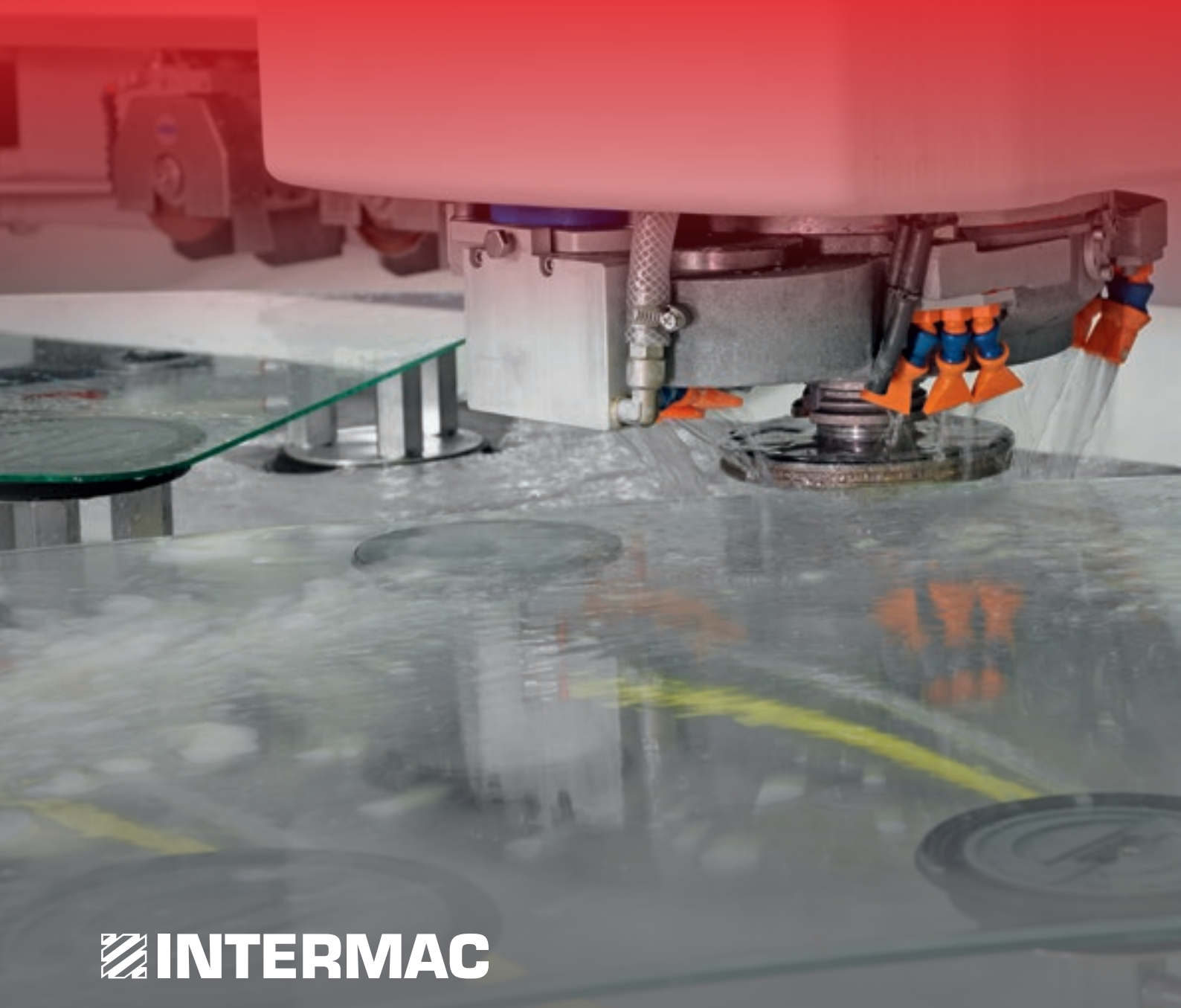


MASTER ONE SERIES

CNC MACHINING CENTRES
FOR GLASS



 **INTERMAC**

SAFE AND COMPETITIVE IN ITS TECHNOLOGY AND PERFORMANCE



THE MARKET REQUIRES

a change in production processes to meet the ever growing request for personalised products that satisfy customers' specific needs, coupled with quick and certain delivery times. All while maintaining high quality standards and product customisation.

INTERMAC RESPONDS

with technological solutions that enhance and support technical expertise as well as a knowledge of processes and materials. 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.



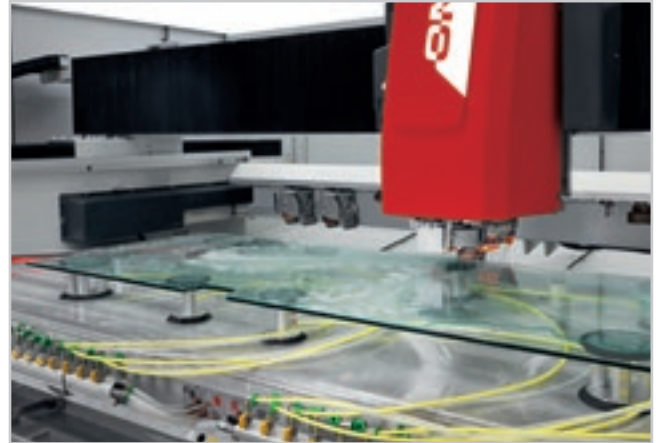
Boring from above.



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.

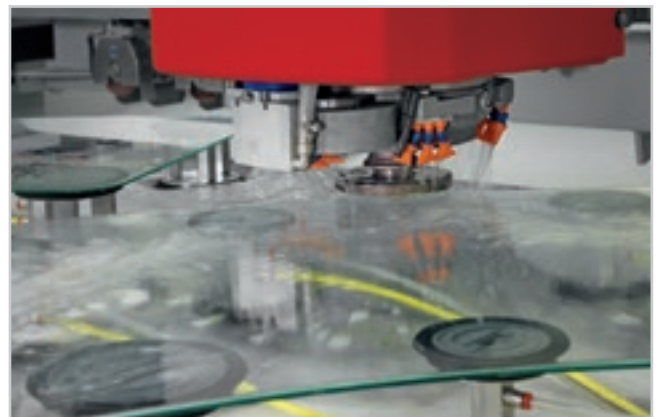


Complete machining of a door: milling and notch grinding, grinding and peripheral polishing.

