

morbidelli m220

numerical controlled machining centre



THE AFFORDABLE ALL-IN-ONE TECHNOLOGY

UNDERSTAND THE NEEDS TO BE...



... ALL RESPONSIVE



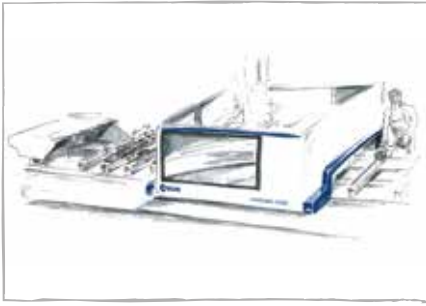
**EVERYTHING YOU
HAVE ALWAYS
DREAMED OF A
CNC MACHINING
CENTRE BUT
WERE TOO AFRAID
TO ASK**

4

MORBIDELLI M220

FREEDOM

6



Optimizing the space in your factory thanks to the PRO-SPACE solution.

Accessible and ergonomic 360° all around, no floor obstructions: all the components are within the base.

Total safety and freedom to load large panels (as wide as 2200 mm) due to the work table being entirely accessible.

QUALITY

12



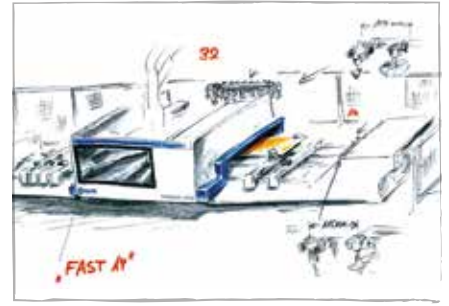
Unrivalled finishing with new direct drive **JQX (Just Quality eXtreme)** 5-axis electrospindle.

Reduced maintenance, thanks to the **RO.AX (Rotoaxial spindle technology)** drilling bits. It is recommended only after more than 1000 hours of work.

70% faster on drilling cycles: 2 heads with independent Y-axis studied for simultaneous machining on an single panel or on 2 different panels.

FASTER

22



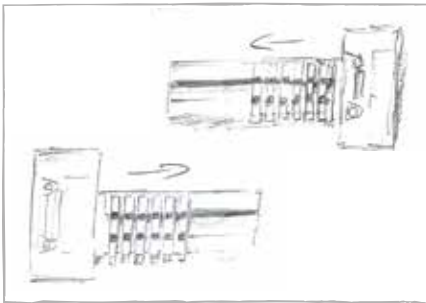
Beyond imagination, up to 60 tools always available on board make the machine the best in its class.

Less than 15'' for the tool change with the 14 position **FAST** tool changer.

ALL

FLEXIBLE

26



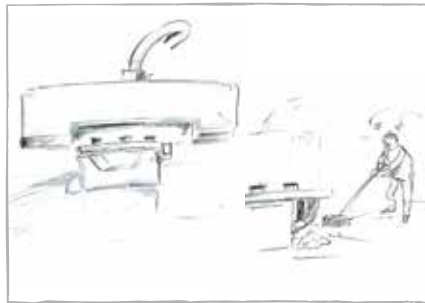
The machine is perfect for all types of materials: from wood to plastic, from panel to furniture and kitchen. **The right solution configured for all your needs** and your investment plan.

Zero idle times for set-up operations and no compromise for the machine performance with the versatility and free configurability of the **TV FLEXDRIVE** and **TV FLEXMATIC** work tables.

No limit for the work piece machining with thickness up to 180 mm on 75 mm vacuum pods.

CLEAN

34



No problem with dust or shavings thanks to the intelligent solution of the dust collection box located in an ergonomic position.

Free space on the floor with the vacuum pump integrated in the machine base.

SOFTWARE

40



CAD/CAM programming software to design all the production process.

46

Technical data

OVERVIEW OF TECHNICAL FEATURES

EXCLUSIVE ADVANTEGES



All at your fingertips thanks to the **TECPAD** 7" colour remote control with touch-screen.



Rapid working cycles with the 14 position **FAST** tool changer.

Free access, having the cable-holder chain enclosed within the machine frame.



Intuitiveness and easiness with the **APPS** included in the **Maestro** software for the production of doors, stairs, furniture and furnishing elements.



Integrated electrical cabinet with air conditioner.



Zero idle times for set-up operations and no compromise for the machine performance with the versatility and free configurability of the **TV FLEXDRIVE** and **TV FLEXMATIC** work tables.

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Wide availability of tools thanks to the **TRC** rear chain tool changer with 32 positions.



- **Unrivalled finishing** with new direct drive **JQX** (Just Quality eXtreme) 5-axis electrospindle.
- **70% faster on drilling cycles:** 2 heads with independent Y-axis studied for simultaneous machining on a single panel or on 2 different panels.
- **Reduced maintenance,** thanks to the **RO.AX** (Rotoaxial spindle technology) drilling bits. It is recommended only after more than 1000 hours of work.



TRB tool changer with 14 positions.



Free space on the floor with the vacuum pump integrated in the machine base.

100% of the working area covered by all the units of the operating group.

No problem with dust or shavings thanks to the intelligent solution of the dust collection box located in an ergonomic position.



Very high flexibility with the multi-function work table made of extruded aluminium, **extremely stiff**, designed to maintain a **perfect planarity over time**, even after repeated mechanical stresses; it is ideal also for nesting machining.

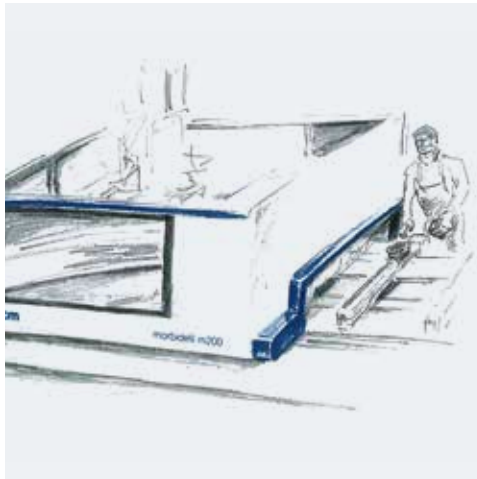


EVERYTHING YOU HAVE ALWAYS DREAMED OF A CNC MACHINING CENTRE BUT WERE TOO AFRAID TO ASK

FREEDOM OF MOVEMENT



ALL FREEDOM

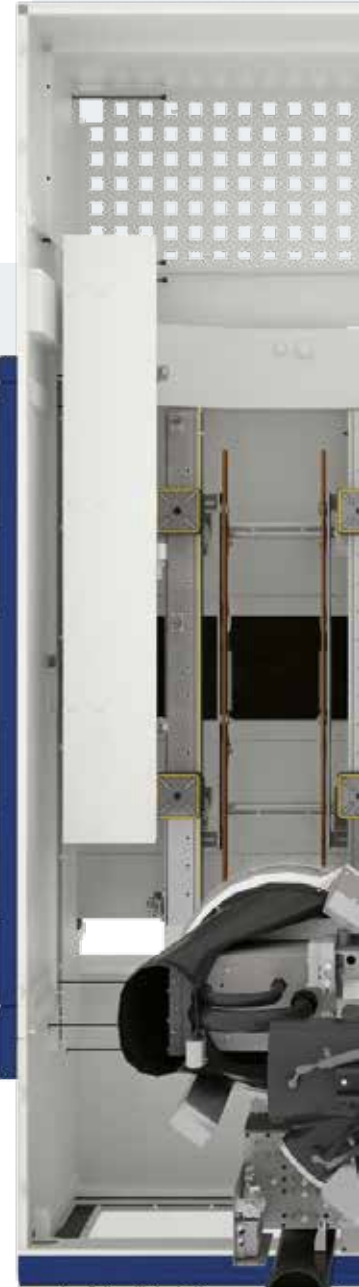


Optimizing the space in your factory thanks to the PRO-SPACE solution.

Accessible and ergonomic 360° all around, no floor obstructions: all the components are within the base.

Total safety and freedom to load large panels (as wide as 2200 mm) due to the work table being entirely accessible.

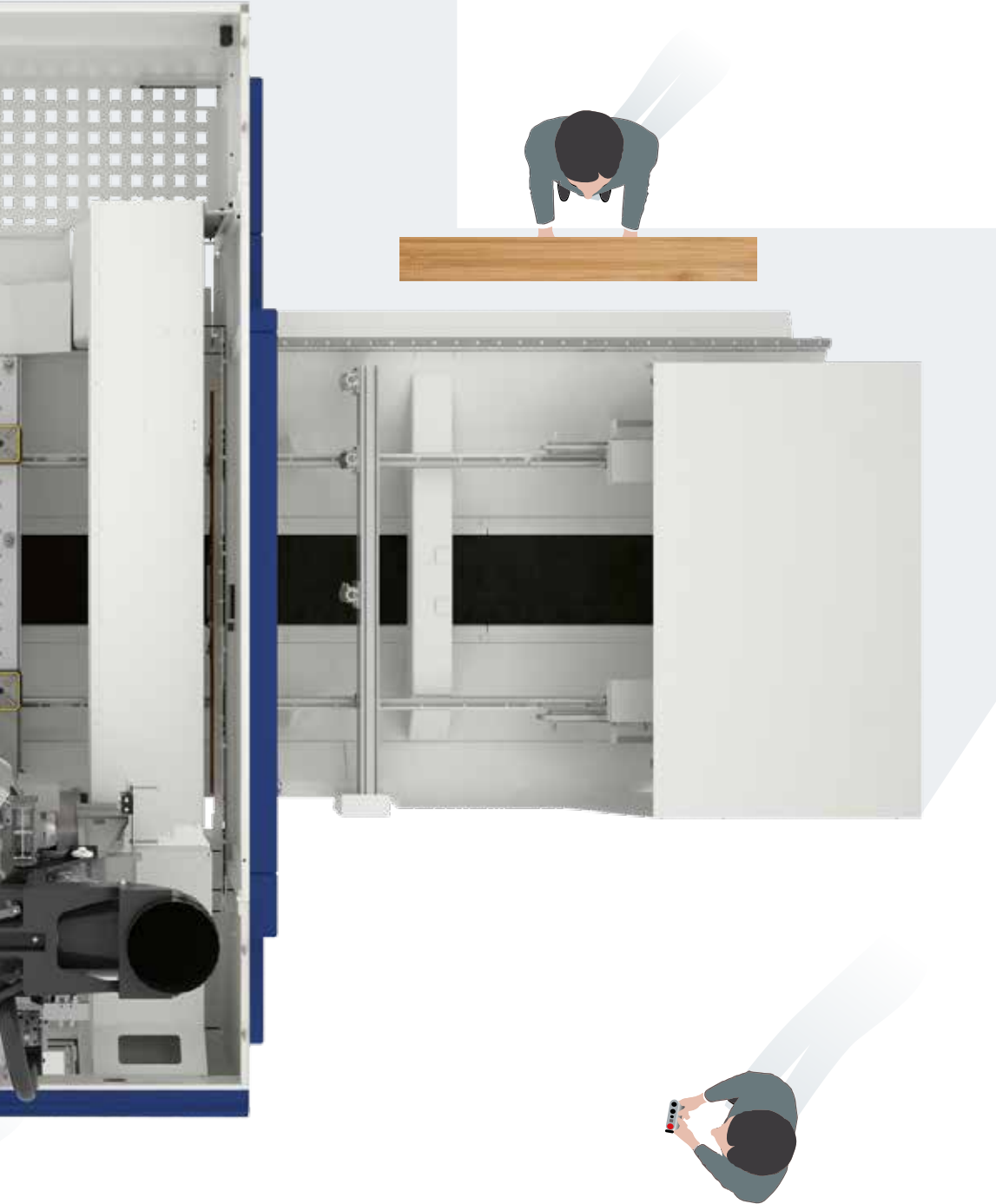
MINIMUM OVERALL DIMENSIONS MAXIMUM SAFETY AND FLEXIBILITY



“PRO-SPACE” PROTECTIONS

Loading zone completely free to reduce the space occupied to the minimum.

