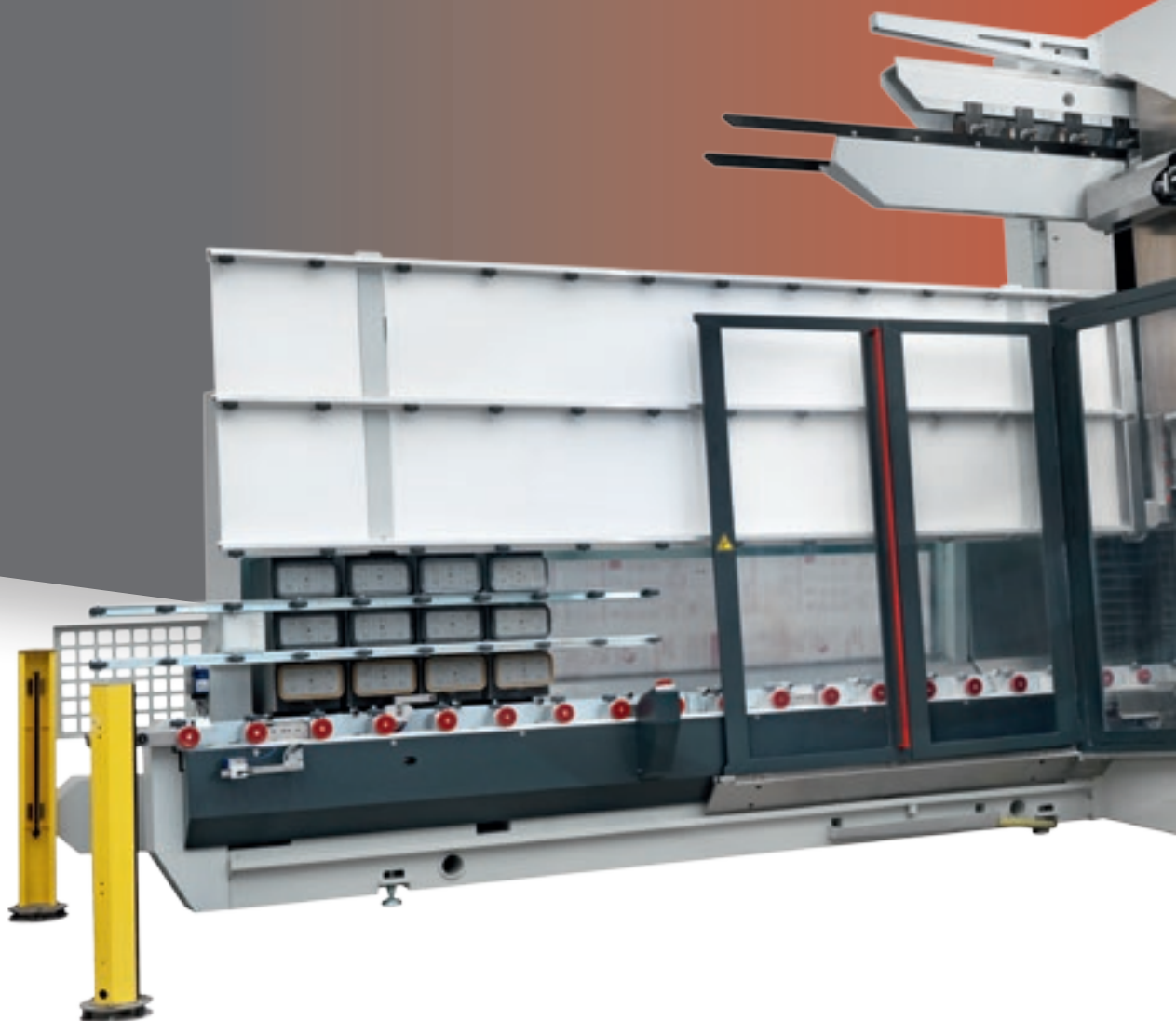


VERT MAX

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.

