

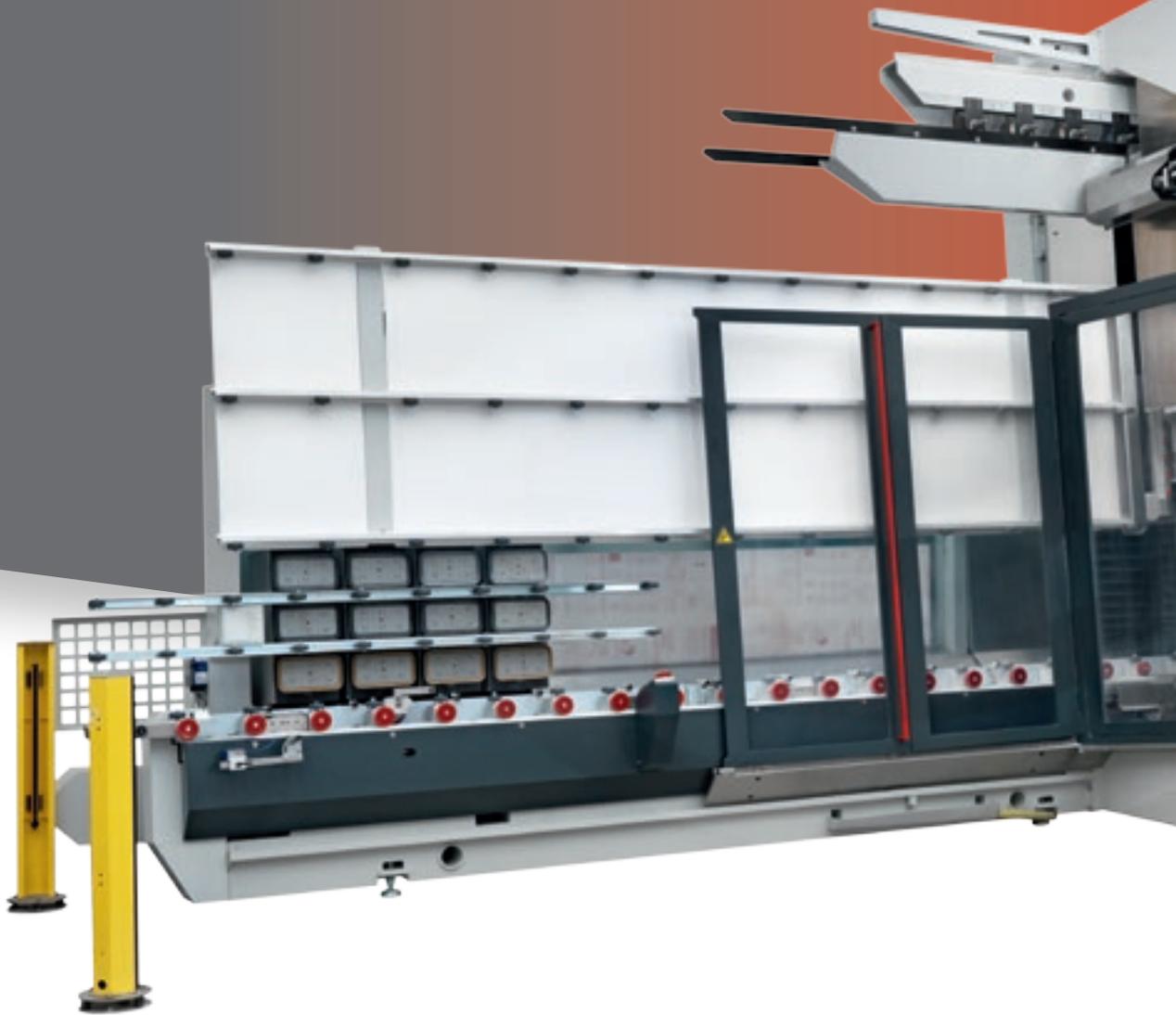
VERT MAX

CNC VERTICAL MACHINING



 **INTERMAC**

VERTICAL FLEXIBILITY



THE MARKET DEMANDS

the ability to machine sheets of glass vertically, in an increasingly flexible and dynamic manner, ensuring maximum productivity and safety: machines capable of working intensively through multiple shifts, guaranteeing high standards of precision and finish quality.

INTERMAC RESPONDS

with a complete technological solution that allows operators to perform all the machining operations needed to create a product, without having to worry about preparing the work table or think about the size of the piece to be produced. **Vertmax** is the range of vertical machining centres based on the revolutionary concept of the movement of the work piece: ideal both for batch-one production and large-scale manufacturing, it also enables less experienced operators to start producing immediately.



VERTMAX

- ✓ MAXIMUM ERGONOMICS AND OPTIMISED SPACE THANKS TO THE VERTICAL POSITION OF THE GLASS
- ✓ ALL MACHINING OPERATIONS IN A SINGLE MACHINE
- ✓ TOOLING TIMES REDUCED TO ZERO THANKS TO THE AUTOMATIC CONFIGURATION OF THE SUCTION CUPS WHICH HOLD THE GLASS IN PLACE
- ✓ EXTENSIVE SCOPE FOR MACHINING SHEETS OF BOTH SMALL AND LARGE DIMENSIONS
- ✓ MAXIMUM FLEXIBILITY THANKS TO FULLY-AUTOMATED MACHINING AND TOOL SETTING
- ✓ IDEAL FOR MACHINING MONOLITHIC, LAMINATED AND LOW-E GLASS.

ALL MACHINING OPERATIONS IN A SINGLE MACHINE

Vertmax is the perfect solution for the “just in time” creation of doors, shower cubicles, display cases, cupboard doors, furnishing items, household appliances, windows for industrial vehicles, and structural façades.



Milling.



1 BORE IN A MAXIMUM OF 30"

Boring with two heads.





Grinding and polishing.

Depending on the configuration required, Vertmax can easily perform boring, countersinking and milling operations on the sheet of glass, or, with the complete version of the machine, can also carry out grinding and polishing operations on the edge of the sheet.