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



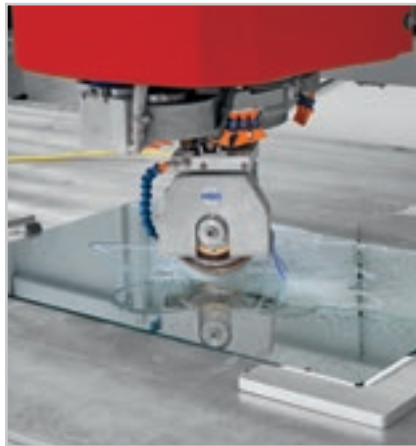
High speed grinding, particularly in demand in the automotive and household appliances sectors.



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.

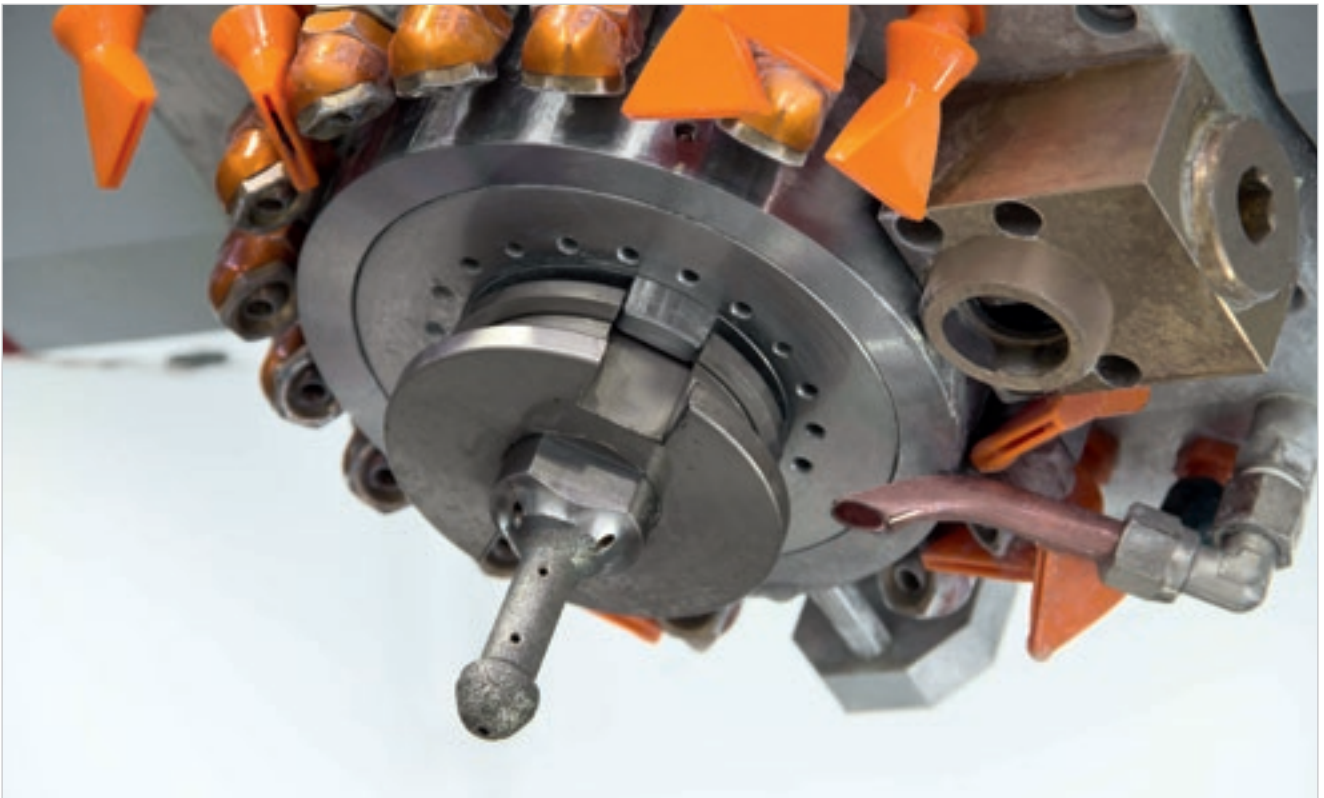


Dynamic lock on large piece from 130 mm.

THE INNOVATIVE DYNAMIC LOCK SYSTEM, PATENTED BY INTERMAC, 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 Intermac 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.



