and the company’s chief financial officer agreed to appear before a congressional subcommittee investigating Solyndra’s loans. But acting on the advice of their attorneys, both men refused to answer the subcommittee’s questions. Harrison had, in July, informed members of the same panel that the company’s finances were on firm footing.

Solyndra’s bankruptcy will, like all corporate bankruptcies, be complex. In a separate set of bankruptcy court filings, *Von Ardenne*, a German company that designed equipment for Solyndra, accused its former client of stealing its intellectual property. In fact, Von Ardenne claims that it supplied Solyndra with machinery to deposit solar-cell materials on glass tubes, only to see the Fremont company build its own versions based on Von Ardenne’s designs.

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28 IZAR - numerical control for a variety of processes

The most recent machine from **Lovati Fratelli** is the **IZAR** series of CNC machines for the grinding and polishing of edges on shaped glasses with internal and external curves, straight-line sides, mitred corners and internal shapes.

According to the Italian company, other than the above mentioned processes, the IZAR can also perform holes, pin and screw inserts,

internal and external milling and routings.

Moreover, the IZAR also enables to process any geometrical profile by means of linear and circular interpolation on X-, Y-, and Z axes.

By means of the supplementary C axis, and (optional) aggregate groups, the IZAR can also perform the following operations:

- straight-line and convex sawing;

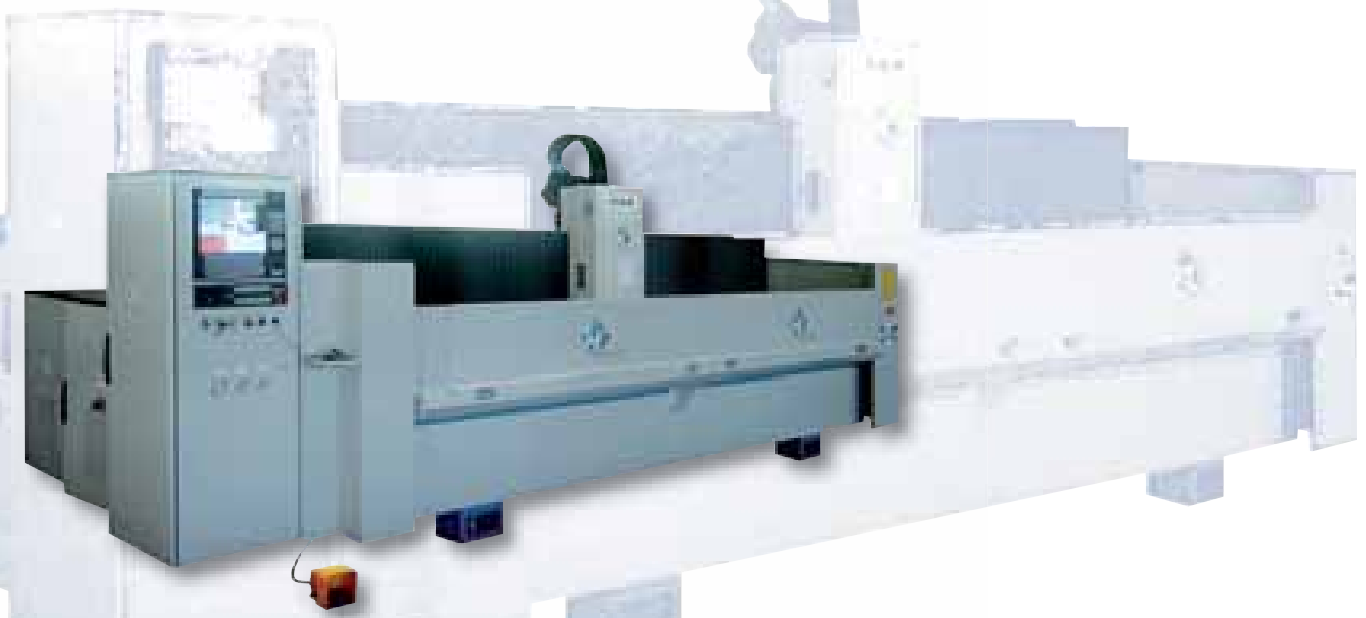
- grooving; and
- bevelling.

Up to three wheels can be stacked on the spindle to grind and polish, without changing tool holder, and more than one glass sheet can be positioned on the working table.

The IZAR is also equipped with and provides:

- high precision electro-spindle;
- tool crib with automatic selection for tool withdrawal and deposit;
- CAD/CAM automatic design station;
- tele-assistance by Internet.

www.lovatifratelli.com



IZAR CNC – TECHNICAL D

	IZAR 25 N	IZAR 25	IZAR 32	IZAR 42
Glass size	2,700 X 1,300mm	2,500 x 1,300mm	3,250 x 1,700mm	4,200 x 2,300mm
Glass thickness	2-12mm	2-80mm	2-80mm	2-80mm
Spindle power	4.8KW	15KW	15KW	15KW
Max. diameter of wheels	150mm	150mm	150mm	150mm
Tool store	-	9 positions	20 positions	24 positions
Programm. spindle revs	0-10,000 rpm	0-12,000 rpm	0-12,000 rpm	0-12,000 rpm
Compressed air pressure	7 BAR	7 BAR	7 BAR	7 BAR

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Bystronic glass: virtually endless laminated glass production possibilities

At the end of August 2011, Polish Mochnik Company commissioned the first *eco'lamiline* for the production of all types of premium laminated glass.

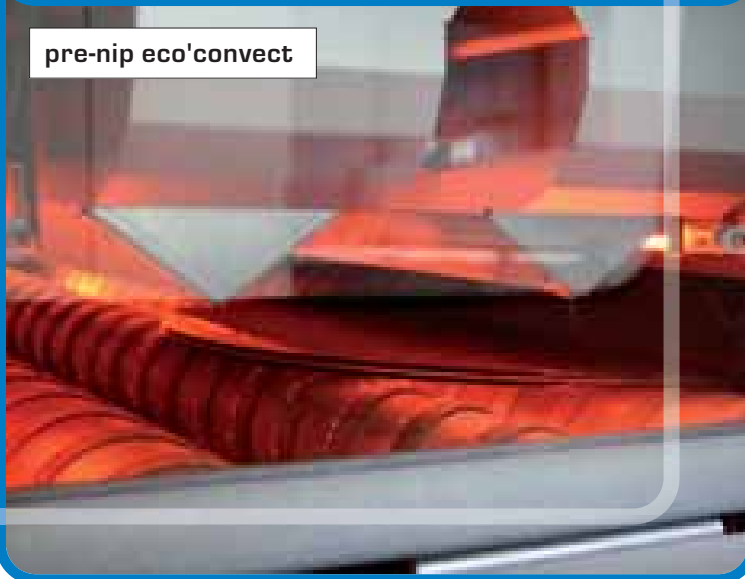
"We chose the new unit from Bystronic glass due to its flexible and versatile production opportunities," explains company owner Artur Mochnik. Whether rectangles or model formats, whether float glass or coated, highly-reflective glass, whether tempered glass or strengthened glass – the *eco'lamiline* can even create complex glass constructions without any problem whatsoever. This is ideal for the Mochnik Company, which adjusts its production to meet the individual needs and demands of its clients.



The Bystronic glass *eco'lamiline*

By purchasing the line for the production of laminated glass, Polish Mochnik Company has opened up a new business arena for itself. Previously, the company primarily supplied domestic and international customers with single pane safety glass as well as complying with customer wishes, by producing ground and drilled glasses. Mochnik is now expanding its product range, whilst, at the same time, aiming at the construction sector. "As we have seen an increased demand for laminated glass over the course of recent years, we made a decision at the beginning of 2010 to invest in a production unit," reports Artur Mochnik who goes on to say: "Bystronic glass, famous for its premium, modern machines quickly came into consideration as a potential supplier." After comprehensive consultative meetings, the final decision for a laminated glass line was made at the Bystronic glass stand at *glasstec 2010*: Artur Mochnik and his Technical Plant Manager Tomasz Piechaczek were amazed by the *eco'convect pre-nip*, the core of the *eco'lamiline* that was presented for the very first time there." As we had the clear aim from the very beginning of manufacturing laminated glass in many varying sizes together with special constructions from the new unit, this revolutionary production technology came along at just the right moment for us," explains Tomasz Piechaczek.

pre-nip *eco'convect*



Bystronic glass: virtually endless laminated glass production possibilities

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Assembly of the laminated glass unit in the clean room



Loading and washine machine

LIMITLESS LAMINATED GLASS SHAPE DIVERSITY

The laminated glass production has now been running on Mochnik's U-shaped eco'lami-line in Opole in the South-West of Poland since August 2011. With the aid of the *Easy-Lift* handling system from Bystronic glass, the glass plates are positioned on to the tilt table which is positioned at the laminated line inlet. The glass passes through the washing machine and disappears from the view of the observer located in front of the unit and into the clean room. Due to the U-shaped structure of the production, a horizontal suction frame transfers the glass at this point onto the adjacent positioning table before the film from one of the 12 film rolls is placed onto the glass and can be appropriately cut. As soon as this has been completed, the suction



Examples of shape diversity at eco'lamiline

system. "The most different of models, shapes and constructions can be quickly and simply produced on the eco'lamiline," reports Tomasz Piechaczek, who is also particularly taken with the easy operation of the unit. In fact, even for the most untrained staff members, it is easy for them to familiarize themselves with this system. "In addition to perfect control, the impressive speed of the line and the quality of the end products were of great significance with regard to our decision," says the Technical Plant Manager. ■

frame also lifts the freshly washed cover glass over and positions it identically on top of the first glass lite. The glass-film-glass package then moves out of the clean room and into the eco'convect pre-nip. An automatic measurement of the glass package thickness and width takes place on its inlet table, to which the settings of the pre-nip are automatically adjusted.

QUALITY, SPEED, SIMPLICITY

In the eco'convect, a dynamic high performance convection system takes care of a homogeneous heating of the glass. The dynamic heat transfer during the heating process quickly and effectively heats the most different of glass constructions. Thanks to innovative radiant heater technology, the eco'convect consumes up to 50 per cent less energy than comparable machines. After heating, the press system creates an equally high, uniform pressure and, therefore, ensures ideal ventilation of the glass-film-glass packages. The new profile of the presses is especially suitable for shaped formats and multi-functional glasses.

Complex glass constructions can be reproduced easily via the Laminoptac formulation management

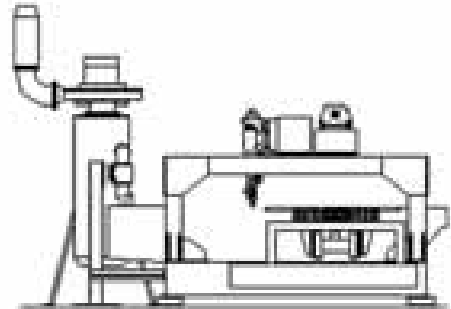


The pre-nip eco'convect at Mochnik in Poland

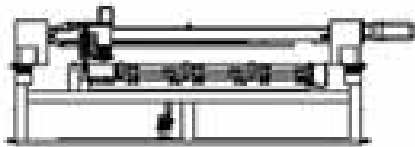
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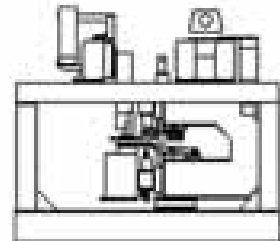
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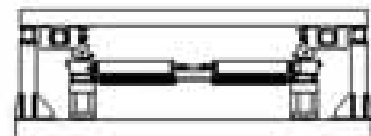
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WITH BREAKOUT DEVICE
DIAGONAL CUTTING MACHINE
LAMINATED GLASS CUTTING MACHINE



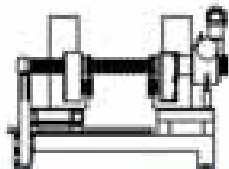
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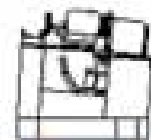
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Keraglass: **complete in-house production opening new markets**



Glass-Technology International recently had the opportunity to speak with one of the top people of Keraglass about the recent and ongoing changes and developments in the company. Developments that not only regard new machinery, but also the fact that the company structure can now ensure complete in-house production – which has expanded to include all machines needed for complete lines.

Valerie Anne Scott



Double Star



A heated few days before *Vitrum 2011*, Glass-Technology International had the opportunity of speaking to Roberto Bacchini – Sales Manager at Keraglass, about the company, its expanded production and recent and future installations of its furnaces and complete lines.

TEMPERING

Keraglass is, of course, well-known, especially for its tempering furnaces and screen printing equipment. These furnaces are part of the continuous ongoing development of the company, which has always been famous and well-known for its tempering and screen printing equipment. The new furnaces not only process extremely large glass sizes – 3.20 x 8 metres – but are also equipped with a ‘pre-heating’ chamber. This chamber does exactly what its name says: it pre-heats the glass, before it goes into the tempering furnace. And one of these large furnaces is actually being installed right now in Malaysia at a new company – *DDG Glass* – set up by partners such as Redwood (a company involved in luxury shop furnishings) and *Dadi Glass*, and is located near the border of Malaysia with Singapore.

A curious fact is that *DDG Glass* will be producing the glass for the factory in-house! And for processing the glass, the new company has installed exclusively European machinery, from well-known companies such as: *Bovone*, *Bystronic* and *Lisec*.

The Keraglass furnace – *Double Star*, with pre-heating chamber – is the largest furnace to

Keraglass: complete in-house production opening new markets

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be installed in South-East Asia and is a further confirmation of the preference for European machines and quality by Asian countries.

The Double Star is, at present, Keraglass's flagship product as, after seven years from the first furnace with pre-heating chamber made for Zanatta, we can now say that we were right to insist on having the pre-heating chamber for low-E glass. This is because, by using air to pre-heat the glass, the results are excellent with regards to tempering quality – starting right from 0.01.

Pre-heating the low-E glass with air at 500°C, using internal circulation of the hot air, and thus eliminating the possibility of contamination. At the same time, there is a considerably increase in production as glass can be pre-heated, while other glass (at 700°C) can be heated in the furnace at the same time.

This chamber is ideal for low-E glass, ensuring shorter production times with higher production quantities (about 30 per cent) and more or less the same costs. Moreover, quality is higher as the flatness of the glass is guaranteed. In fact, Keraglass has already installed quite a few of these furnaces with pre-heating in Europe, where the high quality of tempering is a fundamental request.

Part of one of these Jumbo-sized furnaces (3.21 x 6.80 metres) was on show at Vitrum, Milan, Italy, from 26 to 29 October 2011, which will be delivered to South America, and will be the first Jumbo-sized furnace for that country.

Tekno Tronik

LAMINATING

Keraglass has, since 2010, started to work with laminating with completely automatic lines, using PVB sheets, also automatic with regards to the assembly of the glass and PVB. And, especially with regards to this sector, the company carries out the manufacture of these machines entirely in-house – even washing machines (production started up in 2009). Moreover, the furnace also opens for maintenance, the only one of its kind in production worldwide.

In fact, a recent installation of this type of line of 2.60 x 5.10 metres with PVB was carried out at *Maritan Glass*, in Padua, north-east Italy, where the only part of this line that was not manufactured by Keraglass was the autoclave, which is from *Maroso*.

This is the first laminating line for Keraglass – which uses the *Leaderglass* brand (also used for washing machines) – after several years of R&D, which is enabling the company to enter markets where laminating is necessary.

LAMINATING WITH EVA

Leaderglass supplies multi-level furnaces with independent chambers, each of which can have more laminating chambers; in the higher chambers, there is also the possibility of laminating curved glass sheets, carrying out Heak Soak Tests, drying of marble and special screen printed glass thanks to fans which, by means of convection, heat all areas of the chamber uniformly.



Leader Lami

Deco screen printer



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Leaderglass has considerably increased the sales of Leader Lami and Leader Combi laminating furnaces, above all in Latin America and Europe. This is also thanks to their high versatility and that they are competitive investments, above all if compared to a laminating line using PVB and an autoclave, both in terms of investments and also regarding area occupied/dimensions and energy consumption. At the same time, laminating furnaces using EVA guarantee considerable production levels since more sheets of glass can be laminated at the same time using the same laminating trolley, therefore enabling to double the production of each chamber.

PRODUCTION

Historical products

Keraglass has always been well-known for its 'historical' production, such as screen printing, which is continuing to strengthen and expand its market share. The development of Keraglass' screen printers follows market demand, which, at present, is that of continuously increasing glass sizes and, therefore, machinery – now 2,200 x 4,200 millimetres and higher. Keraglass is presently manufacturing two complete lines of 2,600 x 5,200 millimetres, for the international market.

With regards to items to be screen printed, we are speaking about domestic appliances, where the market is mainly in South America – Argentina and Brazil – and where Keraglass

has a local office, but also for architecture, where precision in design is a must-have and where this can only be guaranteed by screen printing.

Of course, the company still has its roller machines as part of regular production, along with a brand new machine for edges – which is a sector closely connected to screen printing. In fact, it is possible to have a complete line made up of a roller machine, screen printer, edge printer and dryer.

Complete in-house production

The possibility of complete in-house production mentioned previously, has, for the past year, been taking place at Keraglass' recently increased company premises of about 6,500 square metres, which include three production areas.

MARKETS

If we want to take stock of the last three years, we can say that Italy is continuing to suffer as far as glass is concerned, due to, in fact, the financial situation.

Europe, on the other hand, is showing some signs of growth, with sales of furnaces in Belgium and France, and three furnaces with pre-heating chamber already installed in Poland, and more to come.

South America – Brazil in particular – is a strong market for us, as we said before, and new markets are opening worldwide, even in areas where activity is slow, an example of which is Dubai, where Keraglass will soon be installing one of its complete screen printer lines. ■



Double Star



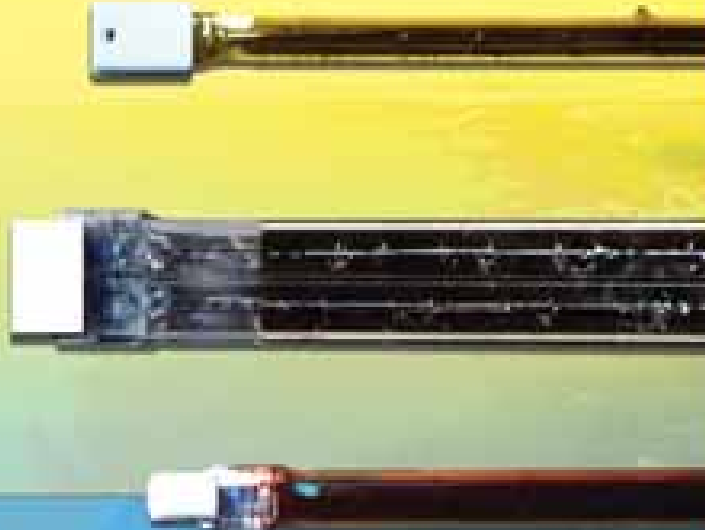
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Interpane: exclusive living with solar control coating for the perfect climate



Knightsbridge at the front door. One Hyde Park is probably the most exclusive place to live in London

Direct view of
Hyde Park –
ipisol neutral
solar control
glass ensures
an optimal
climate in the
rooms



Modern living in style – this is what the inhabitants of an exclusive area of London, United Kingdom, are guaranteed. This article ‘shows us round’ these highly expensive apartments, where energy consumption and environment protection are ensured, and where security and security personnel follows indications and training from the Special Air Service (SAS).

T HE MOST EXPENSIVE APARTMENT IN THE WORLD?

Knightsbridge, City of Westminster.

This luxury neighbourhood has the finest restaurants, the most exclusive boutiques and now, perhaps the most expensive apartment in the world: One Hyde Park. The 14-storey building, inaugurated in the spring of 2011, is a complex of four interconnected towers designed by architect Richard Rogers of Rogers Stirk Harbour and Partners. The inhabitants of the penthouses have a breath-taking view of the city of London and of Hyde Park through the large areas of glazing in every room. To ensure colour-neutral transparency, thermal insulation on cold winter days and protection from the sun’s heat in the summer, the glazing is made of modern triple insulation glass. Interpane provided the 14,000 square metres of iplus E thermal insulation glass with ipisol neutral 61/33 solar control coating.

Hyde Park on one side, Knightsbridge on the other: One Hyde Park is perfectly situated. Hyde

Park, the most well-known of the eight ‘royal parks’, stretches over 1.4 square kilometres, divided by the 11 hectares of the Serpentine.

The park and the lake are loved by Londoners and tourists alike. The lake is perfect for a swim or a row; with a permit, even fishing is allowed. If one prefers land activities, one can use the horse riding facilities or the bowling alley, or just picnic on the grass. Should the well-heeled dwellers of One Hyde Park choose instead to go

ONE HYDE PARK - CREDITS BOARD

- Object address: 68-114 Knightsbridge, London SW1, England
- Building owner: Project Grande (Guernsey) Ltd
- Architect: Rogers Stirk Harbour & Partners, London, England
- Façade construction: Scheldebouw, Middelburg, Netherlands
- Engineering office: ARUP, London, England
- Insulation glass production: Flachglas Wernberg
- Glass products: iplus E with ipisol neutral 61/33
- Glass processor: Interpane Plattling

Interpane: exclusive living with solar control coating for the perfect climate

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for a stroll in Knightsbridge, they can enjoy exclusive shops such as Harrods, Harvey Nichols or Prada, the finest restaurants and the chicest bars and clubs. Buckingham Palace is barely a mile away.

Those who wish to stay in their apartment can make use of the excellent 24-hour room service of the associated five-star Mandarin-Oriental Hotel or the in-house wellness, gastronomy and shopping facilities.

Floor-to-ceiling ipasol neutral (61/33) solar control glazing provides a colour-neutral view of Hyde Park and Knightsbridge



Exclusive glass architecture with ipasol neutral

Four towers, 10 to 14 storeys high, linked to each other by glass stairwells and elevator shafts, a private underground car park, 84 luxury apartments including four penthouses: this is One Hyde Park. The most “affordable” flats go for EUR 6.4 million, the most expensive are worth EUR 165 million. The most exclusive of the apartments is spread over two levels, has seven rooms and a total floor area of 2,700 square metres. Just as impressive as the size of the apartment is the 360-degree view it affords of Hyde Park and London. The colour-neutral glazing lets the inhabitants observe the comings and goings in the busy streets of the British capital unhindered. The ipasol 61/33 solar control coating ensures that the rooms don't overheat in the summer, thereby reducing air conditioning costs. The building nonetheless receives ample daylight. On cold days, the low Ug value of the triple insulation glass with its iplus E coating provides effective thermal insulation. The energetic properties of the glass façade reduce energy consumption and protect the environment.

The inhabitants are also well-protected. The façade and the windows are bomb and bullet proof, the elevators are activated by a retina scanner, the security personal was trained by the Special Air Service (SAS), and the most exclusive apartments have a panic room where the residents can take shelter in the very unlikely event of a break-in.

The official opening of the building has just taken place after four years of construction work. Richard Rogers, whose office designed the building, received the Pritzker Architecture Prize in 2007. ■



Interpane Glas Industrie Ag

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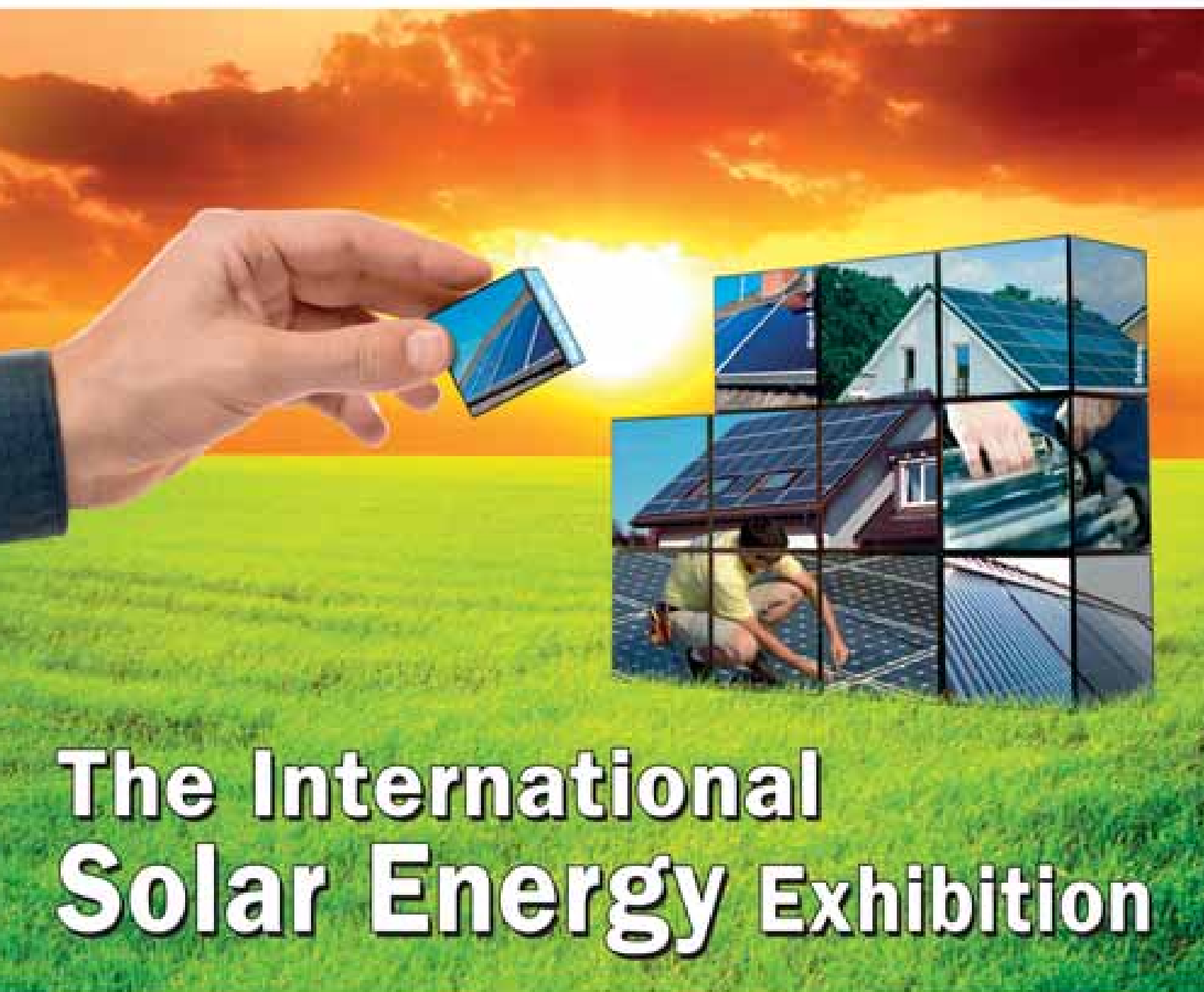
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With almost 20 years of experience in glass processing machinery manufacture, Glassman Glass Machinery presents, in this article, its most recent development. This high-tech CNC work station is, according to the company, the ideal solution for the processing of decorative glass, furniture glass and artistic glass.