GLASS PILOT SYSTEM (PILOT SYSTEM)

Innovative Intermac technology minimises vibrations and maintains perfect tool centring during machining operations on the edge of glass panels, even when far away from the suction cup area, ensuring unprecedented polishing quality in vertical machining operations. Thanks to the C axis, glass with complex outer radiuses can also be machined.

PRO DUCT IVITY

VERTICAL EVOLUTION

The automatic setting of the work table and the rapid tooling speed make Vertmax an ideal solution for a host of applications, ensuring that it is always ready for both large batches and batch-one manufacturing.

Vertmax is the innovative solution based on a revolutionary vertical work piece handling concept. The innovative patented system with 4 fully-independent suction cup carriages, each of which is equipped with 3 suction cups, enables the automatic configuration of the position of the suction cups on the work piece, in accordance with the shapes to be created, with work table setting times reduced to zero.



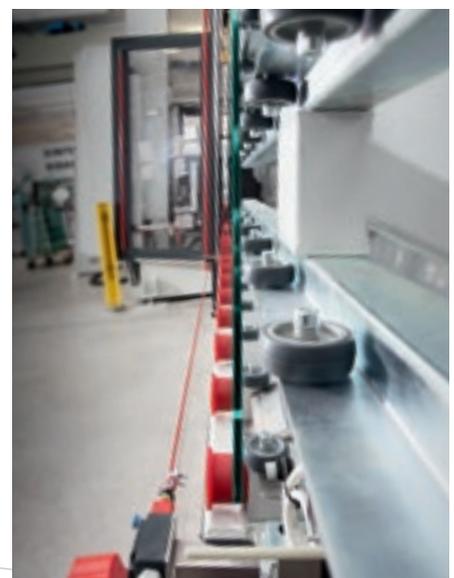
TOOLING TIMES REDUCED TO ZERO

Vertmax allows operators to perform all the machining operations necessary to create a product without having to worry about preparing the work table, or think about the machining operations necessary in order to produce the final product.



Patented system with 4 fully-independent suction cup carriages, each with 3 suction cups, guaranteeing maximum production flexibility and quality thanks to the optimised vacuum hold on the entire surface to be machined.

The motorised roller system allows the glass to be loaded at any point, so that the machine can begin to work completely automatically.



The patented dynamic repositioning system for the suction cup carriages is designed to process a piece without ever leaving it halfway between one suction cup carriage position and the next.



The independent carriage system guarantees unparalleled machining quality.

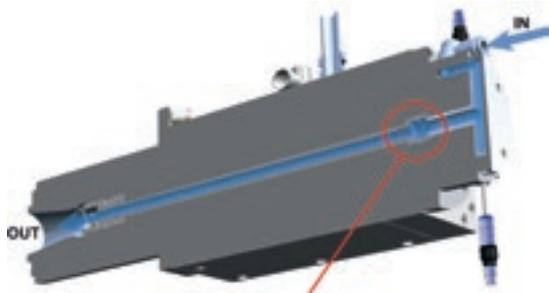
The dynamic repositioning of the suction cups allows for:

- ✓ increased final piece productivity
- ✓ machining of unstable glass sheets which could otherwise not be processed using traditional vertical machines
- ✓ increased final machining precision.

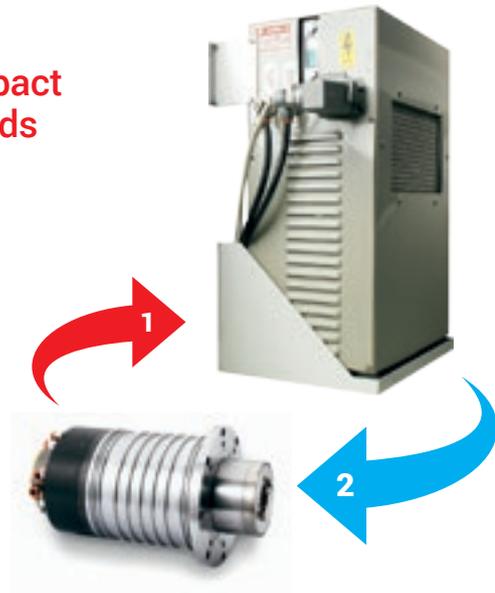


UNPARALLELED QUALITY AND RELIABILITY

The Vertmax range is fitted with spindles manufactured by HSD - a world leader in its sector. They guarantee optimum power, compact dimensions, extremely high finishing standards and maximum reliability.