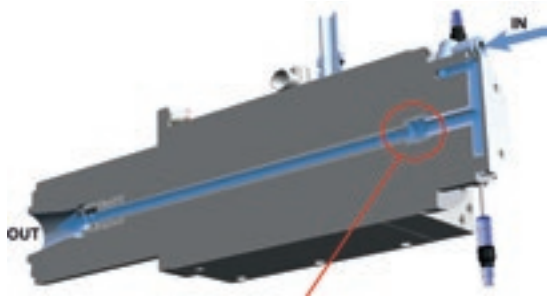
The dynamic repositioning of the suction cups allows for:

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



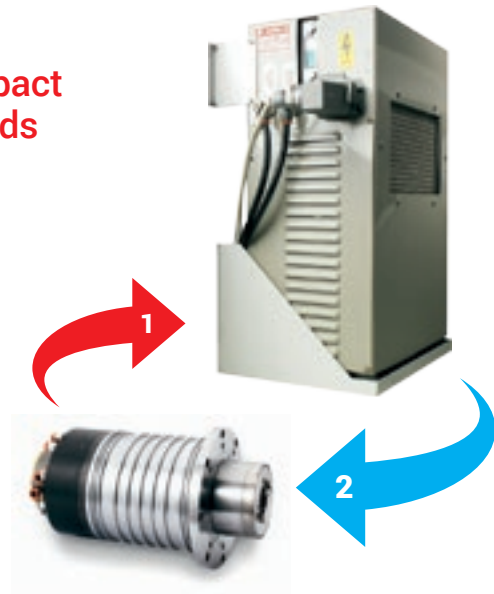
UNPARALLELED QUALITY AND RELIABILITY

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

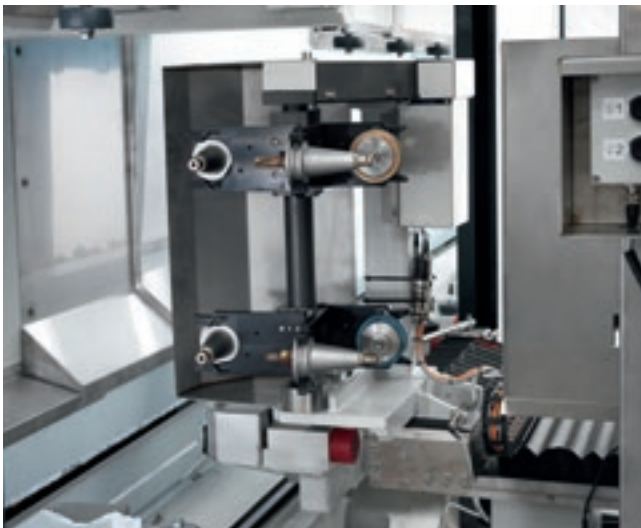


UP TO 37 TOOLS IN A READY-TO-USE MACHINE

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.



The machine can be equipped with a 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.





Maximum flexibility for machining glass sheets of maximum sizes - 2200 x 3500, 2600 x 5000 or 3300 x 6000 mm. Thanks to optional technology dedicated to the machining of small glass sheets, even sheets as small as 300x200 mm and 300x150 mm can be machined.

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 seamlessly 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, increasing speed and productivity whilst notably reducing the operator's work load and the risk of human error.



- 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:

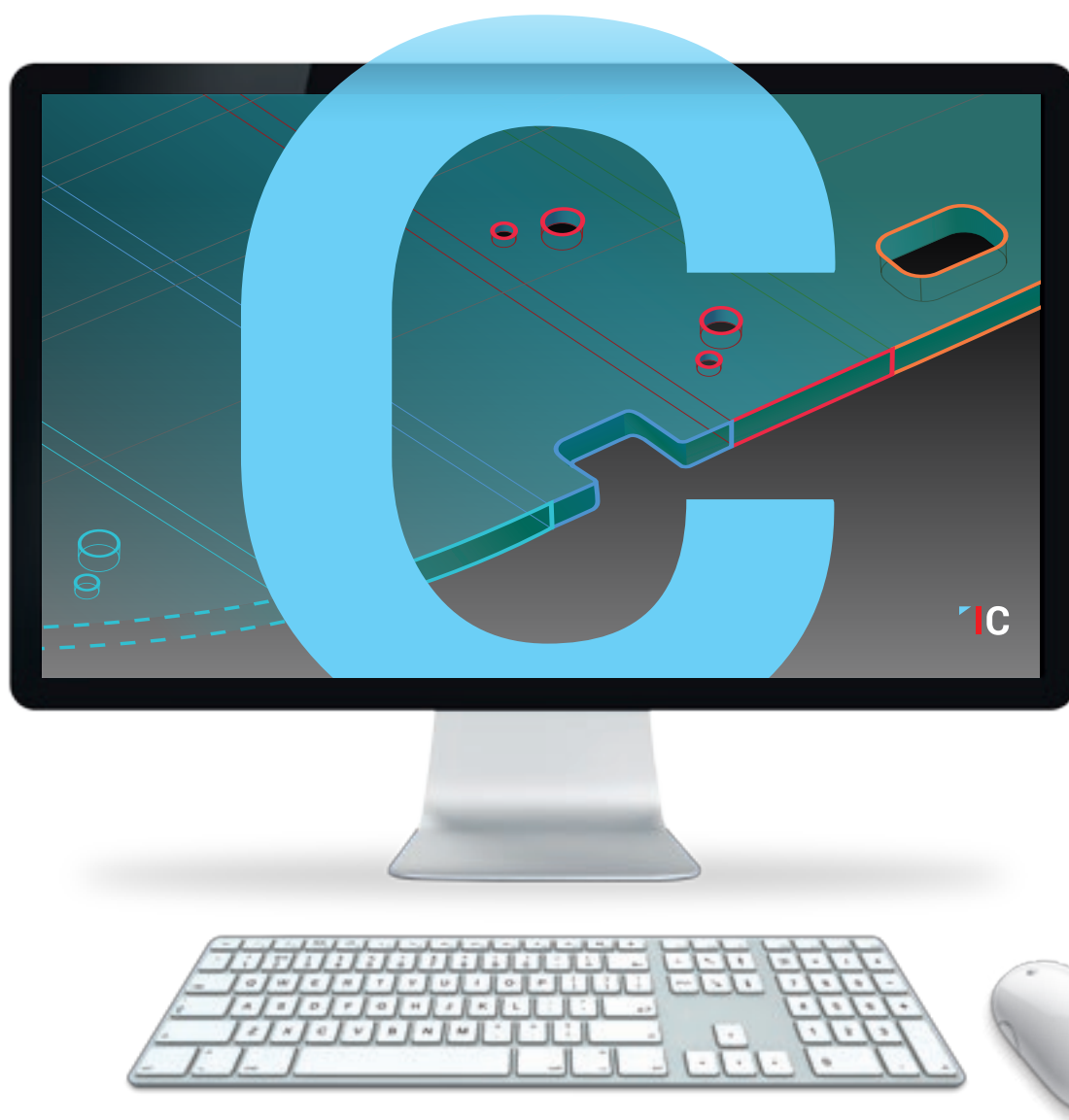
- ▀ Ergonomic front guards.
- ▀ Tandem machining (for glass sheets with a maximum length of 2100 mm) in complete safety.
- ▀ Inaccessibility of moving machine parts.
- ▀ A clean working environment (water and machining residues are not dispersed).
- ▀ Reduced noise levels, fully complying with the machinery directive.

IC: THE EVOLUTION OF ICAM



WITH OVER 7000 PACKAGES INSTALLED IN 180 COUNTRIES, ICAM MEANS EXPERIENCE AND RELIABILITY: THE MOST WIDELY USED CAD/CAM IN THE WORLD FOR GLASS APPLICATIONS.

