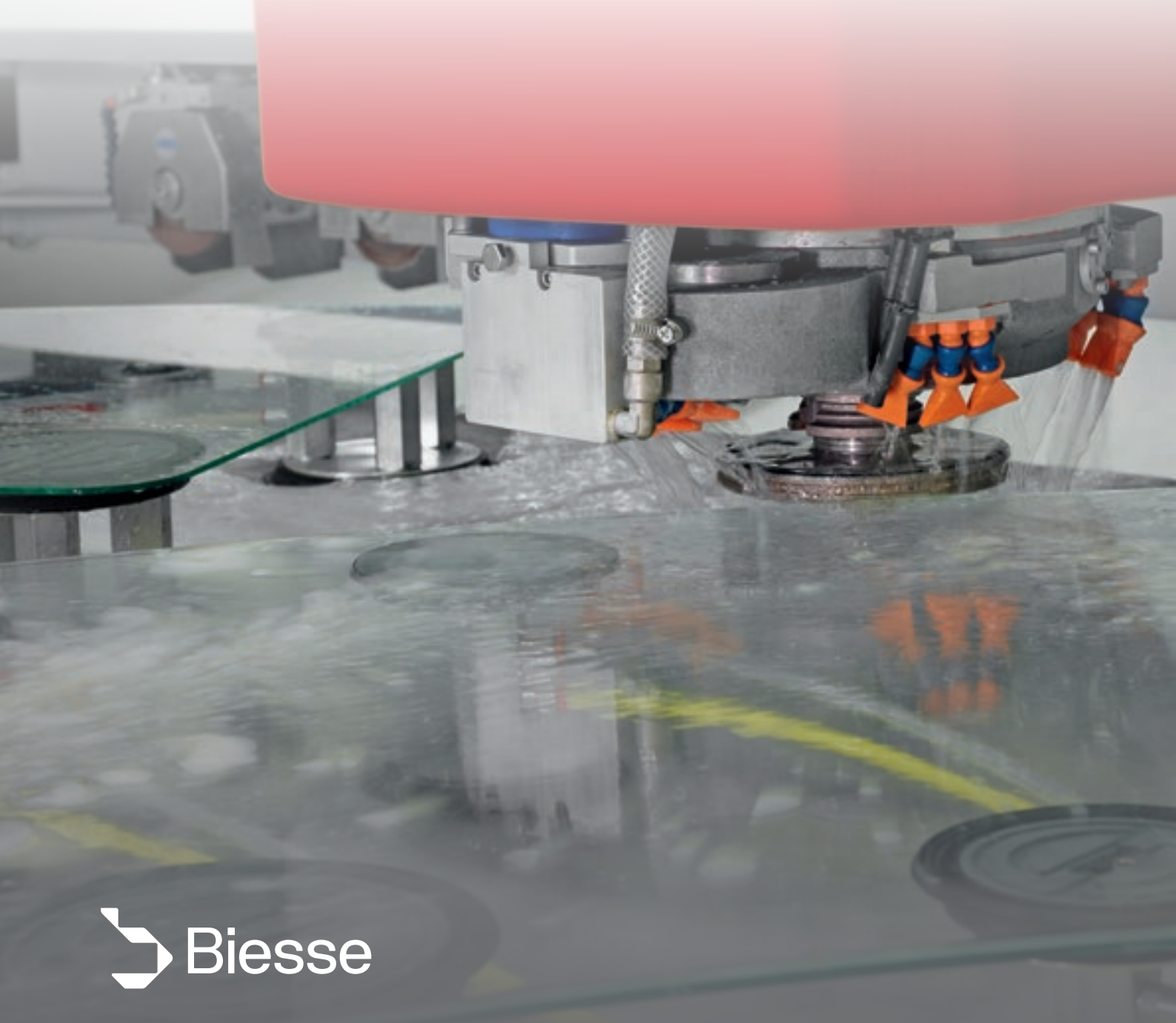


MASTER ONE SERIES

CNC MACHINING CENTRES
FOR GLASS



SAFE AND COMPETITIVE IN ITS TECHNOLOGY AND PERFORMANCE



The **Master One** is a 3 or 4 axis machining centre (3-axis +C) for processing glass and is capable of executing a wide range of machining operations using the best technology, with no compromise on performance. The Master One boasts an unbeatable balance of quality and market competitiveness, making it the perfect investment. Featuring a minimal and ergonomic design while maintaining a complete range of functions, the Master One machining centre is an especially good match for large industries that need elevated productivity, but it is also suitable for the small artisan.



MASTER ONE SERIES

- ✓ RELIABLE AND SUITABLE FOR A WIDE RANGE OF MACHINING OPERATIONS
- ✓ HIGH PERFORMANCE AND SPEED
- ✓ ULTIMATE SIMPLICITY WHEN TOOLING AND A WIDE RANGE OF TOOLS
- ✓ SAFE AND ERGONOMIC
- ✓ REDUCED FOOTPRINT
- ✓ SIMPLE AND INTUITIVE

SUITABLE FOR A WIDE RANGE OF MACHINING OPERATIONS

The Master One can carry out a wide range of complex machining operations, guaranteeing a first class finish.

IDEAL FOR ALL TYPES OF 3-AXIS MACHINING OPERATIONS



Milling.



Grinding and peripheral polishing.



Boring integrated with the Helix system.



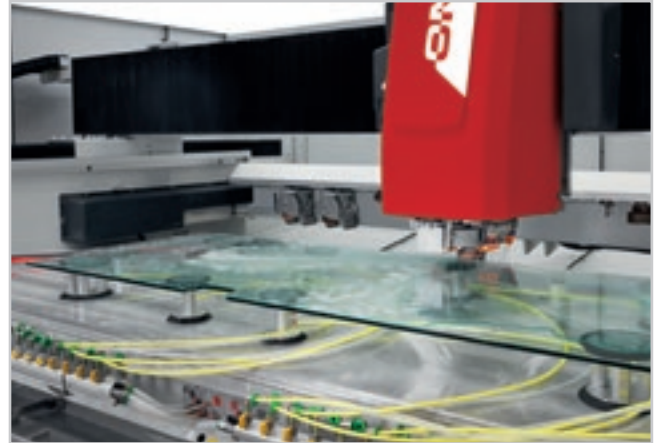
Boring from above.



Surface writing.

HIGH PERFORMANCE AND SPEED

3-axis machining guarantees ultimate reliability and precision when creating doors, tables, bathroom unit tops, kitchen tops, glass for household appliances and for the automotive, electronic and internal design sectors.

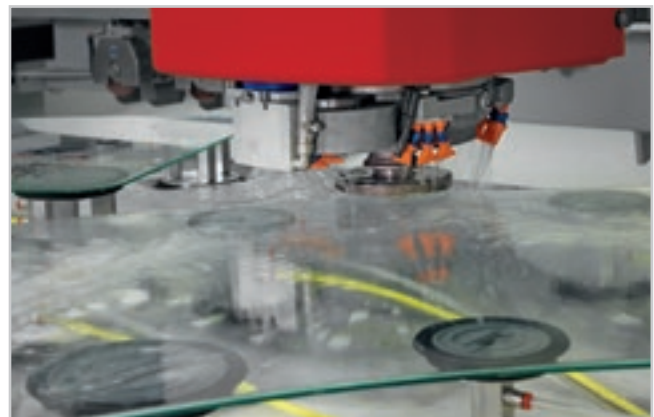


Complete machining of a door: milling and notch grinding, grinding and peripheral polishing.