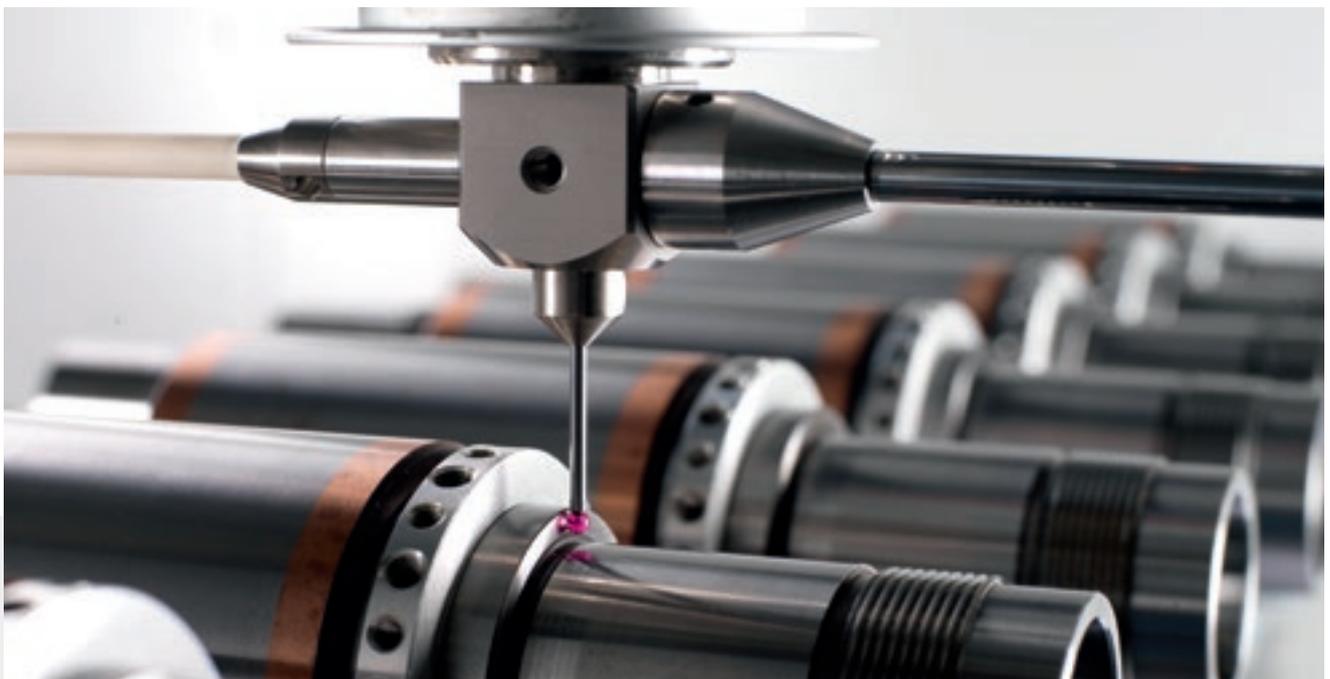


DPC (patented) - Controlled loss distributor
A patented system that ensures excellent reliability and a long lifespan, thanks to the innovative seal system with no mechanical contact.



Glycol-based cooling systems with a closed circuit that guarantees constant results over time and resistance to the maximum machining stress levels.

- 1. High-temperature fluid (cooling system with heat exchanger).
- 2. Low-temperature fluid

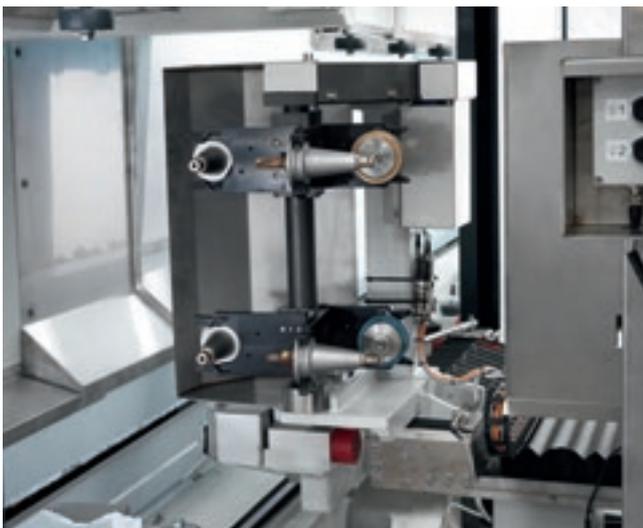


UP TO 37 TOOLS IN A READY-TO-USE MACHINE

Standard set-up with 16-position tool warehouse, consisting of: 8 front + 8 rear positions away from water jets and machining waste.



As an alternative to the standard tool magazine, the machine can be equipped with a 29-position tool magazine, composed of: 10 front + 19 rear positions away from water jets and machining waste.



Rotary magazine with 6 or 8 positions, fully protected from any possible machining residue.



The rear rollers ensure that the glass support surface is perfectly aligned with the suction cups, ensuring unprecedented edge machining precision even on tall sheets of glass.

The front contrast rollers, which can be automatically activated during milling operations, ensure that the glass remains stable during machining, minimising the potential formation of splinters.

MAXIMUM PRODUCTIVITY

Thanks to the tandem machining process, work pieces can be loaded and unloaded while the machine is operating, thus increasing productivity. The maximum panel size permitted for tandem machining is 2100 mm.





It is also possible to machine smaller sheets, with dimensions of up to 300 x 150 mm.
Maximum flexibility for machining glass sheets of maximum sizes - 2200 x 3500, 2600 x 5000 or 3300 x 6000 mm.

TOTAL FLEXIBILITY THANKS TO FULLY AUTOMATED SETTING



Maximum machining simplicity and reduced risk of human error.

Optional self-learning glass size system for rectangular glass sheets. Allowing the application of the right tool sequence, and the parametrisation of the position and machining of internal cut-out/bore profiles.



Automatic system of sheet thickness self-learning, avoiding any possible programming errors and maximising productivity and flexibility. The software automatically applies the right tools for the sheet thickness detected.



Measurement and drill dressing system integrated into the basic machine configuration.



The dressing devices are integrated into the working area for fast, easy, automatic tool dressing operations, ensuring high quality and speedy execution at all times.



Diamond grinding wheel and polishing wheel presetter.



Three-position stick dresser for profiling and shaping diamond wheels.



Finishing wheel dressing.

INTEGRATED EFFICIENCY

V-Loader is the automatic loader designed to remove glass sheets from the pallet, depositing these on the roller bed. Both practical and intelligent, the V-Loader can be seamless integrated into the production process in a glassworks facility, for the perfect combination of quality, productivity and flexibility, with maximum efficiency guaranteed.