Glassman Glass Machinery: continuous development in hi-tech glass processing



Glassman Glass Machinery: continuous development in hi-tech glass processing

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Established in 1992, Glassman Glass Machinery is known as one of the earliest enterprises involved in developing and manufacturing machines for flat glass in China and has, since 2001, been developing rapidly when it began to research and develop CNC glass processing equipment.

The company's product range now includes: CNC Vertical Drilling and Milling Machines, CNC Work Centres, CNC Engraving Machines and Fully-Automatic Shaped Glass Bevelling Machines, which are perfectly suitable to process structural glass, frameless shower doors, glass stairs, auto glass, furniture glass and decorative glass, etc.

Glassman Glass Machinery's R&D team is committed to research and develop CNC glass machinery, continuously innovating technology, overcoming technical problems, capturing market signals and supplying the most optimized equipment for the glass processing industry. Since its first CNC work centre in 2001, Glassman machinery is now up and running in more than 50 countries.

CNC ENGRAVING MACHINE

GM-BKH-II is a high-tech CNC work centre for high-level engraving on flat glass. The machine's capabilities include the direct transfer of CAD drawings, and the creation of optimized tool route and process. Thanks to the use of an international advanced numerical control system – Swiss NUM – this machine achieves the dynamic management of each axis and precise speed control.

The speciality of Glassman Glass Machinery's CNC engraving machine is that the spindle and body of the machine are designed to fit the engraving functions. According to the high consumption of the C axis, Glassman has carried out the relative treatment on both the structure and material, also solving functions regarding precise tool feeding. Thanks to the interaction of the PC and System, the processed corners, lines and edges are of the highest precision.



Flexibility of the control system can fulfil the requirement of different products, carrying out all processing work automatically. With the ideal combination of numerical control and PC system, this work centre can carry out the automatic management of the glassworks and is therefore suitable for mass production.

GM-BKH-II is ideal for the processing of decorative glass, furniture glass, artistic glass, etc.

Structure

GM-BKH-II is an open top machine, therefore facilitating glass loading and unloading operations. The bridge, which is equipped with an X axis, is made of structural steel. Movements of the machine are smooth, without shaking, thanks to its rigidity and cast iron head. Moreover, long working life and low noise levels are also ensured thanks to the internal water coolant system.

Advantages:

- extremely rigid structure;
- high accelerations, reaching maximum speeds of up to 27m/min.;
- high processing speed and high quality;
- high quality maintained also after many years of use thanks to low abrasion.



Work Table

The split-jointed aluminium alloy work table is equipped with a vacuum system, which maintains the position of the glass during processing. Once operations are finished, air is blow over the glass surface, thus facilitating loading and unloading operations, also avoiding damage to the delicate surfaces of special glass types. The surface of the work table is coated with wear-resistant polyurethane.

Glass processing sizes can be increased from 1,500 millimetres x 3,000 millimetres to 2,000 millimetres x 3,000 millimetres with out change in machine size.

Spindle

As for the main parts of the machine, the water, air and electricity supply of the spindle motor are specially studied by Glassman's experienced engineers.

Working heads can be exchanged so as to carry out edging, and, coordinated with special vacuum cups, provide the machine with multi-functions, thus expanding processing ranges and saving costs for small- to medium-sized companies.



NUM control

Thanks to the use of top-level European NUM control, the machine has a flexible and open system, making human-computer interaction much easier.

Multi-functioned Super CAD/CAM software is developed as per language, and achieves many excellent features, such as optimization of tool orders, automatically

choosing the shortest processing route, graphics processing simulation, classifying processing lines, self definition of tool feeding and retracing length, etc.

This updated CAD/CAM software realizes a perfect combination of polishing wheel compensation, both manually and automatically, with the possibility of using the polishing wheels with diameters of up to 100 millimetres. ■



Glassman Glass Machinery Technology Co., Ltd.

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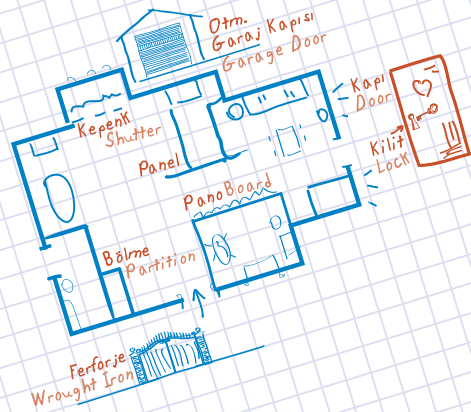
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Safety Glass Experts International: bending perfect shapes part II

As explained in the first part of this article, published in *Glass-Technology International* issue 5/2011, modern windshield design features cross curvatures over 30 millimetres in car windshields and well over 70 millimetres in bus and special vehicle windshields. Although the trend of increasing height of the windshields naturally compensates challenges related to sagging depth to a degree, centre line sagging in modern extent still creates a real challenge. Of course any modern bending furnace, serial or single chamber, features enough IR-heating power to bend even deeper sagging than required, and, in fact, it is not really a question of total IR-power either, since simply increasing the bending time over glass transition temperature will result in more sagging.

One can continue to bend the glass pair up to the physical limitations created by the glass and mould size – there is no difficulty in executing this. However, bending deep cross curvature, which potentially includes a number of points that have to remain within a narrow frame of repetition still maintaining smooth progressive sagging profile and correct cycle time, is an objective that not all manufacturers can reach.

What really creates the challenge in bending

modern centre sagging is the equation of the following points:

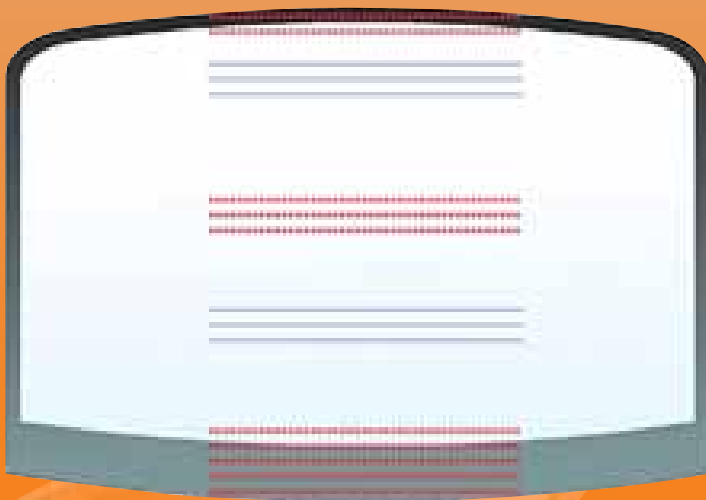
1. controlling deep sagging shape->bending smooth and progressive shape;
2. repeating the sag within narrow tolerance from specified points (value adding devices in modern windshields);
3. bending the required cross curvature in efficient cycle time.

CAUSES OF IMPERFECTIONS IN WINDSHIELD SAGGING PROFILE

Let's take a look of the causes of a uniform sagging profile. A perfect sagging profile is an important quality feature and is a fundamental requirement of a windshield. Without a smooth and progressive sagging profile, optical quality will suffer. Furthermore, it can affect wiper performance and potentially increase wind noise. The effect on optics is complete as the deformation in the sagging shape will result in both poor reflection distortion (waviness) and poor transmission optics. The magnitude of the effect is directly proportional to the extent of the deformation. Whereas minor flat spots might remain at acceptable levels in terms of transmission optics, the same flat spot can be unacceptable due to waviness in reflection distortion.

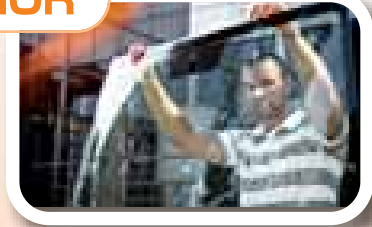
The second part of this two-part article "Bending perfect shapes" will review the challenge of bending smooth and progressive sagging (cross curvature). Smooth and progressive sagging profile is an important quality feature of a windshield and is a fundamental requirement. The importance of this characteristic has been acknowledged by vehicle manufacturers, but the interesting fact is that a trained eye can spot some recent vehicle models featuring poor sagging profiles.

Mika Eronen
SAFETY GLASS
EXPERTS INTERNATIONAL LTD.



Example of points of deformation
in centre sagging profile

THE AUTHOR



Mika Eronen is an internationally experienced Finnish safety glass professional. Mika started his career in the glass industry at Pilkington Finland in 1999. Working with the largest and most complex bus windshields in the markets, he has developed considerable knowledge on windshield manufacturing. In 2004, taken up by international challenges, Mika started international expert work carrying out new bending furnace start-ups, commissioning, customer training, and consultative projects, still developing his skills further in the art of bending process/technology and production of windshields. Today Mika is a partner in Safety Glass Experts International Ltd. His tasks include conducting on-site training and consulting projects, as well as management, planning and coordination of ongoing customer projects.

Legislative safety standards such as ECE R 43 stipulate only the very basic conditions for optical quality in terms of transmission optics. Passing the optical test defined in ECE R 43 is in no correlation to OEM vehicle manufacturer quality regulations. Therefore, in reality, the final product quality is determined by the vehicle manufacturer's standards, those that today reflect well the real requirements of the vehicle final users - therefore the gap between existing legislative norms and vehicle OEM quality regulations still keeps increasing. OEM product specifications define a strict set of requirements and tests for characteristics that are directly related to the windshield sagging profile.

CONTROLLING SAGGING AND BENDING SMOOTH AND PROGRESSIVE SHAPES

The gravity bending process has a natural tendency to create non-progressive sagging shapes, where extensive sagging occurs at the printed edges, while flat spots or even inverse areas occur in central areas of the pane. Simple simulation explained in the first part of this article describing how paper sheets behave when bent to windshield-like shapes applies here too and is further enhanced by the black enamel printing applied to the windshield edges.

Safety Glass Experts International: bending perfect shapes part II

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To overcome the natural tendency to create un-uniform cross curvature shapes, the Heating Element Controls (HEC) bending process and mould tooling have to be fine-tuned to the point of excellence. Successful end results require that all process parameters be in perfect balance. All this starts from perfect loading conditions and is followed by uniform, well balanced heating distribution from the beginning of the bending process to the point of transition temperature. Thereafter, the HEC should start to focus again on the areas where heat is required to bend the desired sagging. How the HEC will be adjusted depends on the adjustment features available in the bending furnace.

No matter what IR-heating features are available, the principle is that accurate, direct radiation is required to distinct areas for the centre line of the glass, which can be adjusted in accordance with sagging shape results.

This applies for both bottom and top directions. There are many designs enabling this, including: adjustable heating element positions, heating elements placed in reflection grooves, special midsection heating element fields, as well as extra heating elements that can be located freely in the wagon.

In product introduction, the first bending trials will provide feedback on the centreline sagging profiles' individual nature in terms of sagging behaviour, and the HEC should now be adjusted carefully according to the results: more heating to areas with flat spots and less for partially over-heating areas. After a few test rounds, the nature of the sagging profile will become more evident and in the case of fine-tuning, the HEC alone is not sufficient enough to bend perfect profiles, and required mould adjustments should be started.

There are multiple mould tooling designs that can provide assistance in controlling IR-heat distribution. No matter how well designed the IR-heating automation is, there will always be scattered radiation that will also affect the undesired areas of the glass. The black printing enamel on the edges, in particular, absorbs all heating radiation and is affected to a great degree by the scattered radiation. Therefore, these areas will be either covered with so-called heat umbrellas or heat absorption plates installed under the glass pair. Both of these applications have their own strengths and

weaknesses and which one is more suitable is case dependent.

Double-Stage mould design is also sometimes key to improved performance in sagging profile. After the engineering and installation of heat controls tools to the mould, test trials can continue. At this stage, it can be assumed that due to the absorption of extensive heating some modifications to the HEC are required again to achieve centre sagging as per product specifications and also to fine tune the sagging to be smooth and progressive. Once again, after each test round, corrective actions should be assigned according to the last bending cycle results. In the introduction trials, understanding and availability of Visual Reference Points in combination with response variable such as pyrometer temperature, will ensure faster and more consistent progress in the trials as less "blind work" or "questimations" is involved.

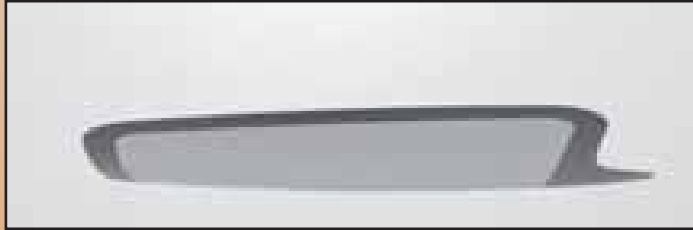
REPEATING SAGGING

Repeatability of the process is one of the key factors in modern production lines as it affects the complete performance in many ways. With regards to repeating centreline sagging according to tight tolerances, key performance factors differ between products. With car and truck windshields (<2.2 square metres) the results rely more on correctly set HEC, furnace parameters, production supervision, and production planning.

Larger buses and special vehicles (>2.2 square metres) rely more on operator performance, as the bending furnaces (both single chamber and serial) are mostly operated manually when complex modern shapes are produced. Here again know-how and the correct use of Visual Reference Points (VRP) will have an essential role. Visibility into bending furnace chambers is always somewhat limited, but mould solutions can be engineered according to individual requirements to provide reliable VRP, and ensure better process repeatability in terms of sagging.

EFFICIENT CYCLE TIME AND SAGGING REQUIREMENTS

As stated in the opening paragraph, with enough bending time any sagging can be created. This, however, does not apply well in serial bending furnace production. Certain cycle target



Smooth and progressive sagging profile is required to gain perfect optics

time (CTT) and allowed cycle window are defined, and production capacity is planned accordingly. Of course, a serial furnace can be set to run according to longer CTT parameters but doing this might not be feasible or new CTT might not meet production capacity requirements.

In single chamber production, the case is simple since all production cycles are independent (to some extent) from each other, and if allowed by the production plan, individual products can use extended production time. In serial bending furnace production of car windshields with complex deep sagging, there is a requirement for a certain level of IR-heating power, adjustment and automation features that must be available to enable mixed production along with 12-20-millimetre normal sagging range products. The first priority is sufficient bottom heating, followed by IR-heating power and finally IR-

heating element controls for the middle section. In any case, general furnace parameters such as CTT must be defined according to the product featuring the deepest sagging and others adjusted to meet these parameters.

CONCLUSIONS

Mastering heat treatment processes remains the most important function of windshield manufacturers. Perfecting modern shapes is a constant challenge. To master the processes manufacturers need dedication to improve bending processes by fine tuning the HEC, furnace parameters, re-engineering and introducing new mould tooling designs. Furnace operators involved in introduction trials and production must have knowledge of VRP to enable efficient progress in introduction trials and ensure repeatability during production. To cover this topic completely in these 4,000 words is impossible, but the vital principles should be well covered here.

My upcoming book *The Secrets of Windshield Manufacturing* will cover this topic in further detail and provides readers with all the essentials required to produce quality windshields. Furthermore, our training programme "The Art of Gravity Bending Windshields" will provide further insight to this topic and more. ■

Safety
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Safety Glass Experts International Oy Ltd

Palatsinraitti 1 E 92 - FI-33120
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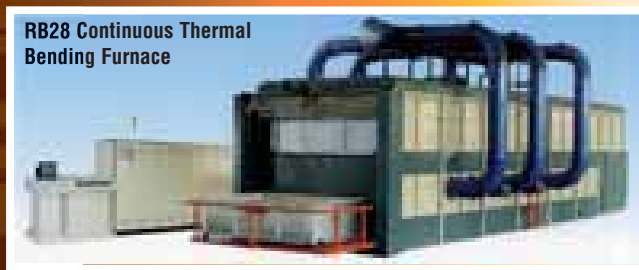
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PROVIDING MORE AND DETAILED



Those of you who are subscribers to our daily news service, or even just regular visitors to our home page, will have noticed important developments regarding our new web portal. Preparing this article, we spoke to the main people involved in its development, who provided information on the services and innovations that are to be found for advertisers and visitors alike.

Valerie Anne Scott



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Fig. 2 - Applying for advertising in our magazines
Fig. 3 - Daily headlines
Fig. 4 - The fairs where our magazines are distributed
Fig. 5 - Area for company video clips



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Never before has the expression 'keeping up with the times' been so suitable. In fact, the entire glassOnline portal has undergone a radical renewal regarding graphics and services, to become more ideal for everyday use to check the latest news, find out about events or taking a look at the companies advertising on the website, while maintaining and enhancing its regular services, and adding more.

INTERNET - WEB 2.0

The most recent development of the worldwide web – Web 2.0 – remains unknown and unexplored territory for many. Also known as New web, it includes a series of online applications that provide an extremely high level of interaction, such as blogs, social networks, online encyclopaedias, forums, and much more. These extremely advanced and versatile applications are, however, still greatly underestimated and overlooked.

COMPLETE RESTYLING

And by applying this development, glassOnline has undergone a radical restyling and technological upgrade,

Providing faster, easier, more accessible and detailed information

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which, other than regarding, as previously mentioned - graphics, colours and style - also involve making life easier for visitors to the website and, of course for subscribers too, with more details, making information more available, as well as providing advertisers with a more up-to-date way of publicizing their companies and products.

For example, the Yellow Pages sector – where more than 4,000 glassworks, suppliers of hollow-, special-, flat-, art-, and fiber glass, as well as raw materials, alongside suppliers of equipment, plants, accessories and services – has a completely new format, with the addresses of glassworks for both the hollow and flat glass sectors taking part. Companies wishing to have their data published are invited to fill in and send us the free form.

The Yellow Pages sector also includes direct links of companies to their websites, where logos, categories of products and other information about the companies can also be found.

NEWS SERVICE

The new graphics also apply to the news service, which have a completely different format, now enhanced with headlines, summaries and photos, as well as keywords and tags. This updating provides subscribers with access to the archives of all Artenergy Publishing's glass publications: Glass-Technology International, Glass Machinery Plants & Accessories and the World Glass Directory.

ADVERTISERS

Services for advertisers have been increased, with the possibility of uploading video clips of products and services – an invitation that we at Artenergy strongly invite our advertisers to do!

And with regards to advertising, banners on the home page now have a new format, enhancing their visibility, and are GIF animated. Moreover, the same banners are repeated on all pages of the website.

SUBSCRIBERS

Subscribing to glassOnline services is now much more straight-forward. At the simple click of a button, visitors are taken to the page where all the services provided by the website are found: Classified Ads (offered and wanted) subscriptions or even just purchasing a single copy of one of the magazines, and much more.

SOCIAL NETWORKS

A completely new idea for glassOnline is the connection to the major social networks such as Facebook and Twitter, as well as the possibility of receiving news by RSS feed. Users of the portal can also register and manage their profile to request the news and information they are interested in.

And this is just the start of the updating of glassOnline. As technology move ahead, so does our work and the way in which we want to find out about news. And glassOnline will move, grow and develop too in response to these needs and demands.

Stay online to find out more! ■

www.glassOnline.com



Fig. 6 - Facilitated use of the updated Yellow Pages service on glassOnline



download the magazines
free of charge

NEW HOME PAGE

NEW
YELLOW
PAGES



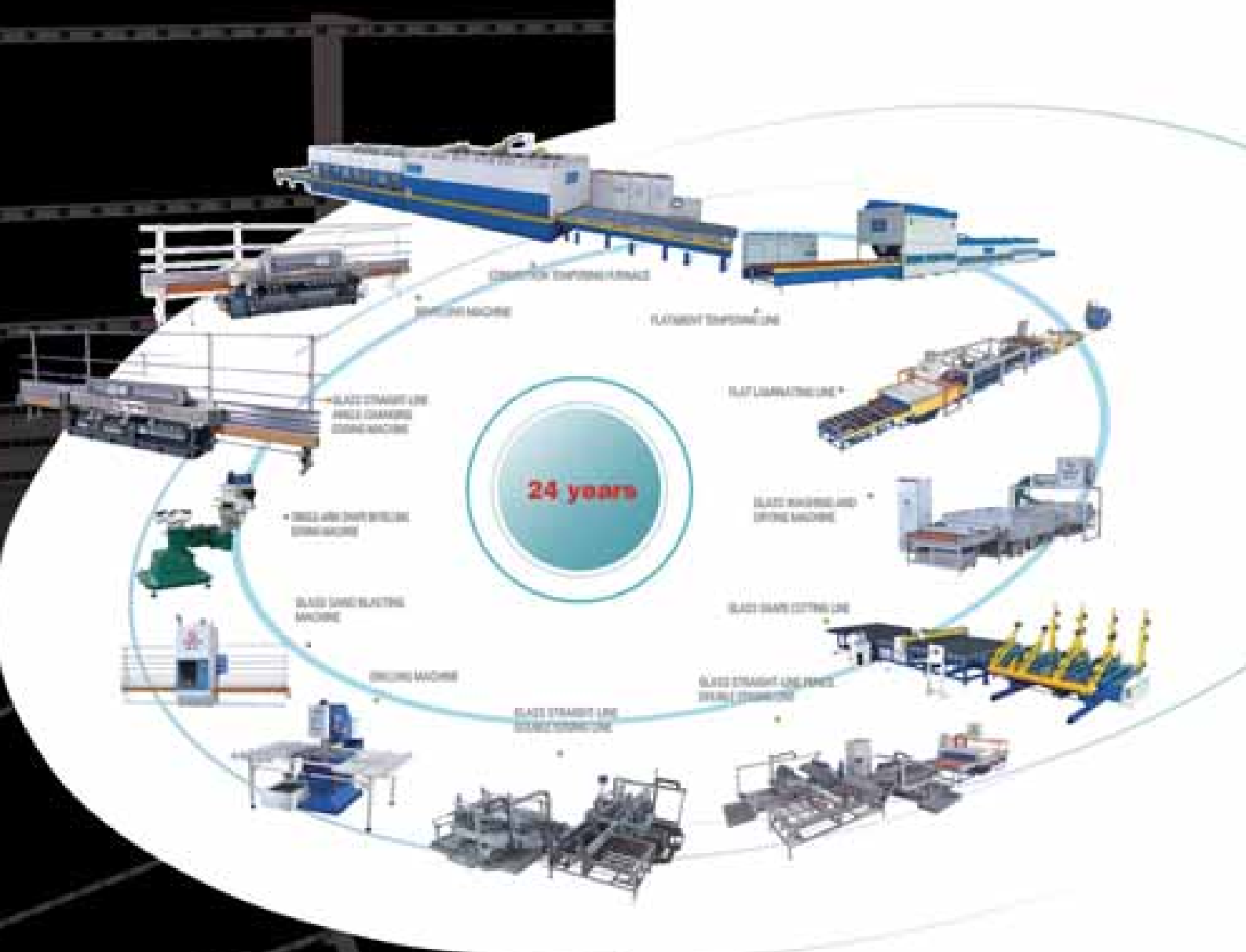
NEW FUNCTIONS

- daily news
- company videos
- download the magazines free-of-charge
- new banner formats
- renewed yellow pages

...and much more!

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E-mail: sales@fushan.cn - nige@fushan.cn

Contacts in Italian Office:
Mr. Giuseppe Bonignoni - For Middle East & Africa
Tel: +39 038 9999376 - E-mail: info@fushan.it
Dr. Alberto Schiavo - For Europe
Tel: +39 031 7165756 - E-mail: schiavo.alberto@gmail.com

Suppliers Guide

Yellow pages

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The "Suppliers Guide - Yellow Pages" promotes their products and services worldwide.



L'insertion dans le "Guide des Fournisseurs" est gratuite et réservée aux annonceurs de ce numéro. Le "Guide des Fournisseurs" assure la promotion des produits et des services proposés par les annonceurs dans le monde entier.



Die Anzeigen im "Verzeichnis der Lieferanten - Gelbe Seiten" ist kostenlos und den Inserenten vorliegender Ausgabe vorbehalten. Das "Verzeichnis der Lieferanten - Gelbe Seiten" wirbt weltweit für die Produkte und das Service seiner Inserenten.



La introducción en la "Guía de los Proveedores" es gratuita y está reservada a los Anunciadores de este número. La "Guía de los Proveedores" promueve sus productos y servicios en todo el mundo.

GLASS MANUFACTURING AND PROCESSING

PRODUCTION ET USAGE DU VERRE

GLASHERSTELLUNG UND VERARBEITUNG
PRODUCCIÓN Y TRABAJO DEL VIDRIO

► FLOAT GLASS

Production de verre selon la méthode Float
Glasherstellung nach der Float Methode
Producción de vidrio con el método float

Interpane

► PROCESSED SHEET GLASS

Feuilles de verre traitées
Bearbeitete Glasplatten
Hojas de vidrio trabajadas

Mingte Glass Tech.

► SHOWER DOORS

Portes de douche
Duschtüren
Puertas para duchas

Mingte Glass Tech.

STOCKING, HANDLING AND MOVEMENT

DÉPLACEMENT ET STOCKAGE
INNERBETRIEBLICHER TRANSPORT UND LAGERUNG
TRANSPORTE Y ALMACENAMIENTO

► COMPLETE STOCKING LINES / ENGINEERING

Lignes complètes de stockage / Engineering
Komplette Lagerstrassen / Engineering
Líneas completas de almacenamiento / Engineering

APB - Antonio Piazza Brevetti

Bystronic glass Cugher Glass Hegla

Keraglass Lisc Group Mistrello Officine

► COMPLETE HANDLING AND MOVEMENT LINES

Lignes complètes de mouvement et manipulation
Komplette Transport- und Handtierungsanlagen
Líneas completas de movimiento y manipulación

APB - Antonio Piazza Brevetti

Bando Kiko B.H.T. Bystronic glass Cugher Glass CMS Brembana

Forvet Hegla Keraglass Lisc Group Mistrello Officine

► MACHINES FOR HANDLING GLASS SHEETS

Machines pour la translation de feuilles
Maschinen zur Scheibenbewegung
Máquinas para el movimiento de las hojas

Bando Kiko B.H.T. Bystronic glass CMS Brembana For.El. Hegla Keraglass Lisc Group Mistrello Officine

► HANDLING ROBOTS

Robot de mouvement
Handling-Roboter
Robot de movimiento

CMS Brembana Hegla Lisc Group

► HANDLING EQUIPMENT FOR FLOAT GLASS

Équipements de manipulation pour verre mobile
Vorschub-Anlage für Flachglas
Equipos de transporte de cristales móviles

Bystronic glass Hegla Lisc Group

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► TROLLEYS AND CLASSIFIERS

Chariots de transport et classeurs

Rollkarren und Sortierer
Carros y clasificadores

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Brevetti**

**CMS Brembana
For.El.**

Hegla

Lisec Group

Maver Glass Machinery

► TRANSPORTATION SYSTEMS/ TRUCKS

Systèmes de transport/ cammionage

Transportwesen/
Lastkraftwagen

Sistemas para el transporte/ camiónes

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Brevetti**

Hegla

Lisec Group

► VACUUM LIFTING EQUIPMENT

Ventouses pour ponts roulants pour grandes feuilles

Brückenkräne mit
Vakuumsauger für große
Scheiben

*Puente grúa a ventosas para
hojas grandes*

Bystronic glass

C.M.B. - Besana

CMS Brembana

For.El.

