VERT MAX

CNC VERTICAL MACHINING

INTERMAC

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.

PRODUCTIVITY

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.

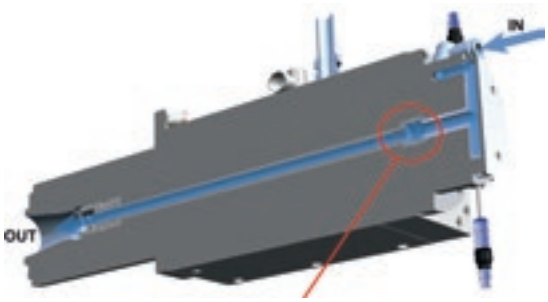
The independent carriage system guarantees unparalleled machining quality.

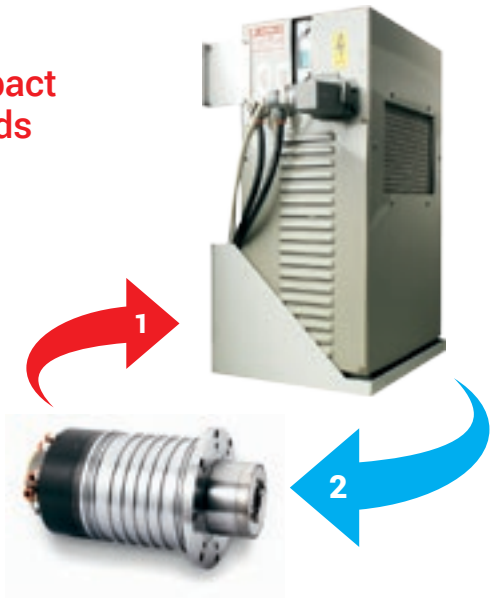
The dynamic repositioning of the suction cups allows for:

- 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.

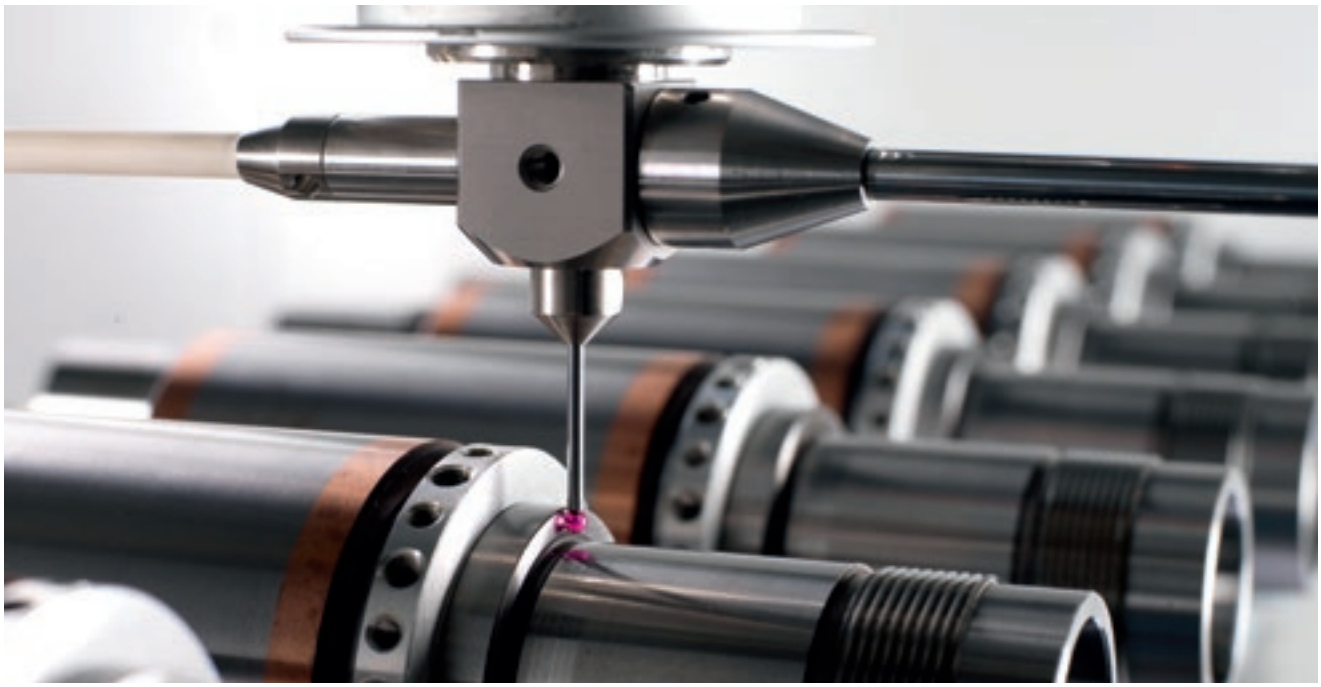




DPC (patented) - Controlled loss distributor
A patented system that ensures excellent reliability and a long lifespan, thanks to the innovative seal system with no mechanical contact.