Maximum productivity thanks to the option of machining multiple pieces on the same surface.



↙
High speed grinding, particularly in demand in the automotive and household appliances sectors.



C-axis machining operations.



Drilling from below with an aggregate.



Engraving with an aggregate.



Flat saw disc.

3 or 4-axis machining operations.



Dynamic lock on small piece from 30 mm.



Dynamic lock on large piece from 130 mm.

THE INNOVATIVE DYNAMIC LOCK SYSTEM, PATENTED BY BIESSE, ALLOWS FOR THE MACHINING, GRINDING AND POLISHING OF THE SMALL ROUND, SQUARE OR RECTANGULAR PIECES TYPICAL OF THE LIGHTING AND FURNISHINGS SECTOR. THANKS TO ITS ULTIMATE FLEXIBILITY THE MACHINE CAN PROCESS PIECES RANGING FROM 3300X1500 mm TO 30X30 mm.

REVOLUTIONARY BORING

Helix is the Diamut tool that, when combined with Biesse software, exceeds all the limits of the traditional boring systems, using a single tool for all the boring, grinding and countersinking operations on glass sheets of up to 19mm.



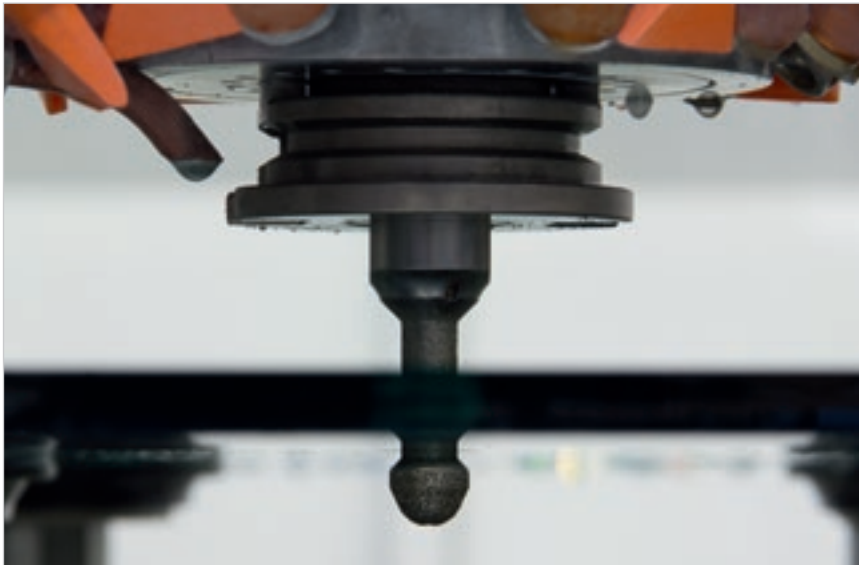
DEVELOPED, PATENTED QUALITY

Innovation created by a team of Diamut and Biesse experts, Helix System is the perfect blend of hardware and software that emerges in the whole range of Master processing centres.

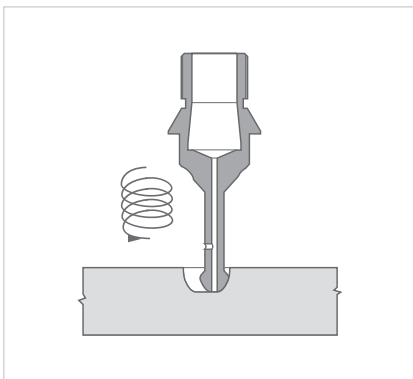
The new standard for boring operations.

Helix System was born of the desire to develop a revolutionary boring system unlike anything that has been seen on the market to date, capable of drilling holes with integrated upper and lower counter-sink on glass sheets up to 19mm thick, using a single tool on CNC machines.

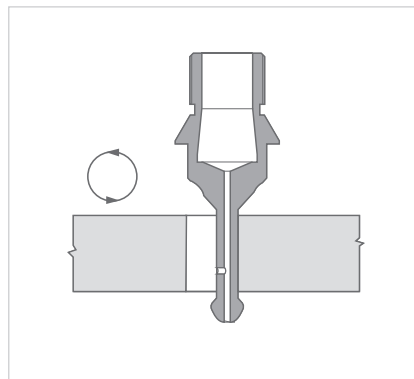
INTEGRATED BORING SYSTEM



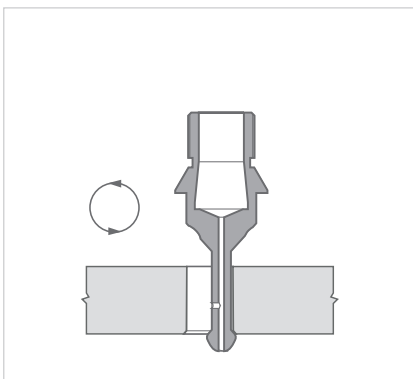
An innovative tool, managed by specific software.



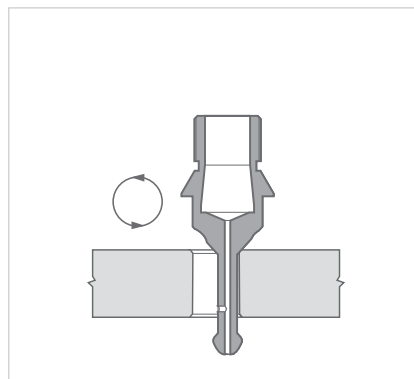
1_Boring with helical movement



2_Lateral grinding



3_Lower countersinking



4_Upper countersinking

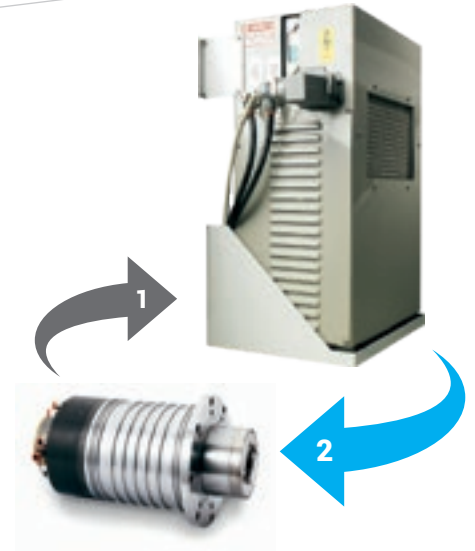
- ▣ Maximum finish quality.
- ▣ Machining tolerances are halved.
- ▣ Holes with different diameters, with just one tool.
- ▣ Can also be used on laminated glass.
- ▣ Integrated upper and lower countersinking.
- ▣ Machining operations on any part of the sheet.
- ▣ Tool cleaning blow after the machining operation.