Hegla

Lisec Group

Maver Glass Machinery

► CRANE SUCTION CUPS FOR LARGE SHEETS

Ventouses de soulèvement pour grandes plaques

Laufkran-Saugköpfe für
grosse Platten

*Ventosas en puente-grúa para
grandes hojas de vidrio*

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C.M.B. - Besana

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► TRANSPORTATION TONGS

Griffes pour transport

Transportzangen

Pinzas para el transporte

C.M.B. - Besana

► SUCTION CUPS

Ventouses

Vakuumsauger

Ventosas

Bystronic glass

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► CONVEYOR BELTS

Ceintures de convoyeur

Beförderer.Bänder

Cinturones de transportador

Bystronic glass

Cugher Glass

► PACKAGING MATERIALS AND SYSTEMS

*Matériaies et systemes de
emballage*

Verpackung-Materialien und
Anlagen

*Material y instalaciones de
embalaje*

Hegla

► ACCESSORIES

Accessoires divers

Sonstiges Zubehör

Accesorios varios

CMS Brembana

Hegla

Helios Italquartz

Maver Glass Machinery

Mole Moreschi

STRAIGHT-EDGE AND SHAPE CUTTING

**DÉCOUPE RECTILIGNE
ET EN FORME**

**GERADLINIGES UND
FASSONSCHNEIDENCORTE
RECTILÍNEO Y PERFILADO**

► COMPLETE STRAIGHT-EDGE LINES

Lignes complètes rectiligne

Geradeanlagen

*Líneas completas corte
rectilíneo*

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► COMPLETE SHAPE CUTTING LINES

Lignes complètes

de découpe en forme

Formschneideanlagen

Líneas completas

para corte perfilado

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Bystronic glass

CMS Brembana

Fushan

Hegla

Lisec Group

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Mingte Glass Tech.

► AUTOMATIC CUTTING MACHINES FOR AUTOMOTIVE GLASS

*Machines automatiques
de découpe pour verres
automobiles*

Automatische Autoglas-
Schneidemaschinen

*Máquinas automáticas
de corte para vidrios
de automóvil*

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► LOADING AND TILTING MACHINES

Chargeuses et basculeuses

Beschickungs- und
Kippmaschinen

Cargadoras y volcadoras

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B.H.T.

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C.M.B. - Besana

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Mingte Glass Tech.

► CUTTING TABLES

Tables de découpe

Schneidetische

Mesas de corte

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Fushan

Hegla

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Mingte Glass Tech.

► CUTTING OPTIMIZERS

Optimisation de découpe

Schnittoptimalisierung

Optimizadores de corte

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Optima

► CUTTING PATH OPTIMIZERS

Optimisation de la découpe

Schnittoptimalisierung

*Sistemas de optimización
del corte*

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Optima

► CAD SYSTEMS

CAD systems

CAD Systemen

CAD sistemas

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► ARMOURED AND LAMINATED GLASS CUTTING MACHINES

*Machines pour découpe de
verres blindés et feuilletés*

Schneidemaschinen für

Panzer- und Verbundglas

*Máquinas de corte para vidrio
blindado y estratificado*

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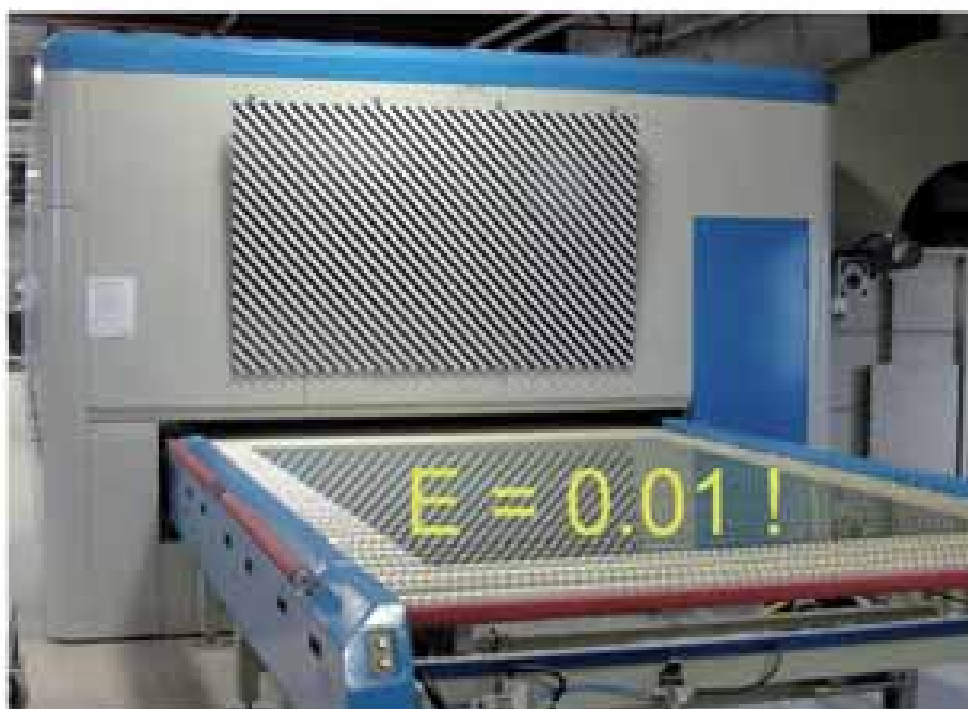
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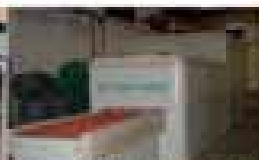
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CONTINUITY
CUSTOMER CARE
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tempering furnace
float glass equipment
laminated glass line
autoclave
washing machine



a single chamber top convection furnace that can temper high performance low-e glass



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Laminated glass equipment mmFull automation Hi performance

Float glass equipment Machines & BOT Projects

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parabolic bending and tempering line J-shape bending and tempering line



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► ROUND OR SHAPE CUTTING MACHINES

Machines pour découpe ronde et façonnage

Rund- und Formschneidemaschinen
Máquinas para corte redondo y perfilado

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► CUTTING ACCESSORIES

Accessoires pour découpe
Schneidezubehör
Accesorios para el corte

Ayrox
Bando Kiko
Softeco

► AUTOMATIC SAWS FOR CUTTING LAMINATED AND BULLET-PROOF GLASS

Machine automatique à scies verticales pour la coupe du verre stratifié et anti-effractions

Automatische Senkrechtsägemaschinen zum Schneiden von Verbund- und kugelsicherem Glas
Maquinas automaticas de sierras verticales para el corte de vidrios estratificados y a prueba de balas

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► BREAKING SYSTEMS

Systèmes de brisure
Bruch-Systeme
Sistemas de troncado

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Fushan
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Mingte Glass Tech.
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► CUTTING MACHINES WITH BREAKING AND EDGE DELETING DEVICES

Machines de découpage du verre avec système de polissage des bords
Glas-Schneidemaschinen mit Kantenabschleifungs-Vorrichtung

Máquinas para corte y desbarbado

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► GLASS CUTTING FLUIDS

Fluides pour la découpe du verre
Glasflüssigkeit
Fluidos para el cortamiento del vidrio

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► ACCESSORIES

Accessoires
Sonstiges Zubehör
Accesorios varios

Maver Glass Machinery

EDGING AND BEVELLING

FAÇONNAGE DES BORDS ET BISEAUTAGE
KANTENBEARBEITUNG UND FACETTIERUNG
CANTEADORAS Y BISELADORAS

► COMPLETE EDGING LINES

Installations complètes pour le façonnage des bords
Komplette Kantenbearbeitungsanlagen
Línea canteadora completa

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SKG - Skill Glass

► COMPLETE BEVELLING LINES

Installations complètes pour le biseautage
Komplette Facettieranlagen
Línea completa para biselado

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► COMPLETE AUTOMOTIVE GLASS EDGING AND BEVELLING LINES

Lignes complètes pour le biseautage et le meulage de verre pour l'industrie automobile

Komplette Strassen zum Abfasen und Schleifen von Glas für die Automobilindustrie
Líneas completas para achaflanar y biselar el vidrio para la industria automovilística

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► DOUBLE-EDGE GRINDING MACHINES

Rectilignes bilaterales
Doppelseitige geradlinige Kanten-schleifmaschinen
Rectilíneas bilaterales

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► VERTICAL-EDGE GRINDING MACHINES

Rectilignes verticales
Vertikale Kantenschleifmaschinen
Rectilíneas verticales

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► BEVELLING MACHINES FOR ROUND AND SHAPED GLASS

Biseauteuses pour ronds et formes diverses
Facettiermaschinen für Rund- und Formschliffe
Biseladoras para vidrios redondeados y perfilados

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► STRAIGHT-EDGE BEVELLING MACHINES

Biseauteuses rectilignes
Geradlinige Facettenschleifmaschinen
Biseladoras rectilíneas

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► BEVEL POLISHING MACHINES

Polisseuses pour biseaux
Facettenpoliermaschinen
Lustradoras para corte a bisel

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► STRAIGHT-EDGE ENGRAVING MACHINES

Machines pour gravures rectilignes
Geradlinige Gravurmaschinen
Máquinas para incisiones rectilíneas

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► SHAPED GLASS ENGRAVING MACHINES

Machines à découper pour des plaques de verre découpées selon gabarit
Gravurmaschinen für Formgeschliffene Glasplatten
Máquinas cortadoras para hojas de vidrio cortado según plantilla

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► CORNER GRINDING MACHINES

Machines pour le rodage des angles
Winkelschleifmaschinen
Máquinas para el pulido de ángulos

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► **SHAPED GLASS GRINDING MACHINES**

Machines pour le rodage de verres en forme
Formschleifmaschinen
Máquinas para el pulido de vidrios en forma

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► **BELT GRINDING MACHINES**

Machines a bande
Bandmaschinen
Máquinas a cinta

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► **LATHES - VERTICAL AND HORIZONTAL**

Tours horizontaux et verticaux
Horizontale und vertikale Schleifböcke
Tornos horizontales y verticales

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► **EMBOSSING MACHINES**

Machines pour échantures
Hohlschliffmaschinen
Máquinas para muescas

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► **PORTABLE MACHINES**

Machines portatives
Tragbare Maschinen
Máquinas portátiles

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Maver Glass Machinery

► **DIAMOND TOOLS**

Outils diamantés
Diamantwerkzeuge
Utiles de diamante

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Mole Moreschi

► **POLISHING WHEELS**

Meules de polissage
Polierscheiben
Muelas de brillo

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► **POLISHING AGENTS AND OXIDES**

Agents de polissage
Poliermittel und -oxyde
Abrasivos y oxidos limpiadores

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► **POLISHING BELTS**

Bandes abrasives
Polierbänder
Cintas abrasivas

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► **ACCESSORIES**

Accessoires divers
Sonstiges Zubehör
Accesorios varios

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Mole Moreschi

WASHING

MACHINES À LAVER
WASCHMASCHINEN
MÁQUINA LAVADORAS

► **HORIZONTAL WASHING MACHINES**

Machines a laver horizontales
Waagerechte Waschmaschinen
Lavadoras horizontales

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Bystronic glass
For.El.
Fushan
Lisec Group
Mingte Glass Tech.
Yuntong Glass
Mech-Electro Technology

► **VERTICAL WASHING MACHINES**

Machines à laver verticales
Senkrechte Waschmaschinen
Lavadoras verticales

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Lisec Group
Mingte Glass Tech.
Yuntong Glass
Mech-Electro Technology
Zafferani Glas

► **WASHING MACHINES FOR AUTOMOTIVE GLASS**

Machines à laver pour verres automobiles
Waschmaschinen für Automobilgläser
Lavadoras para vidrios de automóvil

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► **WASHING PURIFICATION SYSTEMS**

Systèmes de purification pour les machines à laver
Reinigungssystem für Waschmaschinen
Sistemas de purificación del agua

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Mingte Glass Tech.

► **LIQUID WASHING CONCENTRATES**

Liquides concentrés pour le lavage du verre
Flüssige Glasreinigerkonzentrate
Líquidos concentrados para el lavado del vidrio

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► **ACCESSORIES**

Accessoires
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Accesorios varios

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Maver Glass Machinery

MIRROR PRODUCTION

INSTALLATIONS POUR MIROIRS
SPIEGELBELEGANLAGEN
INSTALACIONES PARA ESPEJOS

► **COMPLETE PLANTS & CONVEYORS FOR MIRROR PRODUCTION**

Installations complètes & convoyeurs pour la production de miroirs
Komplette Fertigungslinien & Förderanlagen zur Spiegelfertigung

Líneas completas & trenes para la producción de espejos

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► **PAINTING EQUIPMENT**

Installations pour vernir
Lackieranlagen
Instalaciones para pintura

Mingte Glass Tech.

► **DRYING OVENS**

Fours de séchage
Trockenöfen
Hornos desecadores

Mingte Glass Tech.

► **AUTOMOTIVE MIRROR BENDING FURNACES**

Fours de bombage pour miroirs et rétroviseurs pour véhicules automobiles
Biegeöfen für KFZ-Rückspiegel
Hornos de curvado para retrovisores de automoviles

B.H.T.

► **ACCESSORIES**

Accessoires
Zubehör
Accesorios

Helios Italquartz

INSULATING GLASS

MACHINES ET INSTALLATIONS POUR VERRES ISOLANTS
ISOLIERGLASMASCHINEN UND ANLAGEN
MÁQUINAS E INSTALACIONES PARA VIDRIO - CÁMARA

► **COMPLETE INSULATING GLASS LINES**

Installations complètes pour verres isolants
Komplette Fertigungslinien für Isolierglas
Líneas completas para vidrio cámara

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► AUTOMATIC SEALING LINES

Installations automatiques pour le scellage
Automatische Versiegelungsanlagen
Líneas automáticas para sellado

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► AUTOMATIC SPACER BENDING MACHINES

Plieuses automatiques pour entretoises
Automatische Faltmaschine für Abstandhalter
Plegadoras automáticas para separadores

Bystronic glass For.El. Lisec Group

► DESICCANT SALT FILLING MACHINES

Remplisseuses pour sels déshydratants
Trockensalzeinfüller
Embudos para llenado con deshidratantes

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► SPACER CUTTING SAWS

Scies pour la coupe d'entretoises
Speziälsägen für Abstandhalter
Sierras para el corte de los separadores

For.El. Lisec Group

► BUTYL EXTRUDERS

Extrudeuse de Butyl
Butilextruder
Extrusores de butilo

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► HOT-MELT EXTRUDERS

Extrudeuse de Hot-Melt
Hot-Melt-Extruder

Extrusores de fusión en caliente

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► POLYURETHANE EXTRUDERS

Extrudeuse de polyurethanes
Polyurethanextruder
Extrusor de poliuretanos

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► POLYURETHANE ENCAPSULATION

Capsulage de polyurethanes
Polyurethaneinkapselung
Encapsulado de poliuretano

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► SILICONE EXTRUDERS

Extrudeuse de silicone
Silikonextruder
Extrusores de siliconas

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► POLYSULPHIDE SEALANT EXTRUDERS

Extrudeuse de scellants polysulfuriques
Extruder für Schwefelsaurehaltige Klebmittel
Extrusores de polisulfuros

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► GAS FILLING EQUIPMENT

Appareils pour remplissage de gaz
Gasfüllgeräte
Equipos para relleno con gas

Bystronic glass For.El. Lisec Group Maver Glass Machinery

► DESICCANT SALTS

Sels déshydratants
Trockenmittel
Sales deshidratantes

Maver Glass Machinery

► SPACERS/PROFILES

Entretoises
Abstandhalter
Separadores

Maver Glass Machinery

► GEORGIAN BARS

Croisillons de vitrages isolants
Sprossen
Barrotillos para vidrios aislantes

Hegla Maver Glass Machinery

► BUTYL

Butyle
Butyl
Butilo

Maver Glass Machinery

► POLYURETHANE SEALANTS

Produits de scellage polyurethanes
Polyurethanerhaltige Sellantes de poliuretanos

Maver Glass Machinery

► POLYSULPHIDE SEALANTS

Produits de scellage polysulfuriques
Schwefelsaurehaltige Dichtungsmittel
Sellantes polisulfúricos

Maver Glass Machinery

► HOT MELT

Hot Melt
Hot Melt
Hot Melt

Maver Glass Machinery

► OTHER SEALANTS

Produits de scellage divers
Dichtungsmittel
Sellantes varios

Maver Glass Machinery

► PANTOGRAPHES

Pantographes
Pantographen
Pantógrafos

Fratelli Pezza

► ACCESSORIES

Accessoires
Zubehör
Accesorios

For.El. Helios Italquartz Maver Glass Machinery

TEMPERING

TREMPE
TEMPERTECHNIK
TEMPLADO

► TEMPERING FURNACES (ARCHITECTURAL GLASS)

Fours de trempage pour le verre destiné à la construction
Härtungsöfen für das Glas, das für Bauwesen bestimmt ist
Hornos para templar el vidrio para la construcción

B.H.T.
Fushan
keraglass
Glasstech
Hornos Industriales Pujol
Keraglass
Landglass Technology
Lisec Group
China Liaoning North Glass Machine Co., Ltd.
Mingte Glass Tech.
Yuntong Glass
Mech-Electro Technology

► TEMPERING FURNACES (AUTOMOTIVE GLASS)

Fours de trempage pour le verre destiné à l'industrie automobile
Härtungsöfen für das Glas, das für die Automobilindustrie bestimmt ist
Hornos para templar el vidrio para la industria automovilística

B.H.T.
Glasstech Inc.
Keraglass
Landglass Technology
China Liaoning North Glass Machine Co., Ltd.
Mingte Glass Tech.
Yuntong Glass
Mech-Electro Technology

► ACCESSORIES

Accessoires
Zubehör
Accesorios

Helios Italquartz
Keraglass
Landglass Technology
Maver Glass Machinery

Mingte Glass Tech.
Yuntong Glass
Mech-Electro Technology

BENDING

BOMBAGE
BIEGEN
CURVADO

➤ **BENDING FURNACES**
(ARCHITECTURAL GLASS)

Fours de courbure pour le verre destiné à la construction

Biegeöfen für das Glas, das für Bauwesen bestimmt ist

Hornos para curvar el vidrio para la construcción

B.H.T.
Fushan
Glasstech Inc.
Keraglass
Mingte Glass Tech.
Yuntong Glass
Mech-Electro Technology

➤ **BENDING FURNACES**
(AUTOMOTIVE GLASS)

Fours de courbure pour le verre destiné à l'industrie automobile

Biegeöfen für das Glas, das für die Automobilindustrie bestimmt ist

Hornos para curvar el vidrio para la industria automovilística

B.H.T.
Glasstech Inc.
Keraglass
Mingte Glass Tech.
Yuntong Glass
Mech-Electro Technology

➤ **ACCESSORIES**

Accessoires
Zubehör
Accesorios

Ayrox
Glasstech Inc.
Keraglass
Mingte Glass Tech.
Softeco

**LAMINATED GLASS PRODUCTION**

INSTALLATIONS POUR
VERRES FEUILLETÉS
VERBUNDGLASANLAGEN
INSTALACIONES PARA
VIDRIO ESTRATIFICADO

➤ **COMPLETE PLANTS**

Installations complètes
Komplette Fertigungslinien
Instalaciones completas

B.H.T.
Bystronic glass
For.El.
Fushan
Hornos Industriales Pujol
Mingte Glass Tech.
Terruzzi
Tema
Yuntong Glass
Mech-Electro Technology

➤ **LAMINATED WINDSCREEN**
BENDING FURNACES

Fours de bombage pour pare-brise feuilletés
Ofen zur Biegung von Sicherheitswindschutzscheiben
Horno de curvado para parabrisas de vidrio estratificado

B.H.T.
Glasstech Inc.
Keraglass
Mingte Glass Tech.

➤ **AUTOCLAVES**

Autoclaves
Autoklaven
Autoclaves

Bystronic glass
China Liaoning North Glass
Machine Co., Ltd.
Terruzzi
Yuntong Glass
Mech-Electro Technology

➤ **CLIMATIC CABINS**

Cabines climatiques
Klimazellen
Cabina climática

Bystronic glass
For.El.
Mingte Glass Tech.
Yuntong Glass
Mech-Electro Technology

➤ **INFRARED OVENS**

Four à radiations infrarouges
Infrarotöfen
Hornos a rayos infrarrojos

B.H.T.
Bystronic glass
For.El.
Mingte Glass Tech.
Tema
Yuntong Glass
Mech-Electro Technology

➤ **PRESSES/ BENDING**
MACHINES

Calandres (presses)
Kalender (Pressen)
Prensas

For.El.

➤ **RESIN LAMINATING**
MATERIALS
AND EQUIPMENT

Matériaux et installations pour la production de verre stratifié avec résine
Materiale und Anlagen für die Herstellung von Schichtglas mit Harzverbindung
Materiales e instalaciones para la producción de vidrio estratificado con resina

Maver Glass Machinery

➤ **PVB - SHAPING AND**
CUTTING EQUIPMENT

Machines pour la découpe selon gabarit du PVB
Maschinen für die Formung und den Schnitt von PVB
Máquinas para perfilar y cortar el PVB

Ayrox
Bystronic glass
For.El.
Softeco

➤ **PVB - WIRING**
TECHNOLOGY FOR HEATABLE
LAMINATES

Cablage du PVB pour verre feuilleté chauffant
Heizdrahtverlege - Technologie für beheizbares Verbundglas
Cableado del PVB para el vidrio laminado calentable

Ayrox
Softeco

➤ **ACCESSORIES**

Accessoires
Zubehör
Accesorios

Ayrox
Helios Italquartz
Softeco
Tema

DRILLING

PERÇAGES
BOHRTECHNIK
TALADROS

➤ **AUTOMATIC**
DRILLING LINES

Installations automatiques de perçage
Automatische Bohranlagen
Líneas automáticas de taladro

Bando Kiko
Bystronic glass
C.M.B. - Besana
Forvet
Intermac
SKG - Skill Glass

➤ **MULTI-SPINDLE DRILLING**
MACHINES

Perceuses multiples
Reihenbohrmaschinen
Taladradores múltiples

Bando Kiko
Bystronic glass
C.M.B. - Besana
CMS Brembana
Forvet
Intermac
SKG - Skill Glass

➤ **DRILLING MACHINES WITH**
OPPOSITE
DRILLING HEADS

Perceuses à pointes opposées
Bohrmaschinen mit entgegengesetzten Bohrern
Taladradores a puntas contrapuestas

Bando Kiko
Bystronic glass
C.M.B. - Besana
CMS Brembana
Forvet
Fushan
Glassman Glass Machinery
Technology

Suppliers Guide

Yellow pages

www.glassonline.com

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Intermac

SKG - Skill Glass
Zafferani Glas

▶ PORTABLE DRILLING MACHINES

Perceuses portatives
Tragbare Bohrmaschinen
Taladradores portátiles

CMS Brembana

Maver Glass Machinery

▶ DRILLING AND MILLING MACHINES

Maquines pour percer et fraiser les plaques de verre
Bohr- und Fräsmaschinen für Glasplatten
Máquinas para agujerear y fresar hojas de vidrio

C.M.B. - Besana

CMS Brembana
Forvet

Glassman Glass Machinery Technology

SKG - Skill Glass

▶ DIAMOND DRILLS

Forets diamantes
Diamantbohrer
Pequeños agujeros diamantados

Maver Glass Machinery

Mole Moreschi

▶ ACCESSORIES

Accessoires divers
Sonstiges Zubehör
Accesorios varios

CMS Brembana

Maver Glass Machinery

OTHER EQUIPMENT AND PLANTS

INSTALLATIONS DIVERSES
SONTIGE ANLAGEN
INSTALACIONES VARIAS

▶ TURNKEY PLANTS / ENGINEERING - FOR BUILDING GLASS

Installations clefs à la main - Engineering - verre plat pour constructions
Schlüssselfertige Anlagen - Engineering - für Baufachglas

Instalaciones llave en mano - Engineering - para vidrio plano para la construcción

Bando Kiko
B.H.T.

Bystronic glass
Cugher Glass

Intermac

Keraglass

Lisec Group

▶ TURNKEY PLANTS / ENGINEERING - FOR AUTOMOTIVE GLASS

Installations clefs à la main - Engineering - verre automobile

Schlüssselfertige Anlagen - Engineering - für Automobilglas

Instalaciones llave en mano - Engineering - para vidrio para de automóviles

Bando Kiko
B.H.T.

Bystronic glass
Cugher Glass

Intermac

▶ TURNKEY PLANTS / ENGINEERING - FOR DISPLAY GLASS

Installations clefs à la main - Engineering - display de verre

Schlüssselfertige Anlagen - Engineering - Glasdisplay

Instalaciones llave en mano - Engineering - Display para vidrio

Bando Kiko
Cugher Glass

▶ WORKING CENTRES - CNC CONTROLLED

Centre de travail à control numérique
Arbeitszentrum mit Zahlenkontrolle
Centro de trabajo de control numérico

Bando Kiko

Bystronic glass

C.M.B. - Besana

Fushan

Glasstech Inc.

Glassman Glass Machinery Technology

Hegla

Intermac

Mingte Glass Tech.