The absence of perimeter protections facilitates the work table access on all the sides of the machine.



SAFETY SYSTEMS

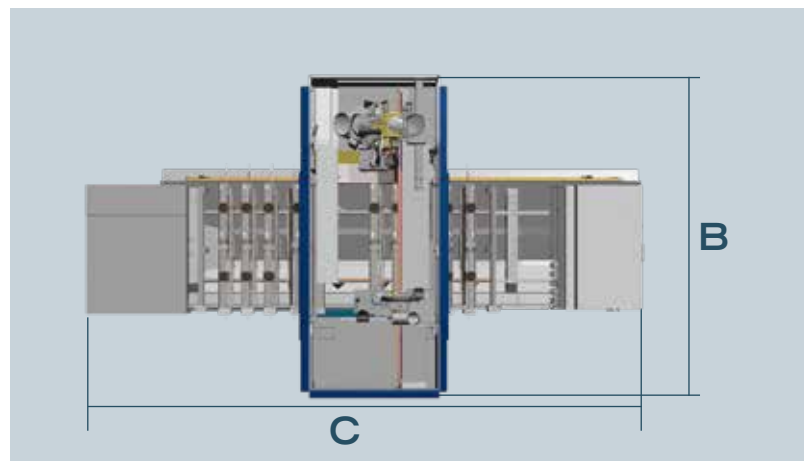
GUARANTEED SAFETY: BUMPERS PROTECTIONS

Fully safe machining with the bumpers safety system with lock the machine in case of accidental contact with the operator.



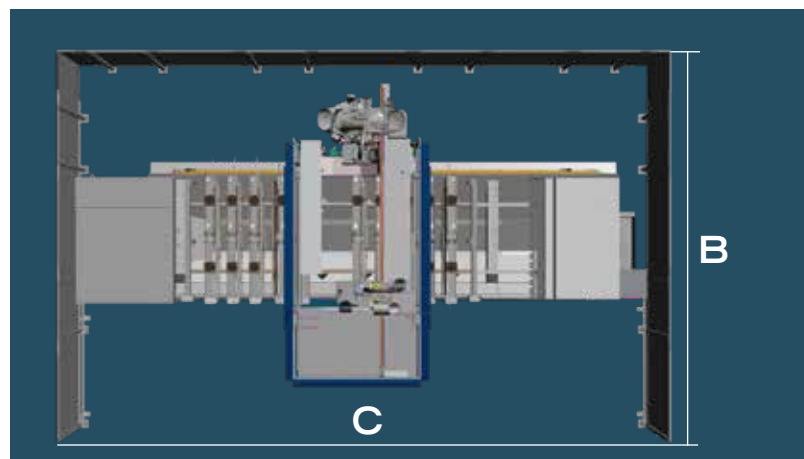
MINIMUM OVERALL DIMENSIONS MAXIMUM SAFETY AND FLEXIBILITY: PRO-SPACE PROTECTIONS

Loading zone completely free to reduce the space occupied to the minimum. The protections allow the machine to be used with a feed speed up to 25 m/min in X direction. The absence of perimeter protections facilitates the work table access on all the sides of the machine.



TOTAL FREEDOM AND HIGH PRODUCTIVITY: PRO-SPEED PROTECTIONS

Protection system for the machine use to the maximum speed of 60 m/min. When the operator enters into the loading area, which is delimited by the front photocell barrier, the machine automatically reduces the speed; when the operator leaves the loading area the system restore the maximum speed.



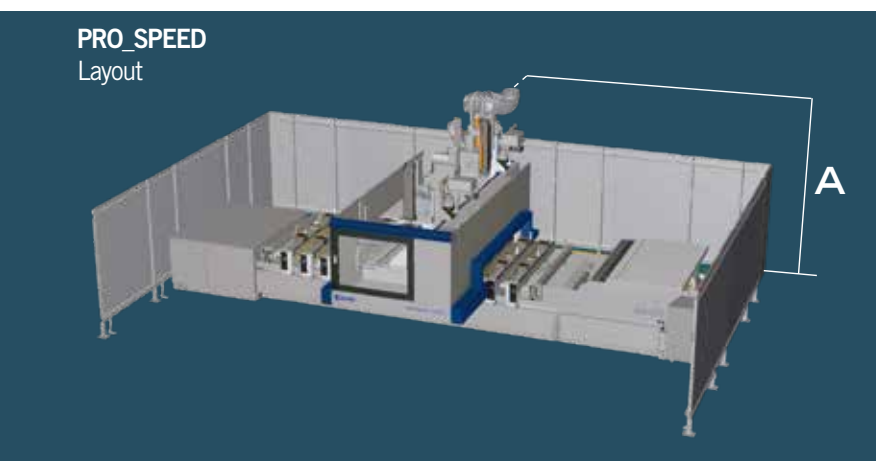
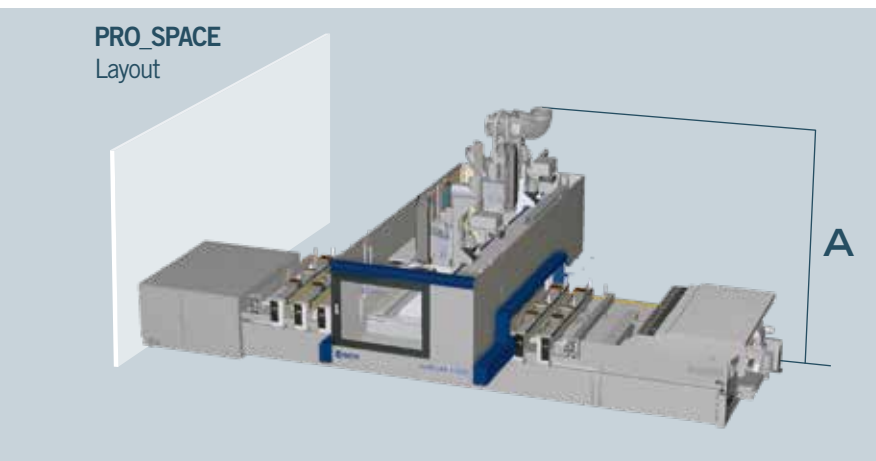
OVERALL DIMENSIONS

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		A	B		C	
			PRO-SPACE	PRO-SPEED	PRO-SPACE	PRO-SPEED
MORBIDELLI M220 WORK TABLE						
Working area 3110 x 1620	mm	2785	3905 (4905*)	5020	6680 (7030*)	7300
Working area 3710 x 1620	mm	2785	3905 (4905*)	5020	7280 (7630*)	7900
Working area 5510 x 1620	mm	2785	3905 (4905*)	5020	9080 (9430*)	9700

* It includes the operating area



5 AXES AT HAND



ALL QUALITY



Unrivalled finishing with new direct drive **JQX** (Just **Q**uality **eX**treme) 5-axis electrospindle.

Reduced maintenance, thanks to the **RO.AX** (Rotoaxial spindle technology) drilling bits. It is recommended only after more than 1000 hours of work.

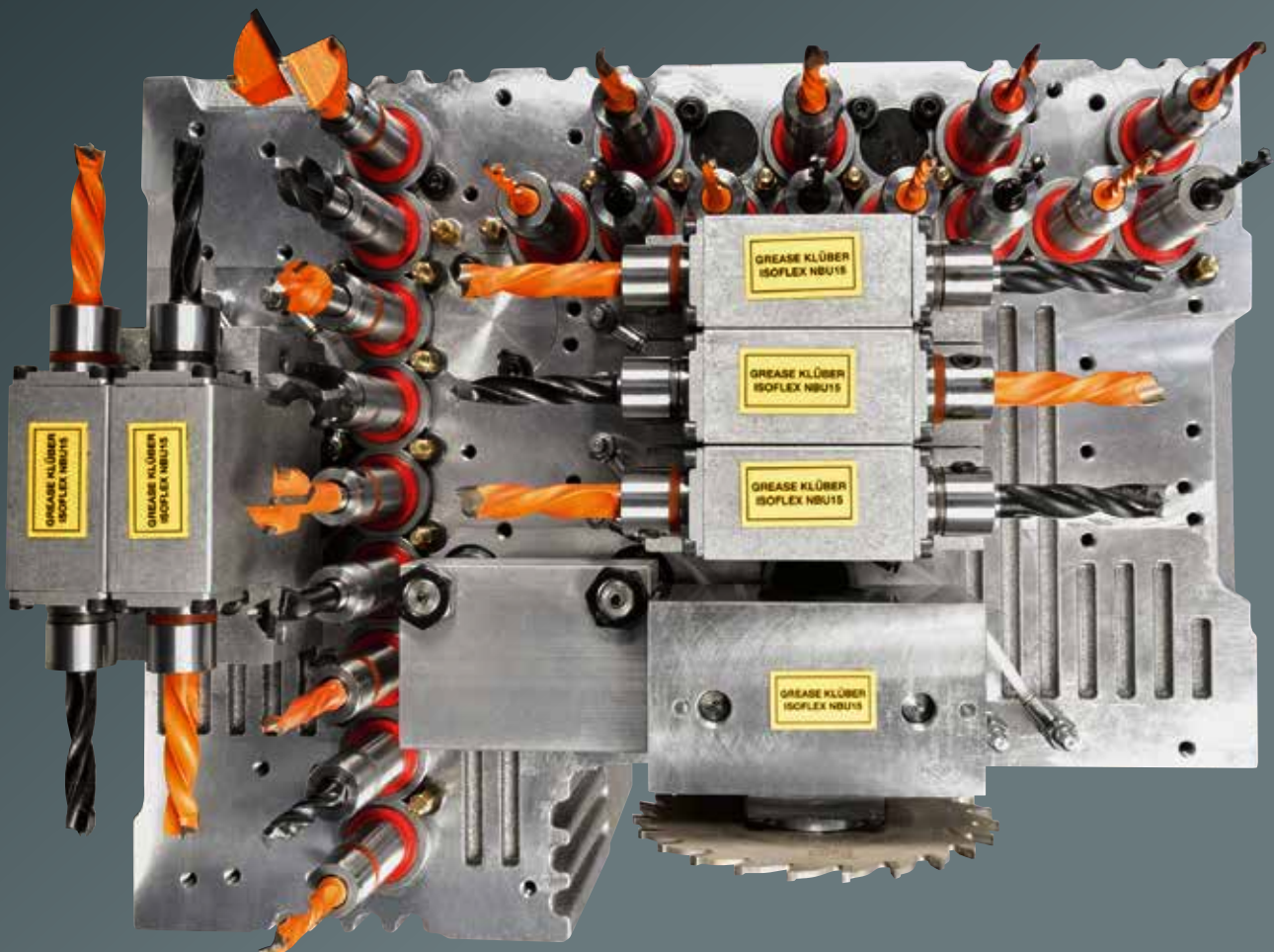
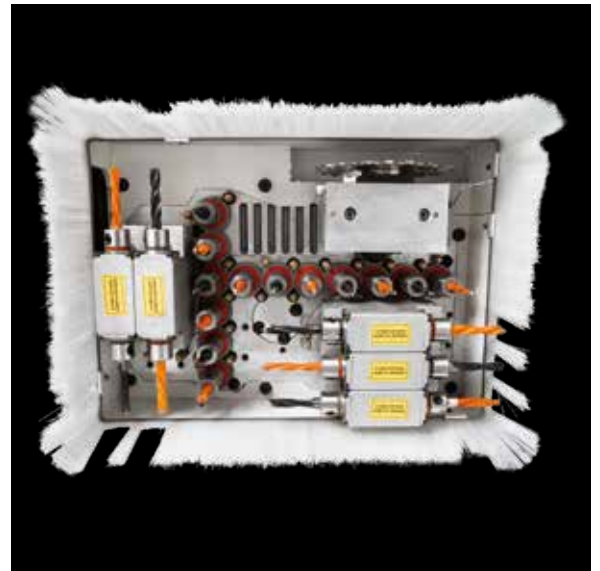
70% faster on drilling cycles: 2 heads with independent Y-axis studied for simultaneous machining on a single panel or on 2 different panels.