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

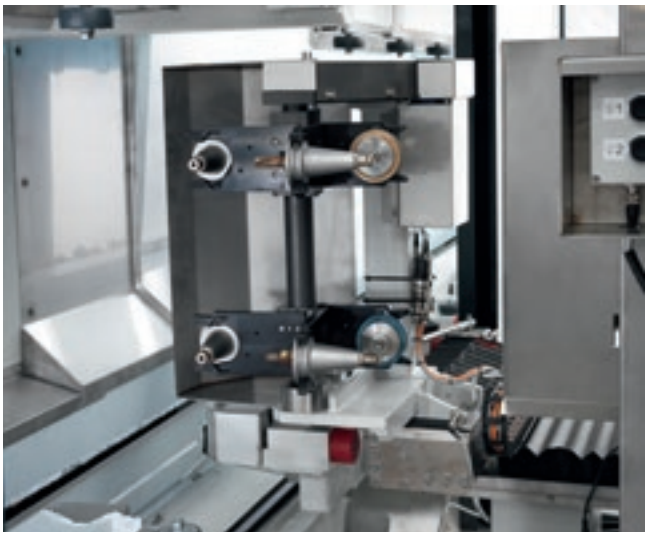
1. **High-temperature fluid**
   (cooling system with heat exchanger).
2. **Low-temperature fluid**



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.

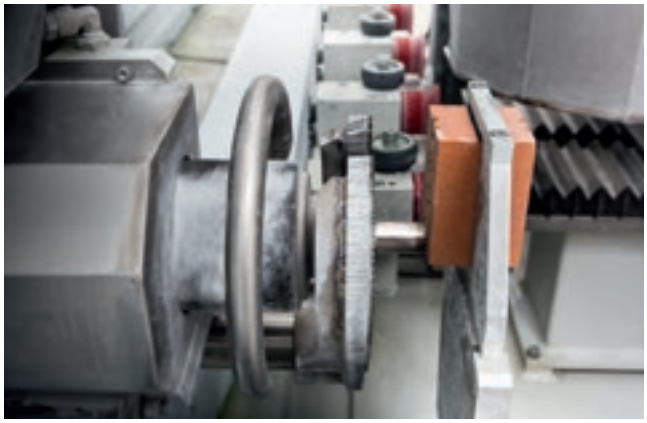
TOTAL FLEXIBILITY THANKS TO FULLY AUTOMATED SETTING

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.

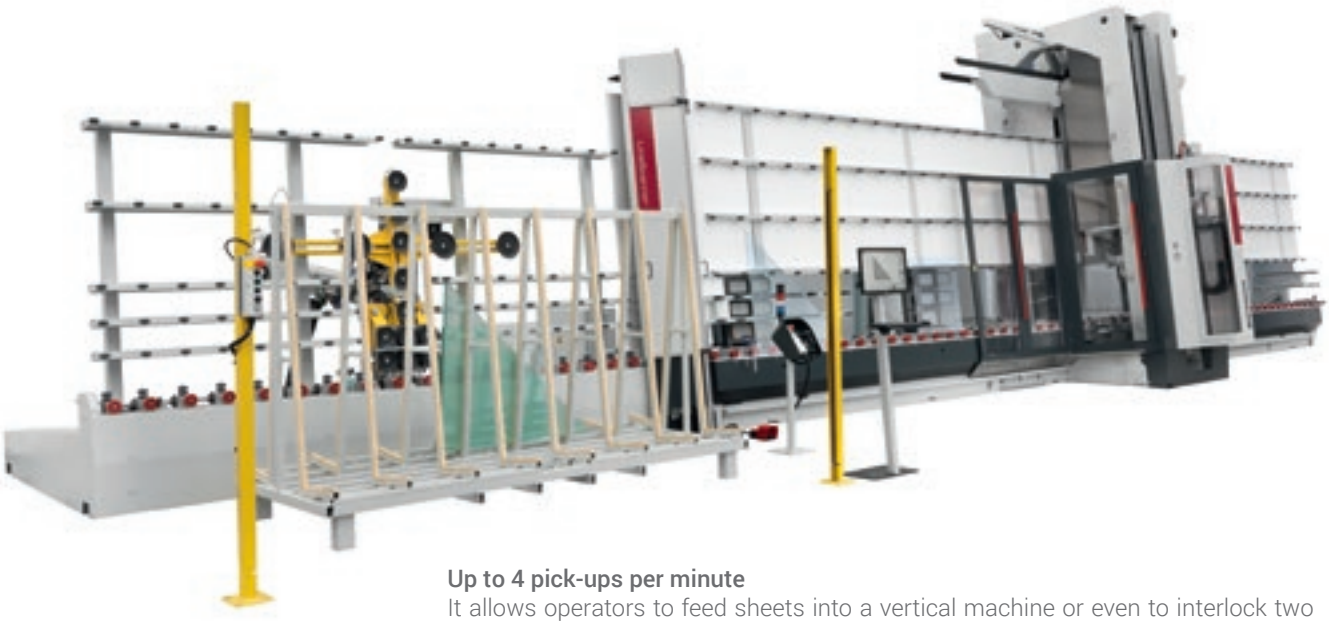
Diamond grinding wheel and polishing wheel presetter.