RELIABLE TECHNOLOGY



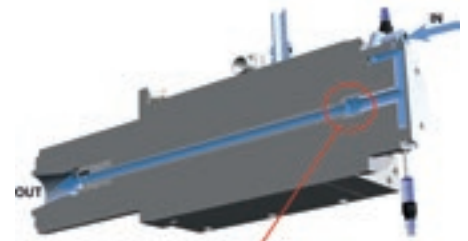
The Master range is fitted with spindles manufactured by HSD (a world leader in its sector and a Biesse Group member) that guarantee elevated power, compact dimensions and extremely high finishing standards.

- ✔ **+60% spindle lifespan and noise reduction**
thanks to 4 ceramic bearings that offer greater resistance to mechanical stress.
- ✔ **Greater reliability**
thanks to the use of stainless steel and a 55 mm spindle shaft.



Optional glycol-based **cooling** system with a closed circuit that guarantees constant results over time and resistance to the highest levels of machining stress.

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



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.



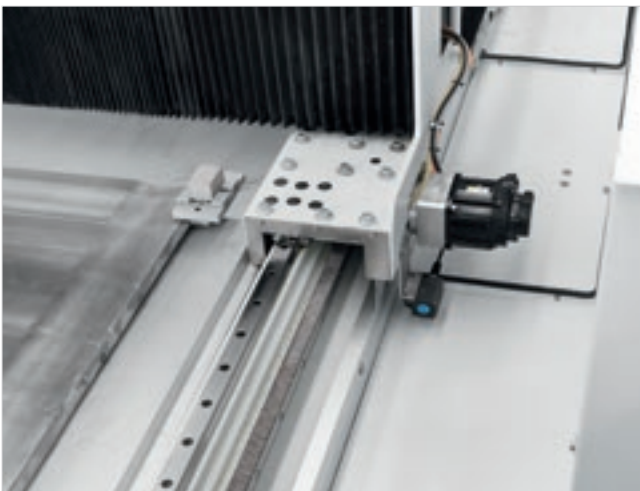
The machine work table is composed of an extremely rigid structure covered by a calibrated aluminium surface to ensure optimal machining results. The machine can also be set up to work in twin-station mode.

HIGH QUALITY COMPONENTS TO GUARANTEE RELIABILITY WITH NO COMPROMISE



Reliability guaranteed

The Master One is equipped with an integrated system for the automatic greasing of the movement axes, ensuring constant and precise maintenance every day to safeguard all mechanical components.



Rack and pinion for movement along the X and Y axis, with more than twice the speed and acceleration. The helical teeth on the racks guarantee ultimate reliability.



The standard issue electrical panel air conditioner is particularly suited to keeping all of the machine's electrical and electronic components in perfect working condition.

ULTIMATE SIMPLICITY WHEN TOOLING AND A WIDE RANGE OF TOOLS

The Master One offers the option of equipping the machine with a large number of ready-to-use tools for any type of machining operation, with automatic loading via the working unit.



Rear tool magazine with 23 positions.



Tool change up to 10 seconds

The fastest solution in the world of glass, thanks to the 8-position revolver magazine on the head (6 positions with C axis).

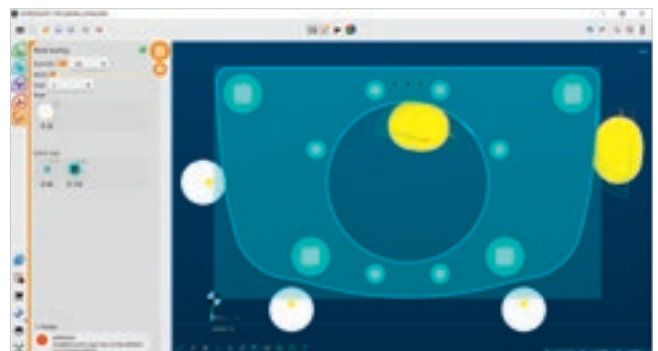
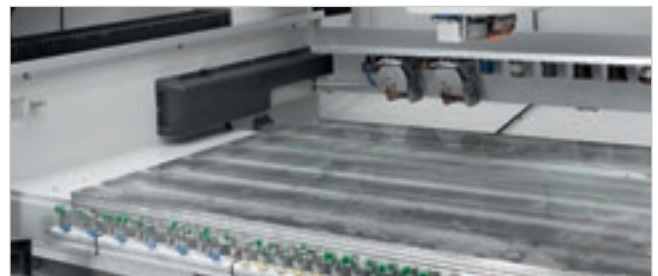
REDUCED TOOLING AND SET-UP TIMES

Tooling time reduced by up to 20% compared to the standard system

The cross-hairs laser guides the operator through the positioning of suction cups and stops, speeding up the preparation of the work surface.



The laser projector is used to make the preparation of the working area quick and easy, reproducing the position of all the suction cups or the shape of the piece that will be positioned on the work table.



INNOVATION



INTERMAC TECHNOLOGY

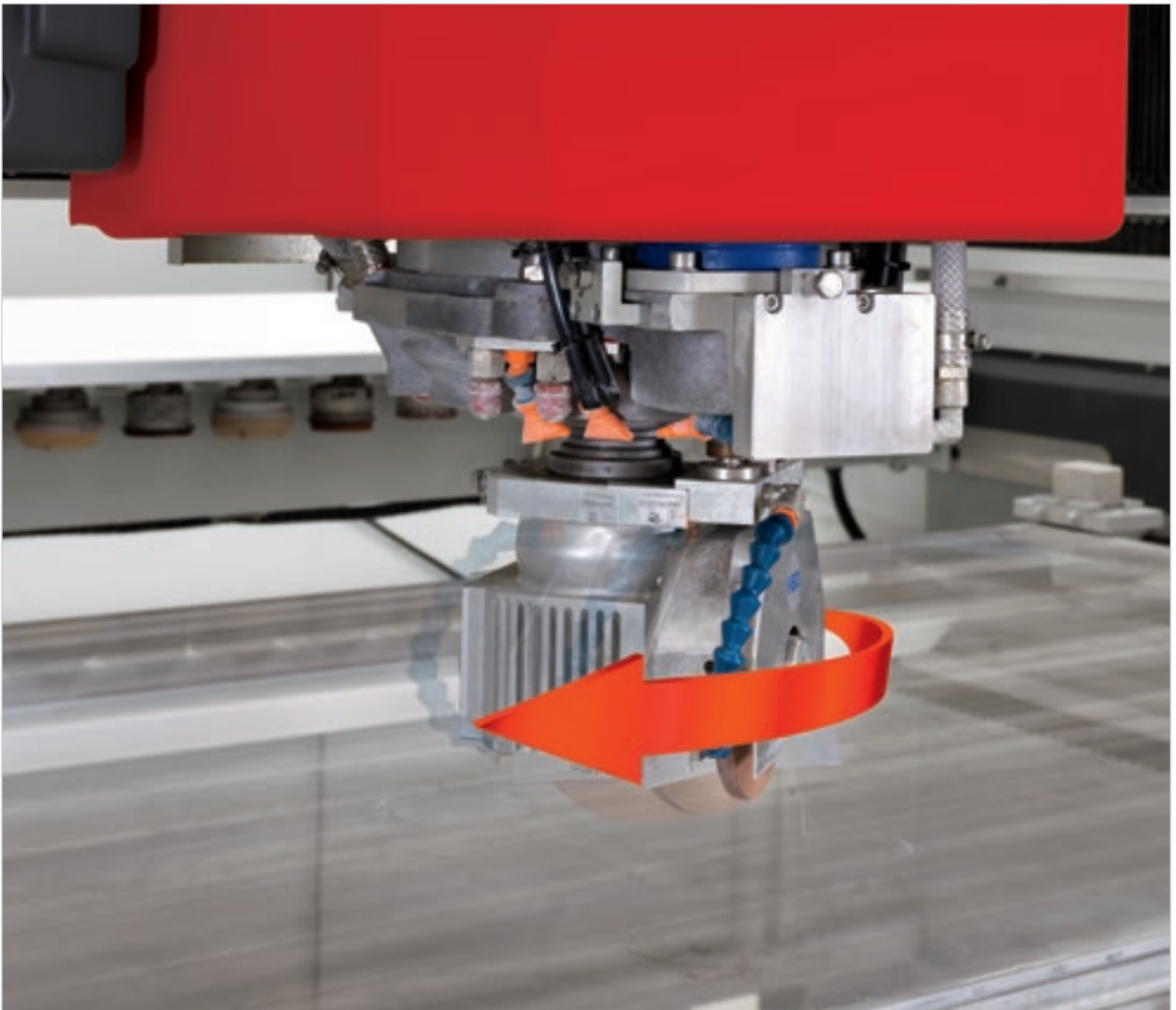
The high technological content of the world's most popular processing centres satisfies the specific needs of the glass industry.