MACHINING UNIT: DRILLING UNIT

The higher drilling capacity in its category up to 34 vertical spindles, 22 horizontal spindles and 2 independent blades.

INDESTRUCTIBLE AND WITH LOW MAINTENANCE

The sturdiness of drilling heads is proven by the reduced maintenance costs: it is recommended only after more than 1000 hours of work.





70% FASTER ON DRILLING CYCLES

2 heads with independent Y-axis studied for simultaneous machining on an single panel or on 2 different panels.

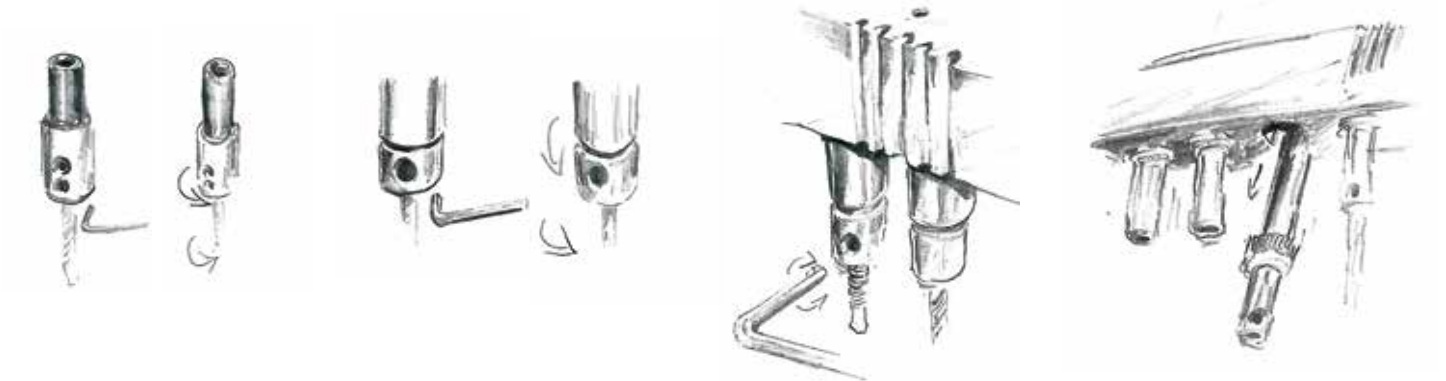


THE PERFECT DRILLING



RO.AX SPINDLE

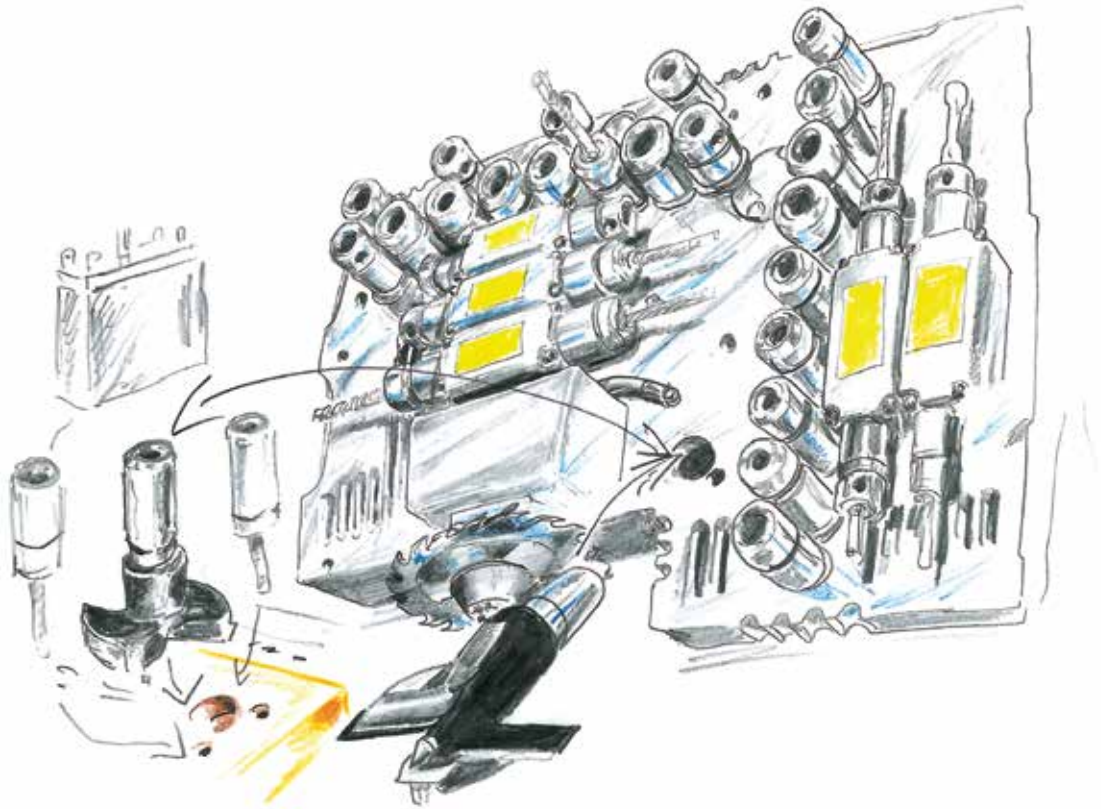
Zero play during machining with the new RO.AX technology (Rotoaxial spindle technology), the most efficient spindle on the market with rotation speeds up to 8000 rpm.



High performance drilling units thanks to the spindles with innovative design. The new drilling spindle offers optimal solutions to achieve the highest quality of finishing and the maximum speed of the whole execution:

- **more than 50% increase in rigidity:**
rod spindle diameter from 20 mm
- **reduction of vibrations and guaranteed drilling quality on all materials:**
rod spindle guide system with special roll bearings
- **lower operation noise and more rigidity:**
absence of radial friction between spindle and rotating bearings
- **reduced maintenance costs:** new system to disassemble the spindle
- **more reliability:** less components employed





**HINGE DRILLING:
ONE STEP WORTH THREE!**

Possibility to carry out 3 simultaneous drillings with a single head integrated in the main drilling unit.



UNIVERSAL, HIGH SPEED ROTATION

TO PRODUCE OBJECTS
WITH ANY KIND ON
SHAPE ON ANY KIND
OF MATERIAL

JQX ELECTROSPINDLE

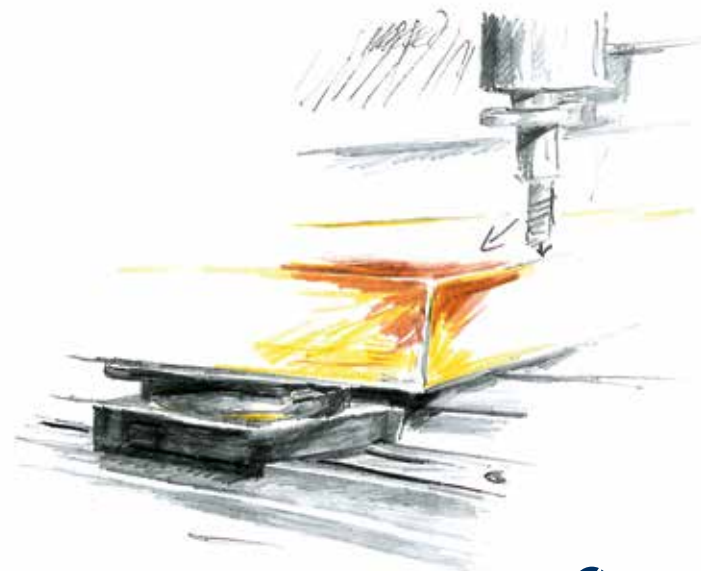
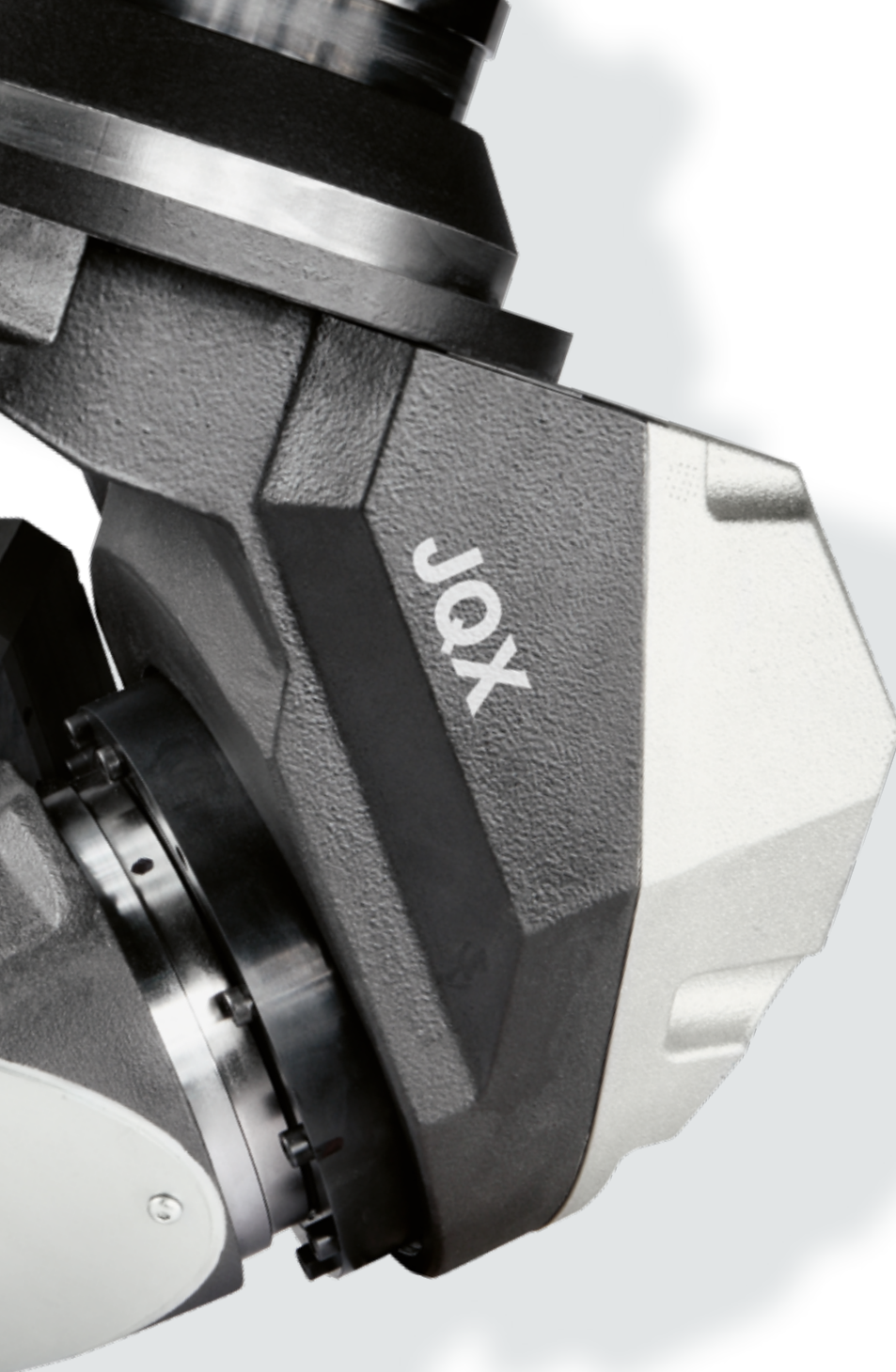
Very high finishing quality with the **JQX** (Just Quality eXtreme) 5-axis electrospindle, with direct drive and up to 12 kW power, which ensures total absence of vibrations even with large material removals at high speeds.