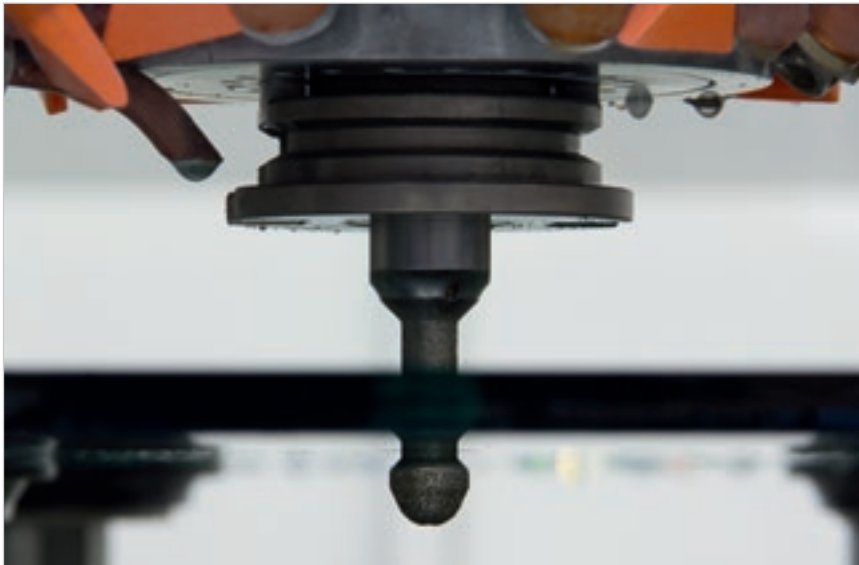
DEVELOPED, PATENTED QUALITY

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

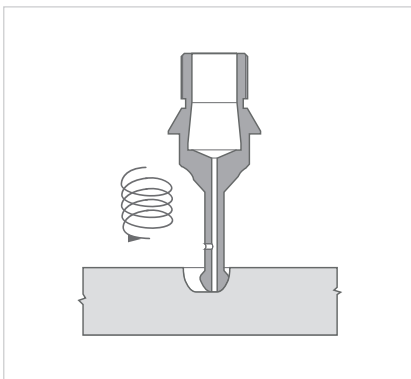
The new standard for boring operations.

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.

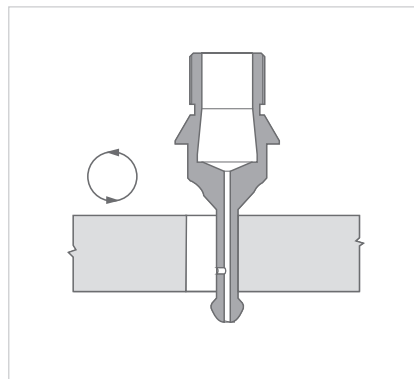
INTEGRATED BORING SYSTEM



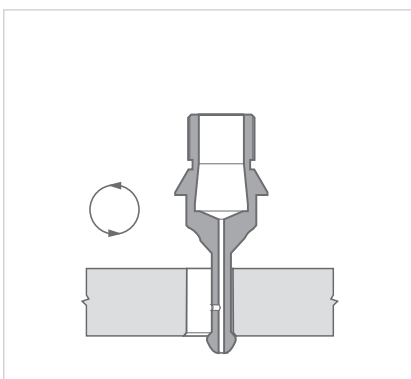
An innovative tool, managed by specific software.



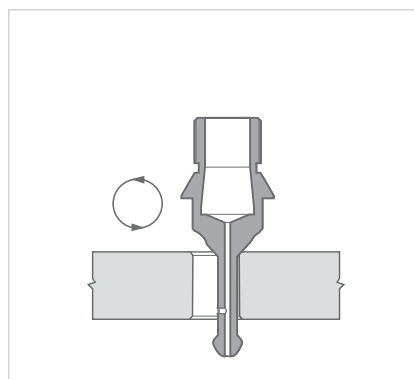
1_Boring with helical movement



2_Lateral grinding



3_Lower countersinking



4_Upper countersinking

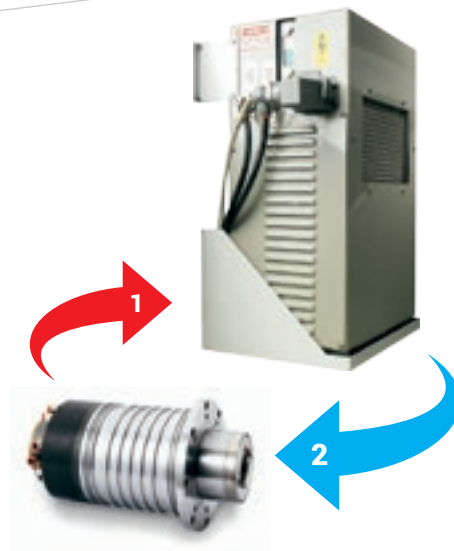
- ▀ Maximum finish quality.
- ▀ Machining tolerances are halved.
- ▀ Holes with different diameters, with just one tool.
- ▀ Can also be used on laminated glass.
- ▀ Integrated upper and lower countersinking.
- ▀ Machining operations on any part of the sheet.
- ▀ Tool cleaning blow after the machining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

RELIABLE TECHNOLOGY



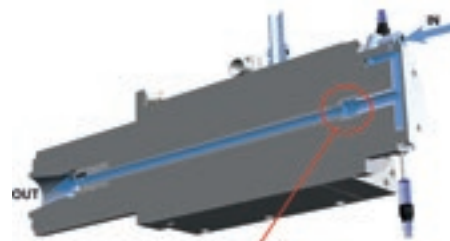
The Master range is fitted with spindles manufactured by HSD (a world leader in its sector and a Biesse Group member) that guarantee elevated power, compact dimensions and extremely high finishing standards.

- **+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.

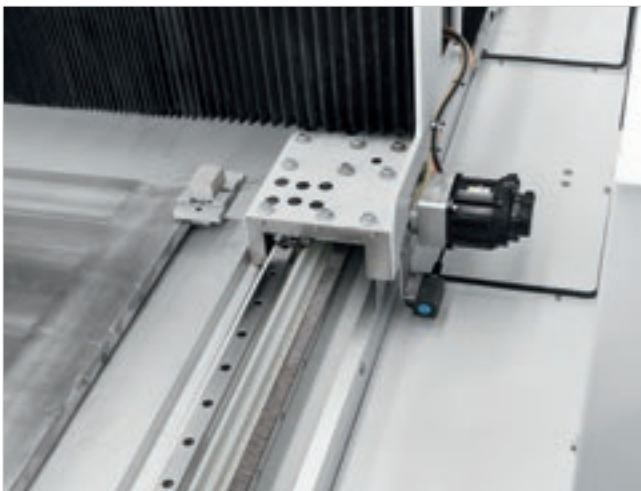


HIGH QUALITY COMPONENTS TO GUARANTEE RELIABILITY WITH NO COMPROMISE



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.