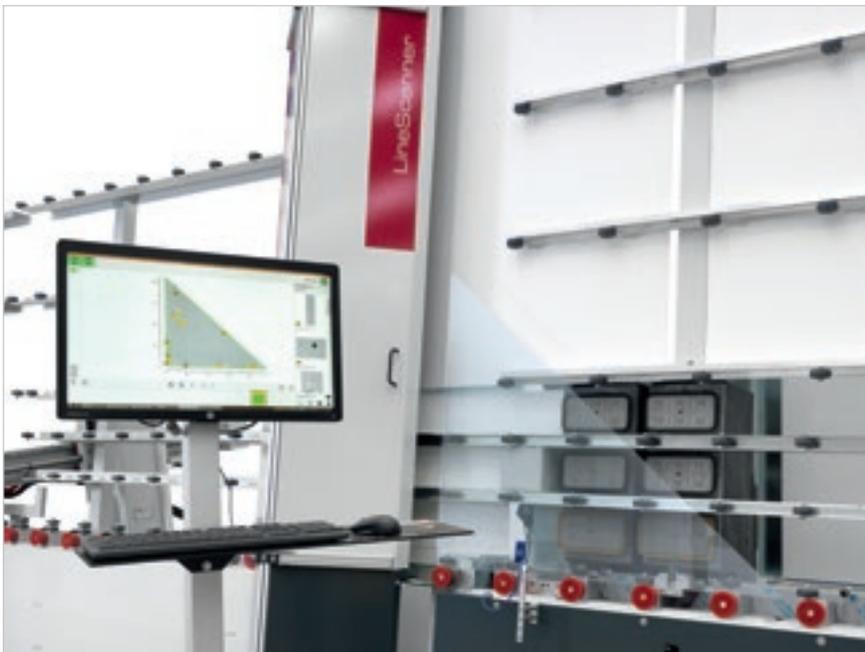
Up to 4 pick-ups per minute

It allows operators to feed sheets into a vertical machine or even to interlock two machines so that they function simultaneously at either end, enabling a pick-up rate of up to 4 sheets per minute.

The loading device is designed to be integrated with Intermac machines from the Vertmax range, or paired with vertical machines for insulated glazing production lines.



With V-Loader, there are no limits when it comes to the design of glass structures, even those of larger dimensions.



Thanks to the loader and scanner, loading and piece data entry are now fully automated steps that associate the right machining operation with each geometry, increasing speed and productivity whilst notably reducing the operator's work load and the risk of human error.



- ▀ It does not require programming, and adapts to changes in size and shape, with no need to adjust the parameters.
- ▀ Operator workload and the risk of error are both drastically reduced, courtesy of the fully-automated loading phase and the automatic activation of the suction cups.
- ▀ It is the ideal solution for batch-one production, thanks to the automatically-activated suction cups that can be managed independently, facilitating format changes and enabling operators to carry out any type of operation with ease.

PROTECTION AND SAFETY FOR ALL MACHINING OPERATIONS

Intermac has always paid the utmost attention to the health and safety of its customers. The protection of every operator during the use of the machine is of vital importance, preventing any possible distraction or error that could lead to inconvenience or even accidents.



Photocells at the sides of the machine, and anti-intrusion limit switch.



Safety doors.

One indispensable condition for obtaining any sort of financing is the respect of the machinery directives and workplace health and safety regulations.



Automatic support system for a perfect hold on the glass.

With vertical working centres, the operator is protected by:

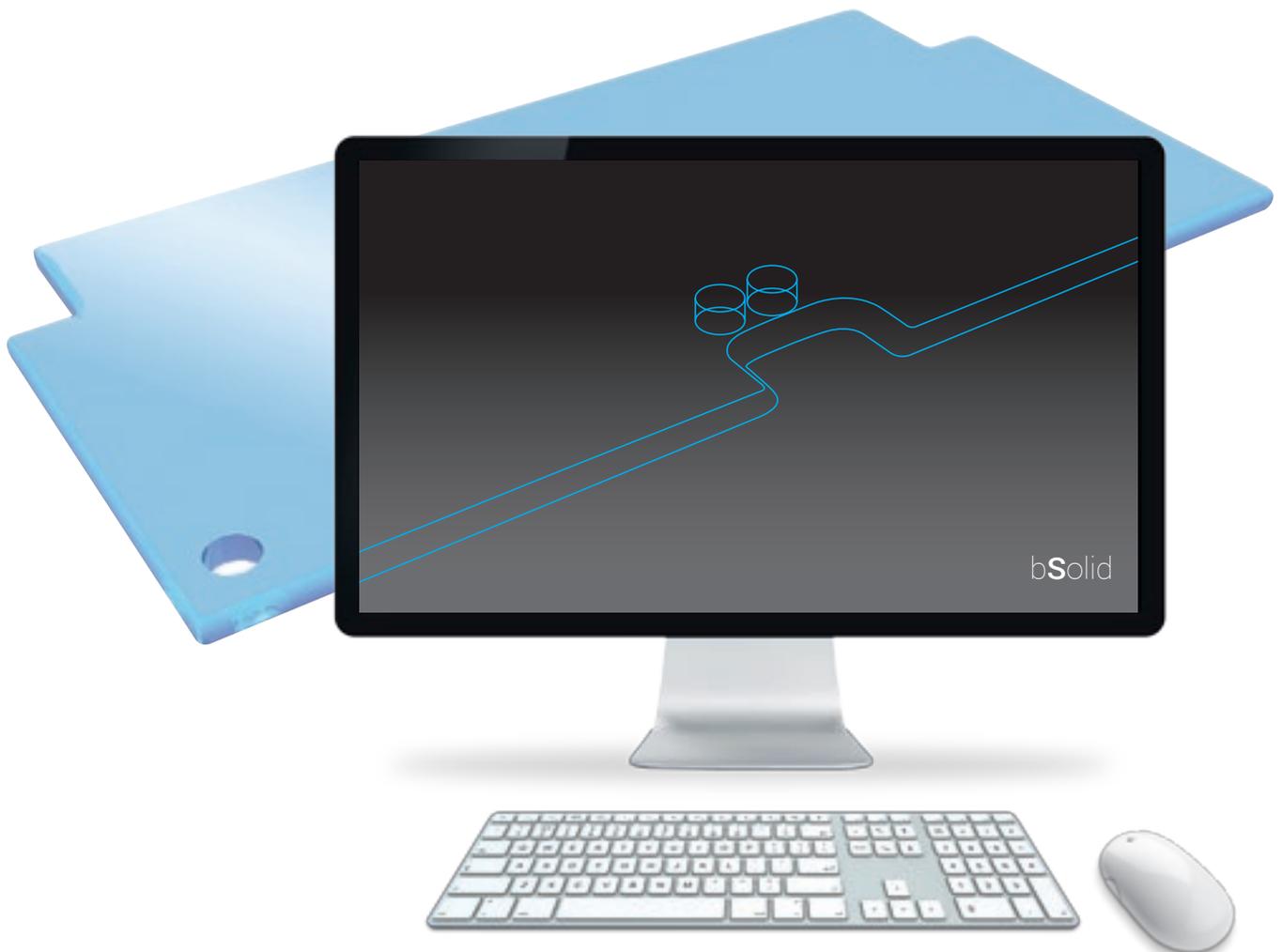
- ▀ Ergonomic front guards of a suitable height that are also explosion-proof (certified by external bodies with "detonation" tests).
- ▀ Tandem machining (for glass sheets with a maximum length of 2100 mm) in complete safety.
- ▀ Inaccessibility of moving machine parts.
- ▀ A clean working environment (water and machining residues are not dispersed).
- ▀ Reduced noise levels, fully complying with the machinery directive.