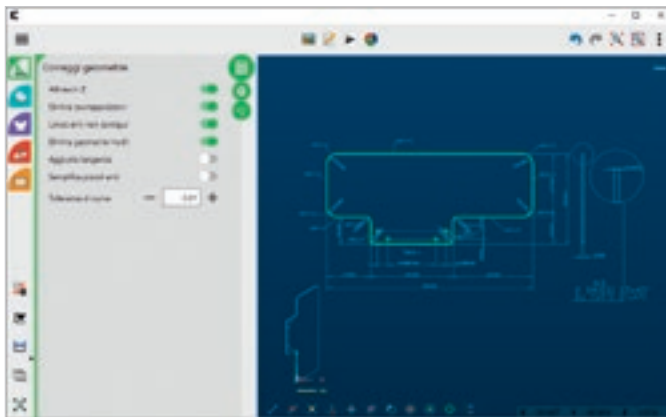
- **RENEWED GRAPHIC INTERFACE THAT'S USER-FRIENDLY AND EASY TO PICK UP THANKS TO SELF-LEARNING CONCEPTS, BUT WITHOUT COMPROMISES IN TERMS OF FUNCTIONS AND PROGRAMMING FLEXIBILITY**
- **ROBUST, RELIABLE PLATFORM**
- **ENHANCED CALCULATION POWER THANKS TO THE USE OF THE LATEST DEVELOPMENT TECHNOLOGIES**
- **MODERN INTERFACE:** similar to the most modern apps, it can be used with a touch screen.
- **EXTREMELY USER-FRIENDLY:** assisted design in 5 steps.
From the drawing to the machine in just a few seconds.
- **TOTAL CONTROL OF THE DESIGN PROCESS, FROM THE DRAWING TO THE FINISHED PIECE.**
- **SOLUTIONS FOR LARGE-SCALE OR ONE-BATCH PRODUCTION:**
the possibility to manage libraries of models (even parametric).
- **SUPPORT SERVICE ALONGSIDE THE CUSTOMER:**
IC is equipped with "AIC Log" technology: in the event of problems and/or a need for support, Intermac Service can see the operations that have been carried out, and can quickly intervene.



IC: SEE, DESIGN, CREATE

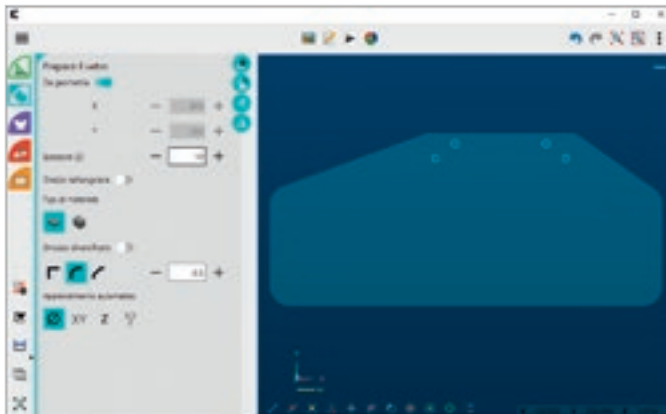
The software suggests the correct sequence of the 5 steps for the design phases.

1. SIMPLIFY
2. IDENTIFY
3. APPLY
4. PROCESS
5. EXECUTE



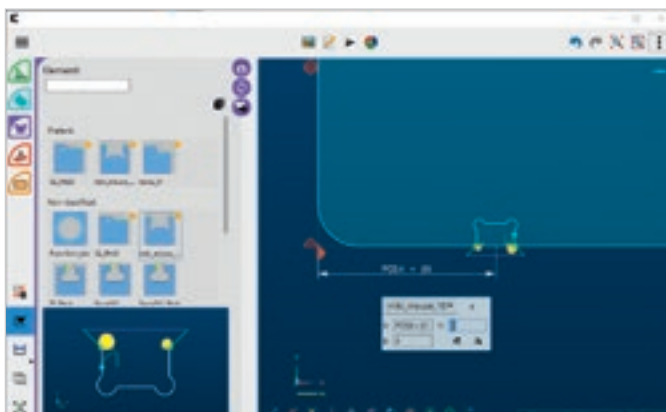
SIMPLIFY

In this step, an imported drawing can be simplified, the geometries needed for the machining operation can be identified, and any possible imperfections can be corrected.



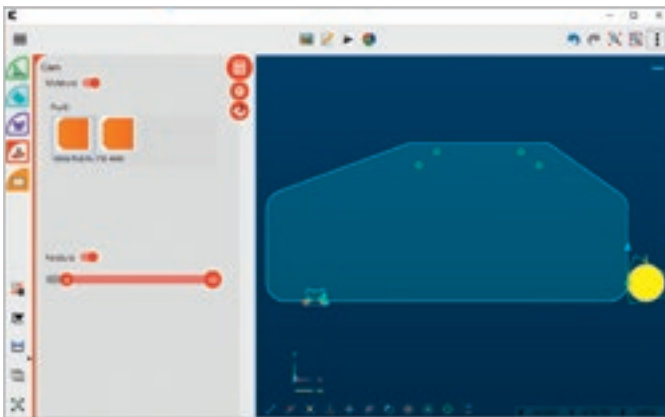
IDENTIFY

The glass to be worked in the machine is easily identified, starting from the drawing previously processed or specifying its dimensions.