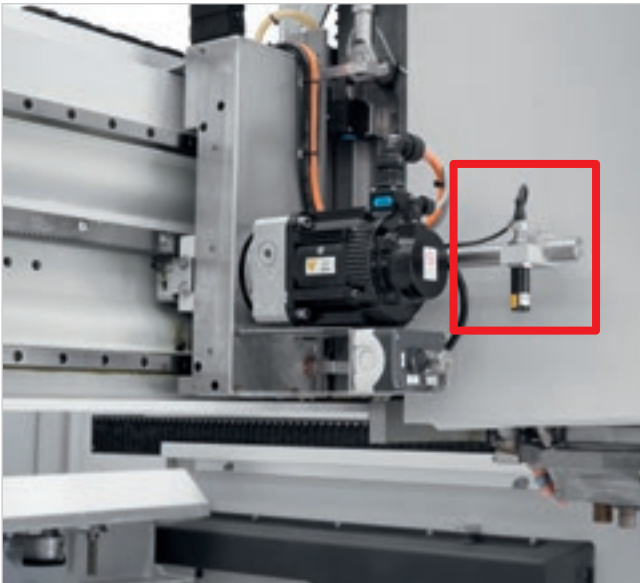
Tool change up to 10 seconds

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

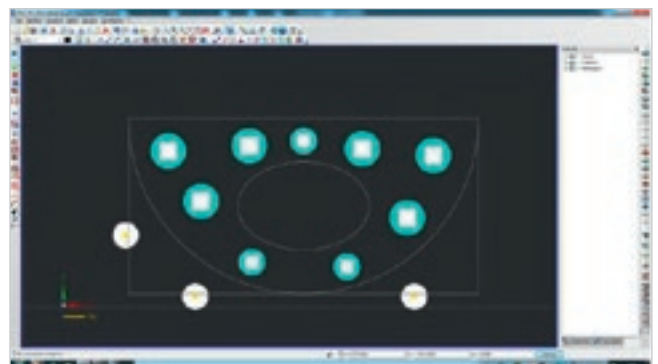
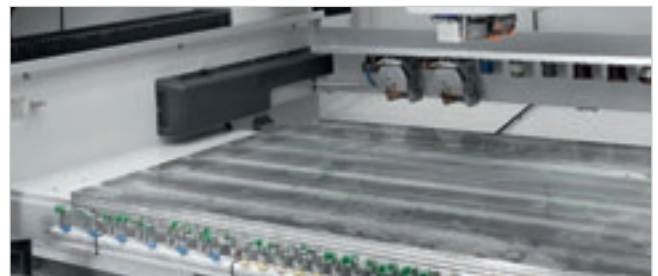
REDUCED TOOLING AND SET-UP TIMES

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

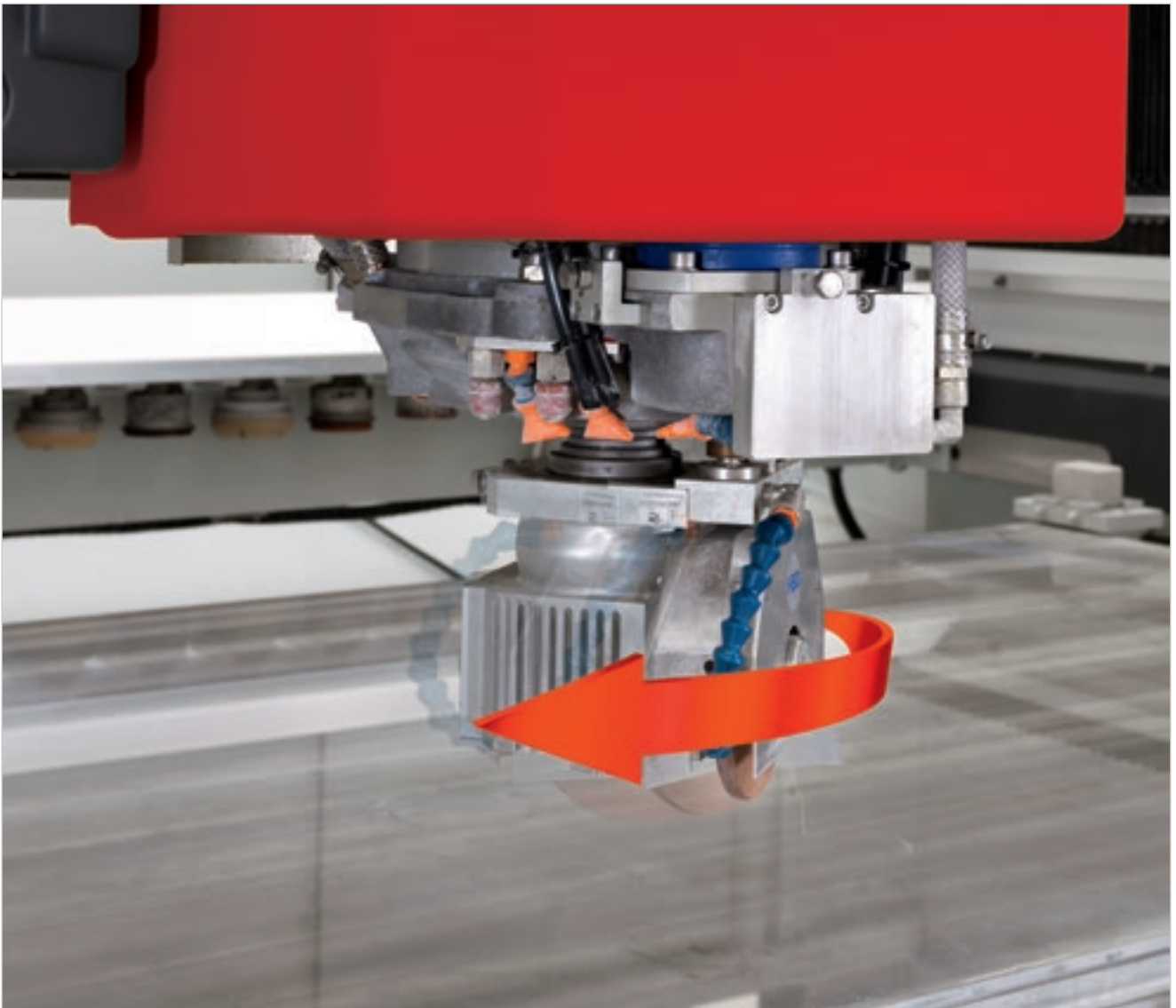
The high technological content of the world's most popular processing centres satisfies the specific needs of the glass industry.

