

CNC – machining centres

# morbidelli x100

CNC nesting machining centre for drilling and routing



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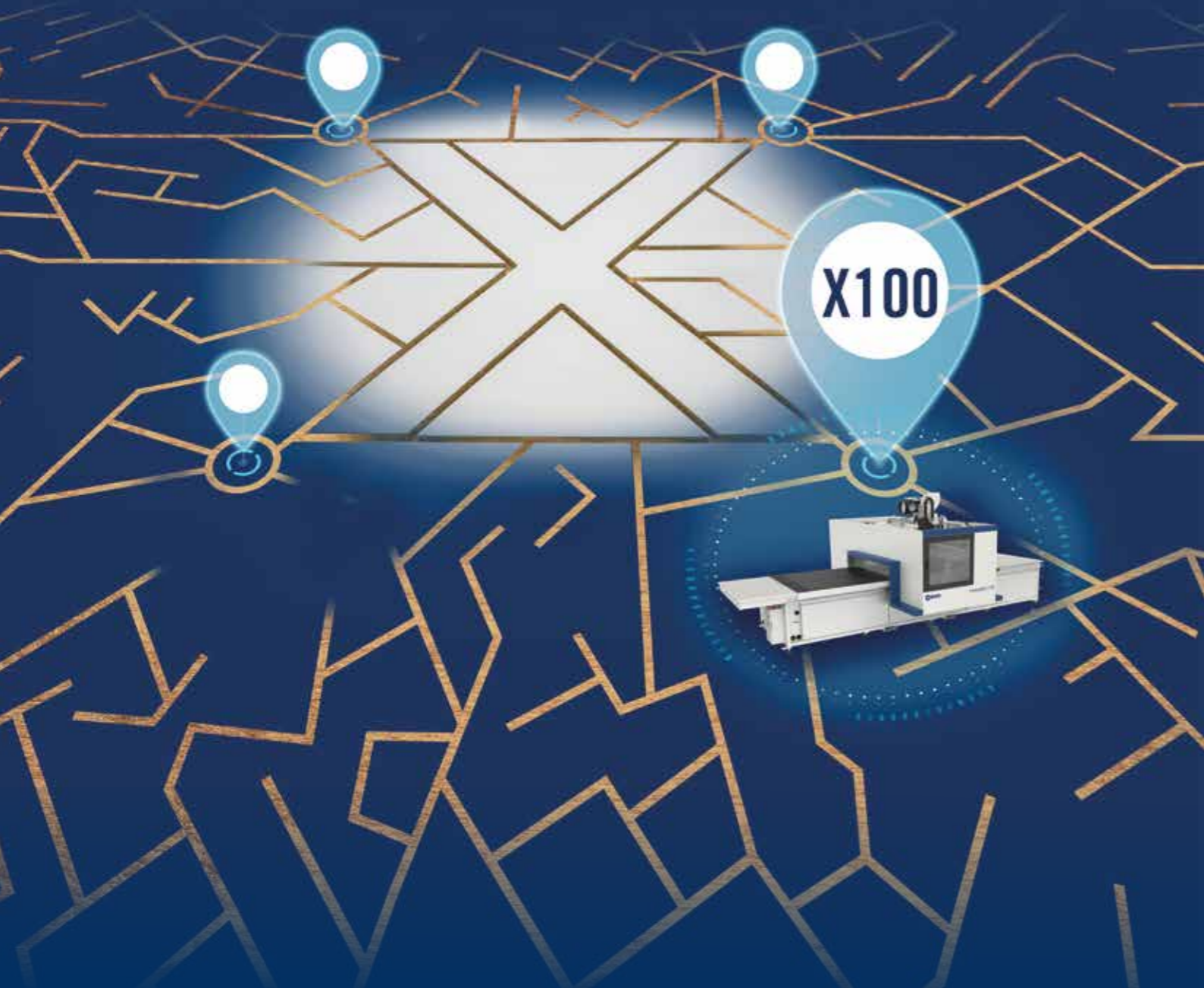
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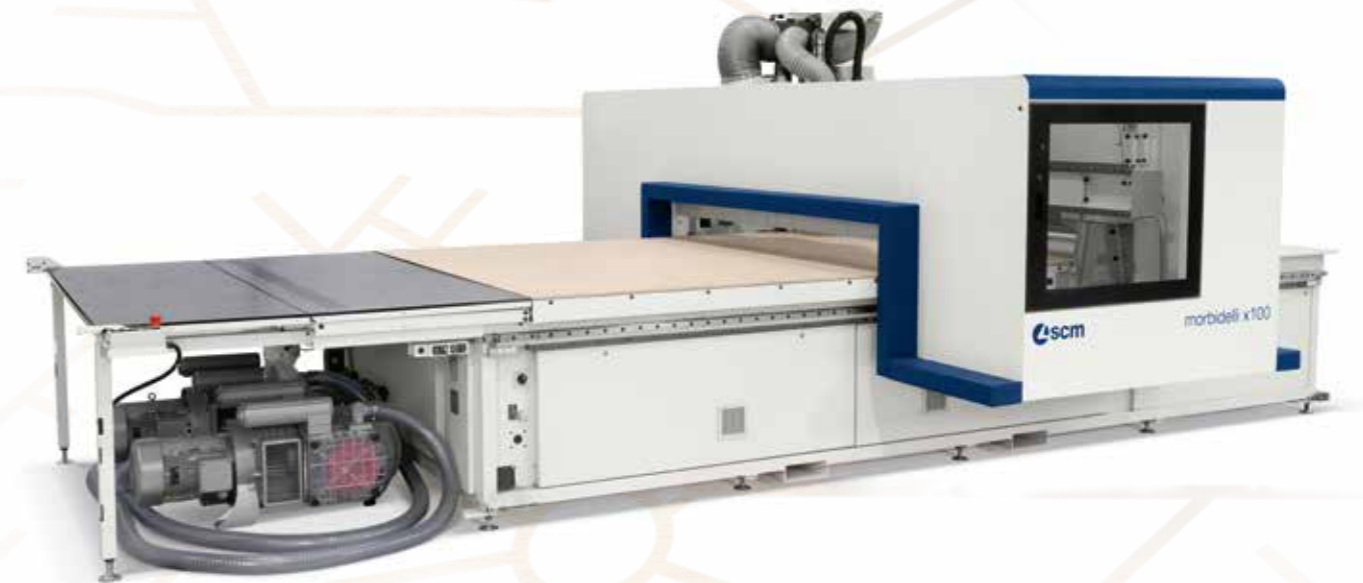
THE NEW NEXTING FRONTIER