The lightweight structure and the excellent price/quality ratio make this electrospindle ideal for those looking for a flexible and practical product but with high level performance.



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...AND EVEN MORE



Optimal machining precision with the 3-axis electrospindle up to 24.000 rpm.

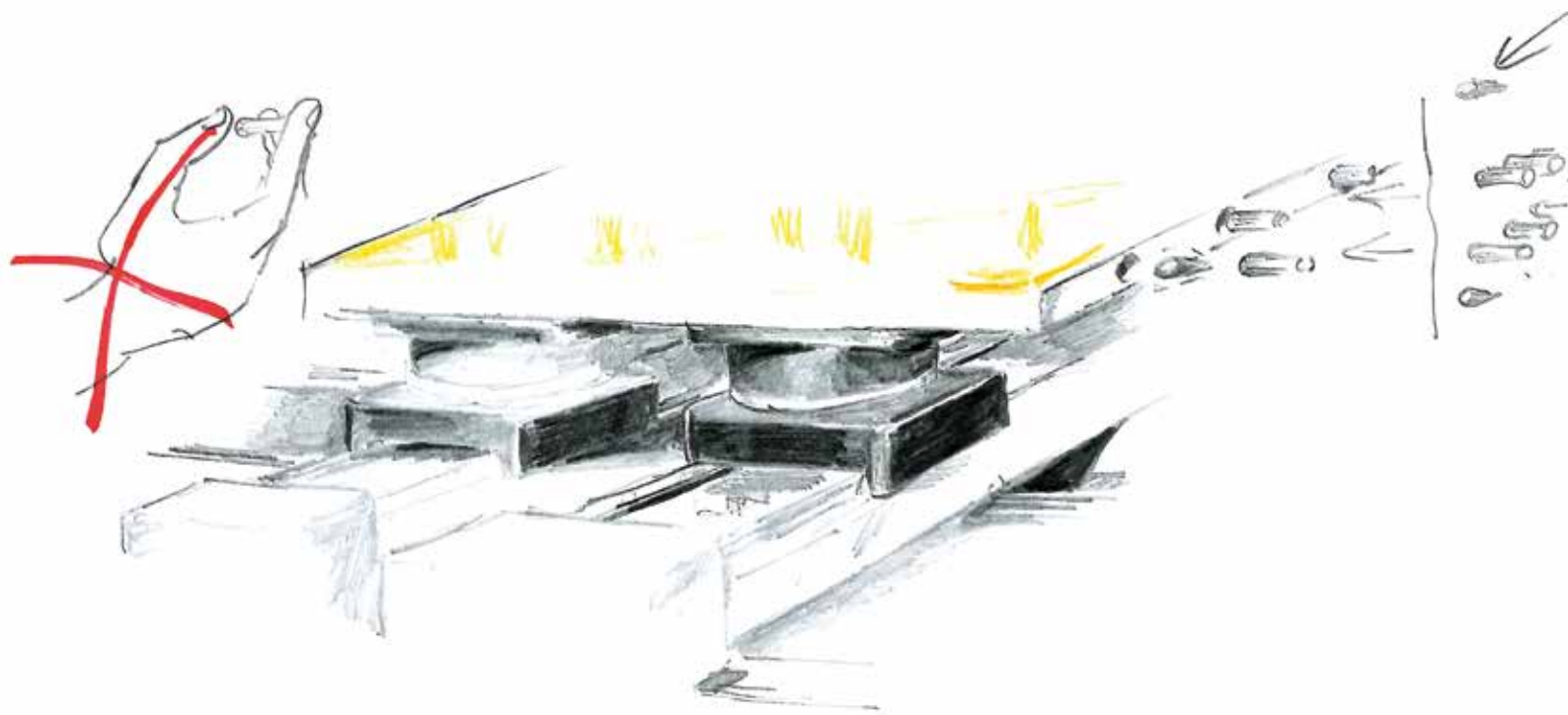
Easy grooves machining on the sides of the furniture thanks to the integrated blade unit.

Higher efficiency and working time reduction with the 4,5 kW additional routing unit.



DRILLING AND DOWELLING IN A SINGLE OPERATION: HI.LOCK DEVICE

Work pieces finished and ready for the assembling with the HI.LOCK (High locking system) dowel insertion unit, the device that can manage the insertion of dowels on a machining centre.



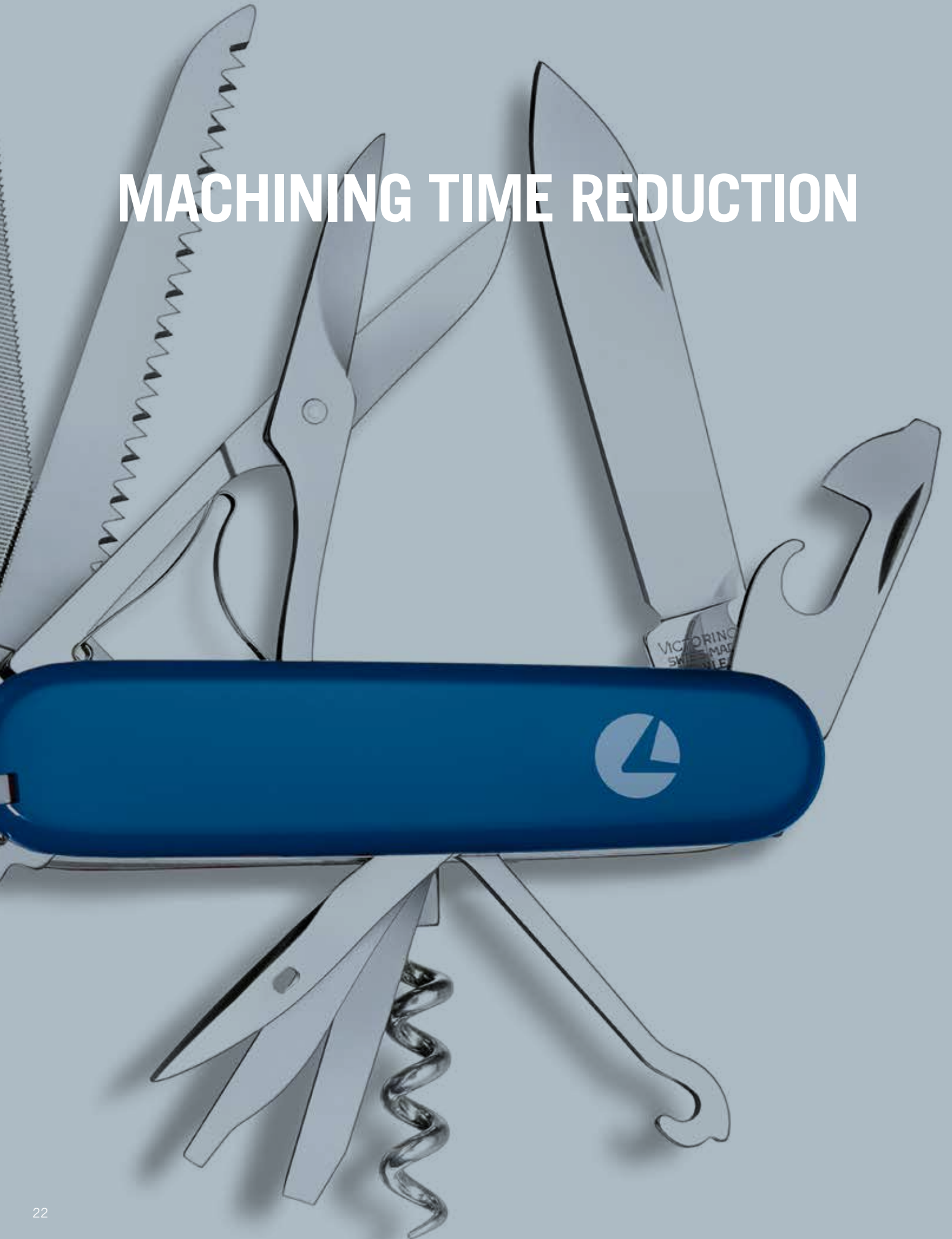
Optimization of productivity with no more time wasting for cleaning operations, thanks to the use of glue capsules, contrary to traditional dowelling devices where it is necessary to remove the remaining drying glue from the various components after a temporary production-stop.

Glue capsule

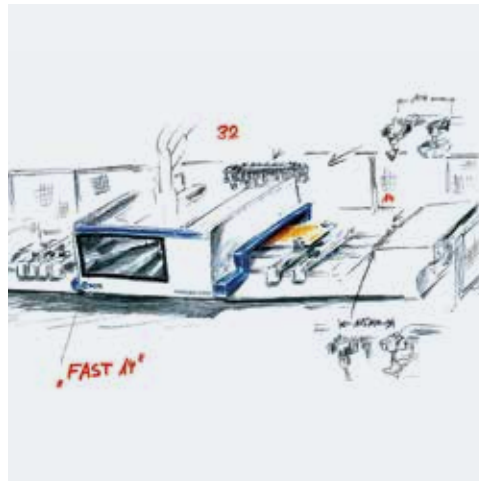


EVERYTHING YOU HAVE ALWAYS DREAMED OF A CNC MACHINING CENTRE BUT WERE TOO AFRAID TO ASK

MACHINING TIME REDUCTION



ALL FASTER



Beyond imagination, up to 60 tools always available on board make the machine the best in its class.