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

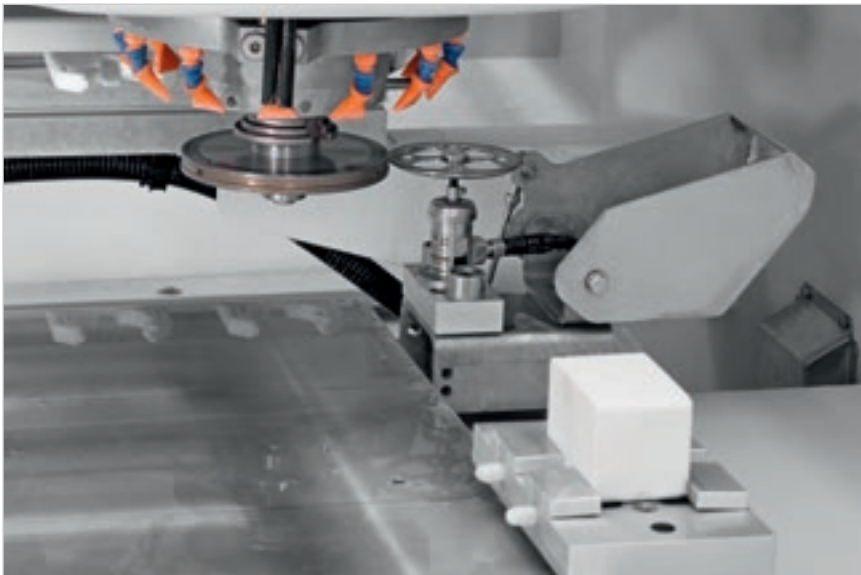
This is a circular wheel with small nozzles that increase the pressure of the external water. The optional device has a 3-position vertical movement to ensure that the water impact point is always the best, regardless of tool radius and height. Ideal for the high speed machining common in the automotive, 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

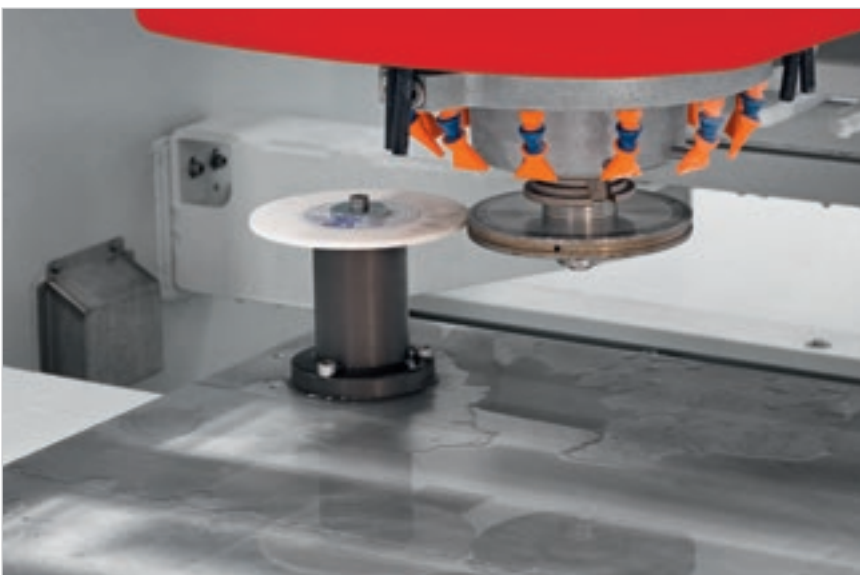
The dressing device is placed near the working area for the immediate dressing of tools, to guarantee the best quality and quickest execution all the time.

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.

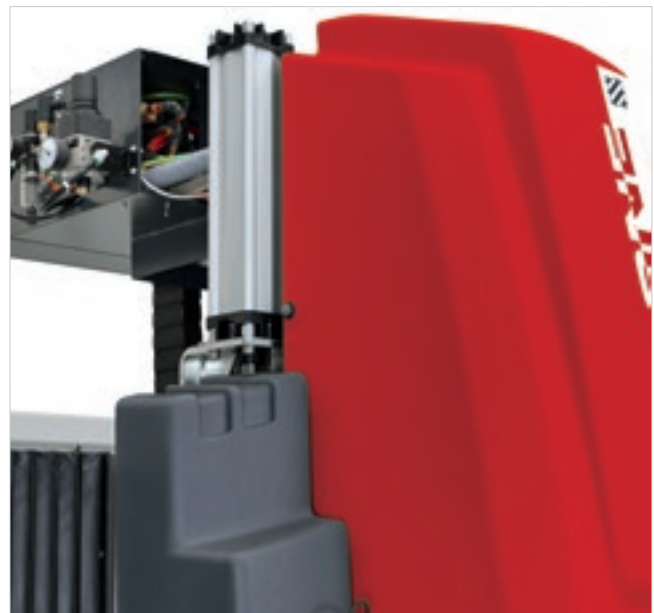
SAFE AND ERGONOMIC

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.

- 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.