SKG - Skill Glass

▶ FIBERGLASS/ GLASSWOOL PRODUCTION LINES, EQUIPMENT AND PRODUCTS

Installations pour la production du fibre de verre (systèmes & produits)
Glasfaser - Anlagen (Systeme und Produkte)
Instalaciones para la producción de fibra de vidrio (máquinas & productos)

Lipex

▶ VACUUM COATING EQUIPMENT AND PLANTS

Systèmes et installations pour le revêtement sous vide
Systeme und Anlagen für die Vakuumbeschichtung von Glasplatten
Sistemas e instalaciones para el revestimiento en vacío

Interpane

▶ ENAMELLING EQUIPMENT AND PLANTS

Systèmes et installations pour la peinture du verre
Systeme und Anlagen für die Emailierung von Glas
Sistemas y equipos para el esmaltado del vidrio

Rollmac

▶ SANDBLASTING SYSTEMS, EQUIPMENT AND PLANTS - OPTIMIZERS

Machines et installations pour le sablage - Optimisation
Sandstrahlmaschinen und -anlagen - Optimalisierung
Maquinas e instalaciones para pulido con arena - Optimizadores

Fratelli Pezza

Fushan

SKG - Skill Glass

▶ SCREEN PRINTING EQUIPMENT AND PLANTS

Machines et installations de sérigraphie - verre pour le bâtiment/l'automobile
Siebdruckmaschinen und -anlagen, Glas für Bauwesen/Kraftfahrzeuge
Máquinas y equipos para serigrafía - vidrio para la construcción/vehículos

Ayrox

Cugher Glass

Keraglass

Rollmac

Softeco

▶ SCREEN PRINTING DRYING SYSTEMS

Systèmes de séchage pour la sérigraphie
Siebdruck-Trockensysteme
Sistemas de secado para la serigrafía

Cugher Glass

Rollmac

▶ ACIDING GLASS EQUIPMENT AND PLANTS

Machines et installations pour la gravure à l'acide
Ätzmaschinen und -anlagen
Máquinas e instalaciones para vidrio al ácido

Rollmac

ARTISTIC GLASS PRODUCTION

FABRICATION DE VERRE
ARTISTIQUE PRODUCTION
VON KÜNSTLERISCH
GESTALTETEM GLAS
PRODUCCIÓN VÍDRIO
ARTÍSTICO

▶ CHAMBER ELECTRIC KILNS

Fours électriques à chambre
Elektrische Kammeröfen
Hornos eléctricos de cámara

Hornos Industriales Pujol

Keraglass

Maver Glass Machinery

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► **ACCESSORIES**

Accessoires divers
Sonstiges Zubehör
Accesorios varios

Helios Italquartz

MISCELLANEOUS

**MELANGE
SONSTIGES
VARIOS**

► **AUTOMOTIVE GLASS
APPROVAL SERVICES**

Services d'approbation
du verre pour véhicules
Zulassungsdienst Glas
für Kfz-Verwendungen
Servicio de aprobación
del cristal para auto

**Ayrox
Softeco**

► **AUTOMOTIVE GLASS
QUALITY CONTROL**

Contrôle qualité du verre
pour véhicules
Kontrolle der Glasqualität
für Kfz-Verwendungen
Control de calidad del
cristal para auto

**Ayrox
Bando Kiko
Bystronic glass
Cugher Glass
Softeco**

► **CE MARKING - QUALITY
CONTROL EQUIPMENT FOR
GLASS IN BUILDING**

Instruments de contrôle
de qualité et marquage
CE du verre utilisé dans
la construction
CE-Kennzeichnung - Qualität
Kontrolle Ausstattung
für Glas in Bauwesen
Instrumentos para el control
de calidad y marcado
CE del vidrio utilizado
en la construcción

**Ayrox
Softeco**

► **CUTTERS**

Couoirs
Schneidware
Cizallas

Maver Glass Machinery

► **CUTTING WHEELS**

Meules de découpe
Schneidscheiben
Muelas para el corte

Maver Glass Machinery

► **DEIONIZING AND WATER
SOFTENING EQUIPMENT**

Deionisateurs et
adoucisseurs d'eau
Entionisierungs-Anlagen
und Wasserenthärter
Instalaciones deionizadoras
y ablandadores del agua

**For.El.
Lisec Group**

► **FLAT GLASS QUALITY
CONTROL DEVICES**

Systèmes de contrôle de
qualité pour plaques de verre
Qualitätskontroll- Systeme
für Glasplatten
Sistemas de control de
calidad para hojas de vidrio

**Ayrox
For.El.
Softeco**

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

Equipements pour le
réchauffement (brûleurs,
mélangeurs d'air et de gaz,
mécanismes de sécurité,
résistances électriques)
Heizungsausrüstung
(Brenner, Luft-Gasmischer,
Sicherheitsvorrichtungen,
elektrische Widerstände)
Equipos de calefacción
(Quemadores, mezcladores
de aire y gas, mecanismos
de seguridad, resistencias
eléctricas)

Keraglass

► **INFRARED TUBES**

Tubes à infrarouge
Infrarot Röhren
Tubos infrarrojos

Helios Italquartz

► **KILNS**

Fours
Kammeröfen
Hornos

Hornos Industriales Pujol

**Keraglass
Maver Glass Machinery**► **OPTICAL DISTORTION
ANALYSERS FOR AUTOMOTIVE
GLASS**

Analyseurs optiques de
distorsion pour verre destiné à
l'industrie automobile

Optische Verzugs-
Analysatoren für Glas für
die Automobilindustrie
Analizadores ópticos de
distorsión para vidrio para
la industria automovilística

Keraglass

► **POWDER OR LIQUID
APPLICATION SYSTEMS FOR
PROTECTING FLOAT GLASS**

Systèmes d'application
en poudre ou liquide pour
la protection du verre
Puder-Flußigkeitauftragsgeräte
zum Schutz von Flachglas
Sistema de protección
del vidrio "float" mediante
polvos o líquidos

Cugher Glass

► **QUARTZ EQUIPMENT**

Quartz machines
Quartz Maschinen
Equipos de cuarzo

Helios Italquartz

► **SIC HEATERS**

SIC appareils de chauffage
SIC Heizgeräte
SIC Calentadores

Helios Italquartz

► **SOFTWARE SYSTEMS FOR
PRODUCTION CONTROL**

Systèmes de logiciels pour le
contrôle de la production
Software-Systeme für die
Kontrolle der Produktion
Sistemas de software para el
control de la producción

**Cugher Glass
For.El.
Lisec Group
Optima**

► **SOLDERING EQUIPMENT
FOR ELECTRICAL CONNECTORS
FOR WINDSCREENS
AND BACKLITES**

Systèmes pour le contrôle
du gabarit

Systeme für die
Verschweißung der
elektrischen Leiter
in Windschutzscheiben
und Heckfenstern
Sistemas para soldar los
conectores eléctricos en los
parabrisas y cristales traseros

**Ayrox
Softeco**

► **SORTING SYSTEMS**

Systèmes de classification
Klassifizierung
(für Glasplatten)
Clasificadores

**Bystronic glass
Lisec Group**

► **TESTING FOR SOLDERINGS**

Tests des soudures
Prüfung der Schweißnähte
Prueba para las soldaduras

**Ayrox
Softeco**

► **TESTING DEVICES
OF BACKLITES ELECTRICAL
HEATING**

Systèmes de contrôle
du chauffage électrique
des vitres arrières
Kontrollsysteme
für die elektrische
Heckfensterbeheizung
Sistemas de control para
el calentamiento eléctrico
de los cristales traseros

**Ayrox
Softeco**

► **UV ADHESIVES**

Collants à rayons U.V.
U.V.-Strahlen-Leime
Colas U.V.

Maver Glass Machinery

► **UV LAMPS**

UV lampes
UV Lampen
Bombillas U.V.

Helios Italquartz

► **UV PORTABLE MACHINES**

Machines portables
aux rayons U.V.
Tragbare U.V. - Strahlen
Maschinen
Máquinas portátiles U.V.

Helios Italquartz

Glas Trösch/Euroglas: a perfect circle - the HQ Building in Abu Dhabi

An iconic landmark, this is the description given to the "HQ Building Abu Dhabi" thanks to its truly unconventional shape. This area is currently undergoing serious development, with a project for offices, hotels, commerce, residential and leisure facilities at Al Raha Beach. The building, developed in accordance with the requirements of the U.S. Green Building Council Assessment System LEED, covers a total gross floor area of 61,900 square meters, and has a diameter of 120.9 meters and a depth of 36.4 meters in the centre, and 10 meters at the edge.

Al Raha Beach, an 11-kilometre-long urban development region in Abu Dhabi, is the site of the first circular building to be constructed in the United Arab Emirates. As the 'kick-off' to the mega project for offices, hotels, commerce, residential and leisure facilities along the highway to Dubai, the HQ Building Abu Dhabi has an unconventional shape, with two circular, bulbous, curved glass façades, offering open office and commercial space with flexible partitioning over 23 floors, and providing spectacular views of the city, the Straits and the Persian Gulf. Although the North-South facing building would have been easier to cool as a result of the reduced direct sunlight, the two fully-glazed main façades are East and West facing in line with the Al Raha Master Plan. Consequently, with the reflection of the sunrise and sunset every morning and evening they provide a spectacular sight.

With a diameter of 120.9 meters and a depth

The external pane, made from blue tinted basic glass Glacier with a Silverstar Sunstop Blue 30 T coating

of 36.4 meters in the centre and 10 meters at the edge, the HQ Building covers a total gross floor area of 61,900 square meters, comprising units of various sizes with diverse potential uses, depending upon the individual floor.

One part is being used as the headquarters of Aldar, Abu Dhabi's largest property developer; the remaining space will be leased and offers users the full range of fixtures and fittings under the international category A for office buildings, including a prayer room, restaurants, a fitness room and small retail shops. The building was developed in accordance with the requirements of the U.S. Green Building Council Assessment System LEED and includes efficient air-conditioning, lighting and water systems, underground waste processing, as well as a sophisticated, space-saving lift system.

HIGHLY COMPLEX, THREE-DIMENSIONAL 'DIAGRID' STEEL STRUCTURE

The unusual shape of the building is attributable to a design by the architects MZ & Partners, a design which had already received the award for 'Best futuristic design' in 2008 at the Building Exchange Conference in Valencia and which has now been handed over to the leading firm of engineers Arup for realization. It soon became clear to the planners that concrete was not an option as a construction material for the structure with its 25-metre cantilevered design in every longitudinal direction. In addition to time-consuming and costly on-site construction work, a concrete structure would have required countless and unwanted internal supports. This was the reason for the development of a complex, grid-like, diamond-shaped steel structure – a 'diagrid' – simultaneously creating the building's succinct façade look. It comprises triangular elements, which are linked together via prefabricated node points, the various angles creating the three-dimensional cantilevered appearance of the façades. In this context a rhomboid area extends over eight stories. This design construction transfers the majority of the resultant loads to the external skin and consequently provides for an almost entirely support-free interior, with maximum flexibility for the floor plan and unhindered views. Two internal concrete cores housing the lifts, emer-

Glas Trösch/ Euroglas: a perfect circle - the HQ Building in Abu Dhabi

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gency stairs and first aid rooms are used to reinforce the construction. The all-round, curved shape of the building creates additional, powerful horizontal forces in the floor ceilings under the weight of the construction itself.

This is why the two circular façades are linked together via tie rods and a horizontal support connects the external, middle and internal supports for all floors.

GLASS WITH A TEMPERABLE SOLAR CONTROL COATING

The diagrid steel structure was sealed using a total of more than 10,000 glass elements which had previously been assembled during the pre-fabrication phase to create approximately 9-square-metre-large, triangular panels with aluminium frames. In this context, the retaining brackets for the frame profiles determined the angle of each glass panel in the three-dimensional, curved structure. This had been standardized on the basis of a previous design, which would have required 10,000 different glass shapes, in such a way that only eight different shapes were needed for the entire building shell.

The extreme climate conditions in the region, with daytime temperatures of up to 50°C, turned the execution of the 16,000-square-metre glass façade into a challenge. As a result of the stringent requirements in terms of quality and solar control, the planners chose insulation glass from Glas Trösch/Euroglas. Its external pane, from the blue tinted basic glass Glacier with a Silverstar Sunstop Blue 30 T coating, provided for an overall energy transmittance of just 18 per cent, together with the desired reflection effect. The internal pane, made from Eurofloat clear glass, was also given a Silverstar ENplus T coating.

Seamless logistics and a timely, efficient handling and construction process were fundamental to the processing and tempering of the glazing which had been transported by truck and ship container from Switzerland to Abu Dhabi. This enabled the firm of White Aluminium Enterprises to carry out all the additional processing steps on-site: after cutting, the coated panes were able to be thermal-

The unconventional shape of the HQ Building Abu Dhabi





ly tempered to create toughened safety glass and then be assembled together to create insulating glass.

PROCESS OPTIMIZATION THROUGH BUILDING INFORMATION MODELLING

The HQ Project Team was spread throughout the world, with partners in Dubai, Sydney, the United Kingdom and Italy. In order to ensure efficient teamwork between the participating planners, engineers, processors and the manufacturing plants, a highly developed 3D model – the Building Information Modelling – was employed during the actual initial phases of the project. This provided all those involved with parallel access to continually updated model data with the same degree of precision. Interface problems in the planning and speeded up the manufacture of components and material procurement were therefore avoided. Compared to conventional workflows, this meant an approximately 25 per cent reduction in the time required for the entire planning and construction process. The method of approach also allowed for overlaps between the timing of the planning and construction phase, enabling the façades to be sealed and the commencement of work on the interior fitting out in parallel with the construction of the internal floor structure and the steel support structure. The HQ Building was finally ready for occupation at the end of 2010 and now awaits the completion of additional, spectacular neighbouring buildings in Al Raha Beach. ■



Glas Trösch/Euroglas

Tel: +41 – 62 – 9585490

Fax: +41 – 62 – 9632765

E-mail: f.nussbaumer@glastroesch.ch

www.glastroesch.com

www.euroglas.com

ICG: Annual Meeting sets the course for the future

The 2011 ICG Annual Meeting, held in China, was the stage for making important decisions regarding energy savings and technology, but also about the future of materials and technologies.

This article gives us a short overview of this meeting, with the presence of the important players of the applications and developments of glass.

T HE CONFERENCE - FIRST DAY

The ICG Annual Meeting 2011 in Shenzhen, China was jointly sponsored by the Chinese Ceramic Society and also ran under the banner of the first Hi-Tech International Forum on Glass. The event was organized by the China Triumph International Engineering Co., Ltd., with the assistance of the Glass, Special Glass and Electronic Glass Committees of the Chinese Ceramic Society, the Photovoltaic Glass Professional Committee of CAIGA, the Shenzhen Solar Energy Society, the South China University of Technology and Shenzhen University.

The technical sessions over the first two days were followed by a visit to a local Industrial Park in Huizhou City.

The main event started with a brief opening ceremony, with welcome speeches from:

- Prof. Peng Shou, the ICG Vice-President and President of CTIEC, the conference organizers; he introduced those on the top table, including Peter Simurka (ICG Secretary), Gan Fuxi, Jacques Lucas and the Secretary of the CCS, Jin Zhanping.

In addition to speakers, he also welcomed more than 200 experts to the conference from 19 different countries;

- the President of ICG, Fabiano Nicoletti, who took the opportunity to urge Chinese scientists to become more involved in ICG activities;
- Renwei Zhang, the President of the CCS, who commented that flat glass production in China had increased by 60 per cent since the last joint CCS/ICG meeting in China in 2004;
- the Deputy Mayor of the Shenzhen Municipal Government who welcomed all to the international cosmopolitan city of Shenzhen, a metropolis that had been constructed in the last 30 years and had an emphasis on biomedical and the internet based industries.

ICG awards

The opening ceremony included the award of the two prestigious prizes in the gift of ICG at its Annual Meetings. Prof. Conradt was awarded the Turner Prize, given to an ICG Technical Committee Chairman for his contribution to ICG activities, specifically in Prof. Conradt's case for his chairmanship of the ICG Technical Committee on Education and Training in Glass Science and Engineering (TC23) and his contribution to road-mapping exercises. At the age of just 31, John Mauro became the youngest recipient of the Gottardi award since its inception in 1987 for his work on glass structure. He had also received the Weyl Award at the ICG Congress the previous year. The rest of the day was devoted to Plenary Talks and a Round Table Discussion.

Global role of the ICG

Fabiano Nicoletti spoke on the Global Role of the International Committee of Glass. He explained the recent changes in the ICG constitution that promote the inclusion of international glass companies, associated organizations

ICG: Annual Meeting sets the course for the future

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and individual members within its structures and activities but commented that while China pays the highest fees, having the largest glass output, it unfortunately is only 13th in the list of participants in TCs, a situation that needs changing. He demonstrated how the ICG is adapting to the pressures imposed on industry and academia by a whole raft of environmental issues and shortages of money for research by stimulating activities such as:

- 1) road-mapping;
- 2) promoting international consortia to carry out major research developments; and
- 3) enhancing the image of glass in society.

The future of materials and technologies

These themes were taken up next by Klaus Bange who spoke on 'The Future of Materials and Technologies'. He described the various tools available for technology foresight, a relatively new mechanism for strategic decision-making and then commented specifically on the work that ICG has carried out in creating roadmaps, for example, in innovative glass melting technologies, advanced materials, glass surface properties, as well as functional coatings.

He perceived glass as absolutely key for energy saving, energy generation and energy storage, with solar power having the largest potential for growth.

Structure modelling and property prediction

Prof. René Vacher introduced the next speaker, John Mauro, the winner of this year's Gottardi Award. Mauro has 64 peer reviewed publications, four patents with a further six patents pending and is working in the Glass Research Department of Corning Inc. (United States). After the presentation of his award, he spoke on his work in structure modelling and property prediction using his 'Temperature-dependent Constraint Theory of Glass'.

This avoids some of the limitations of MD simulations and allows modelling of dynamic properties such as glass melt viscosity-temperature relationships, glass transition and fragility, and mechanical properties such as hardness for complex glass compositions.

Application and developments

In the afternoon, the first presenter was the Vice-President of ICG and Chairman of the China Triumph International Engineering

ABOUT THE INTERNATIONAL COMMISSION ON GLASS (ICG)

ICG is a non-profit international glass society consisting of 34 national organizations in glass science and technology. The aim of ICG is to promote cooperation between glass experts. ICG organizes Technical Committee (TC) work (laboratory round robins, publication of scientific and technical papers). ICG organizes the International Congress on Glass every three years.

Company (CTIEC), Peng Shou. He spoke on the 'Application and Development Direction of New Glass in National Strategic New-rising Industry' covering particularly:

- ultra-clear solar glass;
- ultra-thin substrate glass for displays;
- energy saving glass; and
- energy saving plus emission reduction in glass production.

Glass output is rising steeply and by 2020 Chinese output of flat glass for photovoltaics is expected to exceed the total global production of flat glass in 2005.

The concerns associated with nuclear power stimulated by the recent earthquake in Japan may well accelerate this trend.

Global view of the flat glass industry

Masayuki Kamiya, Senior Executive Officer and Chief Representative of the AGC Group for China, gave a global view of the flat glass industry. AGC has 47,000 employees in 250 group companies throughout 27 countries and its products are used in the architectural, automotive, display and appliance industries with a perception of unlimited potential for the future. Plastic is not seen as a threat but rather as a composite component that can enhance glass applications.

Energy and its efficiency

F.C. Paulson with C.J. Hoyle provided a 'Practical Approach to an Energy-efficient Float Furnace with Low Emissions' by considering first what is possible in designing an energy efficient float furnace and then analysing the effect of constraints such as capital and operating costs, emission controls and waste heat recovery technologies. L. Goethals spoke on 'Energy Efficient Automation Solutions with Higher Quality and Lower Cost for Glass and Solar Industry', commenting on the long association of Siemens with China – one that started 138 years ago. Siemens spends five per cent of its annual budget on R&D, an unusually high proportion.

The company has developed a range of energy optimization tools for use in industry, which easily recover their cost over the lifetime of the plant. Siemens is also heavily involved in manufacturing coating systems for photovoltaics, an area of potentially massive growth with up to 50 per cent of our electricity being generated using solar power by 2050.

Results of the ICG Business Meeting held during the conference

The ICG held its 2011 Annual Meeting in Shenzhen, China. The Coordinating Technical Committee (CTC) and Steering Committee Business Meetings and the Annual Council Meetings took place parallel to the first Hi-Tech International Forum on Glass. The Council made the following relevant decisions:



- Peng Shou was elected as President Elect with a time of Presidency from 2012 to 2015;
- Manoj Choudhary was nominated a Vice President;
- to promote an effective transition, President ICG F. Nicoletti, President Elect S. Peng and the next Vice President M. Choudhary will work as a team;
- Brian McMillan as a new member of the Steering Committee;
- Hande Sengel as a new member of the new CTC member;
- replacing TC01 by a Communication Bureau (CB) with B. McMillan as a chair. CB will be in charge of the website, press releases and Editorial Team. John Parker will continue to work as a Secretary of CTC, leader of teachers for Summer School and filter for the website.

The president Elect, Peng Shou outlines his programme for the ICG for the coming year. His talk emphasized four specific themes that he hopes to take up during his term of office:

- to increase the number of member organizations in ICG particularly using his links to the ASEAN countries, without neglecting the older members of the community in America and Europe;
- to strengthen communication and cooperation, making particular use of the website and press releases;
- to promote technological progress and development of glass around the world by strengthening global cooperation among scientific research institutes, academic groups, universities and entrepreneurs;
- to make more effort to help developing countries by assisting them in improving the quality and yield of glass products, and helping to solve environmental problems by promoting energy saving and emission reduction technologies.

Innovative technologies

Bringing the day's plenary talks to a close, Zhifeng Long spoke on 'Enabling Advanced Displays through Innovative Glass Technologies'.

He commented that consumers are demanding thinner, lighter and more functional electronic devices and explained how Corning technology is facilitating these trends by improving glass properties and offering innovative glass technologies. Two of the company's products, an environmentally friendly substrate and a thin but durable cover glass, were presented as examples.

All the speakers for the day then joined in a Round Table discussion with questions from the floor. The range of topics raised was large, covering:

- education and the need for both courses and textbooks;
- a discussion on the factors limiting the involvement of China in ICG activities such as language barriers;
- the possibilities for developing new melting and forming technologies, using in flight fusion, electric melting etc and making sheet as thin as 0.3 millimetres;
- ways to combine activities in related fields e.g. the glass, polymer and metallic glass communities, and to bring the Glass Physics community within the ICG umbrella;
- whether there is sufficient R&D activity worldwide and how it can be stimulated.

A Poster session followed with 15 presentations on a wide range of topics.

In the evening the Conference Banquet was arranged in the Wuzhou Guest House.

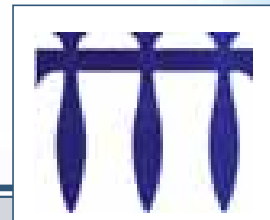
THE SECOND DAY OF THE CONFERENCE

The second day of the event was structured as four parallel sessions under the headings:

- Glass Structure and Properties (21 papers);
- Photonic Glass (19 papers), Plate Glass (20 papers)
- and Electronic Glass (15 papers).

Both plenary talks (30 minutes) and shorter (15 minutes) presentations were included.

Last but not least, a visit to the Industrial Park of Avic Sanxin, Huizhou City, Guangdong Province was organized followed by lunch. Avic Glass manufactures solar glass, electronic glass, quality auto glass, aero glass. ■



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GPD: competition winner designs glass pavilion for Tampere

The assignment set for the architectural competition, held for the first time this year, was to design a glass pavilion for the Bank of Finland Square, Tampere. The competition was organized by the City of Tampere, Finnpark, Tampere University of Technology, Glaston and GPD. The goal of the architectural competition was to look into and apply the new opportunities that have opened up in glass architecture and to construct a high-quality landmark in central Tampere that would also serve as a meeting point for Tampere residents.

A BOOST FOR TAMPERE'S ARCHITECTURE

The invitational competition, which the organizers are planning to arrange regularly, and the pavilions and other structures erected in central Tampere are designed to give a boost to Tampere's current architecture scene. The structure is designed to be the first in a glimmering string of glass pavilion pearls, a wholly new architectural and cultural route through Tampere.

Inviting domestic and international trailblazers

Over the next few years, several small glass structures will be built in central Tampere. Respected Finnish and foreign architects were, thanks to a recent competition, invited to design the buildings. State-of-the-art glass technology will be used in the design and implementation of the buildings.

What could benefit the city whilst using the best qualities of glass? What could one want to see here in the winter, after ploughing through the Hämeenkatu shops, reaching the impenetrable darkness of Tammerkoski? What could create additional value to a perfect spring afternoon spent in Koskipuisto?

The architectural themes are based on upgrading the entire square, in creating a new place within the city. In fact, it uses the visual and technical sensibilities inherent to glass to adjust ones senses of time through distorting daily and annual rhythms.

The location is the most centrally conceivable in Tampere, where Näsijärvi flows into Pyhäjärvi, creating the energy needed to set up the first factories around which the city grew. The tip of this site is well visible along Hämeenkatu, but is particularly the focal point at the end of Hatäänpan valtatie.

The pavilion

We propose to plant a Magnolia tree for Tampere. An intelligent glass dome will provide the tree with a more southern climate, complete with ventilation, shading and lighting. The air exhaust of the parking garage will provide additional heating during the cold, dark months. This dome will have its own micro-climate, fine-tuned using the technical abilities provided by its glazed surface. The Magnolia will be nurtured to bloom into magnificent bright pink blossom by the first of May each year. Its strong perfume will fill the pavilion and, on some spring days, may even drift down into the garage.

Architecturally, the project uses the most obvious, simple qualities that glass has.

Transparency is used to provide the Magnolia tree with sunlight, reflections dissolve the dome into surrounding foliage, and refractions magnify the blossoms of the Magnolia onto the full undulating dome. These spherically extruded surfaces create a variety of illusions while relating to the traditions of sand, soda and chalk melted down and blown into fantastic shapes.

The pavilion houses an information kiosk as suggested by the organizer of the competition. There will also be a large LED screen on the concrete wall of the staircase structure displaying necessary information.

The glass is melted into shape by gravitation. The flat panel is placed on a

simple triangular frame and melted into its distinctive spherical, double curved shape. This process uses a process similar to that used in windscreen manufacturing. Each pane has a maximum dimension of 2,600 millimetres to fit into an autoclave for laminating. Chemical hardening is not considered necessary for public safety here. The structural steel frame is a domed form consisting of straight t-shaped profiles which are braced through the tree with steel wires. This bracing allows for a much thinner steel structure overall. Many of the triangular units have distinctive functions: six of the glass units at the tip of the dome will open up to let hot air ventilate out. Some of the higher units will have integrated LED lights to provide the tree with additional lighting to shorten the long winter nights. The most southern units of the top of the dome can have electrochromic switchable coating for additional shading if necessary. Four panes on the south-eastern side of the pavilion will have steel grilles in place of glazing, thus creating a 20-square-metre exhaust air vent.

The thickness of the glass should be adjusted to allow for melting the snow with the heat provided by the heat exchange system of the garage exhaust air, but still have sufficient thickness to create the correct climate for the Magnolia. A sprinkler system will be planted into the soil so as to water the tree with an appropriate mist.

A water basin collects the rainwater from the self-cleaning glass surfaces of the pavilion. This water is filtered and pumped to the Magnolia tree above. The edge of the basin also creates a boundary to protect against snow ploughing.