DESIGN, SIMULATION, CREATION

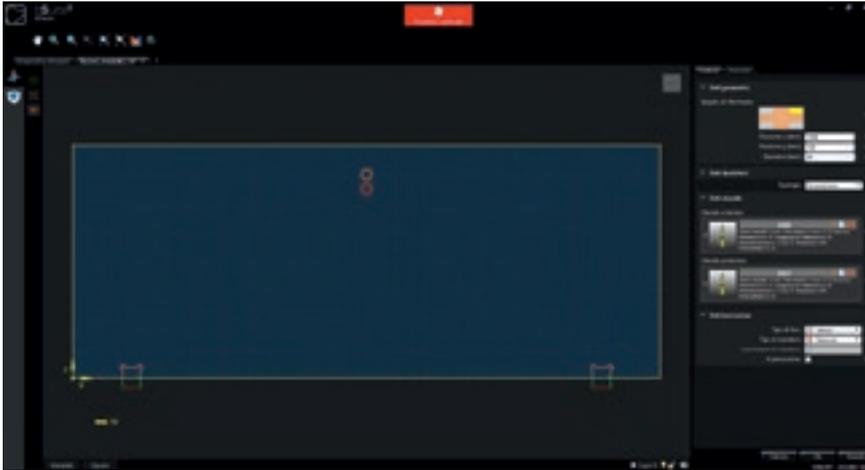
BSOLID IS COMPLETELY PARAMETRIC 2D/3D CAD CAM SOFTWARE THAT PROVIDES A SINGLE PLATFORM CAPABLE OF CARRYING OUT EVERY TYPE OF MACHINING OPERATION THANKS TO A WIDE RANGE OF FUNCTIONS DEDICATED TO THE SECTOR.

- **Simple and innovative**, due to the fact that it is parametric by nature.
Allows the re-use and continuous re-adaptation of shapes and programs already pre-loaded in the library or developed by the operator.
- **Just in time**
automatically associates the relevant machining operations with a DXF.
- **Productivity and flexibility**
a software module for vertical machining operations, for managing parametric models like doors, shower cubicles, parapets, cupboard doors and bathroom unit tops.
- **Cut-out library**
each cut-out is managed like a macro, and can contain all the tools needed on the basis of the various glass thicknesses.
- **Possibility to interface with the** main management systems via the DXF format.

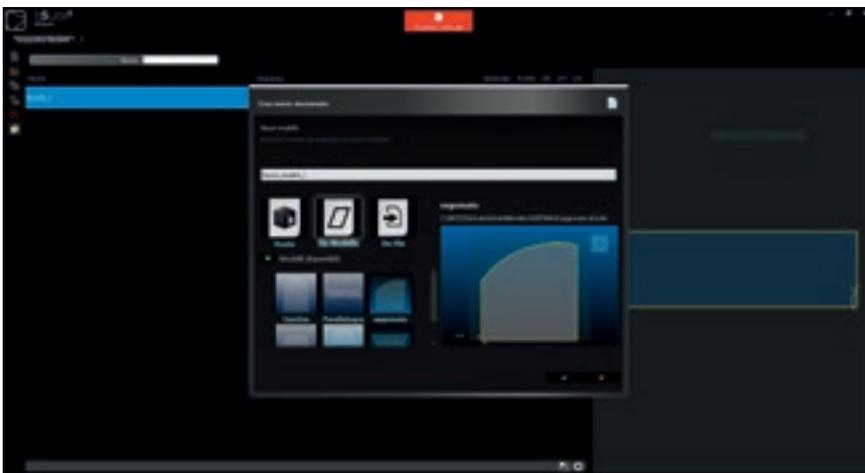
DESIGNED TO MEET THE REAL PROGRAMMING NEEDS OF WORKING CENTRES, WITH THE AIM OF MAKING THE JOB QUICKER AND EASIER. SOLUTIONS BASED ON THE STANDARDS BUT FOCUSED ON THE FUTURE.



DESIGNING IN JUST A FEW CLICKS, WITH NO LIMITS



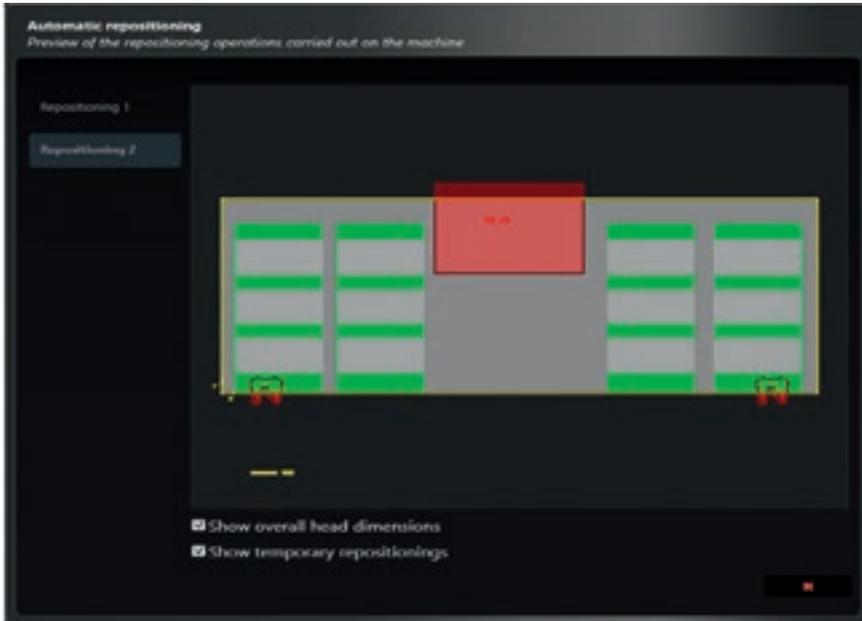
Interface dedicated to the main machining operations, including those for the production of doors, shower enclosures, parapets and structural façades where the operator does not need to create designs - instead, the project data is simply edited in order to create the glass piece in question. The software automatically associates the profile tool with the machine. Files in dxf format can be imported.