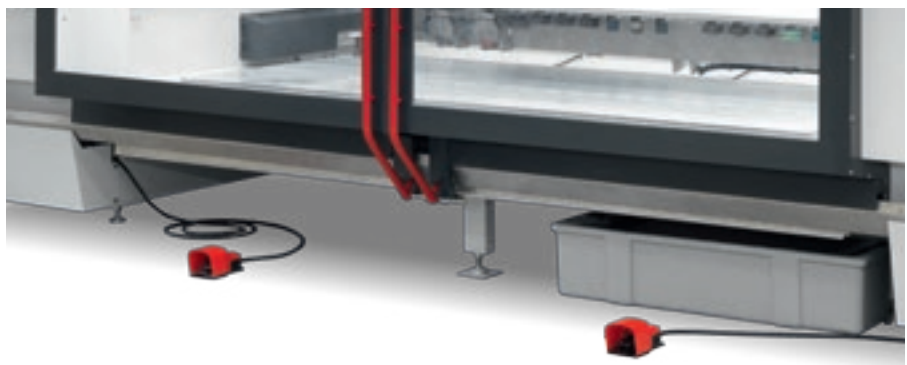


Electric safety lock with an ergonomic built-in button panel to open doors and to start the machining operation, offering ultimate speed and comfort for the operator.



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.

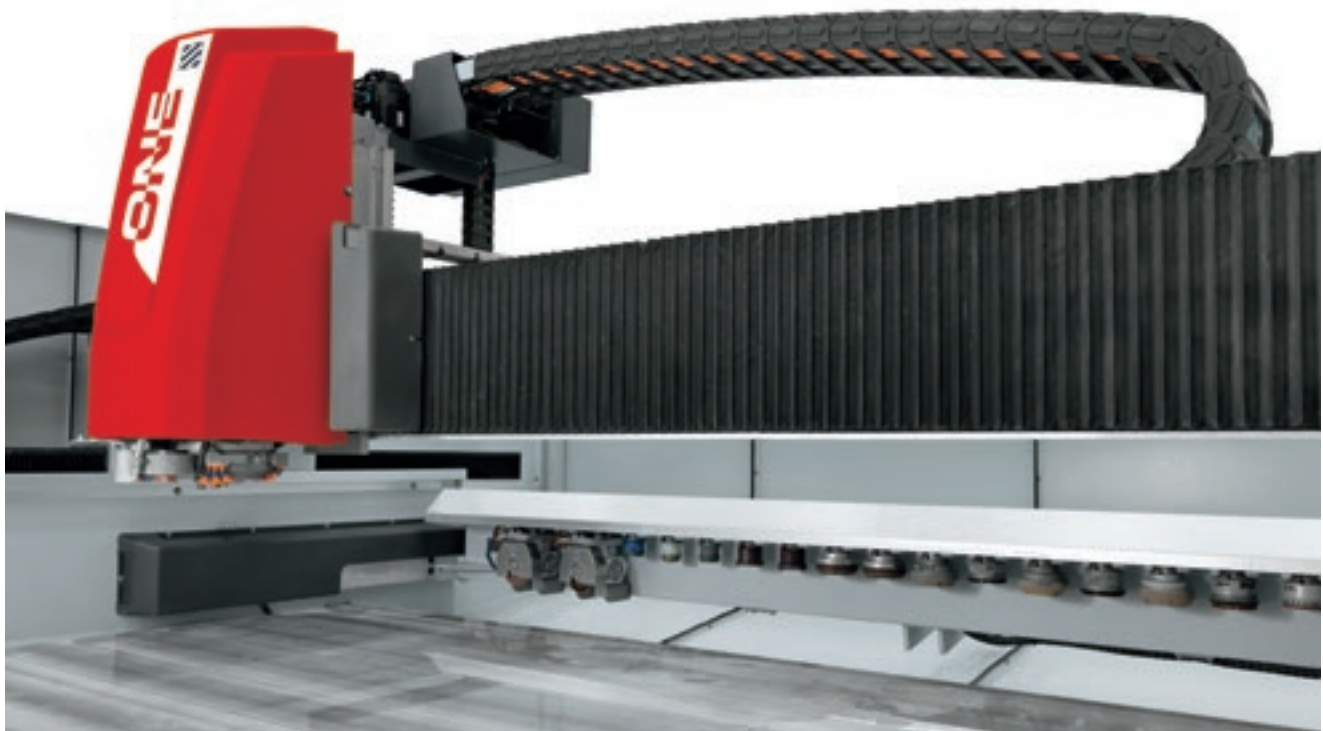
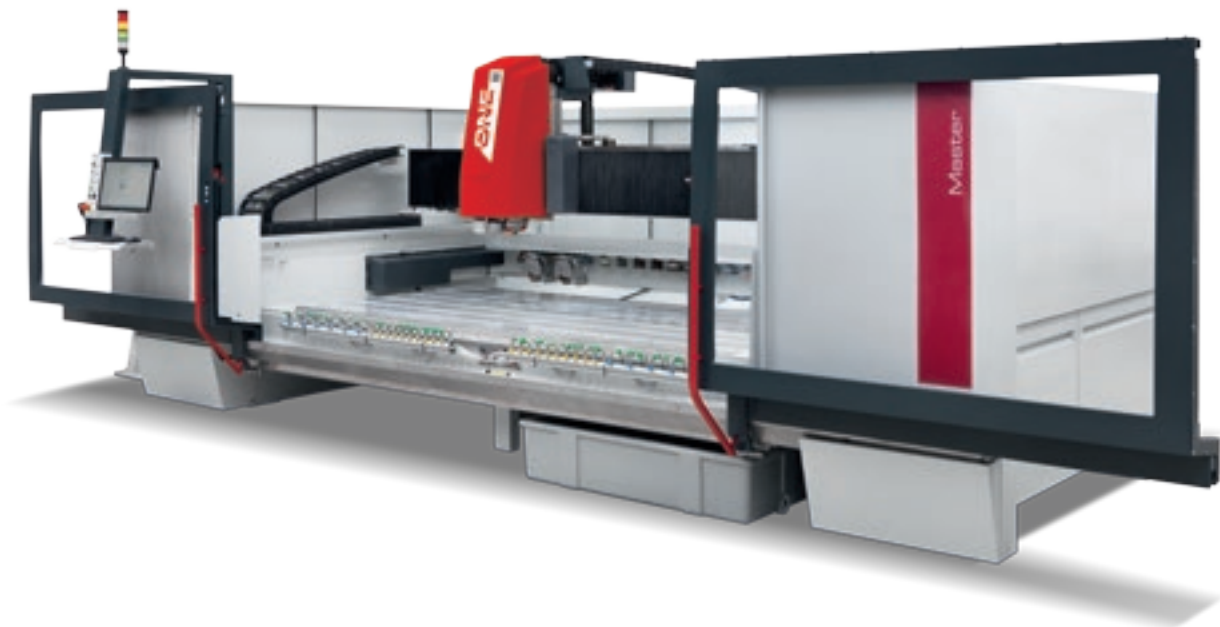
Optional 4-colour safety traffic light provides a visual signal of the machine's status.