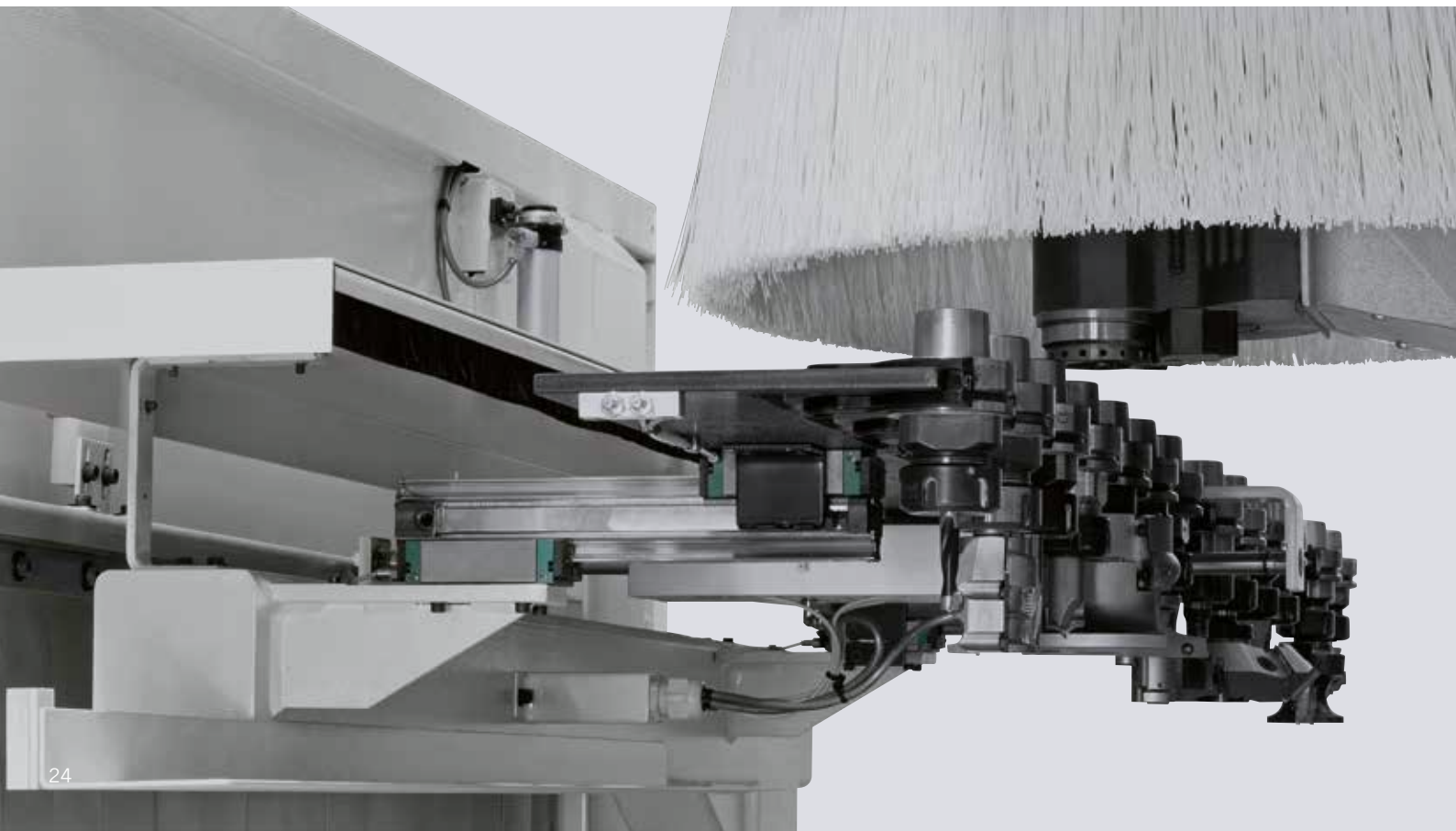
Less than 15" for the tool change with the 14 position **FAST** tool changer.



ALL AT YOUR SPINDLE FINGERTIPS!

UP TO 60 TOOLS ALWAYS AVAILABLE ON BOARD
MAKE THE MACHINE THE BEST IN ITS CLASS

NO IDLE TIME for the tool change from a machining process to another one with the 14 position **FAST** tool changer.

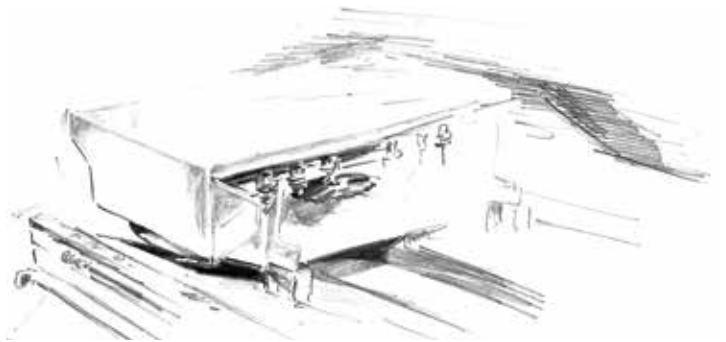


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Wide range of tools available to the operator with the rear tool changers up to 32 positions.



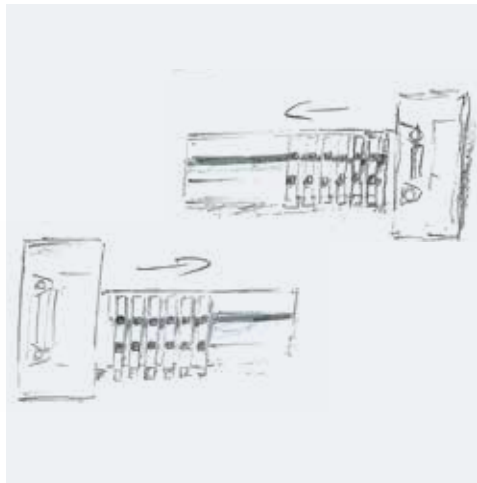
TRB side tool changer with 11 or 14 positions.



EVERYTHING YOU HAVE ALWAYS DREAMED OF A CNC MACHINING CENTRE BUT WERE TOO AFRAID TO ASK

INIFINITE WAYS OF BEING

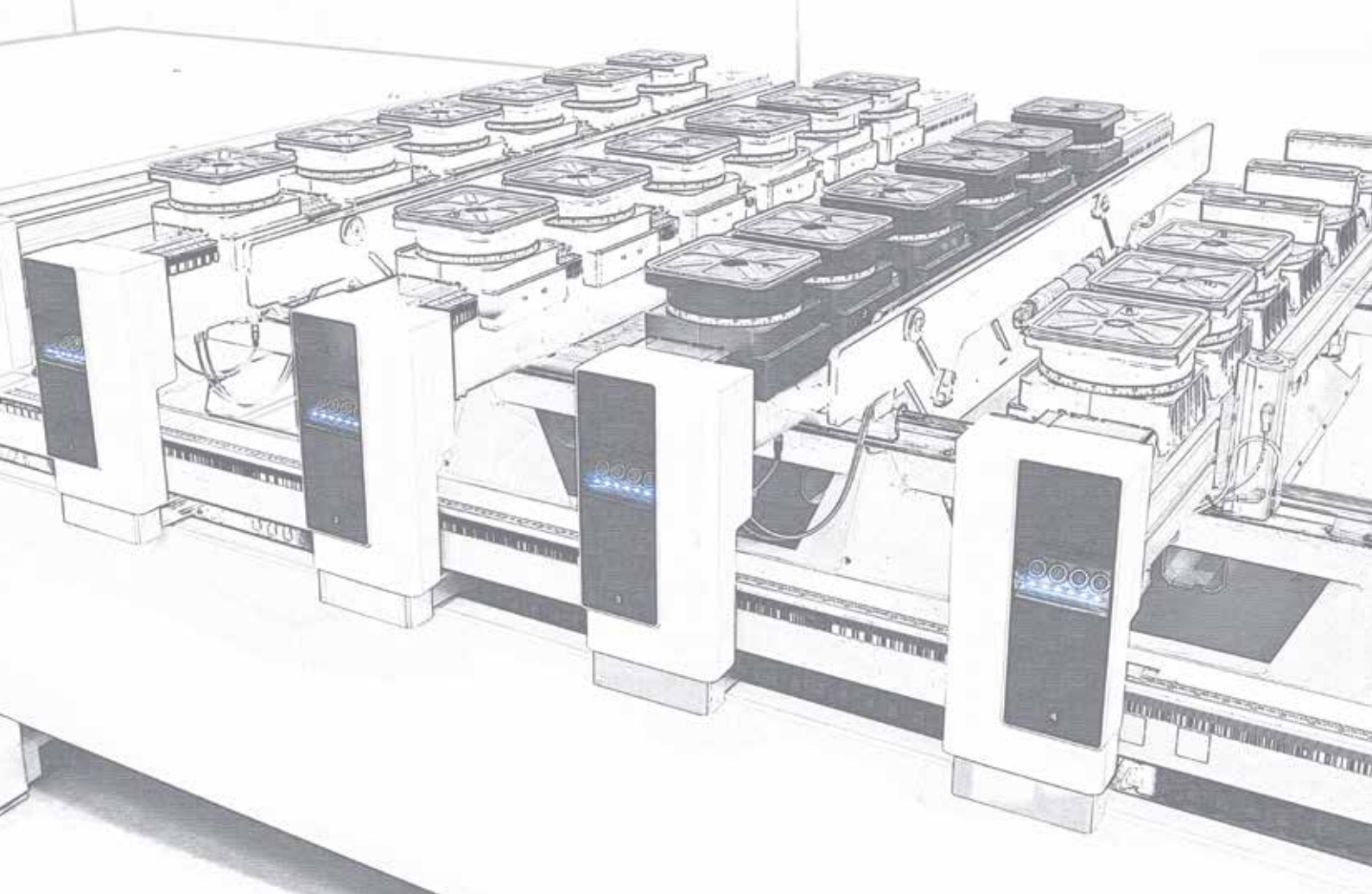
ALL FLEXIBLE



The machine is perfect for all types of materials: from wood to plastic, from panel to furniture and kitchen. **The right solution configured for all your needs** and your investment plan.

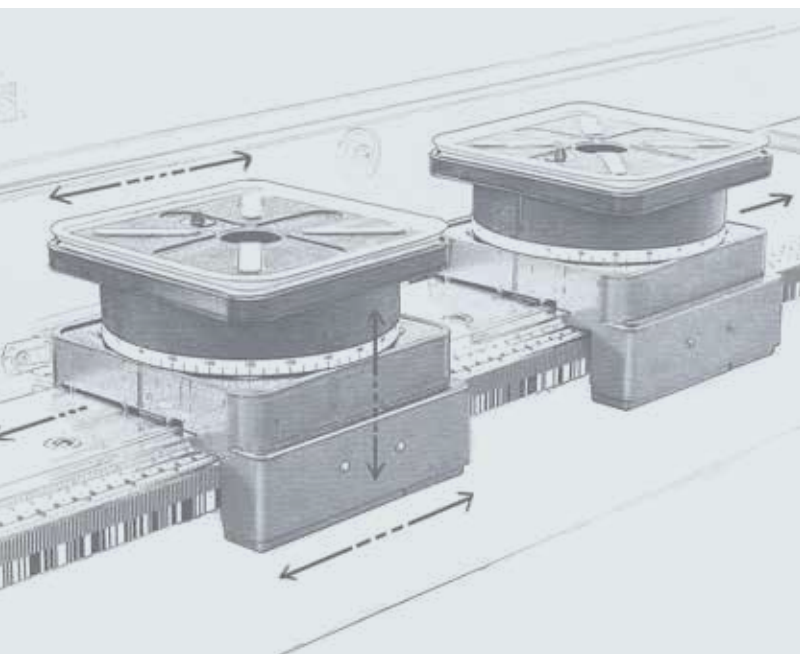
Zero idle times for set-up operations and no compromise for the machine performance with the versatility and free configurability of the **TV FLEXDRIVE** and **TV FLEXMATIC** work tables.