With its natural forms and movement, the tree will contrast beautifully with the exact glass structure that envelops it. The Magnolia tree will give a soft image to the square at the centre of industrial Tampere.

100 per cent glass bus shelters, glass paving

The bus shelters are used as additional showcases for a variety of innovations in glass. Each shelter will have three perpendicular surfaces, the narrow vertical surface having an integrated LED information screen, the longer vertical surface housing four colour printed advertisements, and the roof with integrated photovoltaics to power the screen, lighting and to melt snow from the roof. All this would be structurally built to transmit loads.

The paving is cast of cemented glass. Mixed using recycled materials and containing 67 per cent of mixed coloured glass from bottle banks, white cement and residual potash (potassium carbonate) to alkalize the cement and therefore not disturb the glass.

Street furniture, trees and lighting

Traditional glassblowing methods will be used to create a series of colourful benches and seats across the square. Urban trees will be planted around the square to supplement and contrast with the Magnolia.

The square will have a minimum of low lighting in addition to the LED lighting of the pavilion itself. The surrounding orange street lighting will be contrasted by the cooler light glowing from the pavilion.





in architecture and engineering to compete at regular intervals in designing new elements for this string of structures will certainly increase the visibility of the Tampere region.

A group of renowned international architects were invited to participate in this year's competition: James Carpenter from New York; Keith Boswell, the head of the San Francisco office of Skidmore Owings & Merrill; the Finnish ALA Arkkitehdit of Helsinki; and Professor Werner Sobek from Stuttgart.

ALA ARKKITEHDIT'S PROPOSAL, 'MAGNOLIA', EMERGED AS THE WINNER

The judges unanimously selected 'Magnolia' as the winner of the competition. In the proposal, a greenhouse fashioned in a round shape from triangular parts, is the entrance structure to the underground car park. The proposal calls for the planting of a magnolia tree inside the greenhouse. The triangular glass elements are forged in a mould, using windshield production technology, then laminated together.

According to the judges, 'Magnolia' achieves the illusion of fragility and lightness, inherent in glass, while using the original, authentic features of glass. The piece has the potential to become an internationally interesting sight, Tampere's new landmark, and a meeting point recognized by the city's residents.

In their review, the judges emphasised the cityscape-related and innovative properties of the proposal, as well as its originality, the functionality of the entire design and its relationship with the cultural and historical environment,

consideration of the sustainable construction aspect, the utilization of advanced glass technology, and technical and financial feasibility.

'Magnolia' was designed by ALA Arkkitehdit, with the architects Juho Grönholm, Antti Nousjoki, Janne Teräsvirta and Samuli Woolston responsible for the actual design. The other members of the team were Harri Ahokas, Julius Kekoni, Mikko Kilpeläinen, Gerard Gutierrez, Petra Grisova and Yena Young.

The judging committee comprised the City of Tampere's city planning director, Jyrki Laiho (chairman); the City of Tampere's city planning architect, Sakari Leinonen; Professor Hannu Tikka of the Tampere University of Technology; Finnpark Oy's Managing Director, Markku Hiltunen; the Managing Director of Aihio Arkkitehdit, Timo Meuronen; the Chairman of the GPD Arrangements Committee, Jorma Vitkala; Structural Engineer Timothy Macfarlane; and Architect Samuli Miettinen, appointed by the Safa Competition Committee. Architect Antti Pirhonen served as the competition's secretary.

The winner of the competition was officially announced on 17 June at the opening ceremony of the GPD Conference. The architecture competition is co-funded by ERDF-project 'Internationalization of the glass cluster in Tampere region'.

The Glass Performance Days (GPD) is an independent forum dedicated to the development of the global glass industry. GPD is organized biennially, consisting of the largest and leading international glass conference, several workshops, glass product exhibition and versatile social activities. ■





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- MAZUR - FIRMA HANDLOWA
- MC DIAM SP.Z O.O.
- PG GLASS - BIURO INZYNIERSKIE

Portugal

- A.F.C. PEREIRA - INOVAGLASS
- MESLIER MANUEL DE CASTRO LDA
- TEC INDE LDA

Rep. of South Africa

- GLASS SPECIFICS
- MILLICHEM

Romania

- PETREA AGENTURA TEHNICA SRL
- SC ABITARE CG SRL

Russia

- DEMAXO
- DENVER LTD.
- GLASS PRO LLC
- GLASSTOOLS TECHNOLOGY
- MERAN
- RITSTEKLO
- STEKLOCENTR COMPANY

Country-by-country

Singapore

- AIRVAC PRIVATE LIMITED

Slovenia

- MAB EXPORT D.O.O.

South Korea

- DAE JONG CORPORATION
- SELIM CORPORATION
- SHINSUNG ENGINEERING CO. LTD. - SECO
- UCS CORPORATION

Spain

- DAMGLASS SL
- JCM - SUMINISTROS INDUSTRIALES SL
- JOSEP SERRAL - MAQUINARIA VIDRIO
- R. MEYER S.L.
- SUMINISTROS ARIES, S.L.
- SUVISUR SL
- TECNO MAVI
- VITRUM S.A.

Sweden

- KRISTALLSPGEL & GLAS AB

Switzerland

- GLASS INDUSTRY SERVICES SA
- KAELER HOLDING AG (INCORPORATING KAELER MOSCOW AND KAELER KIEV)

Taiwan

- CY HANK INDUSTRIAL CO. LTD.
- USE ELECTRONICS CO. LTD.
- ZENIRAYS COMPANY LTD.

Thailand

- FIRST MULTITEC CO., LTD.
- GLASS PLANET CO. LTD.
- M.P.T MACHINERY CO. LTD.
- MULTI-TECH (THAILAND CO. LTD.)
- PGM-TECHNIC CO. LTD.
- TRIREX INTERNATIONAL CO., LTD.

The Netherlands

- EUROFITT BENELUX BV
- FEBAC EUROPE BV PROCESSING TECHNOLOGY
- FÜLDNER MACHINES BV
- HOGLA BV
- MINUSCO BENELUX B.V.
- PIETERMAN GLASTECHNIEK - THE NETHERLANDS

Tunisia

- A.T.M.I.

Turkey

- FLAT GLASS INTERNATIONAL LTD.
- GECIT CONSULTANCY & REPRESENTACY LTD.
- KUTAS DIS TIC.PAZ. A.S.
- SDC IC VE DIS TICARET LTD.STI.

UAE - United Arab Emirates

- GLASS LINES LLC
- GUTAL TRADING EST. (UAE)
- MIDDLE EAST FACTORIES' EQUIPMENT L.L.C. (ME EQUIP)
- SIMCO INDUSTRIAL MACHINERY TRADING CO.

Ukraine

- VITRAL LTD.

United Kingdom

- EUROPEAN MACHINERY SALES LTD.
- IAIN GLASS
- P.A.L. GLASS MACHINERY LTD.
- PETER HAWKINS LTD.
- PROMAC GROUP - GLASS DIVISION

USA

- ARGENT ENTERPRISES, INC.
- BESANA LOVATI USA
- BESANA LOVATI - WEST COAST
- DE GORTER INC.
- IGE SOLUTIONS INC.
- INTERCHANGE EQUIPMENT INC.
- MACHINES AND WHEELS, INC.
- RECENT ADDITIONS
- SALEM DISTRIBUTING

A. JACOVIDES TRADING LTD.

Headquarters

9 Imvrou Street
Latsia Industrial Area
2234 Nicosia - Cyprus
Tel: +357-22-454840
Fax: +357-22-454843
E-mail: jaco.ing@cytanet.com.cy

Company Officers

Andreas Jacovides: General Manager
Mikaela Jacovidou: Marketing Manager
Maria Marinou: Administrator Manager

Company Data

Annual turnover: USD 5,000,000
Number of employees: 16
Turnover from glass: 35%
Company founded: 1983
Nominal capital: USD 100,000

Local offices/branches:

ADDRESS IMVROU STR., 9
2234 LATSID INDUSTRIAL AREA

Companies represented:

3M (USA)
ALTUGLAS (FRANCE)
BAYER SHEET EUROPE (GERMANY)
KÖMMERLING (GERMANY)
MOMENTIVE (USA)
PROFILGLASS (ITALY)
PROFINE (GERMANY)
UOP (ITALY)

AAR S.H. DE C. Y R. LANDLER

Bahia Blanca 3203
C1417 Asw Buenos Aires - Argentina
Tel: +54-11-45027418
Fax: +54-11-45047045
E-mail: aar@sion.com
www.landler.com.ar

A.F.C. PEREIRA - INOVAGLASS

Zona Ind. da Agrela Pav. C
4825-026 Agrela Sto. Tirso - Portugal
Tel: +351-229-689900
Fax: +351-229-689901
E-mail: afc@afcpereira.com
www.afcpereira.com

AGID - ASIA GLASS INDUSTRY DEVELOPMENT

Flat no. 4, No.374, Hoseinieh Alley,
Dolat St. - Pasdaran Ave.
Tehran 19516 376 45 - Iran
Tel: +98-21-22577760
Fax: +98-21-22547228
E-mail: info@agid-inc.com
www.agid-inc.com

AIRVAC PRIVATE LIMITED

Bik 3023, Ubi Road 3
#05-10, Ubiplex 1
Singapore 408663 - Singapore
Tel: +65-65424321
Fax: +65-65421819
E-mail: sales@airvac.com.sg
www.airvac.com.sg

ALBORZ JAAM TECHNICAL CO. LTD.

Headquarters

Unit 1, Bldg. 370,
Jamaledine Asdadabadi Ave.

14367 Tehran, Iran
Tel: +98-21-88031897
Fax: +98-21-88058551
E-mail: alborzj.djam@gmail.com
www.alborz-djam.com

Company Officers

M.H. Moravej: Chairman
E-mail: mhmoraveje@gmail.com
F.A. Shooshtari: Managing Director

Company Data

Annual turnover: USD 1,000,000
Number of employees: 5
Company founded: 1991
Nominal capital: USD 1,300,000

Agent/Representative of:

- MACHINERY/EQUIPMENT SUPPLIERS

Flat and automotive glass processing machinery, equipment & tools

• GLASS MANUFACTURERS

Automotive glass

Companies represented:

ARTIFEX (GERMANY)
FOSHAN GLOBAL (CHINA)
GOLIVE (CHINA)
LOVATI FRATELLI (ITALY)
SCHIATTI ANGELO (ITALY)
SHENZHEN INTERTRADE (CHINA)
SOUTH GLASS TECHNOLOGY (CHINA)

Countries where we act:

Italy, Germany, China

ALTA-WELD INC. (ALTA FAR EAST WELDING MATERIALS INC.)

Headquarters

Sun Valley Drive, Km 15, West
Service Rd., 1700 Paranaque, Metro
Manila - Philippines
Tel: +63-2-8234032/8242966
Fax: +63-2-8211782
E-mail: altaweld@compass.com.ph

Company Officers

Alfredo K.S. Tan: President & CEO
Alfred C. Tan: EVP & General Manager
May Mendoza: ADM/Operations MGR

Company Data

Annual turnover: USD 1,720,000
Number of employees: 28
Turnover from glass: 26%
Company founded: 1985
Nominal capital: USD 238,000

Local offices/branches:

ADDRESS LA PURISSIMA - BACOLOD CITY
ADDRESS ESTEBAN SAARNES ST., 6TH
DIVISION, PATAG, CAGAYAN
DE ORO CITY
ADDRESS RM. 2B BTD BLDG. - A.C.
CORTES AVE. MANDAUE,
CEBU CITY
ADDRESS 150 ROSE ST., LANDMARK III
SUBD. SASA, DAVAO CITY

Agent/Representative of:

- MACHINERY/EQUIPMENT SUPPLIERS

Hollow glass machines, flat glass
machines wheels for glass processing

• GLASS MANUFACTURERS

San Miguel Corporation,
Asia Brewery, Alliance Global
Arcya Glass

Companies represented:

BELFORTGLASS (ITALY)
BOTTERO SPA (ITALY)

ENGELHARD (USA)
METALOR (HONG KONG)
TRIULZI (ITALY)
UTP SCHWEISSMATERIAL (GERMANY)
ZANETTI MACCHINE (ITALY)

Countries where we act:
 Philippines

ARGENT ENTERPRISES INC.

Headquarters

P.O. Box 140,
 PA15337-0140 Graysville, USA
 Tel: +1-724-499-5800
 Fax: +1-724-499-5715
 E-mail: aeinc@windstream.net
 www.aeincglass.com

Company Officers

Ron D. Argent: President & CEO

Company Data

Company founded: 1995
 Turnover from glass: 100%

Local offices/branches:

ADDRESS P.O. Box 140 GRAYSVILLE,
 PA 15337-0163 USA

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Batch House, batch chargers, cullet handling, furnaces, distributors, forehearths, AZS, mullite sillimanite, flux refractories, Annealing and Decorating lehrs, Art studio furnaces, vacuum pumps
 • GLASS MANUFACTURERS

All

Companies represented:

ANTONINI NORTH AMERICA (ITALY)
BATISTI MECCANICA (ITALY)
FALORNI GIANFRANCO (ITALY)
JSJ JODEIT (GERMANY)
LDM GLASS CONSULTING (USA)
LUBISOL ENGINEERING (BULGARIA)
MOTIM FUSED CAST REFRACTORIES (HUNGARY)
PARKINSON SPENCER REFRACTORIES (UK)
ZIPPE NORTH AMERICA (GERMANY)
VARIOUS INDUSTRY PARTNERS

Countries where we act:

Canada, USA, Mexico

ARYA TEC ENGINEERING & COMMERCE COMPANY

Unit 8, 2nd Floor, No. 306,
 Pasdaran St.
 Tehran 1945934513 - Iran
 Tel: +98-21-22766548
 Fax: +98-21-22573785
 E-mail: info@aryatec.ir
 www.en.aryatec.ir

ATHENS GLASS E. MARKOPOULOS & CO. E.E.

Headquarters

31, Kapidaki Str. - Center GR 10445
 Athens - Greece
 Tel: +30-210-8547520
 Fax: +30-210-8547521
 E-mail: athensgl@otenet.gr
 www.ath-glass.gr

Company Officers

Evdorimos Markopoulos: Mngr. Director
 Monica Markopoulou: Sales

Supervisor
 Vaseilia Karfi: Int. Operations
 Coordinator

Company Data

Company founded: 1991
 Annual sales: EUR 4,000,000
 Number of employees: 10
 Nominal capita: EUR 12,000

Local offices/branches:

ADDRESS YOYNIKI TRG. G, VRSA
 CITY, P.C.
 26300, SERBIA

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Cutting tables/lines, pre-laminated lines, autoclaves, washing machines/lines, grinding and drilling machines, screen printing

• GLASS MANUFACTURERS

Clear float glass, special glass, figured glass, mirrors

Companies represented:

AGI AFRICA GLASS (S. AFRICA)
BEIJING WINDOW SP MACHINE (CHINA)
BYSTRONIC GROUP (SWITZERLAND)
CHINA GLASS HOLDINGS (CHINA)
CMS BREMBANA GROUP (ITALY)
C.R. LAURENCE (USA)
GREAT WALL GLOBAL GLASS (HONG KONG)
MOLE MORESCHI (ITALY)
OFFICINE MISTRELO (ITALY)
QINHUANGDAO TUCHENG GLASS (CHINA)
SCHOLZ MASCHINENBAU (GERMANY)
STEFIGLASS (ITALY)

Countries where we act:

Albania, Bulgaria, Croatia, Cyprus, Romania, Serbia, Slovenia

A.T.M.I.

14, Avenue Slimane Ben Slimane,
 APT. R26, 2092 MANAR II - Tunisia
 Tel: +216-71-886035
 Fax: +216-71-827894
 E-mail: atmi.salemkeskes@gnet.tn

BERNARDI

Headquarters

Pekolanraitti 6A 8
 30100 Forssa, Finland
 Tel: +358-400-482418
 Fax: +358-343-34441
 E-mail: info@bernardi.fi

Company Data

Company founded: 1986
 Turnover from glass: 100%

Local offices/branches:

DENMARK
 LITHUANIA
 NORWAY
 SWEDEN

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Companies represented:

BIMATECH (ITALY)
BOTTERO (ITALY)
BOVONE DIAMOND TOOLS (ITALY)
BOVONE ELETTROM. (ITALY)
F.LLI PEZZA (ITALY)
MARVAL (ITALY)
PUTSCH - MENICONI (ITALY)
QUARANTA (ITALY)

Countries where we act:

Baltic Countries, Scandinavia

BESANA LOVATI USA

2570 Viceroy Drive
 Winston-Salem, NC 27103 - USA
 Tel: +1-336-7685504
 Fax: +1-336-7687549
 E-mail: BesLov@aol.com
 www.besanalovati.com

BESANA LOVATI - WEST COAST

12405 Slauson Avenue
 Whittier, CA 90606 - USA
 Tel: +1-562-6963607
 Fax: +1-562-6961678
 E-mail: BesLovWC@aol.com
 www.besanalovati.com

BLANCK & PARTNERS CONS. PROJ. REP. LIDA

Headquarters

Av. Dr. Chucri Zaidan 920 - 9° And
 04583-904 São Paulo - Brazil
 Tel: +55-11-30484099
 Fax: +55-11-30484099
 E-mail: blanck.partners@uol.com.br

Company Officers

Ingo Schulze Blanck: Director
 E-mail: schulzeb@uol.com.br
 Nicole Schulze Black
 Huguette Schulze Blanck

Company Data

Annual turnover: EUR 300,000
 Nominal capital: USD 5,000
 Number of employees: 3
 Company founded: 1997
 Turnover from glass: 50/80%

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Floot line equipment, special glass trucks, engineering, consulting

• GLASS MANUFACTURERS

Companies represented:

BOSCH HOFMANN (BRAZIL)
FAMEK (SWEDEN)
GFM (AUSTRIA)
GRENZEBACH (GERMANY)
HOPPECKE (GERMANY)
HUBTEX (GERMANY)
MAFI (GERMANY)
SPRINGER (GERMANY)

Countries where we act:

Argentina, Chile, Uruguay

BREMNER GLASS EQUIPMENT P/L

4 Walker Street, P. O. Box 1
 Braeside - Victoria 3195 - Australia
 Tel: +61-3-95872400
 Fax: +61-3-95875933
 E-mail: greg@bge.com.au
 www.bge.com.au

CASTRO GLASS TRADE S.L.

Headquarters

Benito Castro 10
 28028 Madrid, Espana
 Tel: +34-91-713-1510
 Fax: +34-91-726-0006

E-mail: castroglass@castroglass.es
 www.castroglass.es

Company Officers

Agustin Perez Alonso: General Manager

Company Data

Annual turnover: EUR 2,800,000
 USD 3,816,484

Number of employees: 11
 Company founded: 1986
 Turnover from glass: 100%

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Edging & bevelling machines, Drilling & lifting machines, Laminated lines, Wheels, Drilling and routers

• GLASS MANUFACTURERS

Type of glass

Companies represented:

BOVONE (ITALY)
BOVONE DIAMOND TOOLS (ITALY)
DIAMUT (ITALY)
FORVET (ITALY)
INTERMAC Busetti (ITALY)
RBB BRAZZI (ITALY)
RBM (ITALY)
STEA (ITALY)

Countries where we act:

Spain

CERACON ENGINEERS PVT. LTD.

Headquarters

B-1/75, Janak Puri
 New Delhi 110058 - India
 Tel: +91-11-25598468
 Fax: +91-11-25525397
 E-mail: ceracon@vsnl.com

Company Officers

Jagdish Sarin: President
 Arun Bahl: Vice President
 Harender Singh: Accounts Manager

Company Data

Number of employees: 10
 Company founded: 1995

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Furnace design, audit, feeder forehearths, IS machines, hot- and cold-end chains, sprockets, ware handling, testing, pushers, packaging, software, cleaning, etc.

• GLASS MANUFACTURERS

Container, float, solar, others

Companies represented:

USA:
AGR INTERNATIONAL
DURATEMP
E.W. BOWMAN
QUANTUM ENGINEERED PRODUCTS
STRUTZ INTERNATIONAL

UK:
BHF/FIVES STEIN
FIC (UK)

GRAPHOIDAL
IS MAINTENANCE
LATTIMER

PENNINE INDUSTRIAL EQUIPMENT
SHEPPEE INTERNATIONAL

EUROPE:
BERNARD ET BONNEFONDE (FRANCE)

D. WIDMANN (GERMANY)
FLAMMATEC (CZECH REPUBLIC)
GLASS SERVICE (CZECH REPUBLIC)
HEYE INTERNATIONAL (GERMANY)
IRIS INSPECTION MACHINES (FRANCE)
PUTSCH (GERMANY)
RONDOT (FRANCE)
STG (GERMANY)
ZECCHETTI (ITALY)

MEXICO:

INTERGLASS

INDIA:

TEMPENS INSTRUMENTS

Countries where we act:

Africa, Gulf Countries, Indian Sub
Continent, Middle East

CERAM TRADE CO. LTD.

Headquarters

3-6-11 Chiyoda, Takaishi
Osaka, 592-0005, Japan
Tel: +81-72-262-2655
Fax: +81-72-262-2656
E-mail: ceram@pearl.ocn.ne.jp
www18.ocn.ne.jp/~ceram

Company Officers

Katsu Hatanaka: Manager

Company Data

Number of employees: 4
Company founded: 1991
Turnover from glass: 70%

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Forehearth and distributor systems,
electro-boost, electrode holders,
engineering

Companies represented:

F.I.C. UK (UK)
LUBISOL ENGINEERING (BULGARIA)
PARKINSON SPENCER REFRACT. (UK)
TUFF-TEMP CORPORATION (USA)

Countries where we act:

Japan

CIAOYI GLASS C&T CO. LTD.

No. C400 Yeqing Plaza
No. 9 Wangjijing Beilu
Chaoyang District
100102 Beijing - China
Tel: +86-10-64392168
Fax: +86-10-64392010
E-mail: ciaoyigl@163bj.com

CONTINENTAL TRADING COMPANY

ang. Amr Ibnou El Ass
rue Océan-Imm (D)
3^e étage Roches Noires
Casablanca 20300 - Morocco
Tel: +212-22-405850
Fax: +212-22-406357
E-mail: fatihi@atlasnet.net.ma

CORNEGA APS

Holte Stationsvej 6 - Postbox 3
DK-2840 Holte - Denmark
Tel: +45-45-423078
Fax: +45-45-421544
E-mail: info@cornega.com

CORPOTRADE

Headquarters

P.O. Box 50385 - Mekalles
Beirut - Lebanon
Tel: +961-1-685999
Fax: +961-1-684099
E-mail: info@corpotrade.com
www.corpotrade.com

Company Officers

Charles Maalouf: CEO
Caline Boulos Maalouf:
Operations Director
Tarek el Hoayeck: Sales Director

Company Data

Annual turnover: EUR 8,000,000
Number of employees: 52
Company founded: 1973

Local offices/branches:

ADDRESS UAE, PO BOX 21532, DUBAI,
KSA, PO BOX 69239, RIYADH, KSA
EGYPT, 13 ALI ADB ELRAZEK ST.
HELIOPOUS, CAIRO
SYRIA, PO BOX 10807,
DAMASCUS, SYRIA
CYPUS, PO BOX 42687, LARNACA
6501, CYPRUS

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Storing, cutting, grinding,
pre-processing, double-glazing,
heat soaking, silk printing, CNC work
centers, distortion measuring, temper-
ing, handling devices, edging/bevelling,
tools and drills for glass

• GLASS MANUFACTURERS

Companies represented:

ADELIO LATTUADA (ITALY)
BENTELER (GERMANY)
CEFLA (ITALY)
CRD (UK)
DIAMUT (ITALY)
EDGETECH (USA)
FOR.EL. (ITALY)
FRATELLI PEZZA (ITALY)
GLASSROBOTS (FINLAND)
HEGLA (GERMANY)
INTERMAC (ITALY)
KALTETECHNIK (GERMANY)
LITESENTRY (USA)
MULTI KUBLSYSTEME (GERMANY)
SCHOLZ (GERMANY)
STEINEMANN (GERMANY)
TMB (GERMANY)
TYROLIT (ITALY)
VON ARDENNE (GERMANY)

Countries where we act:

Algeria, Bahrain, Egypt, Iraq,
Jordan, KSA, Kuwait, Lebanon,
Morocco, Oman, Qatar, Sudan,
Syria, Tunisia, UAE, Yemen

CORRENS CORPORATION

Ark Yagi Hills, 8-7, Roppongi 1- chome
Minato-ku - Tokyo 106-0032 - Japan
Tel: +81-3-51140711
Fax: +81-3-35831330
E-mail: sales@correns.co.jp
www.correns.co.jp

**C.R.A. GLASS (ROD CRANWELL PTY.
LTD.)**

Headquarters

14 Finlayson Drive. Aldgate
5154 Adelaide, South Australia

Tel: +61-8-83709444
Fax: +61-8-83709447
E-mail: CRA@bigpond.com

Company Officers

Rod Cranwell: Managing Director
Wendy Cranwell: Company Secretary

Company Data

Annual turnover: USD 645,000
Number of employees: 2
Company founded: re-formed 1992
Turnover from glass: 12%

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Flat glass processing, cutting lines,
vertical processing lines, heat treat-
ment, washers & IGU lines, water
filtration

• GLASS MANUFACTURERS

Nirror, Murano glass

Companies represented:

CDS GROUP (UK)
DENVER (SAN MARINO)
GLASSLINE (USA)
LITE SENTRY (USA)
RCN ENGINEERING (ITALY)
SKG SKILL GLASS (ITALY)

Countries where we act:

Australia

C.Y. HANK INDUSTRIAL CO. LTD.