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

Finishing wheel dressing.

INTEGRATED EFFICIENCY

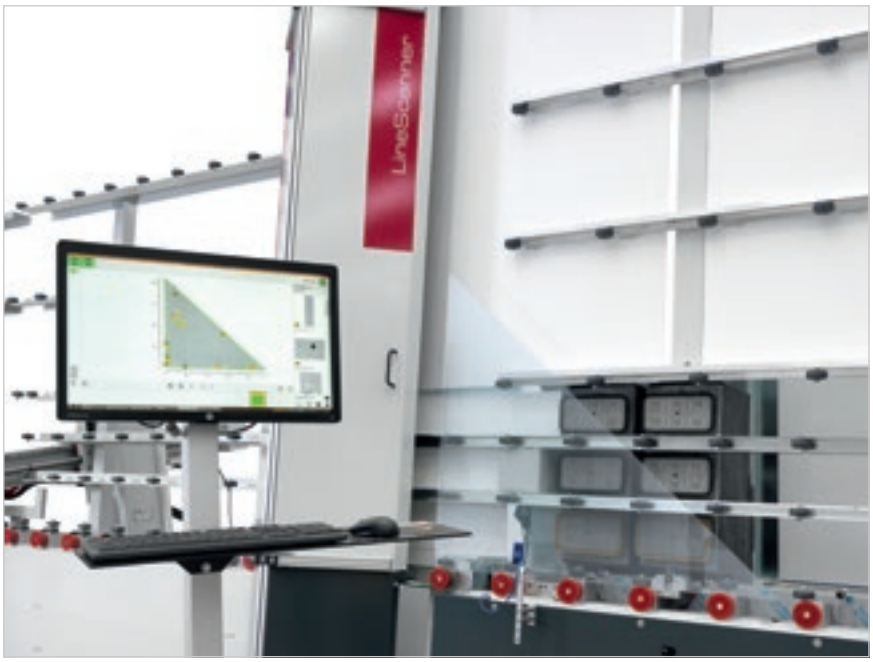
V-Loader is the automatic loader designed to remove glass sheets from the pallet, depositing these on the roller bed. Both practical and intelligent, the V-Loader can be seamless integrated into the production process in a glassworks facility, for the perfect combination of quality, productivity and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

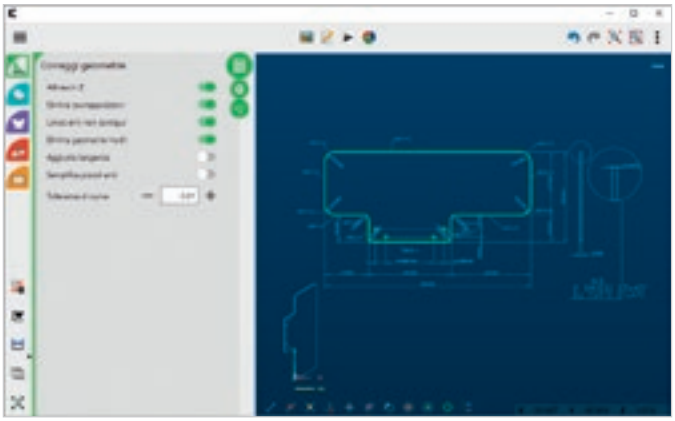
- **RENEWED GRAPHIC INTERFACE THAT'S USER-FRIENDLY AND EASY TO PICK UP THANKS TO SELF-LEARNING CONCEPTS, BUT WITHOUT COMPROMISES IN TERMS OF FUNCTIONS AND PROGRAMMING FLEXIBILITY**
- **ROBUST, RELIABLE PLATFORM**
- **ENHANCED CALCULATION POWER THANKS TO THE USE OF THE LATEST DEVELOPMENT TECHNOLOGIES**