3-axis or 3-axis+C configurations capable of managing a vast range of machining operations. For all configurations, the components are the same as those used in top-of-the-range solutions.



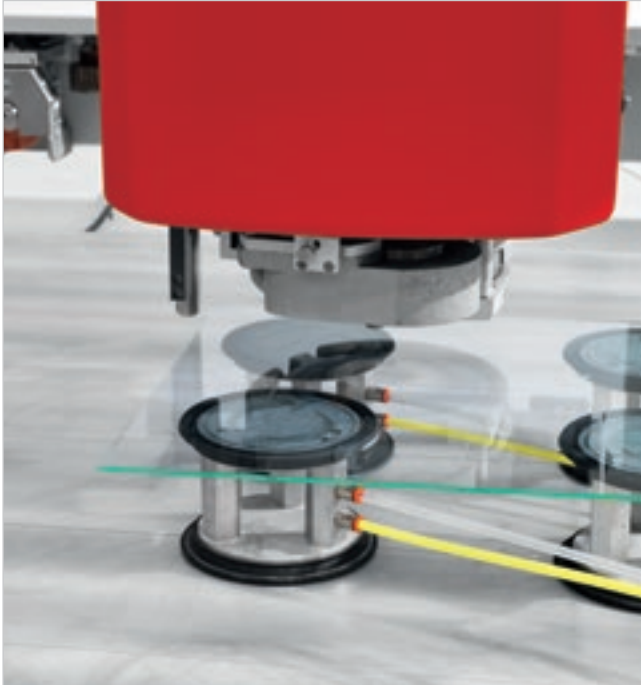
HIGH PERFORMANCE

Maximum acceleration and axle speeds, minimising waiting times and enabling cycle times to be reduced.



C AXIS WITH ENDLESS ROTATION, FOR THE PERFECTLY SMOOTH AND ACCURATE EXECUTION OF EVEN THE MOST COMPLEX MACHINING OPERATIONS.

CONSISTENT QUALITY



Rotated origin detector

An automatic system detects the correct point of origin on typical square or rectangular glass pieces, simplifying tooling operations for the machine and reducing the time needed for the process.

Pressure intensifier for the external water

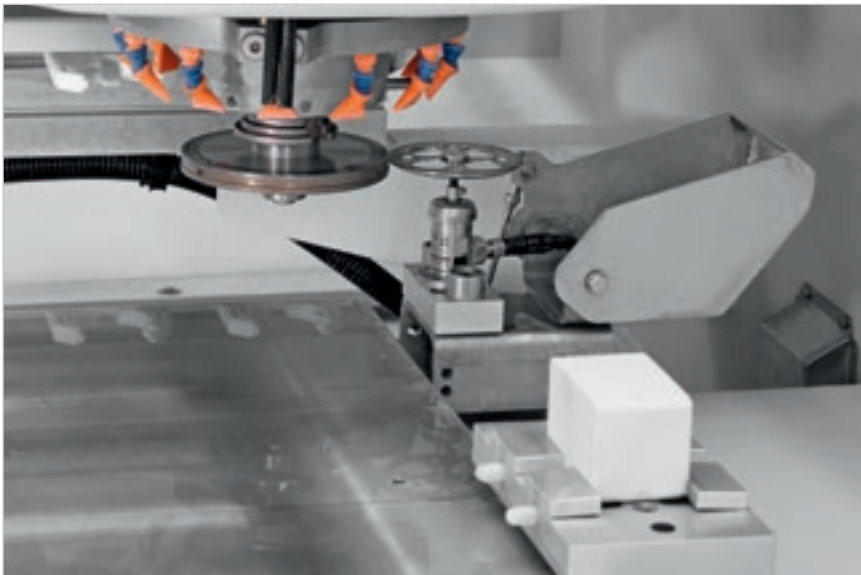
This is a circular wheel with small nozzles that increase the pressure of the external water. The optional device has a 3-position vertical movement to ensure that the water impact point is always the best, regardless of tool radius and height. Ideal for the high speed machining common in the automotive, household appliances and electronics sectors. Thanks to automatic height adjustment, including with the use of stacked grinding wheels, the perfect settings are always maintained.

GLASS THICKNESS	STD SPEED	INCREASE
4mm	18m/min	+40% (up to 25m/min)
10mm	2.5m/min	+60% (up to 4m/min)
19mm	1.8m/min	+66% (up to 3m/min)



QUICK AND SIMPLE OPERATIONS

The dressing devices are positioned near the working area for fast, easy tool dressing operations that guarantee constant top quality and speedy execution.



The Master One can be equipped with a **mechanical presetter** that uses a completely automatic system to always provide a quick, simple, precise and updated measurement of the tools during machining operations and to avoid operator error.



Drill dressing

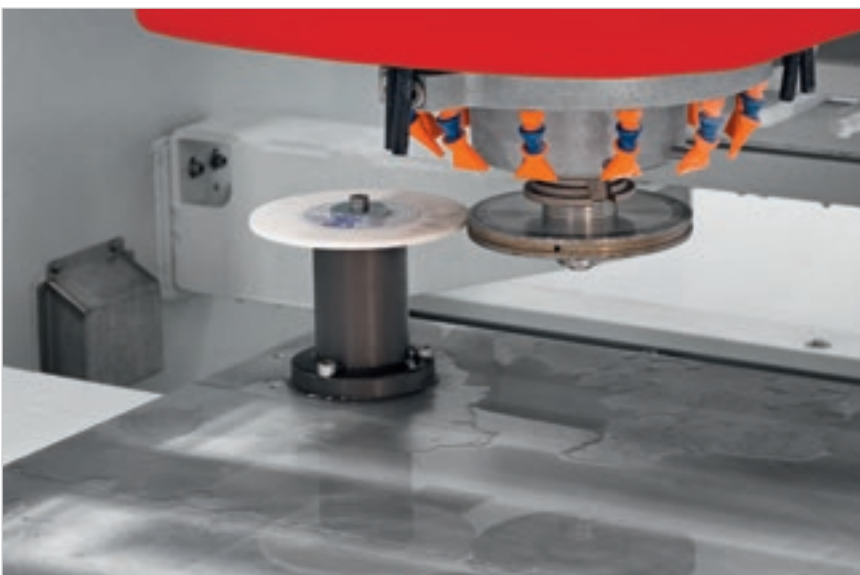
The dressing device is placed near the working area for the immediate dressing of tools, to guarantee the best quality and quickest execution all the time.