No limit for the work piece machining with thickness up to 180 mm on 75 mm vacuum pods.



RELIABLE, FAST AND USER FRIENDLY: **FLEXDRIVE WORKTABLE**

Thanks to an innovative positioning technology, **FLEXDRIVE** allows to manually set up a work table through LED light indicators positioned both on bars and locking systems.



- **Reliable.** No mistakes in the locking systems positioning thanks to the automatic verification: if the set-up is not correct, the program won't start.
- **Fast.** Minimized set-up times thanks to the lights that guide the operator by indicating the exact position of the bars and locking systems (pods and clamping devices).
- **User friendly.** There is no need for an expert operator: LEDs make the machine intuitive and easy to set.

REMOVE



- Bar with central red LED: one or more locking systems must be removed.
- Locking systems with fixed red LEDs: locking systems to be removed.



ADD



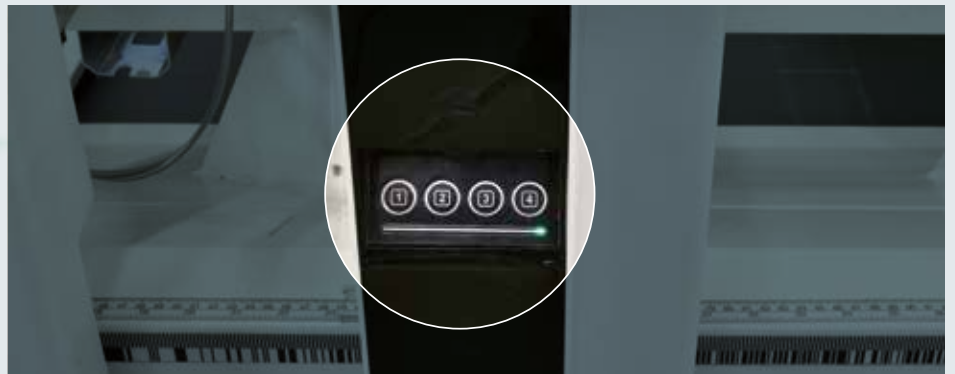
- Bar with central blue LED: one or more locking systems must be added.



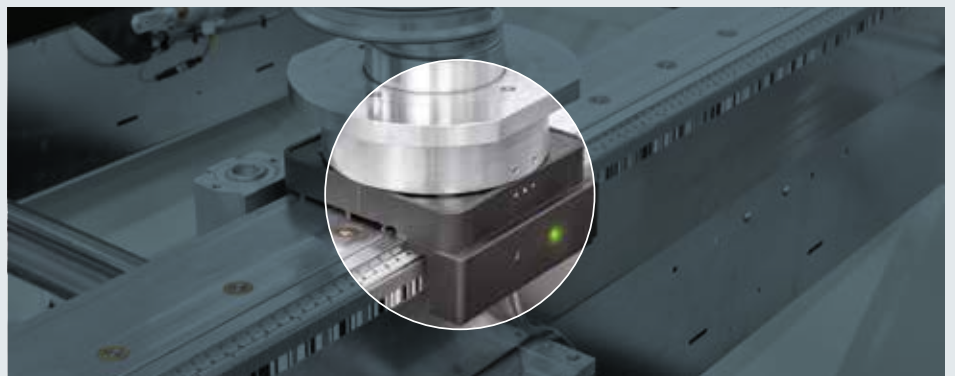
MOVE



- The fixed green LEDs start flashing more and more as the correct bar position is approached. When the target position is reached, the blue strip on the bar lights up.



- Locking systems work in the same way: when the target position is reached, the double green LED lights up.



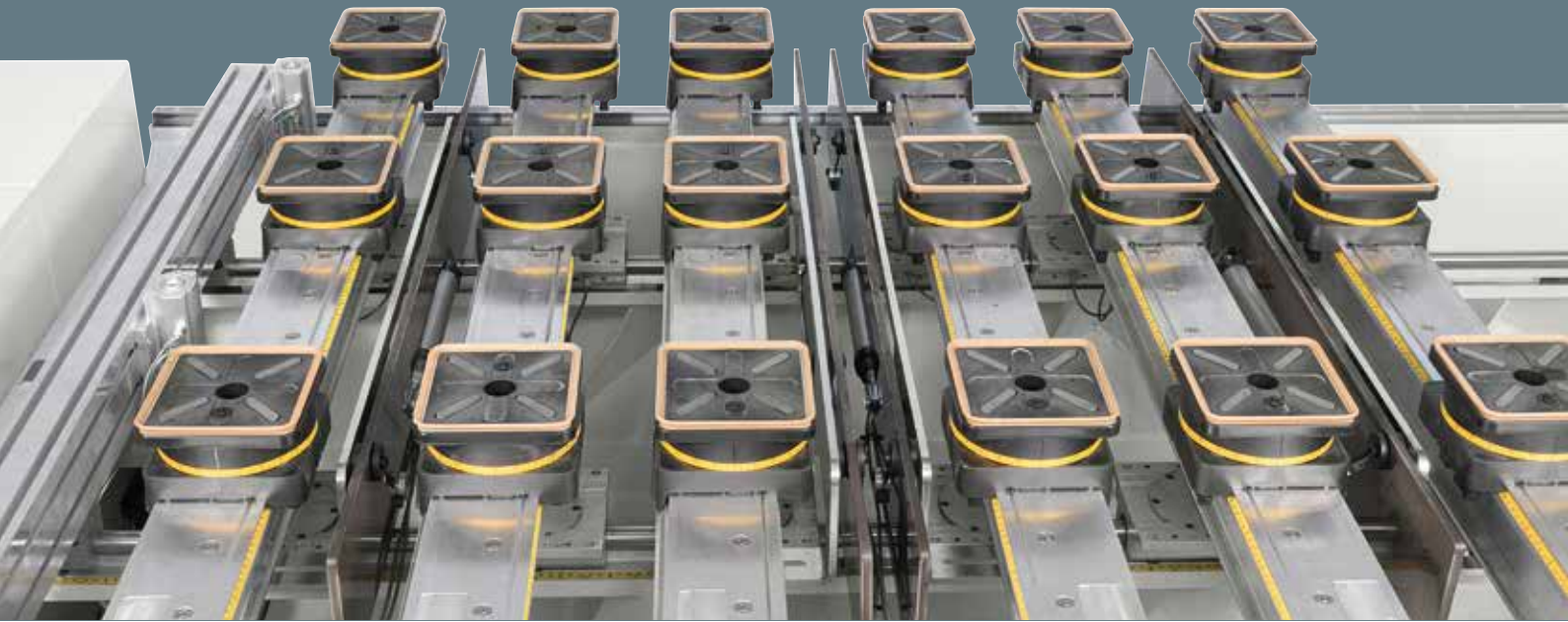
COMPLETED SET-UP



When the set-up is finished, LEDs of both locking systems and bars set to "completed" status:

- Bars: Blue LEDs
- Locking systems: LEDs off

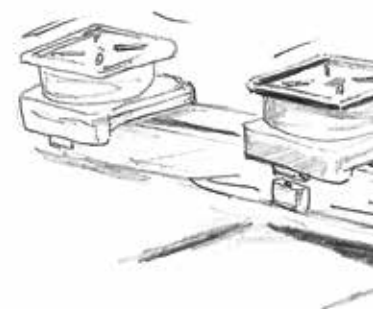
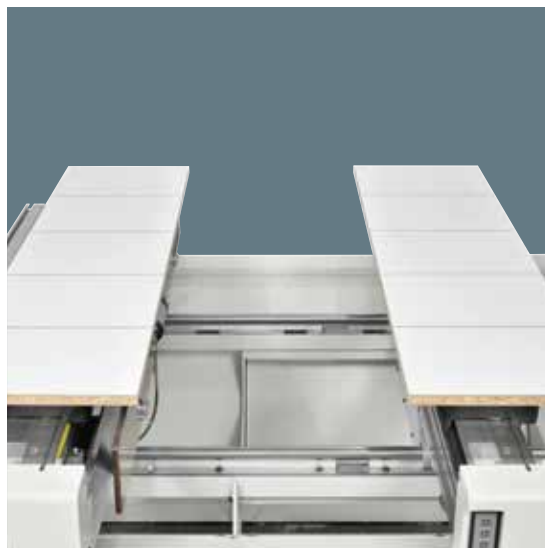




TOTAL CUSTOMISATION: **TV FLEXMATIC RAILS** **WORK TABLE**

Automatic work table that allows the management up to 6 vacuum pods on a single rail, according to the dimensions and shape of the work piece to be machined, in order to always have the best holding without risks of collision. Available also with manual version (**TV FLEX**).

From a single panel can be obtained more elements and automatically re-position them to carry out all machining without interrupting the production cycle; at the end the work pieces are returned to the initial position to facilitate the unloading from the work table.





It is possible to add or remove vacuum pods or clamps with a simple movement of the hand; the number and the position are automatically detected.

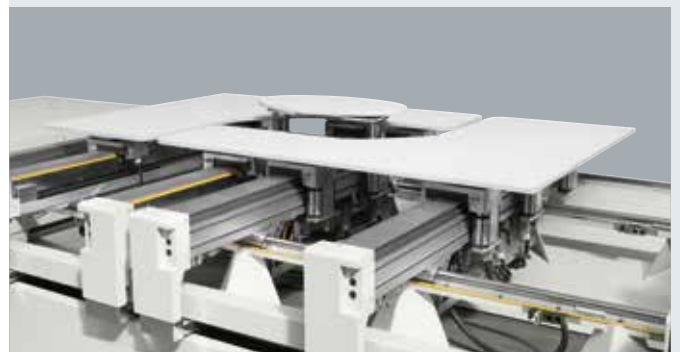
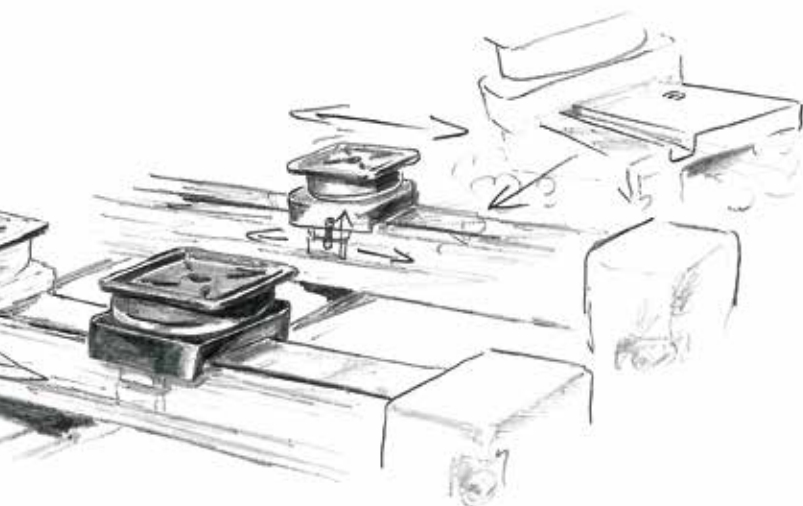