Headquarters

Rm 1001, San Chin Bldg, 31-1,
Sec. 2, Hsin Sheng N. Rd - 67-541
Taipei - Taiwan
Tel: +886-2-25318190
Fax: +886-2-25715571
E-mail: cyhank@ms45.hinet.net
www.cyhank.tw.com

Company Officers

Chung-Yi Wu: President
Judy Chang: Manager

Company Data

Number of employees: 15
Company founded: 1976
Turnover from glass: 90%

Local offices/branches:

CANTON
TAICHUNG
TAIPEI

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Grinding machines, cutting
machines, software

• GLASS MANUFACTURERS

Materials

Companies represented:

ADELIO LATTUADA (ITALY)
CMS BREMBANA (ITALY)
OPTIMA (ITALY)

Countries where we act:

China, Taiwan

DAE JONG CORPORATION

Headquarters

388-1, Yeongok-Ri, Silchon-Eup
464875 Gwangju City,
Gyunggi Province
South Korea
Tel: +82-31-7987071

Fax: +82-31-7987074
E-mail: djkor@hananet.net

Company Officers

T. I. Kim: General Manager
Y.C. Chung: Director
W. S. Lee: Managing Director
I. J. Jang: Director

Company Data

Number of employees: 5
Company founded: 1982
Turnover from glass: 70%

Companies represented:

ALLMETAL, INC. (USA)
KÖMMERLING (GERMANY)
KURARAY EUROPE (GERMANY)
LISEC (AUSTRIA)
PROFILGLASS (ITALY)
VITO IRMEN (GERMANY)

DAMGLASS SL

Headquarters

Benavent 10
08028 Barcelona - Spain
Tel: +34-93-3399683
Fax: +34-93-4111708
E-mail: fexas@damglass.com
www.damglass.com

Company Officers

Jordi Fexas: Manager
Alessandro Spada: Export Dept.
Eduard Molina: Sales Manager

Company Data

Company founded: 1950

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Machinery and accessories for crystal
glass. More than 20 years of special-
ization in the production of sand-
blasting machines

Companies represented:

BATISTI (ITALY)
BLUESTEIN (ITALY)
DORMA IBERICA (SPAIN)
LEMONPACK (SPAIN)
METRAL (SPAIN)
OMV VISMARA (ITALY)
TCG (SPAIN)
TK TEKNO KILNS (ITALY)
ZAFFERANI GLAS (ITALY)

Countries where we act:

Algeria, Benelux, Croatia, Dubai,
France, Germany, Mexico, Peru,
Portugal, Russia, Spain, Turkey, UK

DE GORTER INC.

5623 Cannon Drive
Monroe, Nc 28110 - USA
Tel: +1-704-2822055
Fax: +1-704-2258290
E-mail: peter@degorter.com
www.degorter.com

DECRISTAL S.A.

Headquarters

Santa Magdalena 75 of 310
Providencia, 7500000 Santiago
Chile
Tel: +56-2-3342914/15
Fax: +56-2-3342917
E-mail: decristalsa@entelchile.net

Company Officers

Pedro De La Fuente: General Manager
Cecilia Rivera: Sales Manager
Andres Gabler: Product Manager

Company Data

Annual turnover: USD 2,000,000
Number of employees: 4
Company founded: 30 years

Local offices/branches:

ADDRESS FLORIDA N° 716 OF 7° G,
BUENOS AIRES, ARGENTINA

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Cutting tables, bevellers, bent glass

• GLASS MANUFACTURERS

Monolithic, insulating glass

Companies represented:

ANTIQUE MIRROR (ITALY)
BILCO (USA)
BOTTERO (ITALY)
CRANE REVOLVING DOORS (USA)
CRICURSA ESPAÑA (SPAIN)
FOR.EL. (ITALY)
HSVGLIO (ITALY)
KERAGLASS (ITALY)
PPG INDUSTRIES (USA)
VIRACON (USA)

Countries where we act:

Argentina, Brazil, Chile, Uruguay

DELTA MARKETING & INVESTMENT LTD.

Shanghai Oriental Centre Unit 1102
31 Wu Jiang Road
Shanghai 200041 - China
Tel: +86-21-52110236
Fax: +86-21-52110238
E-mail: glass.division@delta-china.com

DEMAXO

Michurinski Prospect 58
119192 Moscow - Russia
Tel: +7-495-9256600
Fax: +7-495-9256604
E-mail: demaxo@demaxo.ru
www.demaxo.ru

DENVER LTD.**Headquarters**

Leninsky Rajon, Derevnja
Kalinovska 1A
142703 Moskovskaya ablasi - Russia
Tel: +7-495-7806516
Fax: +7-495-7806517
E-mail: info@d-e-n-v-e-r.ru
www.d-e-n-v-e-r.ru

Company Officers

Michael Vilinsky: Owner
Caterina Chukina:
Head of Purchasing Dept.

Company Data

Number of employees: 110
Company founded: 1995
Turnover from glass: 35%

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

IG

Companies represented:

ALU PRO (ITALY)
FENZI (ITALY)
MACOTEC (ITALY)

MARVAL (ITALY)
METALGLASS (ITALY)
NUOVA OXIDAL (ITALY)
REINHARDT TECHNIK (GERMANY)
RENATO FATTORINI (ITALY)

Countries where we act:

CIS, Russia

DIKEOS ELIAS**Headquarters**

11c Megaloupoleos Str.
15236 Denzeli - Athens - Greece
Tel: +30-210-8035751-2
Fax: +30-210-8035753
E-mail: eliasdikeos@ath.forthnet.gr

Company Officers

Elias Dikeos
George Dikeos

Company Data

Company founded: 1975

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Cutting, grinding, bevelling, drilling,
tempering, washing, etc.

Companies represented:

AACHENER (GERMANY)
ADELIO LATTUADA (ITALY)
ALUPRO (ITALY)
ASSA ADLOY (ITALY)
DUZETA (ITALY)
FENZI (ITALY)
FRATELLI PEZZA (ITALY)
LISEC (AUSTRIA)
SCHRAML (AUSTRIA)
TAMGLASS (FINLAND)
VITREAL SPECCHI (ITALY)
ZEOCHEM AG (SWITZERLAND)

EBCOTECH ENGINEERING

37, Jalan Tembaga Sd5/2g
Bandar Sri Damansara
52200 Kuala Lumpur - Malaysia
Tel: +60-3-62746599
Fax: +60-3-62758199
E-mail: info@ebcotech.com.my
www.ebcotech.com.my

ECTRAG EURO-CHINA TRADING CO., LTD.

18c, Tower A, The Great Mall
No.6 Xiaozhuang, Chaoyangmenwai
Beijing 100026 - China
Tel: +86-10-65302502
Fax: +86-10-65934497
E-mail: webmaster@ectrag.com
www.ectrag.com

EFAGLAS CO. LTD. - GLASINDUSTRY TRADING

Katona U. 7 - 5900 Oroshaza
Hungary
Tel: +36-68-413454
Fax: +36-68-410617
E-mail: efglas@axelero.hu
www.efglas.hu

ELEGANT I.G. SUPPLYLINE**Headquarters**

T6/25 Narabang Way, Belrose
2085 Sydney, Australia

Tel: +61-2-94736500
Fax: +61-2-94736509
E-mail: office@elegantig.com.au

Company Officers

Sandro Ianni: Managing Director
Matthew McCudden: Product Manager
Kellie McIver: Office Manager

Company Data

Number of employees: 5

Local offices/branches:

ADDRESS T6/25 NARABANG WAY,
BELROSE 2085 NSW, AUSTRALIA

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Machinery for glass processing
and equipment. Insulated glass
components

Companies represented:

DOW CORNING (AUSTRALIA)
EDGE TECH (USA)
GALAXY (CHINA)
GLASS ALLIANCE (ITALY)
H.B. FULLER (USA)
LISEC (AUSTRIA)
PROFILGLASS (ITALY)
SCHIATTI ANGELO (ITALY)

ENGINEERING FOR SPECIAL WORKS**Headquarters**

12 Sayed Abd EL Wahed Street
11341 Cairo, Egypt
Tel: +2-0122-1619119
Fax: +2-02-22592054
E-mail: w.shafei@esw-eg.com

Company Officers

Wael EL Shafei: General Manager

Company Data

Annual turnover: EUR 300,000.00
USD 250,000.00

Number of employees: 2
Company founded: 2007
Turnover from glass: 90%
Nominal capital: EUR 50,000,000

Local offices/branches:

ADDRESS 12 SAYED ABD EL WAHED STREET

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Refractories, handling equipment,
complete lines, raw materials

Companies represented:

DSF (UK)
FIVES STEIN (UK)
GEDEVELOP (SWEDEN)
HUNPRECO (UK)
INTERGLASS (MEXICO)
INTERMOLDE (PORTUGAL)
LATTIMER (UK)
PENICO (UK)
PNEUMOFOR (ITALY)
PYROTEK (USA)
SYSTEMRES (FRANCE)
WALL COLMONOY (UK)

Countries where we act:

Kuwait, Saudi Arabia, Syria, U.A.E.

ERTEKA UAB

Verslo 4, Liudyne
Lt-38130 Panevezio Raj.
Lithuania
Tel: +370-45-555335
Fax: +370-45-555330

E-mail: info@erteka.lt
www.erteka.lt

EUNOTECH HONG KONG LTD.

Room 401, World-Wide Ind. Centre
43 Shan Mei Street Fo Tan - Shatin
Hong Kong - China
Tel: +852-26022992
Fax: +852-26022990
E-mail: eunotech@hkstar.com

EUROFIT BENELUX BV**Headquarters**

Industrieweg 28,
3133 EE Schiedam
The Netherlands
Tel.: +31-10-4451062
Fax: +31-10-4353481
E-mail: b.dejong@eurofitt.nl
www.eurofitt.eu

Company Officers

B. de Jong: Director
(email as above)

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Diamond drills, Floor springs

Companies represented:

GULIN CHAMPION UNION (CHINA)
ZHICHENG (CHINA)

Countries where we act:

Belgium, Denmark, Finland, The
Netherlands, Norway, Sweden

EUROPEAN MACHINERY SALES LTD.

Unit 3, Acre, Dappers Lane
Angmering West Sussex BN16 4EN
United Kingdom
Tel: +44-1903-783007
Fax: +44-1903-779966
E-mail:
sales@europeanmachinerysales.co.uk
www.europeanmachinerysales.co.uk

EXA SRL**Headquarters**

Via Madonna Del Pozzo, 4
26010 Offanengo (CR) - Italy
Tel.: +39-0373-330331
Fax: +39-0373-330336
www.exa-engineering.com

Company Officers

Alberto Colosio: Sales Manager
Paolo Mizzotti: Automation Manager

Company Data

Company founded: 2009

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Screen printing equipment for
automotive, architectural and
appliance glass

Companies represented:

WINDO MACHINERY (CHINA)

Countries where we act:

Europe (Western)

FEBAC EUROPE BV PROCESSING TECHNOLOGY

Headquarters

Fischerpad 102, 6135 KS Sittard
The Netherlands
Tel: +31-46-4586360
Fax: +31-46-4586903
E-mail: info@febac.eu
www.webshop-febac.eu

Company Officers

H. Naus: General Manager

Company Data

Company founded: 2007

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

All types of machinery and tooling for glass and stone processing

Companies represented:

MACOTEC (ITALY)
NEPTUN (ITALY)

Countries where we act:

Austria, Belgium, Czech Republic, Denmark, Finland, Germany, Hungary, Luxemburg, Norway, Poland, Romania, Sweden, Switzerland, The Netherlands

FEROX GLAS OY

Headquarters

Lehdokintie 8, 28660 Pori - Finland
Tel: +358-2-64301100
Fax: +358-2-6376224
E-mail: info@feroxglas.fi
www.feroxglas.fi

Company Officers

Hannu Nieminen: Managing Director
Jari Uoti: Sales Manager
Outi Nieminen: Controller

Company Data

Company founded: 2000

Companies represented:

AACHENER CHEMISCHE WERKE (GERMANY)
BENTELER (GERMANY)
BOTTERO (ITALY)
CECA (FRANCE)
DUEZETA (ITALY)
HELMUT LINGEMANN GMBH (GERMANY)
KÖMMERLING (GERMANY)
MARVAL (ITALY)
REINHARDT (GERMANY)
VITO IRMEN (GERMANY)

Countries where we act:

Finland

FIRST MULTITEC CO., LTD.

Headquarters

3 Ekamai Soi 10, Sukhumvit 63 Rd.
North Klontong, Wattana, Bangkok
10110 - Thailand
Tel: +66-2-7144246
Fax: +66-2-7144248
E-mail: firstmultitec@gmail.com
E-mail: fmtec@truemail.co.th

Company Officers

Luechai Thitayanapong:
Managing Director
Viruch Cheunjaiwang:
Sales Manager
Autcharat Chaiwongse:
Sales Assistant

Company Data

Annual turnover: USD 2,000,000
Number of employees: 5
Company founded: 1998
Turnover from glass: 30%
Nominal capital: USD 20,000

Local offices/branches:

ADDRESS 3 EKAMAI SOI 10, SUKHUMVIT
63 RD, NORTH KLONTONG,
WATTANA BANGKOK 10110
THAILAND

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Refractory furnace engineering

Companies represented:

CLAUDIUS PETRES (GERMANY)
GT / MCR (ITALY)
MACGREGOR BULK (SWEDEN)
RHI GLAS (GERMANY)
SCANTECH (AUSTRALIA)
SCHEUCH (AUSTRIA)
THORWESTEN (GERMANY)
TYSSENKRUPP FOEDERTECHNIK (INDIA)
VEGA INDUSTRIES (INDIA)
YARA (GERMANY)

Countries where we act:

Thailand

FIVE STARS TRADING COMPANY

12 Haroon Street, Mesaha Suare
P.O. Box 477 Imbaba
12311 Dokki - Giza - Egypt
Tel: +20-2-33386864
Fax: +20-2-37620630
E-mail: info@5stars-trading.com
www.5stars-trading.com

FLAT GLASS INTERNATIONAL LTD.

World Trade Center Istanbul
A2 Block, 9th Floor, Office No: 305
34149 Yesilkoy Istanbul - Turkey
Tel: +90-212-4656252
Fax: +90-212-4656255
E-mail: info@fgilimited.com
www.fgilimited.com

FÜLDNER MACHINES BV

Headquarters

De Koumen 116, 6433 KE Heerlen
The Netherlands
Tel: +31-45-5217757
Fax: +31-45-5231292
E-mail: info@fuldner.com
www.fuldner.com

Company Officers

Hans Fuldener: Director

Company Data

Annual turnover: USD 5,000,000
Number of employees: 15
Company founded: 1992

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Companies represented:

ADELIO LATUADA (ITALY)
GFPM (ITALY)
MAPPI INT. (ITALY)
PUTSCH MENICONI (ITALY)

Countries where we act:

Austria, Benelux, Germany,
Switzerland

GEKIT CONSULTANCY & REPRESENTACY LTD. CO.

Headquarters

Sari Lale Sok. No. 6-5
34726 Istanbul - Turkey
Tel: +90-216-4505682
Fax: +90-216-4505480
E-mail: gecit@gecit.net
www.gecit.net

Company Officers

Serdar Ozgen: Manager
Fatih Ibrahimoglu: Sales

Company Data

Number of employees: 3
Company founded: 1990
Turnover from glass: 80%

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Press machines, annealing lehrs, refractories for glass furnaces, inspection machines, printing machines, lehr belts, shear blades, melting pots

Companies represented:

ANTONINI (ITALY)
FASTNER & Co (GERMANY)
IRIS INSPECTION MACHINES (FRANCE)
PIETRO BONAITI (ITALY)
P-D REFRACTORIES (GERMANY)
RUREX STAHL (GERMANY)
TECNO5 (ITALY)
WALTEC MASCHINEN (GERMANY)

Countries where we act:

Turkey

GEOBELS TECHNOLOGIES INC.

Headquarters

Unit 9, RVA Bldg. 858, Remedios St.
Malate, 1004 Manila - Philippines
Tel: +63-2-5212853
Fax: +63-2-5219133
E-mail: gti@thenet.ph

Company Officers

Ivan Dimhisip

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

IS machine and parts, lehrs, decorating machines, hotware handling machines

Companies represented:

BOWMAN EW (USA)
DURA TEMP CORP (USA)
EUROTHERM (UK)
FERMAC (ITALY)
GLASS SERVICE (CZECH REPUBLIC)
INTERGLASS (MEXICO)
MAUL TECHNOLOGY (USA)
ROSS CONTROLS (USA)
RAMSEY PRODUCTS (USA)
STRUTZ INTL (USA)
HENRY F. TEICHMAN (USA)

Countries where we act:

Indonesia, Korea, Malaysia,
Philippines, Taiwan, Vietnam

GIL BARBARA SRL

Venezuela 110 - Piso 17 Of. "J"
1095 Buenos Aires - Argentina

Tel: +54-11-43435427
Fax: +54-11-43344213
E-mail: gilbar-
bara@gilbarbara.com.ar
www.gilbarbara.com.ar

GLASS EXPORT S.A.

Headquarters

Ibera 5895, 1431 Buenos Aires -
Argentina
Tel: +54-11-45724914
Fax: +54-11-45724928
E-mail: glass@glassexport.com.ar

Company Officers

Daniel Chimienti: President
Bernardo Szulman: Vice President
Sebastian Szulman: Sales Executive

Local offices/branches:

ADDRESS SUR 69 N° 3140 COL.
VIADUCTO PIEDAD
08200 MEXICO D.F.

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Lehrs, IS machines, feeders, pushers, palletizers, conveyors moulds, batch plants, refractories, wrapping machines, etc.

• GLASS MANUFACTURERS

Hollow

Companies represented:

ANTONINI (ITALY)
BDF (ITALY)
EMMETI (ITALY)
GIANCARLO PEREGO (ITALY)
GLASS TECHNOLOGIES (ITALY)
LAHTI PRECISION (FINLAND)
OCMI/MODERNE MECANIQUE (ITALY)
OMS (ITALY)
SIGMA (ITALY)

Countries where we act:

Latin America

GLASS & FURNACES: PROBLEMS & PRODUCTIVITY IMPROVEMENT

Headquarters

Bosques de Bolonia 405 - A
66250 Garza Garcia, - Mexico
Tel: +52-81-83355673
Fax: +52-81-83355673
E-mail: hvacav@prodigy.net.mx

Company Officers

Humberto Vaca: Director

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Those used in batch houses and in furnaces

Countries where we act:

All Latin America

GLASS & GLAZING TECHNOLOGIES PVT. LTD.

302, Raheja Plaza, Off Andheri Link Road, Andheri (W), Mumbai 400 053. - India
Tel: +91-22-40990000
Fax: +91-22-40990040
E-mail: ggt.mum@glassprocess.com
www.glassprocess.com

GLASS INDUSTRY SERVICES SA

Headquarters

3, Av. Ruchonnet
P.O. Box 759
1001 Lausanne - Switzerland
Tel: +41-21-3124411
Fax: +41-21-3232424
E-mail: glaspel@gmail.com
www.gis-ch.com

Company Officers

Sergio Pellecchi: President & CEO
Antonio Marchesi: Financial
Manager & Exec. V.P.
Rudolf Moser: Officer

Company Data

Annual sales: USD 8-9 million
Nominal capital: USD 100,000
Number of employees: 11
Company founded: 1970
Turnover from glass: 100%

Local offices/branches:

ADDRESS Av. CORDOBA 632 C
1054 AAS
BUENOS AIRES, ARGENTINA

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Melting furnaces, forming machines,
advisers, consultancies

• GLASS MANUFACTURERS

Soda lime glass for bottles, glass
wool, pressed glass, crystal a.s.o.

Companies represented:

ADVANTECH (ITALY)
CONTINENTAL WORLD CONSULTING
(SWITZERLAND)
INTERCONSULT (PANAMA)

Countries where we act:

Argentina, Brazil, Chile, Colombia,
Cuba, Mexico, Peru, Uruguay,
Venezuela

GLASS LINES LLC

Level 41, Emirates Towers
Sheikh Zayed Rd. Po Box 31303
Dubai - UAE

United Arab Emirates
Tel: +971-4-3199196
Fax: +971-4-3303365
E-mail: mail@glasslines.com
www.glasslines.com

GLASS PLANET CO. LTD.

Headquarters

89/10 Soi Sukhonthasawat
Casa City Sukhonthasawat 1
Lad Phrao, 10230 Bangkok - Thailand
Tel: +66-2-5532394
Fax: +66-2-5532396
E-mail: info@glassplanet.co.th

Company Officers

Jitti Silaphan: Managing Director
Jutima Silaphan: General Manager

Company Data

Annual turnover: USD 5,000,000
Nominal capital: USD 29,000
Number of employees: 4
Company founded: 2001
Turnover from glass: 100%

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Batch plant, furnace, press
machines, Press & Blow machines

Companies represented:

CGE (GERMANY)
GLASSROBOTS (FINLAND)
HORN (GERMANY)
OLIVOTTO (ITALY)
ZIPPE (GERMANY)

Countries where we act:

Thailand

GLASS PRO LLC

Office 310, 2 Ferganskarg Street
109444 Moscow - Russia
Tel: +7-495-2585226
Fax: +7-495-2585226
E-mail: info@glass-pro.ru
www.glass-pro.ru

GLASS SPECIFICS

Headquarters

293 Margaret Hunt Street, Gars
Fontein - 0042 Pretoria
Rep. Of South Africa
Tel: +27-12-3616664
Fax: +27-12-3616865
E-mail: john@glass-specifics.co.za
www.glass-specifics.co.za

Company Officers

John McNocher

Company Data

Number of employees: 4
Company founded: 1998

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Cutting, drilling polishing, bevel-
ling, CNC profiling, toughening,
automotive fitting

Companies represented:

3M (SOUTH AFRICA/USA)
ASHTON INDUSTRIAL (UK)
BOHLE (SOUTH AFRICA)
BOTTERO/BIMATECH (ITALY)
CASSO SOLAR (USA)
COOL TEMPER (UK)
C.R. LAURENCE (USA)
DOW CORNING (SOUTH AFRICA/USA)
MOLE MORESCHI (ITALY)
SULAK (CZECH REPUBLIC)
VITRODODI (ITALY)
ZANETTI (ITALY)

Countries where we act:

Angola, Kenya, Mozambique, South
Africa, Zambia, Zimbabwe

GLASSTOOLS TECHNOLOGY

Ryazansky Prospekt, 8a
Moscow 109428 - Russia
Tel: +7-495-7284399
Fax: +7-495-7375643
E-mail: zapros@glasstools.ru
www.glasstools.ru

GLASTECH - PROJECTA GROUP

Moottorikatu 11
Fin-65170 Vaasa - Finland
Tel: +358-6-3204700
Fax: +358-6-3120173
E-mail: glastech@glastech.fi
www.projecta.fi

GLASTECHNIK HOLGER KRAMP GMBH

Albert-Einstein-Strasse 18
D-23617 Stockelsdorf - Germany
Tel: +49-451-499690
Fax: +49-451-4996949
E-mail: info@glastechnik.com
www.glastechnik.com

GLASTEKNIK S. THORBALL APS

Headquarters

Midtager 26 B, DK-2605 Brøndby
Denmark
Tel: +45-36-720900
Fax: +45-36-703335
E-mail: ja@staps.dk
www.staps.dk

Company Officers

Jesper Andersen: Adm. Director

Company Data

Nominal capital: USD 200,000
Number of employees: 11
Company founded: 1975
Turnover from glass: 100%

Local offices/branches:

ADDRESS OREBYGAARDEVEJ 6, TJØRRING,
DK-7400 HERNING

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

All equipment for the flat glass industry

Companies represented:

AACHENER CHEMIE (GERMANY)
ARTIFEX (GERMANY)
BOHLE (GERMANY)
GLASSTECH INC. (USA)
HAKON (CZECH REPUBLIC)
HAMMER GLASS (SWEDEN)
INTERMAC (ITALY)
KERAGLASS (ITALY)
PANNKOKE (GERMANY)
SCHIATTI ANGELO (ITALY)
SIMEC (ITALY)
STREMLER (FRANCE)
SULAK (CZECH REPUBLIC)
TRIULZI (ITALY)
VITO (GERMANY)

GRAHA REKA ADIYASA P.T.

Jl. Hayam Wuruk No. 3 ii
Jakarta 10120 - Indonesia
Tel: +62-21-3503301
Fax: +62-21-3808974
E-mail: fchong@cbn.net.id

GUSMAO REPRESENTAÇÕES

Rua dos Sitiantes, 241
Freguesia do O'
Cep 02737-000 San Paulo - Brazil
Tel: +55-11-39982020
Fax: +55-11-39912020
E-mail: gusmao@gusmao.com.br
www.gusmao.com.br

GUTAL TRADING EST. (UAE)

BMTC Building II Floor, suite no.17
PO Box 12881, Deira - Dubai -
UAE - United Arab Emirates
Tel: +971-4-2680477
Fax: +971-4-2629236
E-mail: gutal@emirates.net.ae
www.gutal.com

HEINER REKER

Headquarters

Waldweg 16, 33758 Schloss Holte
Germany
Tel: +49-5207-77227
Fax: +49-5207-923455
E-mail: info@heinerreker.de
www.heinerreker.de

Company Data

Company founded: 1994
Turnover from glass: 100%

Agent/Representative of:

• GLASS MANUFACTURERS

Glass forming, glass decoration,
glass production

Companies represented:

ECOTECNE (ITALY)
FLUORITAL (ITALY)
MT FORNI INDUSTRIALI (ITALY)
OCMI (ITALY)
TECNO 5 (ITALY)

Countries where we act:

Austria, Czech Republic, Germany,
Hungary, The Netherlands, Poland,
Slovakia, Switzerland

HERRAMAQ ARGENTINA SRL

Bernardo de Irigoyen 1139
1602 - Buenos Aires - Argentina
Tel: +54-11-47600315
Fax: +54-11-47616786
E-mail: info@herramaq.com.ar
www.herramaq.com.ar

HOGLA B.V.

Headquarters

P.O. Box 100, 2810 AC Reeuwijk
The Netherlands
Tel: +31-182-390700
Fax: +31-182-390707
E-mail: sales@hogla.com
www.hogla.com

Company Officers

N.B.J. Klemann: General Manager
R. Hendriks: Sales Manager
J. Klemann-Joosten: Financial Mng.
M. Van Kesteren-Dewaard: Account Ex.

Company Data

Annual turnover: USD 33,500,000
Nominal capital: USD 99,000
Number of employees: 18
Company founded: 1983
Turnover from glass: 100%

Agent/Representative of:

• GLASS MANUFACTURERS

Horticultural glass, (satin) etched
glass, solar glass, float glass, blue
float glass, safety and fire resistant,
patterned and wired glass

Companies represented:

CENTRAL GLASS (JAPAN)
C.G.I. INTERNATIONAL (UK)
GLASFABRIK LAMBERTS (GERMANY)

Countries where we act:

Worldwide

IAIN GLASS

Headquarters

Wrangham, Philips Lane,
Darrington, WF8 3BH Pontefract, UK

Tel: +44-1977-279094
 Fax: +44-1977-279094
 E-mail: iainglass@talktalk.net

Company Officers

Iain Glass: CEO
 Margaret Glass: PA
 E-mail: margaretglass@talktalk.net

Company Data

Annual turnover: EUR 500,000
 Turnover from glass: 100%

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Inspection equipment conveyors, palletizers, lehrs

Companies represented:

ALL GLASS (ITALY)
CAR-MET (ITALY)
MSC/SGCC (FRANCE)
PHARMAMECH (ITALY)

Countries where we act:

UK

IDRA D.O.O.