The dressers make the Master One fully automatic, even for the longest machining operations, which means that manual operations are also simplified.



Finishing wheel dressing.

The device is placed near the working area so it can dress the finishing wheel immediately, guaranteeing the best quality finish all the time.



Diamond wheel dressing.

The device is placed near the working area so it can dress the diamond wheel immediately, guaranteeing ultimate speed and performance all the time.

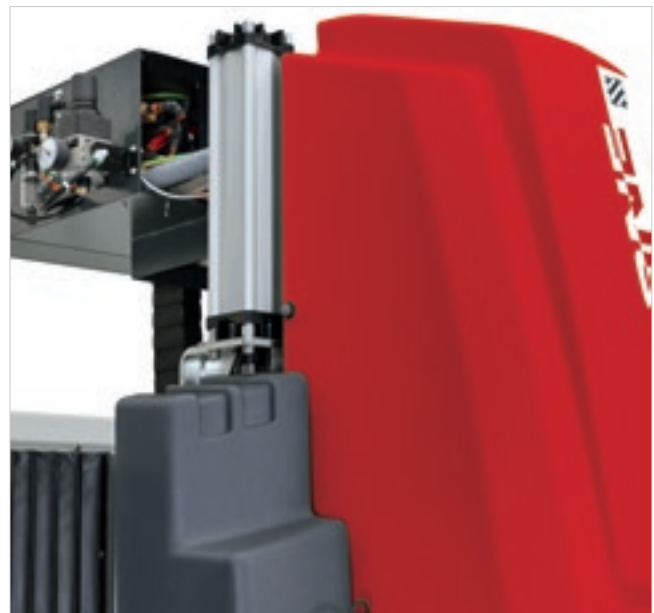
SAFE AND ERGONOMIC

Biesse 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.

- ▣ EC compliant, ergonomic front guards.
- ▣ Side and rear guards made of a metallic material subjected to special anti-corrosion painting cycles.
- ▣ Electric and pneumatic systems fully integrated in the machine and protected by closed doors.
- ▣ Moving machine parts inaccessible.
- ▣ Clean working environment (no loss of water or machining residue).
- ▣ Reduced noise levels, fully complying with the machinery directive.

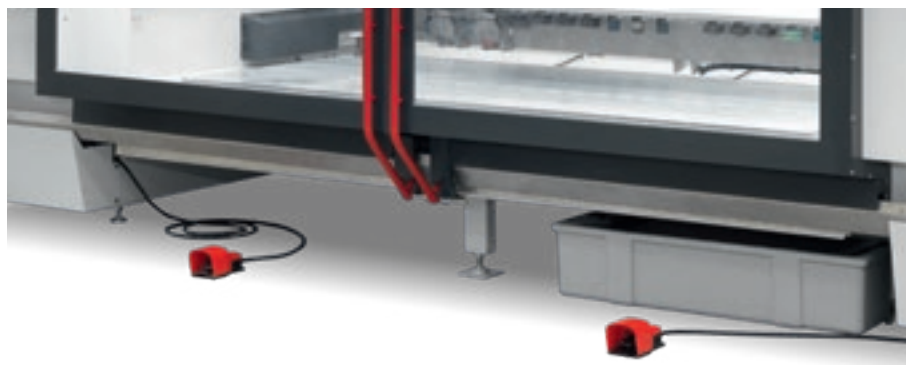


Electric safety lock with an ergonomic built-in button panel to open doors and to start the machining operation, offering ultimate speed and comfort for the operator.



The safety compensator piston guarantees long-lasting safety and reliability by supporting the weight of the head and reducing the strain on the engine.

Option of setting up twin-station machining operations with a double pedal.



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



Optimum convenience in the operations thanks to an optional hand-held terminal with:

- ▣ Quick, simplified positioning of the stops and suction cups thanks in part to the option of tooling the work table with doors open.
- ▣ Simplified tool preparation, thanks to the optimum control of the working head directly on the piece to be machined.
- ▣ No barrier between the operator and the Master.
- ▣ Machining speed control.
- ▣ Emergency button always near the operator's hand.
- ▣ Machining Start, Pause and Restart button.

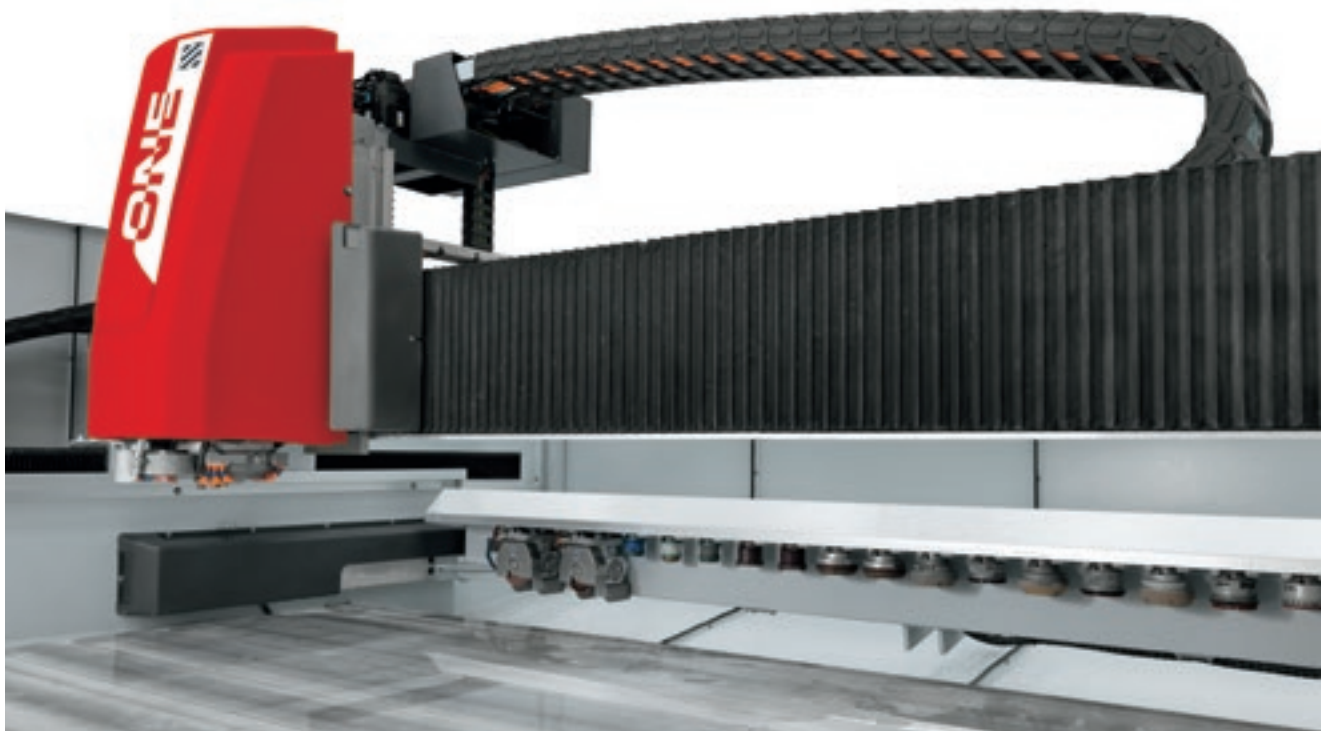
Optional 4-colour safety traffic light provides a visual signal of the machine's status.