FIND YOUR X

SCM NESTING MACHINES



MORBIDELLI X100



THE NEXT STEP  
TOWARDS INNOVATION

## FREE



**Fully safe machining** in PRO-SPACE version with bumpers safety system.

## TOP QUALITY



**SMS - Spoilboard Management System:** advanced solution to ease the spoilboard panel management by the operator.

**Reduced maintenance,** thanks to the **RO.AX** (Rotoaxial spindle technology) drilling bits, recommended only after more than 1,000 hours of machining.

## SMART



**Vacuum management:** Innovative vacuum management, only when needed and where needed.

## FLEXIBLE



**Stand-alone, mat, push, flex and cell:** one version for every production requirement.

## PRECISION



**X-POD reference system:** perfect pieces and pods positioning with no limits, due to the advanced laser device.

## SOFTWARE



**Maestro lab with Smart cut** for an effective and automatic management of the nesting cut, by optimising the holding of workpieces of any shape and dimension.

22

OVERALL DIMENSIONS

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TECHNICAL DATA

# AVAILABLE VERSIONS OVERVIEW

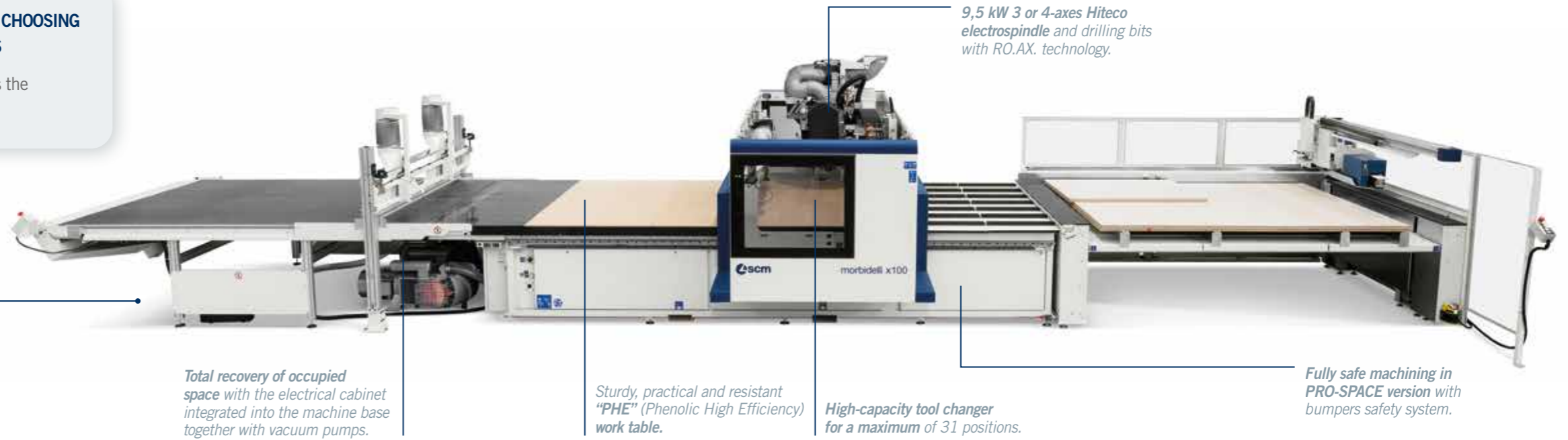
AND MUCH MORE

**morbidelli x100**  
CNC nesting machining centre for drilling and routing

## FIVE PRE-CONFIGURED VERSIONS TO ASSIST THE CUSTOMER IN CHOOSING THE MOST SUITABLE SOLUTION FOR THEIR PRODUCTION NEEDS

From the stand-alone up to the most integrated version which eases the loading and unloading operations in a completely automatic way.