***The work table becomes 3D:** cycle time reduced, owing to HE-PODs; any pod can be associated to work piece in order to lock both panels and any shaving.*



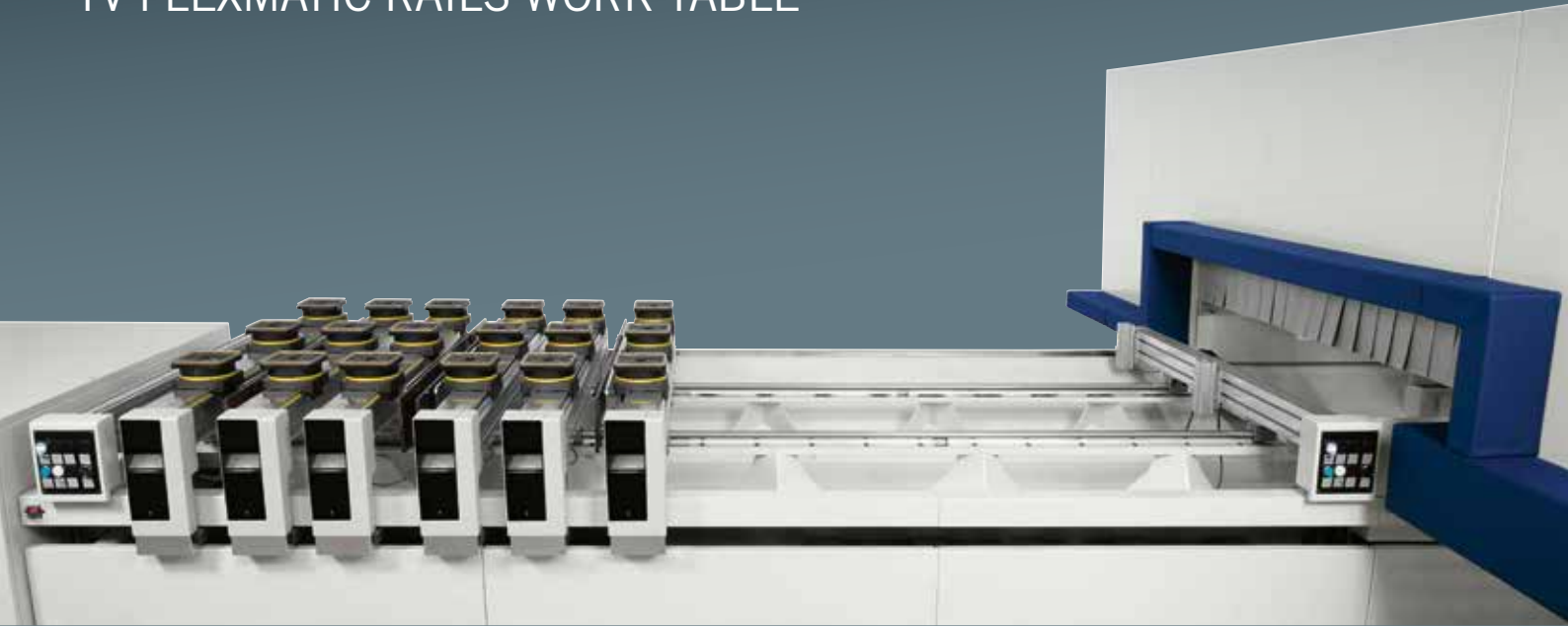
***Maximum flexibility:** use of HE-POD and standard pods in the same program.*

No problem for the sliding of vacuum pods or clamps thanks to the blowers positioned along the whole rail that guarantee a constant cleaning.



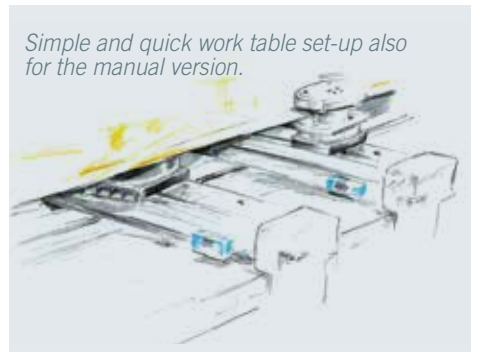
**A SINGLE POSITIONING
AND NO DISPLACEMENTS!**

TV FLEXMATIC RAILS WORK TABLE



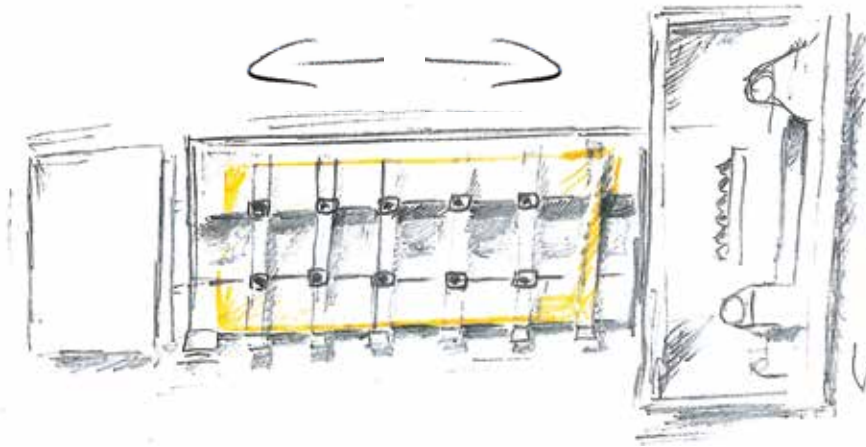
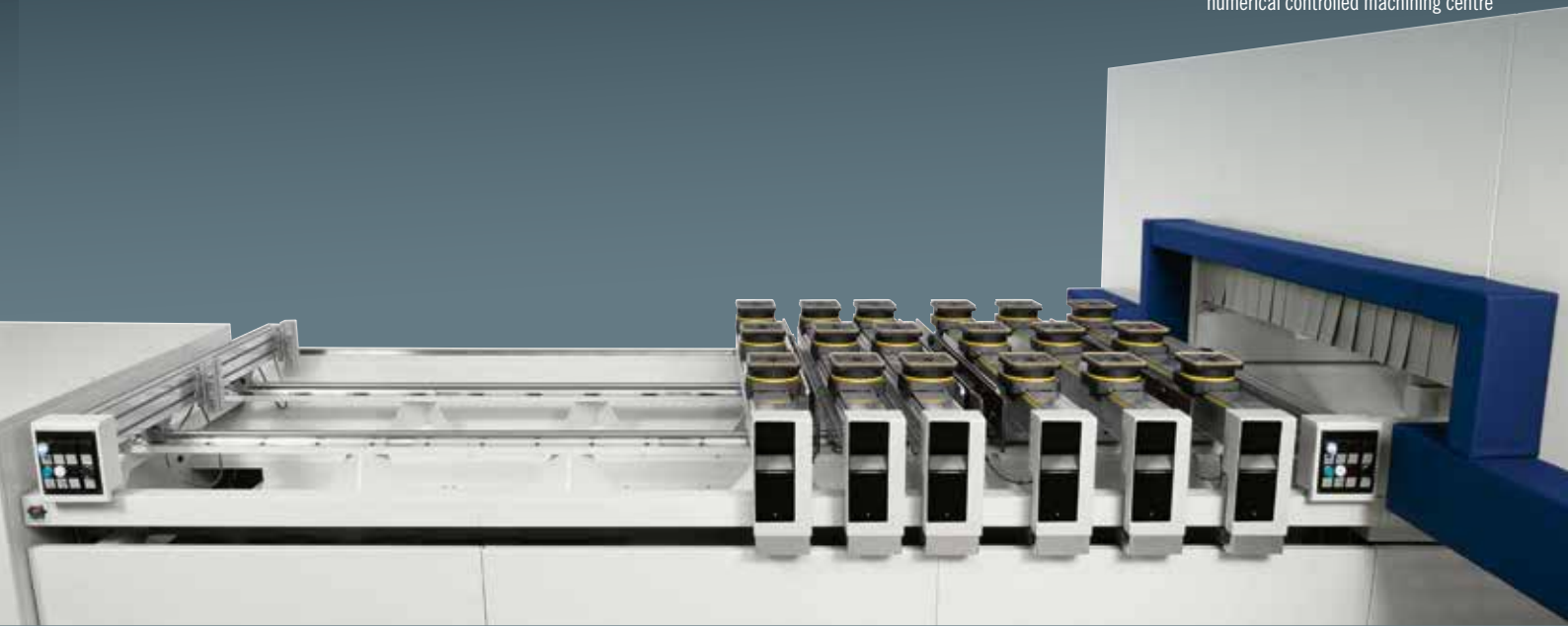
NO LIMITS ON RAILS POSITIONING: TOTAL COVERAGE OF THE WORK TABLE

IDEAL FOR LARGE SIZE PANELS



Simple and quick work table set-up also for the manual version.





Comfortable pushbutton to have at your fingertips all the necessary commands for the programs execution.



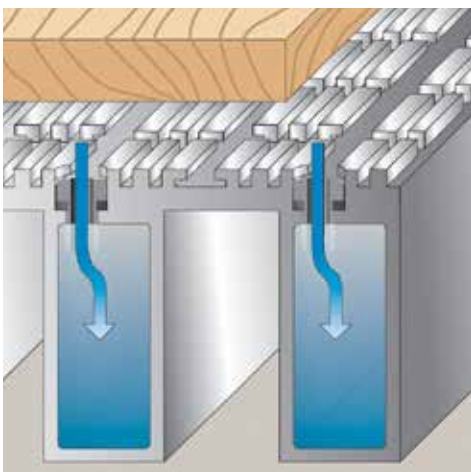
Easy positioning of heavy work pieces and large panels with the lifting support.

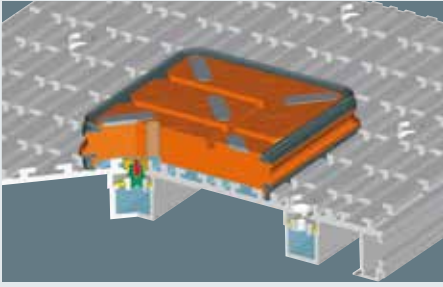


VERY HIGH FLEXIBILITY: MULTI-FUNCTION WORK TABLE

Extremely stiff work table made of extruded aluminium, designed to maintain a perfect planarity over time, even after repeated mechanical stresses. It is ideal also for nesting machining.

Optimal work piece holding with the high capacity vacuum up to 1200 m³/h (50 Hz).





Easy and quick positioning of locking accessories such as MPS vacuum pods and the practical MODULSET system with the surface channels structure.