Built-in control panel, with optional touch screen, on the left side of the machine, with the option of installing it on the right side as well.

REDUCED FOOTPRINT

The compact size of the Master One reduces the footprint in the factory.



Maximum machine height 2550 mm

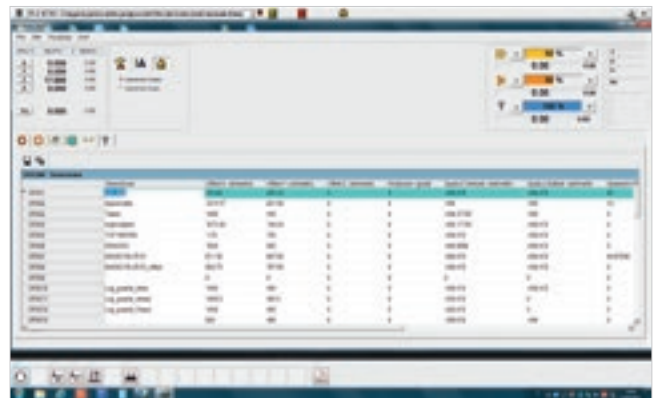
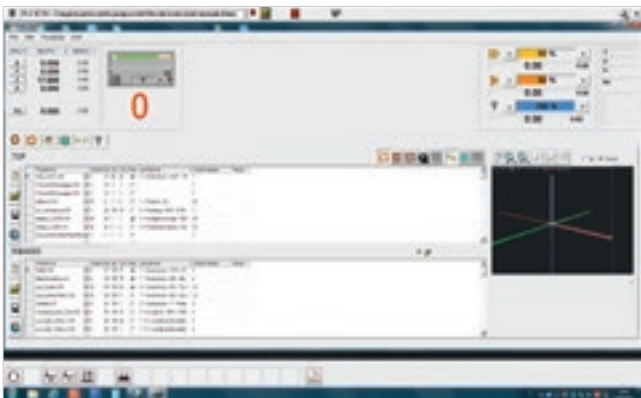
The lowered chain guarantees a more compact machine with a reduced footprint that can be installed even in areas with limited height.

SIMPLE AND INTUITIVE TO USE

Extremely easy to use, thanks to the ergonomic console and operator interface. The use of a PC with Windows guarantees a particularly easy, user-friendly approach for the operator and allows for CAD-CAM programming directly beside the machine.

The user interface in a Windows environment allows the operator to:

- easily set the work list to optimise production;
- rapidly handle the work origins and tool parameters;
- see the execution time for each piece.



Optional bar code reader for the automatic loading of work list programs and to avoid operator error.

EFFICIENT PRODUCTION, WITH NO LIMITS

The Master range can be perfectly integrated in a line with robots and loading/unloading systems. It's the ideal solution for those who need automated solutions for producing large batches (the household appliance field and the automotive, electronic and furnishing sectors).



MASTER increases productivity and reduces production costs thanks to:

- ▶ **The possibility to work with twin stations**, with piece loading and unloading while the machine is running.
- ▶ **Reduced work time for the operator**
- ▶ **Simplification of the work for the operator**, who only needs to manage the racks at the start and end of the machining batch.
- ▶ **Machining operations that require no supervision and have no time limits (24/7).**



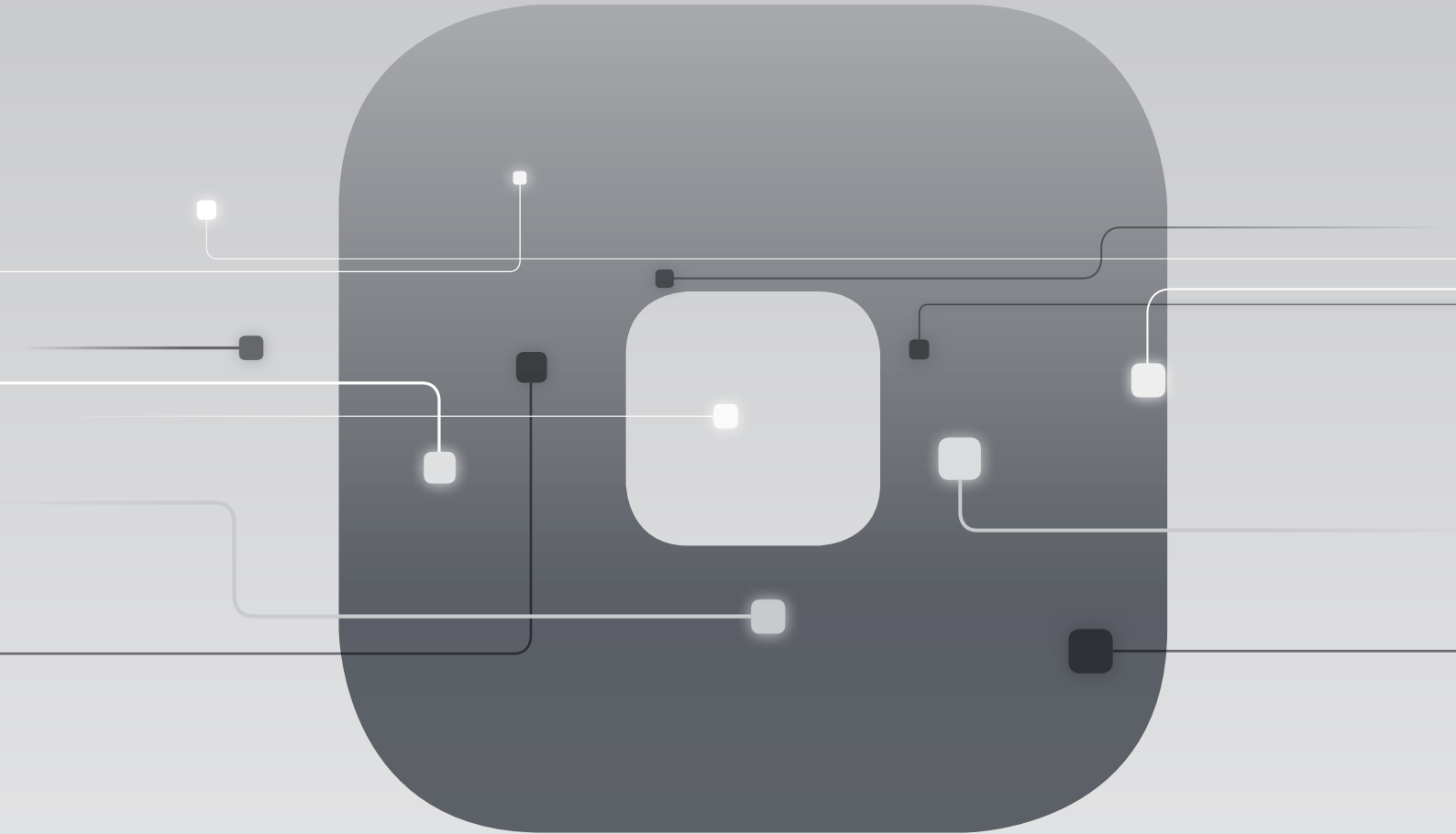
INDUSTRY 4.0 READY

Industry 4.0 is the new industry frontier, based on digital technologies and on machines that speak to companies. The products driving this revolution can communicate and interact independently within production processes, which in turn are connected via intelligent networks.