- **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

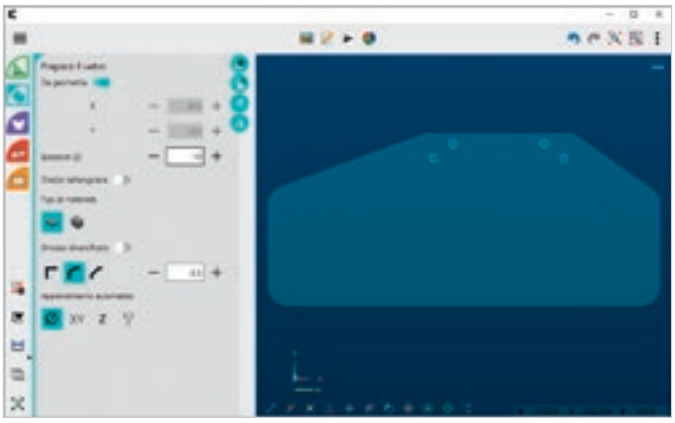
The software suggests the correct sequence of the 5 steps for the design phases.

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



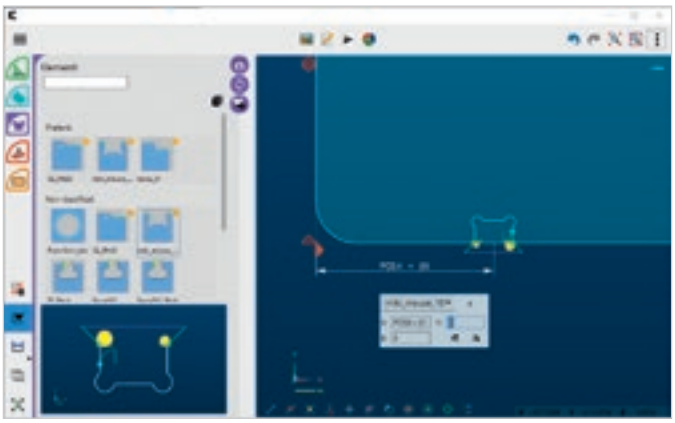
SIMPLIFY

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.



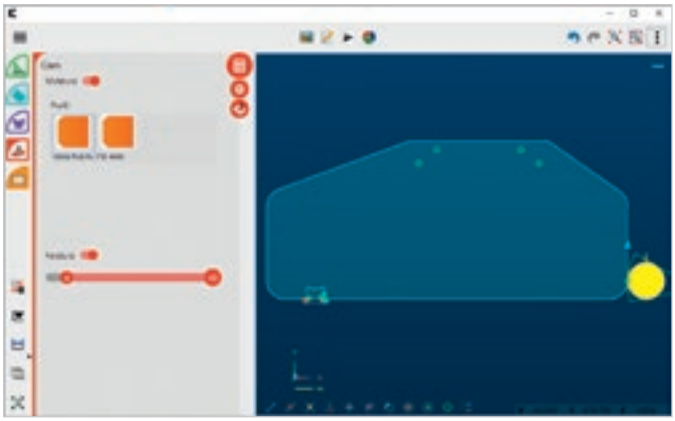
IDENTIFY

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



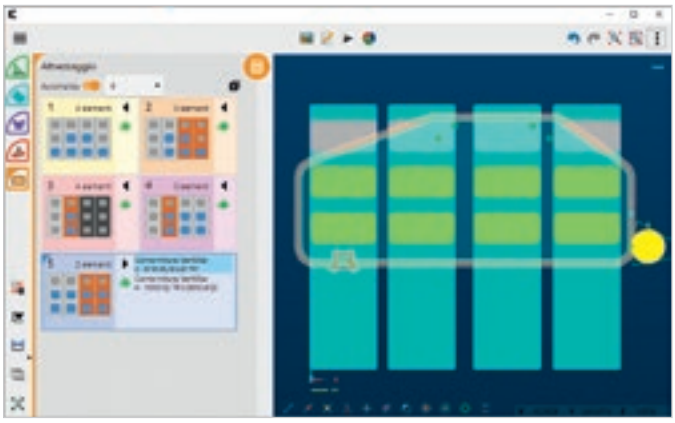
APPLY

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.