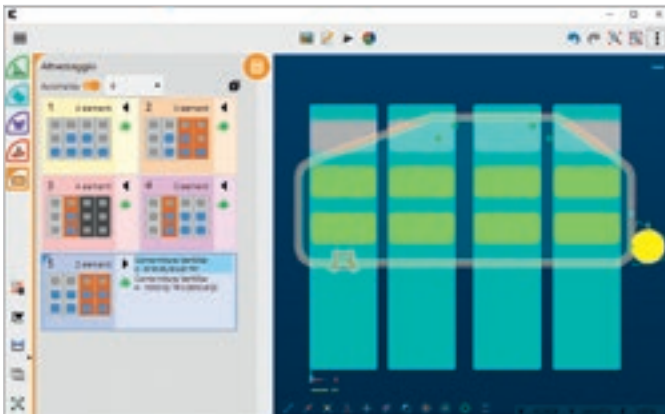
APPLY

With a simple drag&drop, additional elements such as notches or hardware items can be parametrically applied to the piece. These elements can be easily added and personalised by the customer.



PROCESS

The geometries are automatically processed with a click: circles become bored holes, profiles become milling operations, glass is ground; layers can be associated with specific machining operations.



EXECUTE

The piece is prepared so it's ready to be executed in the machine. The carriage positions are calculated and the necessary suction cups are enabled. Possibility to intervene manually for collision control.

IC AUTOMATICALLY SIMPLIFIES COMPLEX DRAWINGS, IDENTIFYING THE GLASS TO BE MACHINED AND ALL THE OPERATIONS REQUIRED TO PRODUCE IT.

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 line 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 working in Teleservice Centre.

35

certified dealer technicians.

50

training courses in a variety of languages every year.



SERVICE TEAM

The Biesse Group promotes, cares and develops direct and constructive relationships with the customers to meet their needs, improve after-sales products and services through 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.

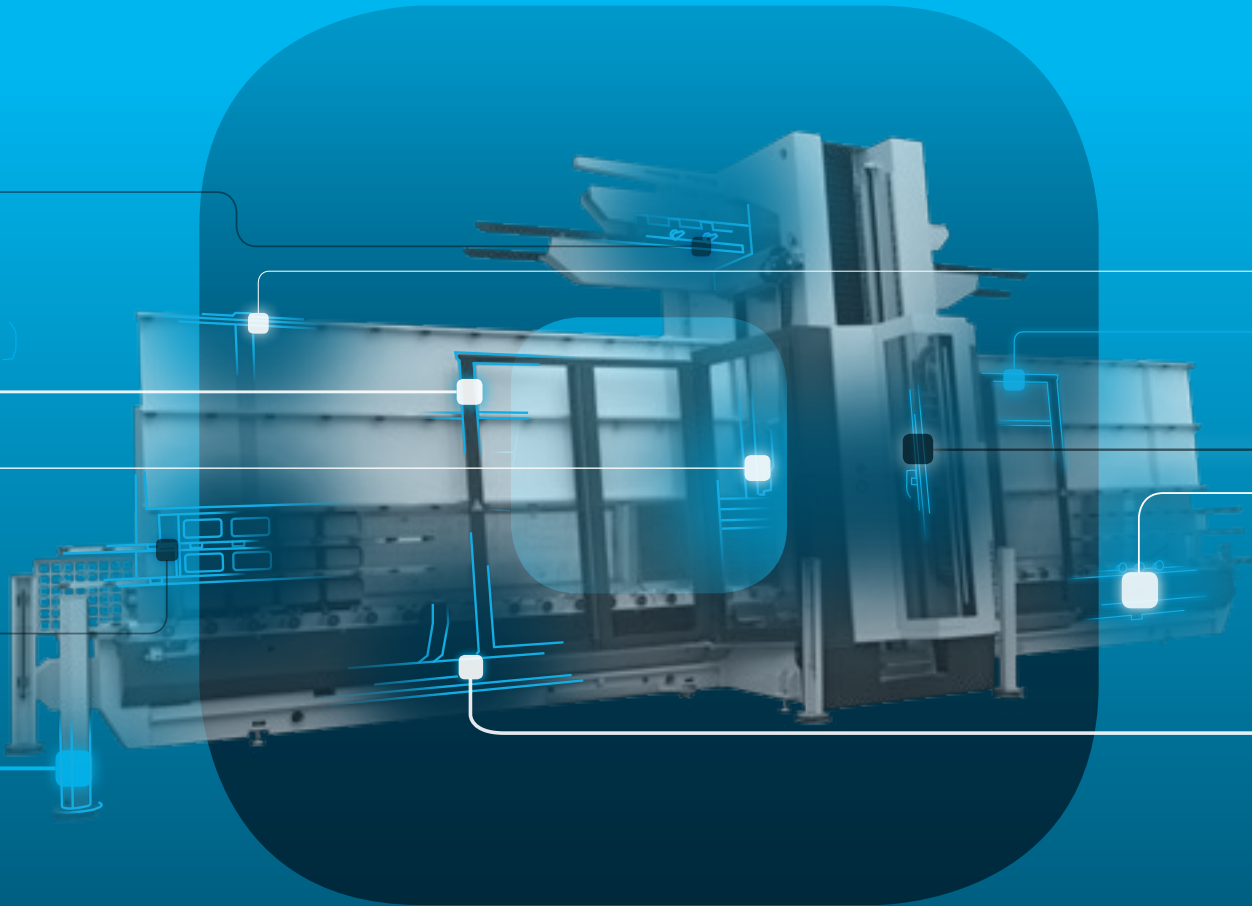
95%
of orders dispatched on time.