Biesse'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 processing 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.

SOPHIA

GREATER VALUE FROM MACHINES



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

SERVICES

PROACTIVITY

ANALYSIS

IC: THE TOTAL GLASS EXPERIENCE IN A SINGLE SOFTWARE PACKAGE



IC WAS CREATED FROM THE EXPERIENCE AND RELIABILITY OF ICAM WHICH, WITH OVER 7500 PACKAGES INSTALLED IN 180 COUNTRIES, IS THE MOST WIDELY USED CAD/CAM SOFTWARE IN THE WORLD WHEN IT COMES TO 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**

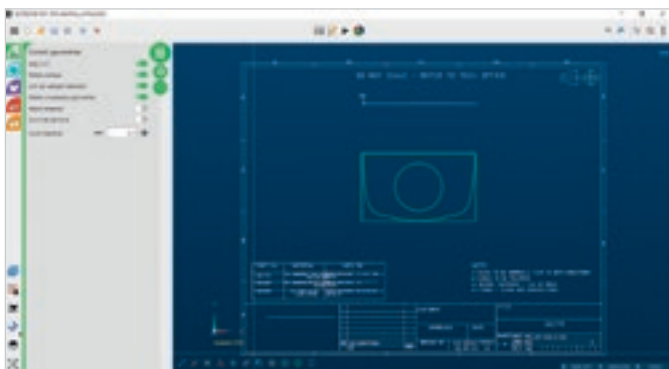
- **MODERN INTERFACE:** similar to the most modern apps, it can be used with a touch screen.
- **EXTREMELY USER-FRIENDLY:** assisted design in 5 steps.
From the drawing to the machine in just a few seconds.
- **TOTAL CONTROL OF THE DESIGN PROCESS, FROM THE DRAWING TO THE FINISHED PIECE.**
- **SOLUTIONS 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, Biesse Service can see the operations that have been carried out, and can quickly intervene.



IC: SEE, DESIGN, CREATE

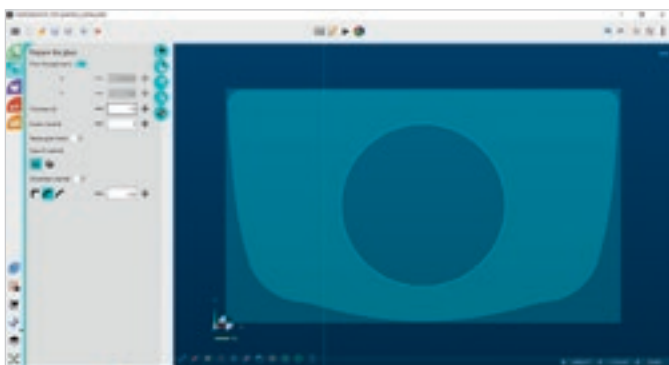
The software suggests the correct sequence of the 5 steps for the design phases.

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



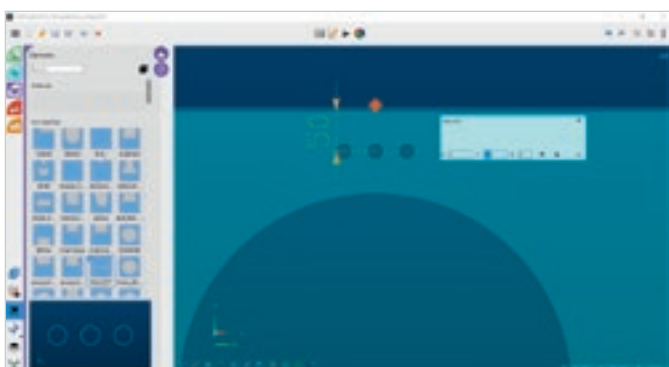
SIMPLIFY

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.



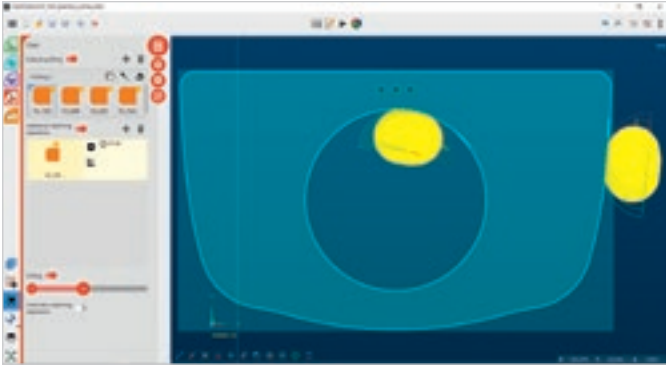
IDENTIFY

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



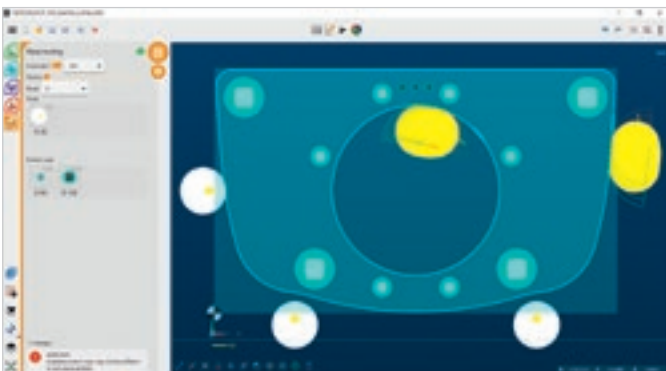
APPLY

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.



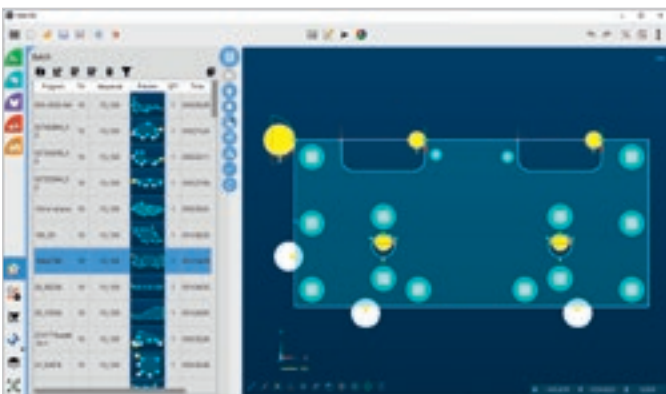
PROCESS

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 BATCH

Option of importing and automatically programming a list of designs (in standard DXF, DWG or IC formats) and sending them directly to the machine. Option of modifying the pieces after the automatic calculation.