Parametric models can be loaded into the machine, and the intuitive system enables these to be paired with macros for creating cut-out/bore profiles.



Macro library for cut-outs and internal machining operations: the macros can be used to store the machining profiles and all of the tool sequences dedicated to the various glass thicknesses to be machined. Bsolid automatically selects the correct tool sequence in accordance with the thickness of the glass being processed.



Positioning and optimisation of the suction cups, in order to ensure the best possible arrangement of the carriages and identify which suction cups should be activated, in accordance with the machining operations to be carried out.



Extremely easy to use, thanks to the ergonomic console and user-friendly operator interface. The use of a PC with the Windows operating system makes it easy and intuitive for the operator.

SERV ICE & PARTS

Direct, immediate coordination of service requests between Service and Parts. Support for key customers from specific Intermac personnel, in-house and/or at the customer's site.

INTERMAC SERVICE

- ▣ Machine and system installation and start-up.
- ▣ Training centre for Intermac field technicians and subsidiary/dealer personnel; customer training directly at the customer's site.
- ▣ Overhaul, upgrade, repairs and maintenance.
- ▣ Remote diagnostics and troubleshooting.
- ▣ Software upgrade.

85

Intermac field technicians in Italy and worldwide.

20

Intermac technicians manning a Teleservice Centre.

35

certified dealer technicians.

50

training courses in a variety of languages every year.



SERVICE TEAM

Intermac promotes, nurtures and develops direct, constructive relationships with customers in order to better understand their needs and improve its products and after-sales service via two dedicated areas: Intermac Service and Intermac Parts. With its global network and highly specialised team, the company offers on-site and on-line assistance and spare parts for machines and components anywhere in the world, 24/7.

INTERMAC PARTS

- Original Intermac spare parts and spare parts kits customised to suit the machine model.
- Spare part identification support.
- Offices of DHL, UPS and GLS couriers located within the Intermac spare parts warehouse, with multiple daily pick-ups.
- Optimised order dispatch time, thanks to a global distribution network with de-localised, automated warehouses.

95%
of machine downtime orders dispatched within 24 hours.

95%
of orders dispatched on time.

30
spare parts staff in Italy and worldwide.

150
orders processed every day.

INDUSTRY 4.0 READY

Industry 4.0 is the latest industry frontier, based on digital technologies and machines that speak to the companies. The products can be interconnected with the production processes via smart networks.

Intermac's commitment is to transform our customers' factories with real-time technology, ready to guarantee digital manufacturing opportunities, with smart machines and software packages becoming vital tools that facilitate the daily tasks of people all over the world who machine glass, stone, metal and more. Our philosophy is a practical one: to supply entrepreneurs with solid data that can help them to lower their costs, optimise their processes and improve their results.

And that means being 4.0 ready.