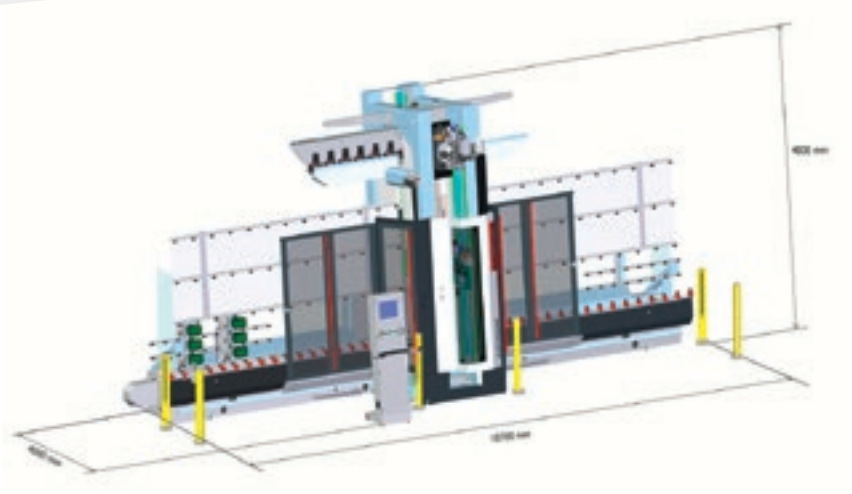


EXECUTE

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.

TECHNICAL SPECIFICATIONS

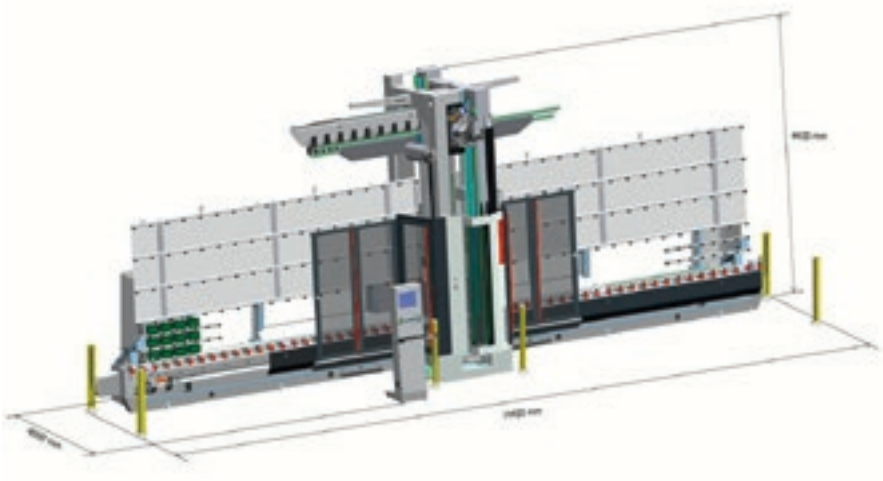


VERTMAX 2.2

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

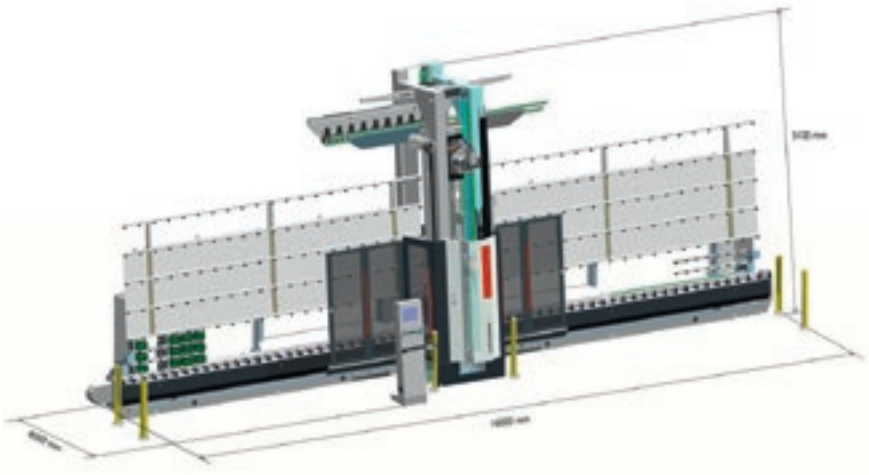


VERTMAX 2.6

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.