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

CUSTOMER CARE IS WHO WE ARE

SERVICES is a new experience for our customers, to offer not just excellent technology but the added value of an increasingly direct connection with the company, the professionals who work there and the experience they embody.



ADVANCED DIAGNOSTICS

Digital channels for remote interaction online 24/7. Always ready to intervene on-site seven days a week.



A WORLDWIDE NETWORK

39 branch offices, over 300 certified agents, retailers in 120 countries, and spare parts warehouses in America, Europe and the Far East.



SPARE PARTS AVAILABLE IMMEDIATELY

Identification, shipping and delivery of spare parts for every need.



EVOLVED TRAINING OPPORTUNITIES

Lots of on-site, online and classroom training modules for personalised growth.



VALUABLE SERVICES

A wide range of services and software packages to help our customers achieve continuous improvements in performance.

AN EXCELLENT LEVEL OF SERVICE

+550

HIGHLY SPECIALISED
TECHNICIANS AROUND
THE WORLD, READY TO HELP
CUSTOMERS WITH EVERY
NEED

90%

OF MACHINE DOWN CASES
WITH RESPONSE TIME
UNDER 1 HOUR

+100

EXPERTS IN DIRECT
CONTACT THROUGH
REMOTE CONNECTIONS
AND TELESERVICE

92%

OF SPARE PARTS ORDERS
FOR MACHINE DOWNTIME
PROCESSED WITHIN 24
HOURS

+50.000

ITEMS IN STOCK IN THE
SPARE PARTS WAREHOUSES

+5.000

PREVENTIVE MAINTENANCE
VISITS

80%

OF SUPPORT REQUESTS
SOLVED ONLINE

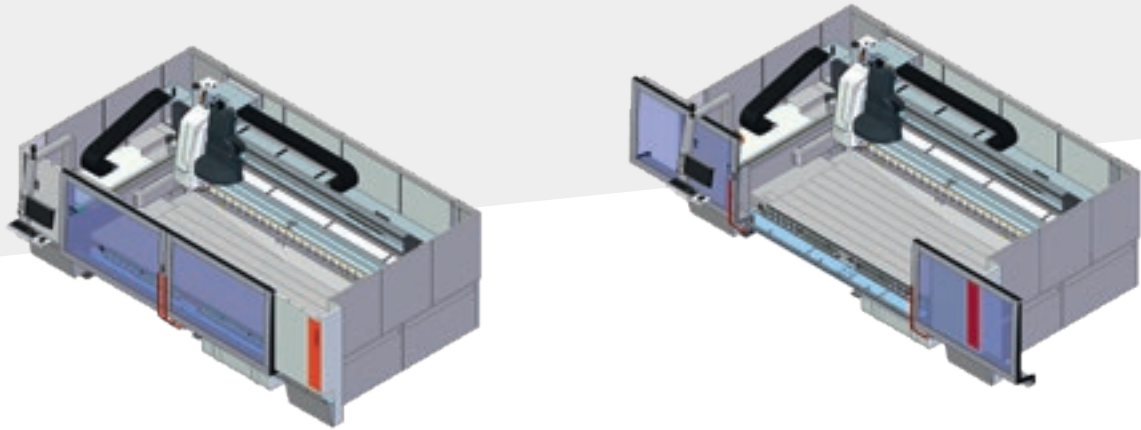
96%

OF SPARE PARTS ORDERS
DELIVERED IN FULL ON TIME

88%

OF CASES SOLVED WITH
THE FIRST ON-SITE VISIT

TECHNICAL SPECIFICATIONS



		Master One	Master One C
Maximum machinable piece size (3-axis grinding with tool of diameter 100 mm)	mm	3300x1500 *	3300x1500 *
Z axis stroke	mm	285	285
Overall machine dimensions	mm	L: 7650 (doors open and vacuum tank) L: 7050 (doors closed and vacuum tank) L: 6200 (doors closed without vacuum tank) W: 4100 H: 2550	L: 7650 (doors open and vacuum tank) L: 7050 (doors closed and vacuum tank) L: 6200 (doors closed without vacuum tank) W: 4100 H: 2550
C axis stroke		-	∞
Max axis speed (X - Y - Z)	m/min	70 - 70 - 19	70 - 70 - 19
Work table height	mm	740	740
Electrospindle power in S1	kW	9,2	9,2
Max electrospindle rotation	rpm	12000	12000
Tool coupling		ISO 40	ISO 40
Maximum tool diameter	mm	150	150
Fixed tool magazine	positions	23	23
Tool magazine on head (optional)	positions	8	6
Working air pressure	bar	7	7
Max air consumption	NI/min	200	200
Internal water consumption	l/min	10.5	10.5
Power required	kW	20	20

* The maximum size that can be machined changes on the basis of the optionals installed on the work table.

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 ZYTRONIC

THE UNMISTAKABLE FINGERPRINT OF THE CNC MASTER

Zytronic, a company that produces tactile technology and touch screen solutions, opts for the sophisticated technology of Intermac machining centres to guarantee the highest level user experience. When using a touch screen or any device to purchase a train ticket, make a withdrawal from an ATM, purchase a soft drink or play at a slot machine, response time is the factor that determines user satisfaction for the interaction with the electronic device. That's why Zytronic develops innovative, patented tactile solutions that have made it the leader in touch screen solutions for the past 15 years. To serve such a wide-ranging market the company needs to develop great flexibility in the production of various screen types, and Intermac has, over

time, proven to be the perfect supplier for technology that guarantees quality, precision and impeccable finishing. Zytronic and Intermac boast a historic relationship based on mutual trust and respect, and the company already owns two Intermac machines: a Master 33 and a superb Compact Edge, which have proven to be the ideal choice for guaranteed quality and reliability over time. Production Director Adrian Leyland explains: "We need to be able to offer unique products for our customers, guaranteeing the highest level user experience with regard to the interaction with touch technology. In addition, the size of touch screens is increasing, with shapes becoming more and more complex; this is precisely why the flexibility that the Master 23 guarantees when

machining glass into the shapes that we want is absolutely fundamental." All of these factors led us to choose Intermac once again. The decision has bolstered Zytronic's market success, which was already strong thanks to years of experience in the glass machining sector. Sales and Marketing Director, Ian Crosby, adds: "We keep receiving more and more requests from our customers for frameless touch screens, and once again the Master 23 helps us find the right solution and outdo the competition. Thanks to Intermac, we are sure to win the challenge of providing the utmost user experience".



Founded in Italy,
international native.

We simplify your
manufacturing
to make the process
of any material



ur
g process
potential
I shine.

We are an international company that manufactures integrated lines and machines to process wood, glass, stone, plastic and composite materials and what will come next.

Thanks to our rooted competence nurtured by an ever-growing worldwide network, we support your business evolution – empowering your imagination.

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