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

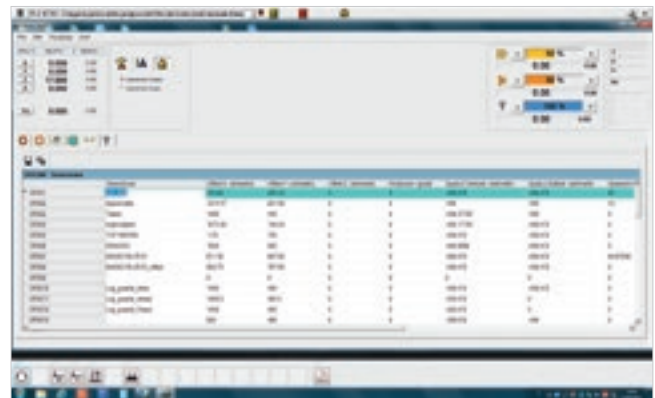
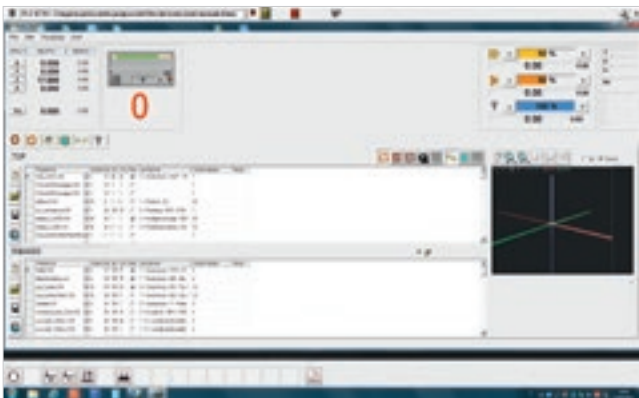
The lowered chain guarantees a more compact machine with a reduced footprint that can be installed even in areas with limited height.

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 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 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.

And that means being 4.0 ready.

THE MOST SIMPLE ANSWER

WITH OVER 6,500 PACKAGES INSTALLED AND USED BY SATISFIED CUSTOMERS IN 180 COUNTRIES THROUGHOUT THE WORLD, ICAM IS A HIGHLY RELIABLE AND ROBUST SOFTWARE THAT COMBINES TOP PERFORMANCE WITH EXTREMELY EASY USE.

- **Ease of use**
A simple, powerful interface for working quickly and easily.
- **Time savings**
Positioning of stops and suction cups within the CAD/CAM environment, minimising tooling times even when the project is subject to modifications.
- **Innovative**
A unified interface for the CAD and CAM environments.
- **Automated**
The parametric library and "Indoor" module allow machining operations to be generated quickly and automatically in accordance with the item being created.
- **Service quality**
The expertise of the Service Worldwide network.