Cakovecka 17
 10000 Zagreb - Croatia
 Tel: +385-1-3011822
 Fax: +385-1-3638847
 E-mail: idra@zg.t-com.hr
 www.idra.cro.net

IGE SOLUTIONS INC.

2875 Jupiter Park Drive, Suite 100
 Jupiter, FL 33458 - USA
 Tel: +1-561-7417300
 Fax: +1-561-7413071
 E-mail: info@igesolutions.com
 www.igesolutions.com

INDUSTRIAL ENGINEERING & TRADING CO.

15, El Khalifa El Mammoun Str.
 Office 201 & 205
 11341 Heliopolis Cairo - Egypt
 Tel: +20-2-2919004
 Fax: +20-2-2910403
 E-mail: gsaharty@thewayout.net

ING.- BURO ECKHARD STOSCHEK

Holzheimer Weg 42b
 D-41464 Neuss - Germany
 Tel: +49-2131-401790
 Fax: +49-2131-41807
 E-mail: info@stoschek.com
 www.stoschek.com

INOVAGLASS

Headquarters

Zona Industriale da Agrela, Pav.C
 4825-026 Santo Tirso, Portugal
 Tel: +351-22-9689900
 Fax: +351-22-9689901
 E-mail: software@afcpereira.com
 www.inova.afcpereira.com

Company Officers

Ricardo Pereira: Manager
 Helder Pinto: Software Developer

Company Data

Annual turnover: USD 500,000
 Number of employees: 11

Company founded: 2008
 Turnover from glass: 100%
 Nominal capital: USD 50,000

Local offices/branches:

ADDRESS ZONA INDUSTRIAL DA
 AGRELA, PAV. C 4825-026
 AGRELA, STO TIRSO

Companies represented:

BOTTERO (ITALY)

INTERCHANGE EQUIPMENT INC.

90 Dayton Avenue
 Passaic NJ 07055 - USA
 Tel: +1-973-4735005
 Fax: +1-973-4734485
 E-mail: sales@interchangecorp.com
 www.interchangecorp.com

INTERNATIONAL TRADING CENTRE (ITC)

Headquarters

132, El Bahr El Aazam St.
 239 Giza, Egypt
 Tel: +20-2-35738192/35732273
 Fax: +20-2-35739183
 E-mail: itc@tedata.net.eg

Company Officers

Philip Fayez: General Manager
 Gamal Basher: General Manager

Company Data

Annual turnover: USD 2,000,000
 Nominal capital: USD 100,000
 Number of employees: 17
 Company founded: 1983
 Turnover from glass: 40%

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Machinery, production lines,
 raw material and turnkey projects

Companies represented:

FIVES STEIN (UK)
GIANCARLO PEREGO (ITALY)
LAHTI PRECISION (FINLAND)
NEUBOR GLASS (ITALY)
OCMI-OTG (ITALY)

Countries where we act:

Egypt

INTERPRODUCT PTY. LTD.

Headquarters

Oakwood Road, 5243 Oakbank
 Australia
 Tel: +61-8-83884906
 Fax: +61-8-83980011
 E-mail: interproduct@adsl.on.net

Company Officers

Gilbert V.D. Aue: Managing Director
 Magdalena V.D. Aue: Director

Company Data

Company founded: 1996

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Machinery, tools, consumables

Companies represented:

ADI (ITALY)
ARTIFEX (GERMANY)
BAUDIN (FRANCE)
BOHLE (GERMANY)
JANBAC (FRANCE)

KNOPP (GERMANY)
PANNKÖKE (GERMANY)
STARLITE (USA)
VFG (GERMANY)
VITO (GERMANY)
WENDT-BOART (BELGIUM)

Countries where we act:

Australia, Pacific

ITALPOL

Headquarters

Via Versilia 374,
 47023 Cesena - Italy
 Tel: +39-335-5622250
 E-mail: italpol@italpolglass.it
 italpolglass@wp.eu
 www.italpolglass.it

Company Officers

Strejczek Jaroslaw: Owner

Company Data

Company founded: 1990
 Turnover from glass: 100%

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Manipulation and storage, straight
 line and shaped cutting, edging and
 bevelling machines, drilling, engraving,
 sandblasting, washing, mirror-
 making and silvering, laminated
 glass plants, tempering and bending,
 silk-screen printing

• GLASS MANUFACTURERS

Laminated glass plants, tempering,
 bending, processing, finishing

Companies represented:

BOVONE DIAMOND TOOLS (ITALY)
BOVONE ELETTROMECCANICA (ITALY)
CUGHER GLASS (ITALY)
LOVATI FRATELLI (ITALY)
MAPPI INT. (ITALY)
MAROSO (ITALY)
MAYER (ITALY)
RCN (ITALY)

Countries where we act:

Czech Republic, Poland, Slovakia

J.C.M. - SUMINISTROS INDUSTRIALES S.L.

Headquarters

Poligono Torrelarragoiti,
 Parcela 8, Pabellon 5A
 48170 Zamudio - Vizcaya - Spain
 Tel: +34-94-4522847
 Fax: +34-94-4522791
 E-mail: info@jcm.es
 www.jcm.es

Company Officers

Juan Carlos Martinez: Co-Owner
 E-mail: juancharlos@jcm.es
 Gonzalo Martinez: Co-Owner
 E-mail: gonzalo@jcm.e

Company Data

Number of employees: 13
 Company founded: 1987
 Turnover from glass: 100%

Local offices/branches:

POLIGONO TORRELLARRAGOITI PARCELA 8
 PABELLON 5A

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

All kinds of machinery and tools
 for the flat glass industry

Companies represented:

ALBAT+WIRSAM (GERMANY)
DI GREGORIO (ITALY)
GLASS INSPECTOR (SPAIN)
GLASTON-BAVELLONI (ITALY)
GLASTON-TAMGLASS (FINLAND)
MALNATI (ITALY)
OLMAR (SPAIN)
TEKNO KILNS (ITALY)
VISMARA (ITALY)

Countries where we act:

France, Morocco, Portugal, Spain,
 South America

J.M.G. (JUST MACHINERY FOR GLASS)

Headquarters

8 rue Diego Velazque
 77176 Savigny Le Temple, France
 Tel: +39-6-07142120
 Fax: +33-1-64411517
 E-mail: besanalovatifr@aol.com

Company Officers

Jean Marc Giudici

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Grinding / Drilling machines,
 Washing machines, Tempering
 furnaces /HST/ IR furnaces, Cutting
 tables and lines, Storage racks and
 automatic loaders, Glass printing
 (digital and screenprinting)

Companies represented:

C.M.B. BESANA (ITALY)
CMC IMPIANTI (ITALY)
CUGHER GLASS (ITALY)
DIP TECH (ISRAEL)
H&C (BELGIUM)
MACOTEC (ITALY)
OFFICINE MISTRELO (ITALY)
QUARANTA (ITALY)

Countries where we act:

Benelux, France, North Africa,
 Switzerland

JOSEP SERRAL - MAQUINARIA VIDRIO

Calle Tramuntana, 44-46 - BAJOS,
 1 A- 08030 Barcelona - Spain
 Tel: +34-933-465958
 Fax: +34-933-116361
 E-mail: josepserral@josepserral.com
 www.josepserral.com

KAELER HOLDING AG (INCORPORATING KAELEK MOSCOW AND KAELEK KIEV)

Headquarters

Winzerhalde 16
 CH-8049 Zurich - Switzerland
 Tel: +41-44-2730230
 Fax: +41-44-2730320
 E-mail: info@kaeler.com
 www.kaeler.com

Company Officers

Fredy Reif: CEO
 E-mail: fredy.reif@swissonline.ch
 Martina Grossmann: Director
 E-mail: martini.grossmann@kaeler.com

Company Data

Annual turnover: EUR 12,000,000.00
Nominal capital: EUR 250,000.00
Number of employees: 35
Company founded: 1970
Turnover from glass: 20%

Local offices/branches:

KAELER MOSCOW
KAELER KIEV

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

From furnaces to final ampoule
or vial production

Companies represented:

OCMI (ITALY)
OLIVOTTO (ITALY)

Countries where we act:

CIS countries

KHADJI GLASS MACHINERY - KGM**Headquarters**

No. 602 6th Floor, Marjan Tower
North Mofatteh Ave. 7th Tir Sq.
1588964494 Tehran - Iran
Tel: +98-21-88325678
Fax: +98-21-88325679
E-mail: info@kgm-ir.com
www.kgm-ir.com

Company Officers

M.A. Khadji: Managing Director

Company Data

Company founded: 2000

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Glass machinery, Glass tools, Glass
materials

Companies represented:

BOHLE (GERMANY)
DIAMOND (ITALY)
EKANG (KOREA)
FENZI (ITALY)
GLASTON (ITALY)
OST (UK)
PUJOL (SPAIN)
RBB DI BRAZZI (ITALY)
VIDRIARTE (SPAIN)

Countries where we act:

Iran

KIRIAKIDIS VAS SA**Headquarters**

Industrial Area Of Thessaloniki
Sindos Thessaloniki
Gr 57022 - Greece
Tel: +30-2310-799490
Fax: +30-2310-799412
E-mail: zoi@kiriakidisglass.gr
www.kiriakidisglass.gr

Company Officers

Kiriakidis Chabalanpos
Kiriakidov Zoi

Company Data

Annual turnover: EUR 8,000,000
Nominal capital: EUR 3,060,000
Number of employees: 37
Company founded: 1998
Turnover from glass: 90%
Quality certifications: ISO, CE

KRISTALLSPEGEL & GLAS AB**Headquarters**

Box 3009, 125 03 Alvsjo - Sweden
Tel: +46-8-992666
Fax: +46-8-992660
E-mail: huttenlocher@telia.com

Company Officers

Gert Huttenlocher: Managing Dir.

Company Data

Number of employees: 2

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Glass working machines, all kinds
of flat glass for buildings
and interior glazing

Companies represented:

BERLINER GLASS (GERMANY)
BOTTERO (ITALY)
BOVONE DIAMOND TOOLS (ITALY)
BOVONE ELETTROM. (ITALY)
FRATELLI PEZZA (ITALY)
GLASFABRIK LAMBERTS (GERMANY)
GLASHÜTTE LAMBERTS (GERMANY)
IBG MONFORTS (GERMANY)
INTERVER (SWITZERLAND/FRANCE)
PUTSCH-MENICONI (ITALY)

Countries where we act:

Sweden

KUTAS DIS TIC.PAZ. A.S.**Headquarters**

Aydos Cod. Velibaba, Nah. Noito
Pendik - 81520 Istanbul, Turkey
Tel: +90-216-5856500
Fax: +90-216-3073929
E-mail: caistoli@impdesas.com

Company Officers

Oben Ahiskali: Sales Rep.

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Glaston machines

Companies represented:

GLASTON (FINLAND)

Countries where we act:

Turkey

LANA INTERNATIONAL EST.**Headquarters**

Sweifyah-Alwakalat St - Bld. no.13,
1st Floor, P.O. Box 346 Marj
Aihamam, 11732 Amman - Jordan
Tel: +962-6-5810487
Fax: +962-6-5810497
E-mail: lanaco@orange.jo

Companies represented:

ASSA ABLOY ITALIA (ITALY)
GLASTON (WORLDWIDE)
KUNSON MATTHEY (THE NETHERLANDS)
KURARAY-TROSIFOL PVB (GERMANY)
LISEC (AUSTRIA)
SAINT-GOBAIN GLASS (WORLDWIDE)

LECHNER SRL

Via Della Fondega 12
15061 Arquata Scrivia (AL) - Italy
Tel: +39-0143-637054
Fax: +39-0143-637055
E-mail: lechner@lechner-srl.com
www.lechner-srl.com

LUSPOL RYSZARD KOWALCZYK**Headquarters**

ul. Syrokomla 3, 30-102 Kraków
Poland
Tel: +48-602-334745
Fax: +48-12-4270405
E-mail: luspol@poczta.onet.pl
www.bottero.com

Company Officers

Ryszard Kowalczyk: Owner
E-mail: ryszard.kowalczyk@interia.pl

Company Data

Company founded: 1994

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Cutting, grinding, drilling, storage,
IG production, tempering, bending,
silk printing

Companies represented:

BOTTERO GROUP (ITALY)
KERAGLASS (ITALY)
RBB DI BRAZZI (ITALY)

Countries where we act:

Poland

MAB EXPORT D.O.O.

Vodovodna Pot 3 - 5000 Nova Gorica -
Slovenia
Tel: +386-5-3313850
Fax: +386-5-3313854
E-mail: mab@mab-export.si
www.mab-export.si

Company Officers

Jasnic Albin: Procurist
Vidmar Branko: Manager

Company Data

Annual turnover: USD 10,000,000
Number of employees: 20
Company founded: 1992

Countries where we act:

Bosnia and Hercegovina, Bulgaria,
Croatia, Kosovo, Macedonia,
Montenegro, Serbia

MACHINES AND WHEELS, INC.

327 South Road - High Point, NC
27262 - USA
Tel: +1-336-3730777
Fax: +1-704-5473153
www.machinesandwheels.com

**MAQUINAS ARGENTINAS
DEL VIDRIO S.A. "MAVSA"****Headquarters**

San Antonio 1119
1276 Buenos Aires - Argentina
Tel: +54-11-43029900/6002
Fax: +54-11-43029900/6002
E-mail: info@mavsa.com.ar
www.mavsa.com.ar

Company Officers

Diego H. Fuentes: Manager Director
Gustavo D. Fuentes: Manager
Marcelo Cerioli: Adm. Director

Company Data

Annual turnover: USD 3,000,000
Nominal capital: USD 1,500,000
Number of employees: 20

Company founded: 1974
Turnover from glass: 100%

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Complete press lines for tableware
and IS lines, moulds for tableware
and containers

Companies represented:

PUTSCH (GERMANY)

MARBOLZ VETROSTILE S.A. DE C.V.

Av. Lazaro Cardenas 1200
Col. Alamo Industrial
44490 Guadalajara - Mexico
Tel: +52-33-36662415
Fax: +52-33-36662630
E-mail: info@vetrostile.com
www.vetrostile.com

Company Officers

Idilio Bolchini Bavelloni

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Bevelling, edging, insulating glass
lines, tempering lines, washing
equipment, tools, spares

Companies represented:

BOTTERO (ITALY)

Countries where we act:

Caribbean, Central America, Mexico,
Venezuela

MARC PREVOST MACHINERY - MPM INC.

3875, Saint-Jean -
Baptiste boulevard- Montreal
Quebec H1B 5V4 - Canada
Tel: +1-514-6404040
Fax: +1-514-6405454
E-mail: info@mpm.ca
www.mpm.ca

MAVHISA S.A. DE C.V.

Gabino Barreda 927, Col. San Carlos
Guadalajara - Jalisco - Mexico
Tel: +52-33-36192590
Fax: +52-33-36195747
E-mail: ventasgdl@mavhisa.com.mx
www.mavhisa.com.mx

MAZUR - FIRMA HANDLOWA

Ul. Tama Pomorzanska 14 D
PI 70-030 Szczecin - Poland
Tel: +48-91-8120141
Fax: +48-91-8120142
E-mail: mazur@mazur.pl
www.mazur.pl

MC DIAM SP.Z O.O.

Al. Lotników 12
02-668 Warszawa - Poland
Tel: +48-22-8434847
Fax: +48-22-8478131
E-mail: mediam@mediam.com.pl
www.mcdiam.com.pl

**MECHANIK A.G.L. LTD. /
GILRAPHAL LTD.****Headquarters**

19 Hahatechet ST Industrial Zone
77521 Ashdod, Israel

Tel: +972-8-8524640
 Fax: +972-8-8525182
 E-mail: mechanik@mechanik.agr.co.il
www.mavsa.com.ar

Company Officers

Ralph Bendavid

Company Data

Annual turnover: USD 2,000,000
 Number of employees: 9
 Company founded: 1995

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Machinery for glass, glass tools, glass accessories, silicones, spacer bars

Companies represented:

BOHLE AG (GERMANY)
GLASTON BAVELLONI (ITALY)
PROFILGLASS (ITALY)
TREMCO (UK)

Countries where we act:

Israel, Palestine

MEDGENCO INTERNATIONAL TRADE CO.

13 El Bostan Street
 11111 Cairo - Egypt
 Tel: +20-2-23933550
 Fax: +20-2-23928487
 E-mail: medgenco@soficom.com.eg
www.medgenco.com

MERAN

Kotiyakovskaya Str. 6
 Guild 8 - 115201 Moscow - Russia
 Tel: +7-495-7416843
 Fax: +7-495-3801386
 E-mail: info@meran.ru
www.meran.ru

MESLIER MANUEL DE CASTRO LDA

Headquarters

157 Praca de Republica
 4050-498 Porto - Portugal
 Tel: +351-22-2004381
 Fax: +351-22-2084052
 E-mail: meslier@mail.telepac.pt

Company Officers

Rui Montenegro Ferraz: Director
 Alvaro Fonseca: Director

Companies represented:

BOVONE (ITALY)
COSMA IMPIANTI (ITALY)
INTERMAC (ITALY)
ITALMATIC (ITALY)
LANZETTA (ITALY)
NEPTUN (ITALY)
RBB DI BRAZZI (ITALY)
RCN (ITALY)
SCHIATTI (ITALY)

Countries where we act:

Portugal

MIDDLE EAST FACTORIES' EQUIPMENT L.L.C. (ME EQUIP)

P.O Box: 20265, Dubai - UAE
 United Arab Emirates
 Tel: +971-6-5318480
 Fax: +971-6-5319480
 E-mail: info@meequip.com
www.meequip.com

MILLCHEM

Po Box 8595 - edeglen, 1613
 90 Newton Road
 Meadowdale, 1600 - Johannesburg
 Rep. Of South Africa
 Tel: +27-11-9742255
 Fax: +27-11-9742253
 E-mail: chris@millchem.co.za
www.millchem.co.za

MINUSCO BENELUX B.V.

Headquarters

Industrieweg 28
 3133EE Vlaardingen
 The Netherlands
 Tel: +31-10-4451069
 Fax: +31-10-4353481
 E-mail:
info-nl@minusco-benelux.com
www.minusco-benelux.com

Company Officers

Rene Coenen
 Tom Jacob

Company Officers

Annual turnover: EUR 1,500,000
 Number of employees: 4
 Company founded: 2009

Local offices/branches:

ADDRESS SCHEMKENSSTRAAT 1
 3583 PAAL-BERINGEN -
 BELGIUM

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Architectural hardware

Companies represented:

ADLER (FRANCE)
COLCOM (FRANCE)
EUROFIT (THE NETHERLANDS)
MINUSCO (FRANCE)

Countries where we act:

Belgium, Germany, Luxembourg,
 The Netherlands

MONTAJES INDUSTRIALES S.A.

Aviador Alejandro Fernández
 1729/33 - B1686HNE Hurlingham
 Buenos Aires - Argentina
 Tel: +54-11-46659171
 Fax: +54-11-46621933
 E-mail: info@mindustriales.com.ar
www.mindustriales.com.ar

M.P.T MACHINERY CO. LTD.

50/57-58 Wuttakard Rd.
 Bangkok Chomthong
 Bangkok 10150 - Thailand
 Tel: +66-2-8763684
 Fax: +66-2-8763688
 E-mail: mptmac@ksc.th.com
www.mptmac.co.th

MULTI-TECH (THAILAND CO. LTD.)

Headquarters

4/194 M. 5 Ladplakao Road
 Anusawaree, Bangkok
 10220 Bangkok - Thailand
 Tel: +66-2-9717100
 Fax: +66-2-5221786
 E-mail: sales@lmultitech-thai.com
www.multitech-thai.com

Company Officers

Wichan Khunvirojpanich:
 Managing Director
 Phattaree Porncharatchpisan

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Glass conversion machines

Companies represented:

DIP TECH (ISRAEL)
LISEC (AUSTRIA)
OCMI (ITALY)

Countries where we act:

Thailand

NINESUN CONSULTING CO. LTD.

Room 309, Nr.10 Building,
 Legend Commercial Plaza
 Nr. 3599 QiXin Road
 201101 Shanghai - China
 Tel: +86-21-34096597
 Fax: +86-21-34096589
 E-mail: jianpingyu@china.com

Company Officers

James Yu: GM
 E-mail: jianpingyu@china.com
 Celine Jiang: Sales Manager
 E-mail: jiuhui@china.com

Company Data

Annual turnover: EUR 5,000,000.00
 Nominal capital: EUR 500,000.00
 Number of employees: 10
 Company founded: 1998

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

IS machines, Forehearths,
 Annealing and tempering lehrs,
 Silk-screen printing machines
 for glass products and plates,
 PTA mould welding machines,
 Vacuum systems, Fans systems,
 Strapping machines, Palletizers
 and Depalletizers

Companies represented:

ANTONINI (ITALY)
BOTTERO (ITALY)
CERINNOV (FRANCE)
COMMERSALD IMPIANTI (ITALY)
FERMAC (ITALY)
GLASS SERVICE (ITALY)
LWN LUFTECHNIK (GERMANY)
OMS (ITALY)
PNEUMOFOR (ITALY)
REVIMAC (ITALY)
STRUTZ (USA)
ZECCHETTI (ITALY)

Countries where we act:

China, DPRK

OTTO GLASTECHNIK GMBH

Headquarters

Augsburger Str. 43
 82110 Germering - Germany
 Tel: +49-89-8940860
 Fax: +49-89-89408614
 E-mail: info@otto-glastechnik.de
www.otto-glastechnik.de

Company Officers

Uwe Leupold: Owner
 Matthias Heidkrueger: Owner

Company Data

Company founded: 1980
 Number of employees: 10

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Kilns, sandblasters, drilling machines,
 CNC, warehousing equipment, glass cut-
 ting machines, edging machines, tools,
 expendables

Companies represented:

DAMGLASS (SPAIN)
FLEX (GERMANY)
HAKON (CZECH REPUBLIC)
ITALIANA MACCHINE (ITALY)
MAKITA (GERMANY)
MAVER (ITALY)
PAVONI (ITALY)
PREBENA (GERMANY)
SCV (ITALY)
SULAK (CZECH)
TK TEKNO KILNS (ITALY)
ZAFFERANI (ITALY)

Countries where we act:

Austria, Czech Republic, Germany,
 Switzerland

OVERSEAS GLASS AGENCIES

138-140 Malcom Road
 Braeside VIC 3195 - Australia
 Tel: +61-3-95872488
 Fax: +61-3-95872688
 E-mail: enquires@oga.com.au
www.oga.com.au

P.A.L. GLASS MACHINERY LTD.

Headquarters

33 Hornsby Square
 Southfields Business Park
 Basildon Essex SS15 6SD
 United Kingdom
 Tel: +44-1268-493382
 Fax: +44-1268-493385
 E-mail: sales@palmachinery.co.uk
www.palmachinery.co.uk

Company Officers

Paul Lithauer: Managing Director

Company Data

Company founded: 2000

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Glass processing machinery

Companies represented:

ADELIO LATUADA (ITALY)
EMAR (ITALY)
MAPPI INT. (ITALY)
RBB DI BRAZZI (ITALY)

Countries where we act:

Ireland, United Kingdom

PAVLOS KOULOURIS

Headquarters

Tinou 17-19, 14452 Metamorfofi
 Athens - Greece
 Tel: +30-210-2846840
 Fax: +30-210-2843790
 E-mail: elenkoglass@gmail.com

Company Officers

Pavlos Koulouris
 Sandra Koulouris

Agent/Representative of:

- MACHINERY/EQUIPMENT SUPPLIERS

Sealants for I.G., glass doors hardware

- GLASS MANUFACTURERS

Float glass, mirrors, low-E glass

Companies represented:
KAVEH GLASS INDUSTRY GROUP (IRAN)
KÖMMERLING (GERMANY)
USAF (TAIWAN)
XINYI GLASS (CHINA)

Countries where we act:
 Albania, Bulgaria, Greece

PETER HAWKINS LTD.

Caste Lane
 Melbourne Derbyshire DE73 8JB
 United Kingdom
 Tel: +44-1332-864747
 Fax: +44-1332-864748
 E-mail: info@phawkins.co.uk
 www.phawkins.co.uk

PETREA AGENTURA TEHNICA SRL

Str. Carpati nr. 2B
 505100 Codlea, Brasov - Romania
 Tel: +40-268-253067
 Fax: +40-268-254290
 E-mail: ioanpetrea@clicknet.ro
 www.petrea.ro

PG GLASS**Headquarters**

Ul. Francesco Nullo 12-77
 31-543 Krakow - Poland
 Tel: +48-12-4113132
 Fax: +48-12-4113132
 E-mail: andrewu@o2.pl

Company Officers

Andrzej Weglowski

Agent/Representative of:

- MACHINERY/EQUIPMENT SUPPLIERS

Glass forming machinery/equipment
 glass furnaces, technological
 consultancy

Companies represented:

GLASS SERVICE (ITALY)

Countries where we act:
 Poland

PGM-TECHNIC CO. LTD.