30
spare parts staff in Italy and worldwide.

150
orders processed every day.

SOPHIA

GREATER VALUE FROM MACHINES



The Intermac IoT platform which enables customers to access an extensive range of services to streamline and rationalise their work management processes.

□ SERVICES

□ PROACTIVITY

□ ANALYSIS

 **INTERMAC**

in collaboration with **accenture**

COMPLETE RANGE OF SOLUTIONS FOR GLASS



TABLES FOR FLOAT GLASS CUTTING



Genius RS-A

Genius CT-A series

Genius CT-PLUS

Genius CT-RED series

TABLES FOR LAMINATED GLASS CUTTING



Genius LM series

Genius LM-A series

MACHINES FOR LAMINATED AND FLOAT GLASS CUTTING



Genius Comby Lines

LINES FOR LAMINATED OR FLOAT GLASS CUTTING



Genius Lines & Systems

WATERJET



Primus series

DOUBLE ENDING MACHINES AND SYSTEMS



Busetti FK series



Busetti F series



Busetti P series



Customised solutions

WORK CENTRES



Master 23



Master ONE



Master 33.3-38.3-45.3



Master 33.5-38.5-45.5- 45.5 Plus



Master 63-65



Master 95



Master 185

SPECIAL WORK CENTRES AND AUTOMATIC CELLS

SPECIAL WORK CENTRES AND AUTOMATIC CELLS



Master with belts