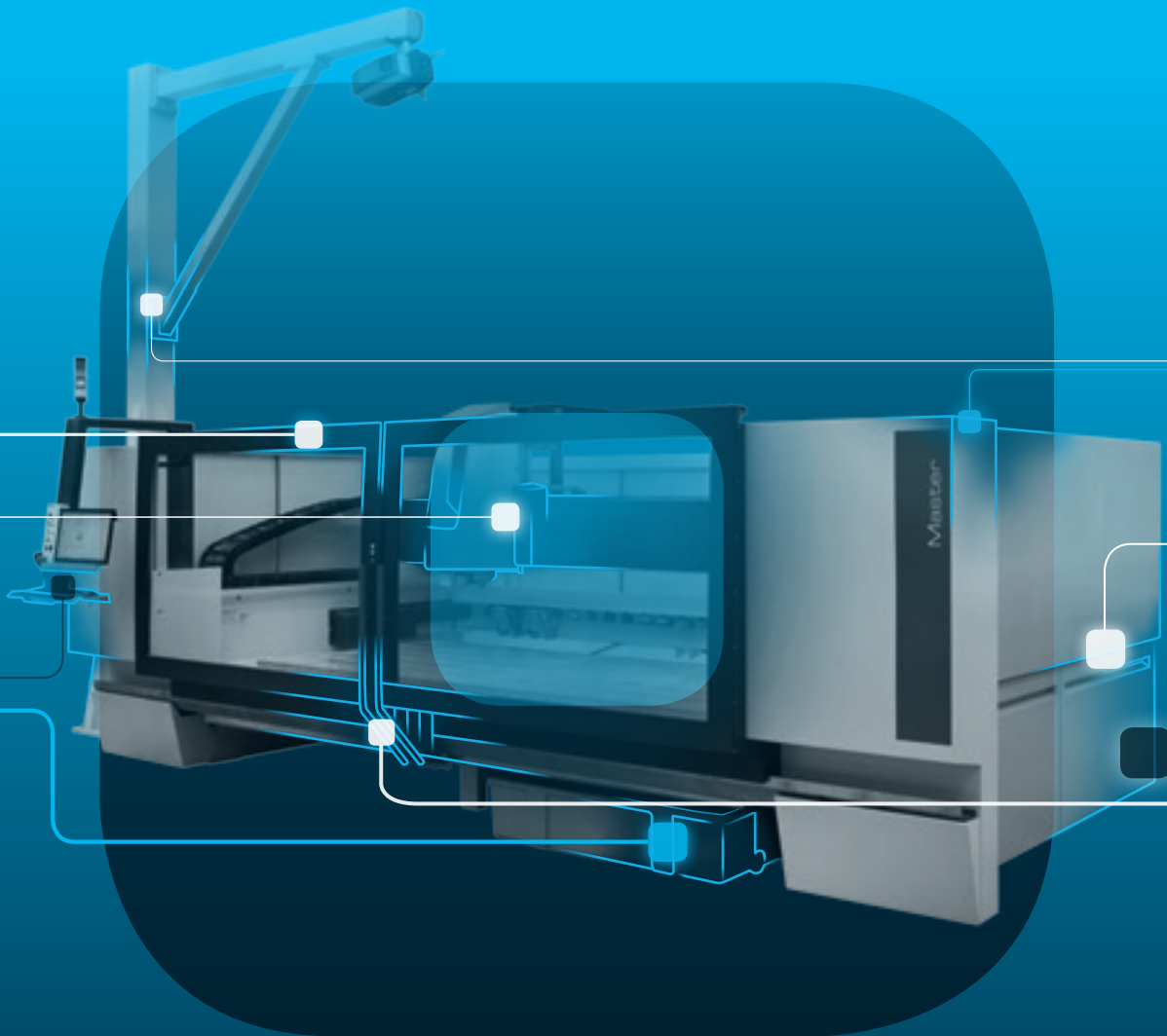
iCAM

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



SOPHIA

GREATER VALUE FROM MACHINES



SOPHIA is the IoT platform created by Intermac in collaboration with Accenture which enables its customers to access a wide range of services to streamline and rationalise their work management processes.

It allows alerts and indicators to be sent to the customer in real time, in relation to production, the machines used and the type of process carried out. These are detailed instructions for more efficient use of the machine.

□ **10% CUT IN COSTS**

□ **50% REDUCTION
IN MACHINE DOWNTIME**

□ **10% INCREASE
IN PRODUCTIVITY**

□ **80% REDUCTION IN PROBLEM
DIAGNOSTICS TIME**

**SOPHIA TAKES THE INTERACTION BETWEEN
CUSTOMER AND SERVICE TO A HIGHER LEVEL.**

iOT
SOPHIA

IoT - SOPHIA provides a comprehensive overview of the specific machine performance features, with remote diagnostics, machine stoppage analysis and fault prevention. The service includes a continuous connection with the control centre, the option of calling for assistance from within the customer app (such calls are managed as priorities), and an inspection visit for diagnostic and performance testing within the warranty period. Through SOPHIA, the customer receives priority technical assistance.

PARTS
SOPHIA

PARTS SOPHIA is the easy new, user-friendly and personalised tool for ordering Intermac spare parts. The portal offers customers, dealers and branches the chance to navigate within a personalised account, consult the constantly updated documentation of the machines purchased, and create a spare parts purchase basket indicating the real time availability in the warehouse and the relative price list. In addition, the progress of the order can be monitored at all times.

 **INTERMAC**

in collaboration with **accenture**

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.

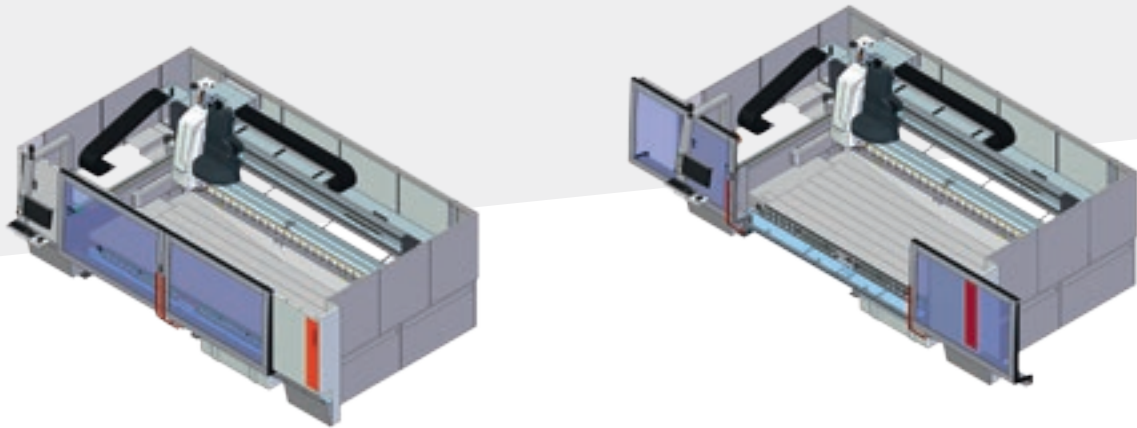
95%
of machine downtime orders dispatched within 24 hours.

95%
of orders dispatched on time.

30
spare parts staff in Italy and worldwide.

150
orders processed every day.

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.

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



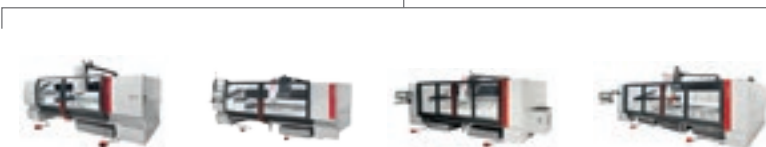
Primus series

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

SPECIAL WORK CENTRES AND AUTOMATIC CELLS



Master 63-65 Master 95 Master 185

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



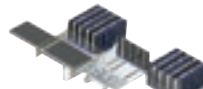
MOVETRO SERIES - Classifiers

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

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".



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