16/106 Chaloom Phrakiat Thi 9,
 Sol 28, Dokmai District, Prvate
 10250 Bangkok - Thailand
 Tel: +66-2-7516729
 Fax: +66-2-7518512
 E-mail: info@pgm-technic.com
 www.pgm-technic.com

Company Officers

Klaus Wolff: Director
 E-mail: K.Wolff@pgm-technic.com
 Chuda Thaneekul: Director
 E-mail:
 C.Thaneekul@pgm-technic.com

Company Officers

Nominal capital: EUR 50,000.00
 Number of employees: 4
 Company founded: 2010

Agent/Representative of:

- MACHINERY/EQUIPMENT SUPPLIERS

Spare parts and variables for glass
 forming machines (parts are made
 from subcontractors under PGM
 authority)

Countries where we act:

Germany, Indonesia, Malaysia,
 Thailand

**PIETERMAN GLASTECHNIEK
BELGIUM**

Schemkensstraat 1
 3583 Paal-Beringen - Belgium
 Tel: +32-11-421775
 Fax: +32-11-420792
 E-mail: sales@pgv-be.com
 www.pieterman-glastechniek.be

PIETERMAN GLASTECHNIEK**Headquarters**

Industrieweg 28
 3133 AH Vlaardingen
 The Netherlands
 Tel: +31-10-4358022
 Fax: +31-10-4353481
 E-mail: info@pgv-nl.com
 www.pieterman-glastechniek.be

Company Officers

R.C. Pieterman
 E. Indiesleege
 B. de Jong

Company Data

Annual turnover: USD 13,000,000
 Number of employees: 46
 Company founded: 1953

Local offices/branches:

ADDRESS SCHEMKENSSTRAAT 1
 3583 PAAL-BERINGEN -
 BELGIUM

Agent/Representative of:

- MACHINERY/EQUIPMENT SUPPLIERS

Glassworking machinery

Companies represented:

ADLER (FRANCE)

BOVONE (ITALY)

EUROMECC (ITALY)

FORVET (ITALY)

HAKON (CZECH REPUBLIC)

HELUMA (GERMANY)

INTERMAC (ITALY)

RBB DI BRAZZI (ITALY)

SCHIATTI (ITALY)

SULAK (CZECH REPUBLIC)

WIN (GERMANY)

Countries where we act:

Belgium, Luxembourg, The
 Netherlands

PROFIL MACC SRL**Headquarters**

C.da Alezza Z.I.
 74012 Crispiano, Taranto (Italy)
 Tel: +39-99-613637
 Fax: +39-99-612461
 E-mail: info@profilmacc.it
 www.profilmacc.it

Company Officers

Gianni Digregorio: Owner
 Martino Digregorio: Owner
 Tonio Digregorio: Owner

Company Data

Number of employees: 20

Company founded: 1984

Agent/Representative of:

- MACHINERY/EQUIPMENT SUPPLIERS

All types of machinery for flat glass
 processing

Companies represented:

BOVONE (ITALY)

DI GREGORIO (ITALY)

GFPM (ITALY)

SCREENLINE - PELLINI (ITALY)

Countries where we act:

Italy

PROMAC GROUP - GLASS DIVISION

Unit 3b & 3c Hadrians Way
 Glebe Farm Industrial Estate
 Rugby Warwickshire CV21 1ST
 United Kingdom
 Tel: +44-1788-577577
 Fax: +44-1788-567938
 E-mail: sales@promac.co.uk
 www.promac.co.uk

PT IMACO PRATAMA MAJU**Headquarters**

Jl. Ciputat Raya 2 E
 12310 Jakarta - Indonesia
 Tel: +62-21-7502280
 Fax: +62-21-7502367
 E-mail: imaco@idola.net.id

Company Officers

J. Trisnadi: Sales Manager

Company Data

Annual turnover: USD 4,000,000
 Number of employees: 10
 Company founded: 1985
 Turnover from glass: 80%

Agent/Representative of:

- MACHINERY/EQUIPMENT SUPPLIERS

Glass presses

- GLASS MANUFACTURERS

Tableware

Companies represented:

ANTONINI (ITALY)

BDF (ITALY)

DR. SCHMITT (GERMANY)

FERMAC (ITALY)

KLÖPPER (GERMANY)

OLIVOTTO-GLASS (ITALY)

VALSPAR (GERMANY)

PT. VICTORY INDOTRADING**Headquarters**

Jl. Mayang II Blok AN6/6,
 Pondok Kelapa Permai
 13450 Jakarta Timur - Indonesia
 Tel: +62-21-70615361
 Fax: +62-21-8477362
 Mob: +6281586883883
 E-mail: info@victory-indotrading.co.id

Company Officers

Venito Bastian: President
 E-mail: venito@cbn.net.id

Company Data

Annual turnover: EUR 75,000.00
 Number of employees: 4

Company founded: 2005

Turnover from glass: 100%

Agent/Representative of:

- MACHINERY/EQUIPMENT SUPPLIERS

Machinery, Control systems,
 Lubrication, Oils

- GLASS MANUFACTURERS

Hollow / Tableware

Companies represented:

BOWMAN EW (USA)

FUTRONIC (GERMANY)

GRAPHOIDAL (UK)

KLEENMOLD (USA)

LUBISOL (BULGARIA)

PARKINSON SPENCER REFRACTORIE (UK)

PENNINE (UK)

POCO GRAPHITE (USA)

SHEPPEE INTERNATIONAL (UK)

ZIRCOR (BELGIUM)

Countries where we act:

Indonesia, Malaysia, Vietnam

R. MEYER S.L.

C/Llull 70-72, 3° 3a
 08005 Barcelona - Spain
 Tel: +34-93-3010525
 Fax: +34-93-4120576
 E-mail: info@rmeyersl.com
 www.rmeyersl.com

**RAW MATERIAL
COM. REFRACTORIOS LTDA.****Headquarters**

Rua Rosa Kasinski 1109 - Cj. 11/12
 09380-128 Mauá - São Paulo - Brazil
 Tel: +55-11-45139844
 Fax: +55-11-45138726
 E-mail: raw@rawmaterial.com.br
 www.rawmaterial.com.br

Company Officers

Nilson Sako: Director
 César Rodrigues: Director
 Marina Tsuda: Manager

Company Data

Number of employees: 22
 Company founded: 1992
 Turnover from glass: 20%

Agent/Representative of:

- MACHINERY/EQUIPMENT SUPPLIERS

Batch plants, batch chargers, glass level
 controller, crusher, bubbling, electric
 boosting, burner, drainage system,
 hot- and cold-end coating, melting
 glass furnaces, IS machines, inspec-
 tion machines, rollers, deadplates and
 shearblades, zircon mullite, insulating
 and silica bricks, ceramic fiber and
 heating elements

Companies represented:

BOTTERO HOLLOW GLASS (ITALY)

DR. C. OTTO/DYKO/P-D REFRACTORIES

(GERMANY)

HORN (GERMANY)

I SQUARED R (USA)

MORGANITE THERMAL (BRAZIL)

MSC & SGCC (FRANCE)

RUREX-STAHLE (GERMANY)

ZIPPE (GERMANY)

Countries where we act:

South America

RECENT ADDITIONS INC.

Headquarters

2355 E. Stadium Blvd Suite 2
48104 Ann Arbor, Michigan - USA
Tel: +1-734-769-2534
Fax: +1-734-769-2803
E-mail: ccocagne@hotmail.com
www.recentadditionsinc.com

Company Officers

Charles J. Cocagne: President
Edward Cocagne:
Secretary/Treasurer
E-mail: ccocagne@hotmail.com

Company Data

Number of employees: 2
Company founded: 1990

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Flat glass tempering, Laminating, Bending, Batch chargers, Reversal valves, Lehr drive systems, Electric melting technology, Transformers & electrical equipment

Companies represented:

F.I.C. UK (UK)

GLASSROBOTS (FINLAND)

ROMAN MANUFACTURING (USA)

Z & J TECHNOLOGIES (GERMANY)

Countries where we act:

Canada, Mexico, USA

REPLIK

Headquarters

3737, Blvd. Du Tricentenaire
Montréal H1B 5W3 - Canada
Tel: +1-514-6446410
Fax: +1-514-6441717
E-mail: info@replik-art.ca
www.replik-art.ca

Company Officers

André Mantpetit: General Manager

Company Data

Number of employees: 2
Company founded: 2009

• GLASS MANUFACTURERS

Coloured glass, engraved glass

Companies represented:

CAVEDA

RITSTEKLO

Headquarters

3, Kholodilnyi Per. Office 316
115191 Moscow - Russia
Tel: +7-495-7716844
Fax: +7-495-7716849
E-mail: rit@ritsteklo.ru
www.ritsteklo.ru

Company Officers

K. Turgut Kutlu: General Director
E-mail: kutlu@ritsteklo.ru
Igor Tarasov: Commercial Director
E-mail: rit@ritsteklo.ru
Alexander Orlov: Technical Director
E-mail: a.orlov@ritsteklo.ru

Company Data

Annual turnover: EUR 5,000,000.00
Nominal capital: EUR 50,000.00
Number of employees: 9

Company founded: 2001
Turnover from glass: 100%

• GLASS MANUFACTURERS

Hollow glass forming equipment, annealing lehrs, palletizers, conveyors, inspection machines, silk screen printing, hot stamping equipemnt, silent chains

Companies represented:

BOTTERO (ITALY)

CAR-MET (ITALY)

CER (FRANCE)

EMMETI (ITALY)

FERMAC (ITALY)

IRIS (FRANCE)

RAMSEY PRODUCTS (USA)

REVIMAC (ITALY)

SIPAC (ITALY)

Companies represented:

Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan, Uzbekistan, Ukraine

ROVER CO. LTD.

Klostermannova 663/13
460 01 Liberec
Czech Republic
Tel: +420-482-416070
Fax: +420-482-416079
E-mail: rover@rover-lbc.cz
www.rover-lbc.cz

SACAV SRL / T3 GLASS ENGINEERING

Headquarters

Via Volpicella 240
80147 Napoli (NA) - Italy
Tel: +39-081-5720167
Fax: +39-081-5720258
E-mail: ste-fanofornario@t3glass.com
www.sacav.com

SALEM DISTRIBUTING

5901 Gun Club Road
Winston Salem NC 27103 - USA
Tel: +1-336-7661104
Fax: +1-336-7661119
E-mail: sales@salemldist.com
www.salemldist.com

SALEPSI S.A.

Headquarters

Matamoros 745 y Colinas
(Lomas de Urdesa)
09-0616198 Guayaquil - Ecuador
Tel: +593-399-2648
E-mail: rcalaw@gmail.com

Company Officers

Ricardo Casal: President

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

For flat glass

• GLASS MANUFACTURERS

Flat

Companies represented:

BOTTERO (ITALY)

Countries where we act:

Ecuador

S.C.ABITARE CG S.R.L.

Headquarters

Str. Brazilor 55
500313 Brasov - Romania
Tel: +40-268-412600
Fax: +40-268-476044
E-mail: office@abitare.ro
www.abitare.ro

Company Officers

Livili Comanac: Sales Director
E-mail: livili.comanac@abitare.ro
Gabriel Vasilcoiu: Technical Director
E-mail: gabriel.vasilcoiu@abitare.ro

Company Data

Annual turnover: EUR 5,500,000
Nominal capital: EUR 24,000
Number of employees: 73
Company founded: 1999

Local offices/branches:

ADDRESS BRAZILOR 55, 500313
BRASOV, ROMANIA

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Hornos Industrial Pujol
Intermac
Emar
Hegla
Reinhardt-Technik

• GLASS MANUFACTURERS

Euroglass

Interpane

Companies represented:

BOHLE (GERMANY)
CERA HANDELS (GERMANY)
DGT ANLAGEN (GERMANY)
EMAR (ITALY)
HEGLA (GERMANY)
HELMUT LINGEMANN (GERMANY)
HORNOS INDUSTRIAL PUJOL (SPAIN)
INTERMAC (ITALY)
KOMMERLING (GERMANY)
PROFIL GLASS (GERMANY)
REINHARDT-TECHNICK (GERMANY)
VITO IRMEN (GERMANY)

Countries where we act:

Romania

SDC IC VE DIS TICARET LTD.STI.

Headquarters

Valikonagi cad. No. 173 D.14-1
Nisantasi - Sisli - 34365 Istanbul
Turkey
Tel: +90-212-2255577
Fax: +90-212-2255599
E-mail: sdc@sdctr.com
www.sdctr.com

Company Officers

Kadir Turgut Kutlu:
Managing Partner
E-mail: kutlu@sdctr.com
Sabri Aksuyek: Managing Partner
E-mail: aksuyek@sdctr.com
Nedim Yilmaz: Technical Director
E-mail: yilmaz@sdctr.com

Company Data

Annual capital: EUR 3,000,000.00
Nominal capital: EUR 200,000.00
Number of employees: 11
Company founded: 1991

Turnover from glass: 100%

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Flat glass cutting, flat glass processing, flat glass handling, float glass cold end lines, flat glass transport, tempering furnaces, hollow glass forming machines, annealing lehrs

Companies represented:

BOTTERO (ITALY)

CAR-MET (ITALY)

FRATELLI PEZZA (ITALY)

LANGENDORF (GERMANY)

RAMSEY PRODUCTS (USA)

REVIMAC (ITALY)

YUNTONG GLASS (CHINA)

Countries where we act:

Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkey, Turkmenistan, Uzbekistan

SELIM CORPORATION

Selim-Bldg. RM 301
1126 Hwagok 6-dong
Kangseo-Gu 157-928 Seoul
South Korea
Tel: +82-2-26065380
Fax: +82-2-26065382
E-mail: selim88@unitel.co.kr
www.selim88.com

SHANGHAI BOYU GLASS TECHNOLOGY CO., LTD.

Room2402, No.1 Building, No.511
Nong, Wuzhong Road
201103 Shanghai - China
Tel: +86-21-64012869
Fax: +86-21-54776450
E-mail: boyuglass@vip.163.com
www.boyuglass.com

SHINSUNG ENGINEERING CO. LTD. - SECO

Headquarters

312 Hansol Central Park 3rd Floor,
Hokye-Dong, Dongan-ku,
431080 Anyang-City,
Kyunggi-Do
South Korea
Tel: +82-31-3848890
Fax: +82-31-3848990
E-mail: seco@shinsungeng.co.kr
www.shinsungeng.co.kr

Company Officers

Jang Hynk Park: President
M.Y. Park: Sales Manager
Judy Lee: Sales Administrator

Company Data

Annual turnover: USD 8,300,000
Nominal capital: USD 100,000
Number of employees: 3
Company founded: 1999
Turnover from glass: 100%

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

IS machinery, forming systems, printing machines, MTA presses, lehr system, cullet recycling system, inspection machines, hot-end solutions

Companies represented:

AGR INTERNATIONAL (USA)
CAR-MET (ITALY)
EMHART GLASS (SWITZERLAND)
EMMETI (ITALY)
FERMAC (ITALY)
KRS (GERMANY)
OLIVOTO INDUSTRIES (ITALY)
POCO GRAPHITE/ENTEGRIS (USA)
RAMSEY (USA)
QUANTUM (USA)
XPARVISION (THE NETHERLANDS)

SIGMA TRADE CO.

Headquarters

Unit 3, No. 15, Shervan Alley,
N. Ganjavi St.
14348 35885 Tehran, Iran
Tel: +98-912-1971876
Fax: +98-21-88889240
E-mail: info@sigmatrade.ir
www.sigmatrade.ir

Company Officers

Faramarz Kheibari: Chairman
E-mail: f.kheibari@sigmatrade.ir
Alireza Mokhtari: CEO
E-mail: a.mokhtari@sigmatrade.ir

Company Data

Annual turnover: USD 9 million
Number of employees: 12
Company founded: 2005
Turnover from glass: 90%
Nominal capital: USD 100 thousand

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Turnkey projects, know-how transfer
furnaces, furnace reconstructions,
forming machines batch plants,
lehrs, moulds, refractories, mortars
consumable material, spare parts,
consulting services

Companies represented:

GIANCARLO PEREGO (ITALY)
GLASS SERVICE (ITALY)
IMACA (THE NETHERLANDS)
IRIS INSPECTION MACHINES (FRANCE)
ISIMAT (GERMANY)
MART (ITALY)
PLANSEE (AUSTRIA)
RONDOT (FRANCE)
SIGMA REF (ITALY)
SKLOSTROJ (CZECH REPUBLIC)
TEPLOTECHNA PRIMA (CZECH REPUBLIC)
VERTECH (FRANCE)

Countries where we act:

Iran and Middle East

SIMCO INDUSTRIAL MACHINERY TRADING CO.

Al Wasit Street, Near Caterpillar R/A
P.O.Box 7281, Sharjah - UAE
United Arab Emirates
Tel: +971-6-5323424
Fax: +971-6-5323422
E-mail: simco@emirates.net.ae
www.simcouae.com

SI.STE SRL

Headquarters

Via Lega Lombarda, 38
24040 Bonate Sopra (Bg) - Italy
Tel: +39-035-4947048
Fax: +39-035-4947054

E-mail: info@sisteitaly.it
www.sisteitaly.it

Company Officers

Luigi Sala: General Manager

Company Data

Annual turnover: EUR 1,500,000
Number of employees: 5
Company founded: 1997
Turnover from glass: 100%

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Kilns for fusing/bending, washing
and sandblasting machines, glass
accessories and tools, diamond
and polishing wheels

Countries where we act:

Bosnia and Herzegovina, Bulgaria,
Middle East, Romania, Russia,
Slovenia, Serbia, Ukraine

STARA GLASS - HYDRA GROUP

Pizza Rossetti 3 A/1
16129 Genova (GE) - Italy
Tel.: +39-010-576391
Fax: +39-010-564763
E-mail: staraglass@hydragroup.it
www.hydragroup.it

STEKLO IMPEX

Sakharova str. 19 - office 2
Dubna, Moscow Region - Russia
Tel: +7-926-8442912
Fax: +7-4-962122581
E-mail: g.novikov@gmail.com
www.stekloimpex.com

STEKLOCENTR COMPANY

13,8 Drovynoy, of. 10
109004 Moscow - Russia
Tel: +7-495-9377974
Fax: +7-495-9377955
www.steklo-centr.ru

SUMINISTROS ARIES, S.L.

Headquarters

Botiguers, 3 IK Parque Empresarial
Tactica, 46980 Paterna - Espana
Tel: +34-96-1519830
Fax: +34-96-1519831
E-mail: info@s-aries.com
www.s-aries.com

Company Officers

Francisco Javier Bono: General Manager
E-mail: fj.bono@s-aries.com
Francisco Bono: Sales Manager
E-mail: f.bono@s-aries.com
Milagro Bono:
Administration Manager
E-mail: m.bono@s-aries.com

Company Data

Company founded: 1983
Turnover from glass: 60%

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Laminating, Decorating, Quality
Control, Pre Processing

Companies represented:

AIRPLAN (SPAIN)
AYROX (BELGIUM)

BENEQ (FINLAND)
DIP TECH (ISRAEL)
EURO TECH (GERMANY)
GRAFOTEC (GERMANY)
KERAGLASS ENGINEERING (ITALY)
HALDENWANGER (GERMANY)
HOAF (HOLLAND)
SAFETY GLASS EXPERTS (FINLAND)
SOFT SOLUTION (AUSTRIA)
TRIULZI (ITALY)

Countries where we act:

Spain, Portugal, South America

SUVISUR SL

Pol. Ind. Los Jarales
Urb. Linaves 3
23700 Linares (Jaen) - Spain
Tel: +34-95-3602064
Fax: +34-95-3602065
E-mail: info@suvitur.com
www.suvitur.com

TAIHEI BOEKI CO., LTD.

Headquarters

2-15 Nihonbashi, Muromachi 3
Chome, Chuo-Ku,
103-0022 Tokyo - Japan
Tel: +81-3-32704825
Fax: +81-3-32313555
E-mail: tokyo@taiheiboeki.co.jp
www.taiheiboeki.co.jp

Company Officers

Kazuyuki Shibuya: Director
Masao Noguchi: Manager
Katsunori Hirayama: Chief

Company Data

Annual turnover: USD 50,000,000
Nominal capital: USD 480,000
Number of employees: 60
Company founded: 1955
Turnover from glass: 40%

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Glass melting equipment,
hot-end equipment

Companies represented:

AGR (USA)
CORHART (USA)
ECLIPSE (USA)
ELECTROGLASS (UK)
FLUORITAL (ITALY)
FSB (BELGIUM)
GRAPHOIDAL (UK)
GWH (UK)
IMACA (THE NETHERLANDS)
KMF (TAIWAN)
LAHTI (FINLAND)
LATTIMER (UK)
MERKLE (USA)
PENNINE (UK)
POCO GRAPHITE (USA)
RONDOT (FRANCE)
SAVOIE (FRANCE)
SEFFPRO (FRANCE)
SHEEPPEE (UK)
VDV (BELGIUM)

Countries where we act:

Japan

TEC INDE, WA

Headquarters

Av. Almirante Gago Lauthino,
132/134, Edf. 2 Portela De Sintra

PT2710-418 Sintra - Portugal
Tel: +351-219-248020
Fax: +351-219-248022
E-mail: info@tecinde.pt
www.tecinde.pt

Company Officers

Paulo De Botton: Managing Director

Company Data

Annual turnover: EUR 3 million
Nominal capital: EUR 50.000
Number of employees: 5
Company founded: 1992
Turnover from glass: 80%

Local offices/branches:

SJINTRA, PORTUGAL
RECIFE, BRAZIL
SAO PAULO, BRAZIL
SANTIAGO, CHILE
BUENOS AIRES, ARGENTINA

Companies represented:

BATOYLE (UK)
FERLAM (FRANCE)
GEDEVELOP (SWEDEN)
HORN (GERMANY)
IRIS (FRANCE)
MAC VALVES (BELGIUM)
MAGNECO/METREL (USA)
MOTAN (HUNGARY)
OTTO VISION (GERMANY)
RUREX (GERMANY)
SKLOSTROJ (CZECH REPUBLIC)
ZIPPE (GERMANY)

Countries where we act:

Argentina, Brazil, Chile, Mexico,
Portugal, Spain

TECNOMAVI

C/. Senyera, 57 , Pol. Ind. Bovalar
46970 Alaquas (Valencia) - Spain
Tel: +34-961-985634
Fax: +34-961-519432
E-mail: info@tecnomavi.com
www.tecnomavi.com

TECNOVATI SRL

Via Toscana 10/12
53036 Poggibonsi (SI) - Italy
Tel: +39-0577-980749
Fax: +39-0577-934832
E-mail: info@tecnovati.it
www.tecnovati.it

THERMO KEMI APS

Oliefabriksvej 61
2770 Kastrup - Denmark
Tel: +45-70201266
Fax: +45-32548266
E-mail: Info@Thermo-kemi.dk
www.thermo-kemi.dk

TOHMA GMS INC.

Headquarters

Whs#7, Shin-Tachikawa,
Koukuukj Co. 1-100, Takamatsu-
Cho 190-0011 Tachikawa-Shi,
Tokyo Japan
Tel: +81-42-521-3990
Fax: +81-42-521-3991
E-mail: tohmagsm@lapis.plala.or.jp
www.10.plala.or.jp/tohmagsm

Company Officers

K. Tohma: President
T. Tohma: Manager

Company Data

Annual turnover: USD 1,000,000
Number of employees: 5
Company founded: 2002
Turnover from glass: 99%

• MACHINERY/EQUIPMENT SUPPLIERS

Whell, drill, polisher, coolant, cutting oil, light machine, cerium powder, test meter

Companies represented:

ARTIFEX (GERMANY)
BORIDE ABRASIVES (USA)
BURGALASSI (ITALY)
DIAMOND DRILLS (ITALY)
EDTM INC. (USA)
GERARLD KLYSHERS (USA)
INLAND DIAMOND (USA)
MONROE (USA)
RBM (ITALY)
SHIN-EI SEITO (JAPAN)
STRAINOPTICS INC. (USA)
UNIVERSAL SUPER CUT. (USA)

Countries where we act:

Japan, South, East Asian Countries

TRADECOM CORPORATION

Headquarters

301-303, 3rd Floor, Commerce Centre, Hasrat Mohani Road, Karachi, 74000, Karachi - Pakistan
Tel: +92-2132634715
Fax: +92-212637052
E-mail: tradecom@nanjee.com

Company Officers

Hasnain Akbarali: Director

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

Furnace, IS machine, belts, batch plants, level controllers, lehrs, low-erators, palletizers, press & blow machines, stackers and feeders.

Companies represented:

ANTONINI (ITALY)
BOTTERO S.p.A. (ITALY)
CUGHER GLASS (ITALY)
EMMETI (ITALY)
HORN GLASS (GERMANY)
OLIVOTTO GROUP (ITALY)
PARKINSON-SPENCER REFRACTORIES (UK)
PIETRO BONAITI (ITALY)
ZIPPE INDUSTRIAN LAGEN (GERMANY)

Countries where we act:

Malaysia, Pakistan

TRIREX INTERNATIONAL CO., LTD.

192 Serithai Road, Kannayao 10230 Bangkok - Thailand
Tel: +66-2-9060187
Fax: +66-2-9060197
E-mail: tr@trirex.co.th
www.trirex.com

UAB "IDELIS"

Pelesos Str. 3
02115 Vilnius - Lithuania
Tel.: +370-5-2383391
Fax: +370-5-2384009
E-mail: info@idelis.lt
www.idelis.lt

Company Officers

D. Chitavichiene
N. Tenesis

Company Data

Nominal capital: USD 11,500
Number of employees: 3
Company founded: 1998

Companies represented:

FALORNI (ITALY)
FRATELLI PEZZA (ITALY)
GLASTON (ITALY)

Countries where we act:

Belarus, Estonia, Latvia, Lithuania

UCS CORPORATION

B-605 Sigma II Officetel
Gumi-Dong 18, Bundang-Gu
Seongnam-Si, Kyunggi-Do - Seoul
South Korea
Tel: +82-31-7174611
Fax: +82-31-7174618
E-mail: ucslee@korea.com

UNIGIDA, UAB

Headquarters

Liepu G. 9
38116, Panevezio r. - Lithuania
Tel: +370-45-462634
Fax: +370-45-462634
E-mail: unigida@takas.lt
www.unigida.lt

Company Officers

Gytis Sidauga: Director
Daiva Sidaugiene: Comm. Director
Rima Sidagyte: Manager

Company Data

Annual turnover: EUR 300,000
Nominal capital: EUR 30,000
Number of employees: 5
Company founded: 2000
Turnover from glass: 80%

Local offices/branches:

ADDRESS MARIJONU G. 36,
35138 PANEVEZYS
LITHUANIA

Agent/Representative of:

• MACHINERY/EQUIPMENT SUPPLIERS

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• GLASS MANUFACTURERS

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Companies represented:

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WARTA GLASS PANEVEZYS (LITHUANIA)

Countries where we act:

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USE ELECTRONICS CO. LTD.

Headquarters

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Tel: +886-2-23934825
Fax: +886-2-23970899
E-mail: sherly@use.com.tw
glass@use.com.tw
www.use.com.tw

Company Officers

Sherly Chan: Director
Bill Lin: Sales Manager

Company Data

Annual turnover: USD 110,800,000
Nominal capital: USD 2,000,000
Number of employees: 292
Company founded: 1975
Turnover from glass: 30%

Local offices/branches:

ADDRESS TAICHUNG - TAIWAN
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HONGKONG
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Company Officers

Name Job Title e-mail
Name Job Title e-mail
Name Job Title e-mail

Annual turnover: € US\$ Number of employees:

Nominal capital: € US\$ Company founded: year

Quality certifications: Turnover from glass:%

Local offices/branches (total no.:):

1) Address
2) Address
3) Address
4) Address
5) Address

Type of business:

Agent/Representative of **machinery/equipment suppliers** : Agent/Representative of **glass manufacturers** :

Type of equipment: Type of glass:
.....
.....

Companies we represent today (total no.:):

1) - Country:	7) - Country:
2) - Country:	8) - Country:
3) - Country:	9) - Country:
4) - Country:	10) - Country:
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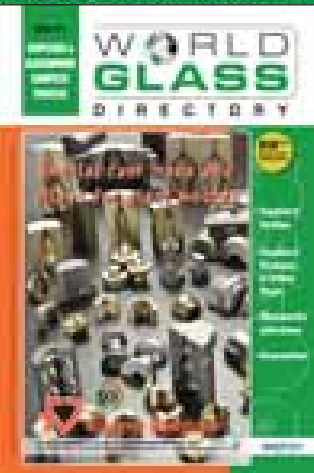
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