Master working cell

WORK CENTRES ENGRAVING



Master 34

VERTICAL MACHINES



Vertmax series



V-Loader

VERTICAL WASHING MACHINES



Aqua series

TOOLS FOR GLASS



Diamut tools

STORAGE & HANDLING SYSTEMS

STATIC STORAGE



MOVETRO SERIES - Classifiers

CLASSIC DYNAMIC STORAGE



MOVETRO SERIES - Loading machines

INNOVATIVE DYNAMIC STORAGE FOR MASS PRODUCTION



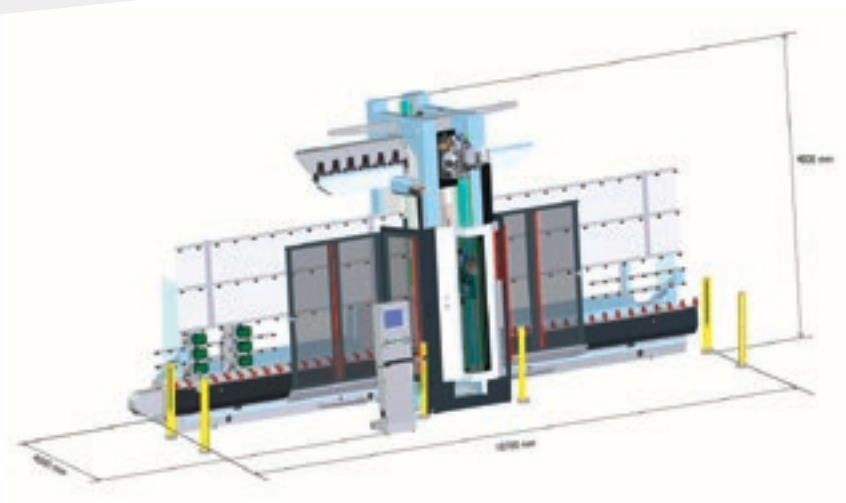
MOVETRO SERIES - Shuttle storage systems

INNOVATIVE DYNAMIC STORAGE FOR DYNAMIC PRODUCTION



MOVETRO SERIES - Overhead crane - Telescopic loading machines - Arpa

TECHNICAL SPECIFICATIONS

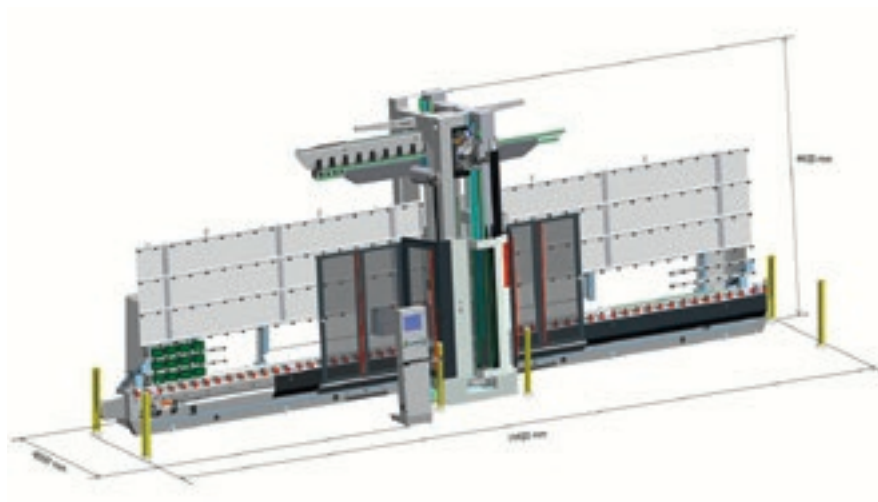


VERTMAX 2.2

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

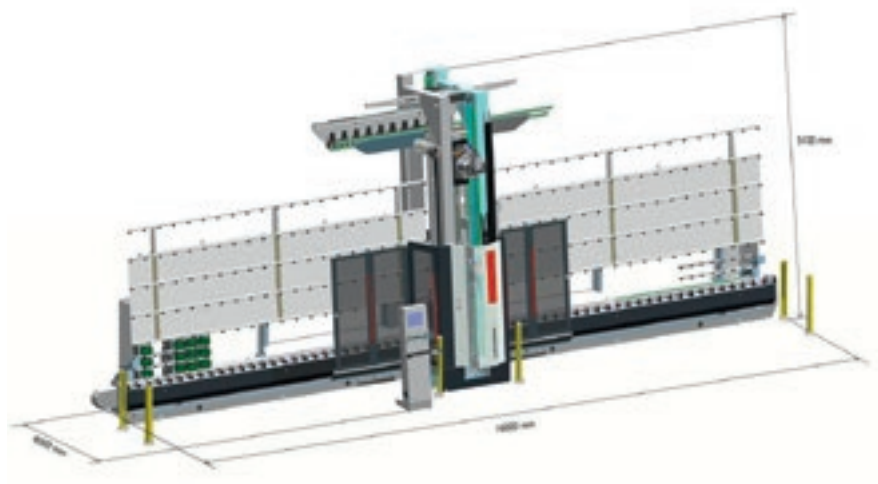


VERTMAX 2.6

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 (without the pilot system)	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 14 (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. Intermac 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."

CERVIGLAS.COM



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.**



 **BIESSEGROUP**