INDUSTRY 4.0 READY



COMPLETE RANGE OF SOLUTIONS FOR GLASS



CUTTING TABLES FOR FLOAT GLASS



Genius RS-A Genius CT-A series Genius CT-Plus series Genius CT-RED series

CUTTING TABLES FOR LAMINATED GLASS



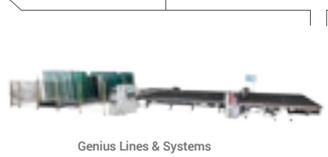
Genius LM series Genius LM-A series

COMBINED CUTTING LINES FOR LAMINATED AND FLOAT GLASS



Genius Comby Lines

COMBINED CUTTING LINES FOR LAMINATED AND FLOAT GLASS



Genius Lines & Systems

WATERJET



Primus series



Busetti FK

DOUBLE EDGING MACHINES AND LINES



Busetti F series



Busetti P series



Made-to-measure solutions

WORK CENTRES



Master 23 Master One Master 33.3-38.3-45.3 Master 33.5-38.5-45.5-45.5Plus

OVERSIZE WORK CENTRES AND AUTOMATIC CELLS



Master 63-65 Master 95 Master 185 Master with belts

OVERSIZE WORK CENTRES AND AUTOMATIC CELLS



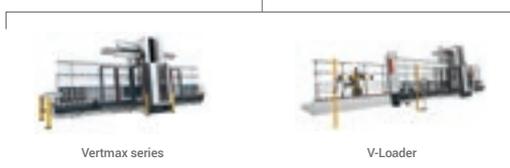
Master work cells

WORK CENTRES ENGRAVING



Master 34

VERTICAL WORK CENTRES



Vertmax series

V-Loader

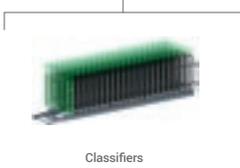
TOOLS FOR GLASS



Diamut tools



STORAGE SYSTEMS



Classifiers

HANDLING

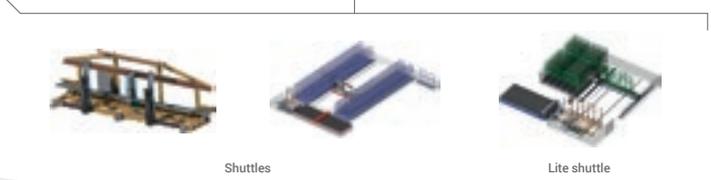


Loading devices

Arpa

Telescopic loading devices

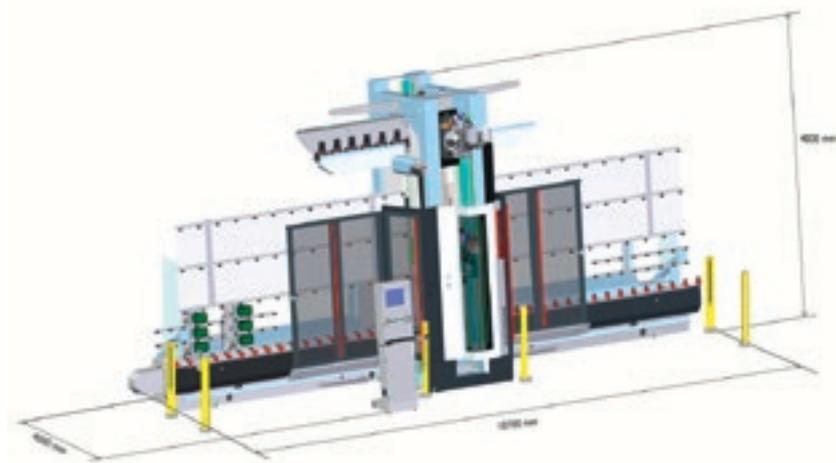
HANDLING



Shuttles

Lite shuttle

TECHNICAL SPECIFICATIONS

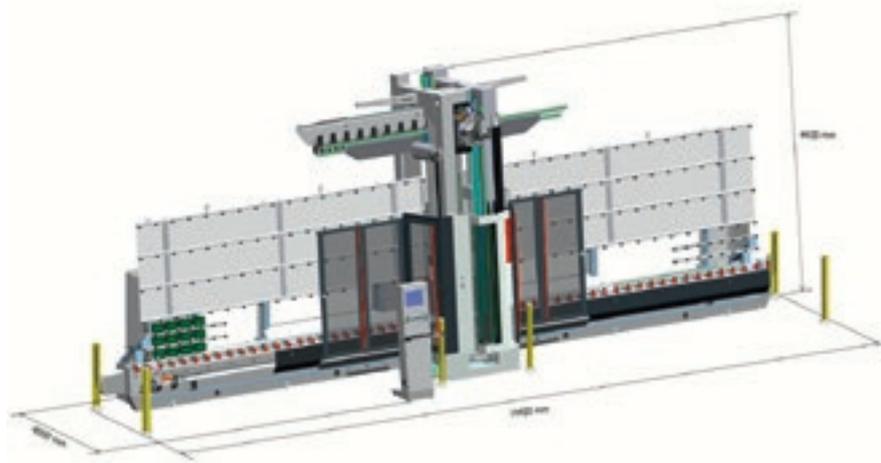


VERTMAX 2.2

Bore-mill 2 suction cup carriages//3 or 4 suction cup carriages

MAXIMUM DIMENSIONS OF THE WORKABLE PANEL

X: 3500 mm - Y: 2200 mm - Z: 25mm

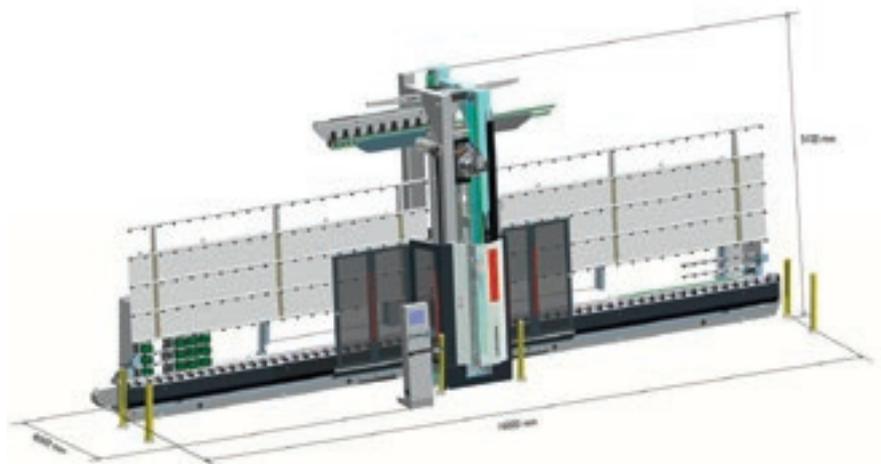


VERTMAX 2.6

4 suction cup carriages

MAXIMUM DIMENSIONS OF THE WORKABLE PANEL

X: 5000 mm - Y: 2600 mm - Z: 26mm



VERTMAX 3.3

4 suction cup carriages

MAXIMUM DIMENSIONS OF THE WORKABLE PANEL

X: 6000 mm - Y: 3300 mm - Z: 26mm

Minimum machinable dimensions
500 x 320 with pilot system or 500 x 300 without pilot system.

VERTMAX

| | | Vertmax 2.2 | Vertmax 2.6 | Vertmax 3.3 |
|--|-----------|---------------|--------------|------------------------------|
| Maximum machinable sheet size | mm | 3500 x 2200 | 5000 x 2600 | 6000 x 3300 |
| Minimum machinable sheet size | mm | 500 x 300 | 500 x 300 | 500 x 300 |
| Machinable glass thicknesses | mm | 4 - 25 | 4 - 26 | 4 - 26 |
| Suction cup carriage speed | m/min | 80 | 80 | 80 |
| Y-axis speed | m/min | 40 | 40 | 40 |
| Speed of glass feed on input and output roller modules | m/min | 30 (optional) | 30 | 30 |
| Electrospindle power | kW | 2 x 6.5 (S1) | 2 x 6.5 (S1) | 1 x 9.5 (S1) 1 x 6.5 (S1) |
| Maximum spindle rotation | rpm | 12000 | 12000 | 12000 |
| Maximum diameter of the front head grinding wheel | mm | 150 | 150 | 150 |
| Maximum diameter of the rear head grinding wheel | mm | 100 | 100 | 100 |
| Maximum drill diameter | mm | 80 | 80 | 80 |
| Tool coupling | | ISO 40 | ISO 40 | ISO 40 |
| Tool magazine | positions | up to 18+19 | up to 18+19 | up to 18+19 |
| Maximum power required | kW | 63 | 63 | 63 |

The technical specifications and drawings are non-binding. Some photos may show machines equipped with optional features. Biesse Spa reserves the right to carry out modifications without prior notice.