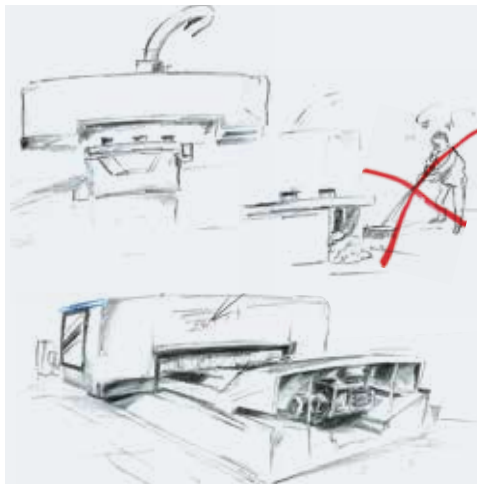
It is possible to fix custom references thanks to the exclusive "T-shaped" grooves available on the work table.



EVERYTHING YOU HAVE ALWAYS DREAMED OF A CNC MACHINING CENTRE BUT WERE TOO AFRAID TO ASK

SWEEP AWAY THE WORRIES

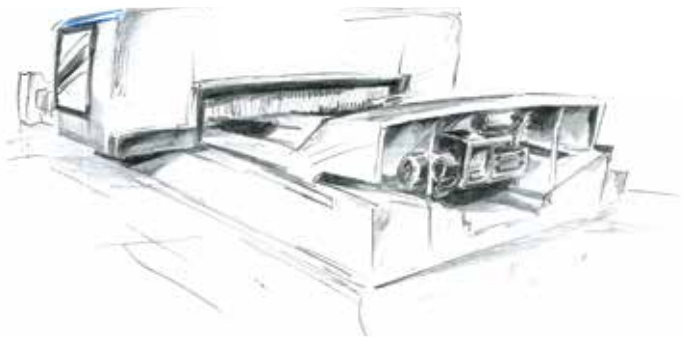
ALL CLEAN



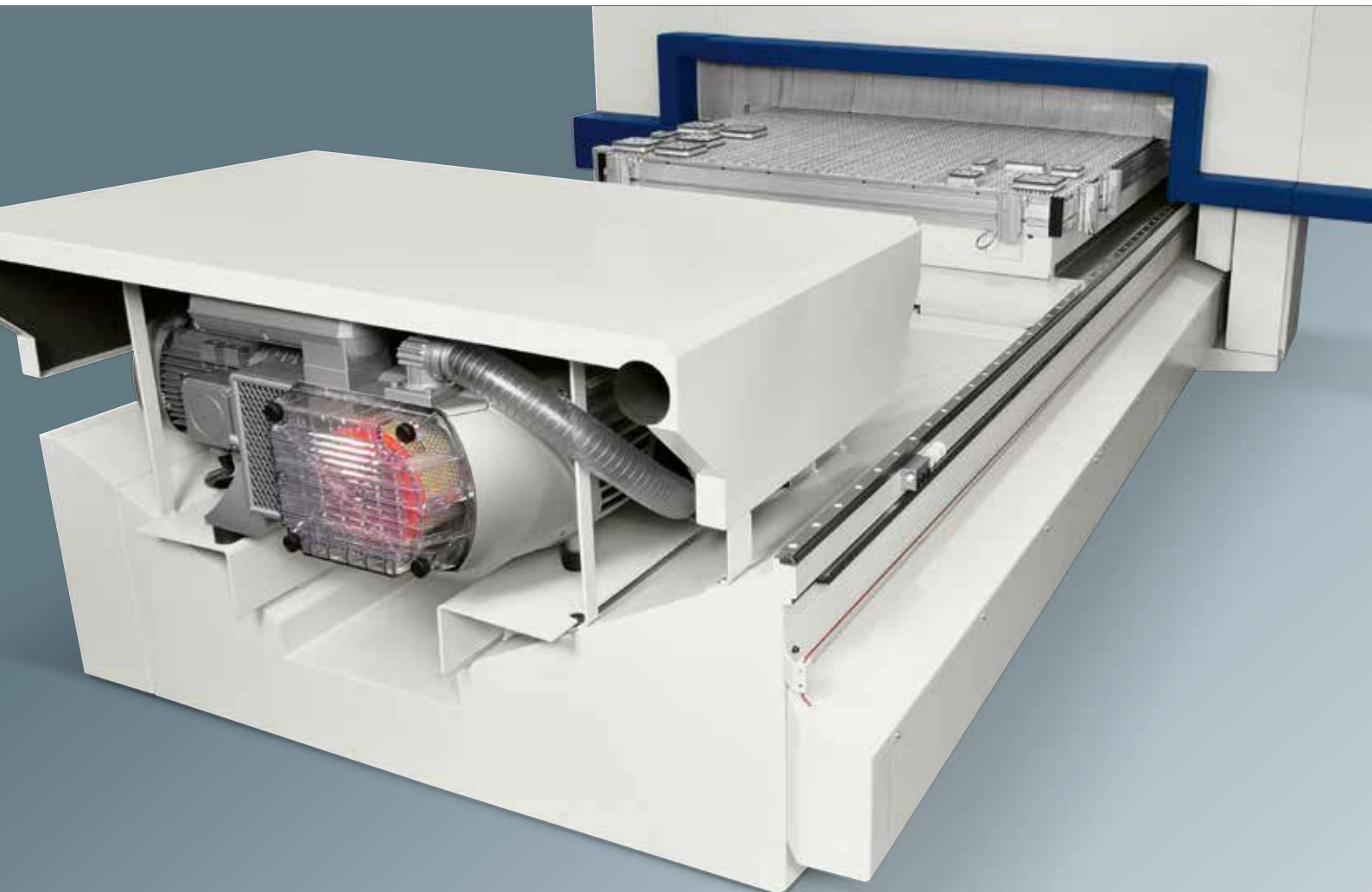
No problem with dust or shavings thanks to the intelligent solution of the dust collection box located in an ergonomic position.

Free space on the floor with the vacuum pump integrated in the machine base.

SPACE? NO PROBLEM!



Free access without obstacles on the floor, cable-holder chain and vacuum pump integrated in the machine base.





Rapidity and ergonomics to equip and do maintenance to the operating group, also in PRO-SPACE version due to the practical front and rear openings.

No problem with dust or shavings thanks to the dust shavings conveyor belt equipped with exhaust outlet and the dust collection box located in an ergonomic position.



SOFTWARE

Maestro lab

From the office, the Maestro lab design and programming system ensures that all machining can quickly and easily be programmed.

Transforming an idea into a finished product has never been easier.

More than 150 already integrated apps allow to generate cnc programs with just a few mouse clicks.



Office

THE SOFTWARE THAT SIMPLIFIES THE WORK

CAD/CAM programming software to design all the production processes. Developed in Windows environment it ensures easy programming with an advanced, simple and intuitive sketching environment that features all the tools necessary to design the parts, tools management and the relative machining operations.

All the procedures are contained in a perfectly integrated and high performance software.

SUITE



Maestro pro view

3D Simulator that allows users access to a three dimensional model of their machine in their office and view the operations that will be carried out during the production in advance on their PC.



Maestro 3D

The module integrated in the Maestro suite is designed to program three dimensional objects on 5-axis machining centres.



Maestro apps

Maestro apps is a library of programming functions that are always available and easy to use, developed by SCM for the production of parts for doors, windows, stairs, furniture and furnishings.



Maestro msl connector

Connector for third-parties with design software.



Maestro nesting

The module integrated in the Maestro suite provides all the functions necessary to manage the "nesting" process: from a simple "rectangular" piece to the most varied and complex "free form" geometrical shapes.



Maestro label

Integrated module to manage label's models, which develops labels by inserting texts, images, parameters and the main barcode formats.



Maestro active cnc

Maestro active is the interface that the operator easily uses on all SCM machines: Maestro active interface software maintains the same look&feel, the same icons and the same approach to interaction.

EASE OF USE

The interface has been specifically designed and optimised for immediate use via touch screen, for a simple and comfortable navigation.

“ZERO” ERRORS

Improved productivity thanks to integrated help and recovery procedures that reduce the possibility of operator error.

Factory

A REVOLUTIONARY APPROACH TO INTERACT WITH YOUR SCM MACHINE

FULL CONTROL OF PRODUCTION PERFORMANCES

The creation of customisable reports by operator, shift, program, forecast period (and much more) allows to monitor, optimise and improve the performance.

FULL MACHINE AWARENESS AND KNOWLEDGE MANAGEMENT SYSTEM

Recording of maintenance, training and other events, tracing all the activities in a database. The operator's know-how is also stored and made available to other people inside the organisation thanks to the possibility to comment and document all production events or notifications.

ORGANIZE YOUR PRODUCTION

Creation of different users with different roles and authorisations (e.g.: operator, maintainer, administrator, ...). Possibility of defining the work shifts on the machine and then detect activities, productivity and events that occurred in each shift.

TOTAL QUALITY OF THE FINISHED PRODUCT

The quality of finished piece is no longer put at risk by worn tools. The new Maestro active Tool Life Determination system sends notification messages as the tool reaches its end of life and recommends its replacement at the most appropriate time.

TOOLS? NO PROBLEM!

Maestro active guides the operator during the tool change phase, taking into account the programs to be executed.

ALL READY



1 technician, 1 day and the machine is up and running!

THE AFFORDABLE ALL-IN-ONE TECHNOLOGY

TECHNICAL DATA

morbidelli		m220
AXES		
Vectorial speed X-Y axes "PRO-SPACE" version	m/min	56
Vectorial speed X-Y axes "PRO-SPEED" version	m/min	78
Z axis panel passage	mm	180
ROUTING UNIT		
Motor power (max.)	kW (hp)	15 (20,5)
Rotation speed (max.)	rpm	24000
Available tools on tool changer (max.)	places	60
DRILLING UNIT		
Independent vertical spindles (max.)	n.	34
Independent horizontal spindles (max.)	n.	22
Rotation speed (max.)	rpm	8000
Integrated blades in X	n.	2
INSTALLATION		
Exhaust air consumption	m ³ /h	4430
Exhaust air speed	m/sec	25
Exhaust outlets diameter	mm	1 x 250 1 x 150



THE USE OF POWER ONLY WHEN IT IS REQUIRED

SavEnergy allows making things operate only when they are really necessary. It means the machine automatically enters "stand-by" mode when there are no panels to be machined.

**COMPANY WITH
QUALITY SYSTEM
CERTIFIED BY DNV
ISO 9001**

The technical data can vary according to the requested machine composition. In this catalogue, machines are shown with options. The company reserves the right to modify technical specifications without prior notice; the modifications do not influence the safety foreseen by the CE Norms.

*Maximum noise levels measured according to the operating conditions established by EN 848-3:2012
Acoustic pressure in process (routing) 81 dbA (measured according to EN ISO 11202:2010, uncertainty K = 4 dB)
Acoustic power in process (routing) 98 dbA measured according to EN ISO 3746:2010, uncertainty K = 4 dB)*





Even if there is a correlation between above mentioned "conventional" noise emission values and average levels of personal exposure over eight hours of operators, these last also depend on the real operating conditions, duration of exposure, acoustic conditions of the working environment and presence of further noise sources, this means the number of machines and other adjacent processes.

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 <p>SPARE PARTS</p> <ul style="list-style-type: none"> • Recommended spare parts list • E-shop • Interactive spare-parts catalogues • Repairs on electronic parts, glue tanks and electro-spindles 	 <p>DIGITAL SERVICES</p> <ul style="list-style-type: none"> • Maestro Connect - IoT platform to be constantly connected with your machines • Smartech - assistance with augmented reality • My Scm portal - opening of service ticket and single point of access to the apps and Services tools

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90% export

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