Weighted sound pressure level A (LpA) during machining at the operator's workstation on the vane-pump machine Lpa=79dB(A) Lwa=96dB(A) Weighted sound-pressure level A (LpA) at the operator's workstation and sound power level (LwA) during machining on the cam-pump machine Lwa=83dB(A) Lwa=100dB(A) Measurement uncertainty K dB(A) 4.

The measurement was carried out in compliance with UNI EN 848-3:2007, UNI EN ISO 3746: 2009 (sound power) and UNI EN ISO 11202: 2009 (sound pressure levels at workstation) during panel machining. The noise levels shown are emission levels and do not necessarily correspond to safe operation levels. Despite the fact that there is a relationship between emission and exposure levels, this may not be used in a reliable manner to establish whether further measures need to be taken. The factors determining the exposure level for the workforce include length of exposure, work environment characteristics, other sources of dust and noise, etc. i.e. the number of other adjoining machines and processes. At any rate, the above information will enable the operator to better evaluate dangers and risks.

MADE WITH INTERMAC

CERVIGLAS: THE CUSTOMER WHO CREATES MAJOR WORKS

Cerviglas, founded by Vicente Cervera in 1980, has always specialised in the entire conversion process of flat and curved glass. Today, it has a 15000 sq.m production site with more than 100 employees.

The company, which specialises in large public works, collaborated with the architect Santiago Calatrava on the construction of the "City of Arts and Sciences" in Valencia.

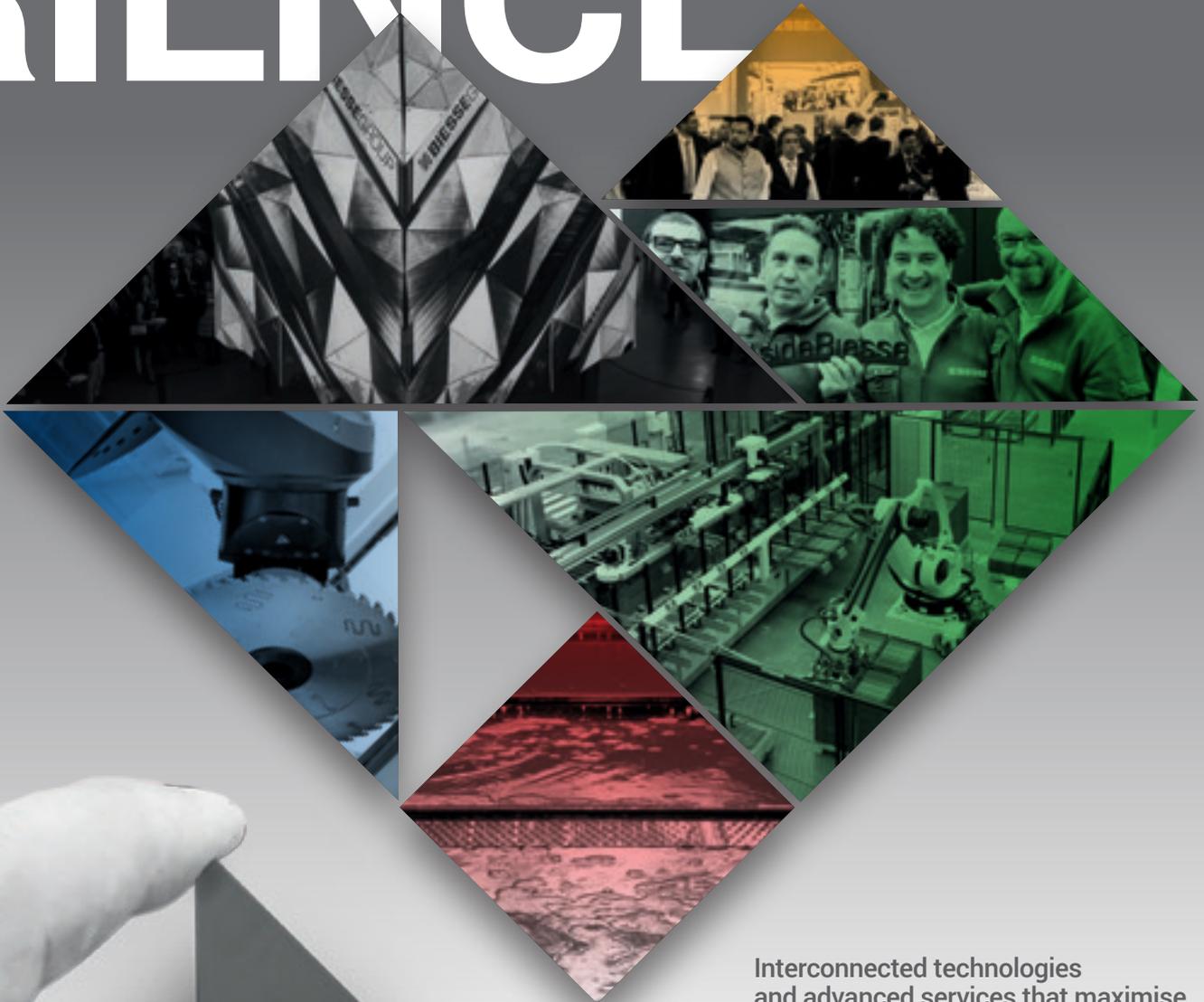
"Working with an architect of Calatrava's standing was extremely interesting and complex.

The project was strongly focused on design, but we also paid great attention to the sustainability of the buildings. Interamac was a strategic partner, able to offer highly advanced technology and a quick, effective service. More specifically, Vertmax is a particularly agile, versatile machine.

It's thanks to this type of machine that we can create public works that are remarkably complex in terms of the glass machining process and the characteristics of the material used."

LIVE THE EXPERIENCE

BIESSEGROUP.COM



Interconnected technologies and advanced services that maximise efficiency and productivity, generating new skills to serve better our customer.

LIVE THE BIESSE GROUP EXPERIENCE AT OUR CAMPUSES ACROSS THE WORLD.



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