**X100 CELL:** complete cell version with automatic loading and unloading table.



**X100 MAT:** semi-cell version with pusher and unloading belt.

**X100 FLEX:** it is the evolution of mat version with predisposition for automatic warehouse connection.



**X100 PUSH:** version that comes with pusher and stop pushbuttons for those companies that have reduced space but don't want to compromise on an automatic unloading solution.



**X100:** stand-alone version.



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



Office

## 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

## 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 design software to grant high integrability.



#### 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 templates. Developing labels by inserting texts, images, parameters and the main barcode formats.

## 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.

### ORGANISE 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.

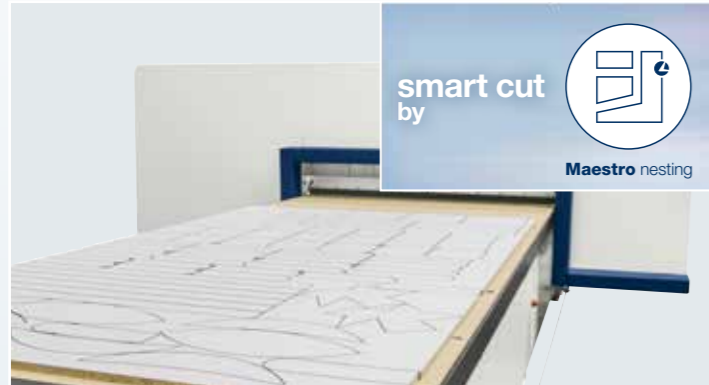
## Maestro nesting

### Goal

Saving time and material scraps reduction.

### How?

Through an optimisation software able to create cutting schemes always more compact keeping maximum machining quality.

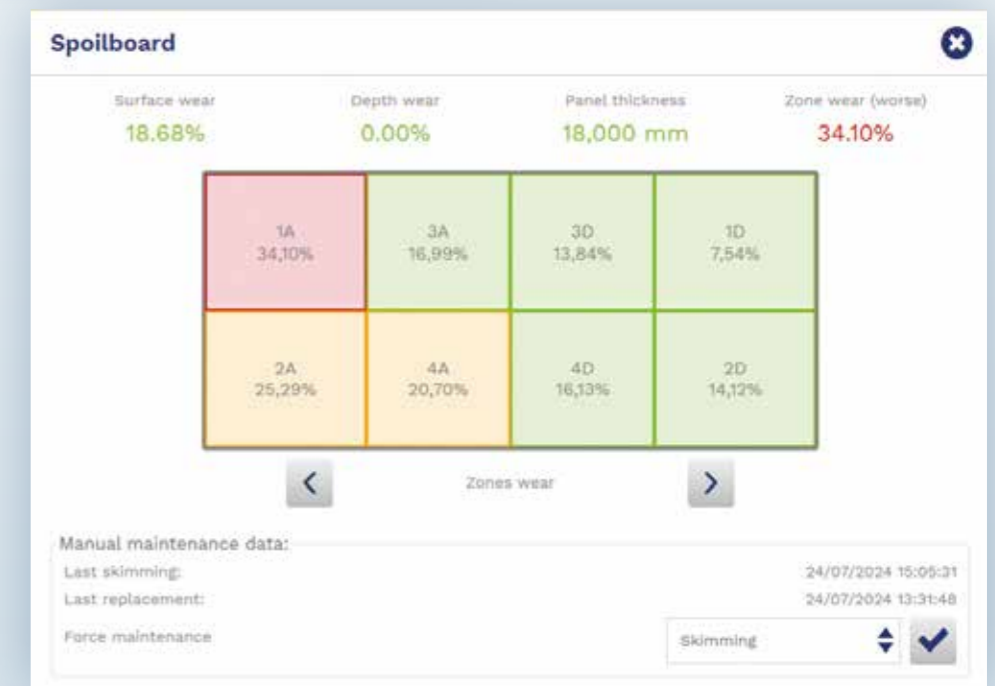
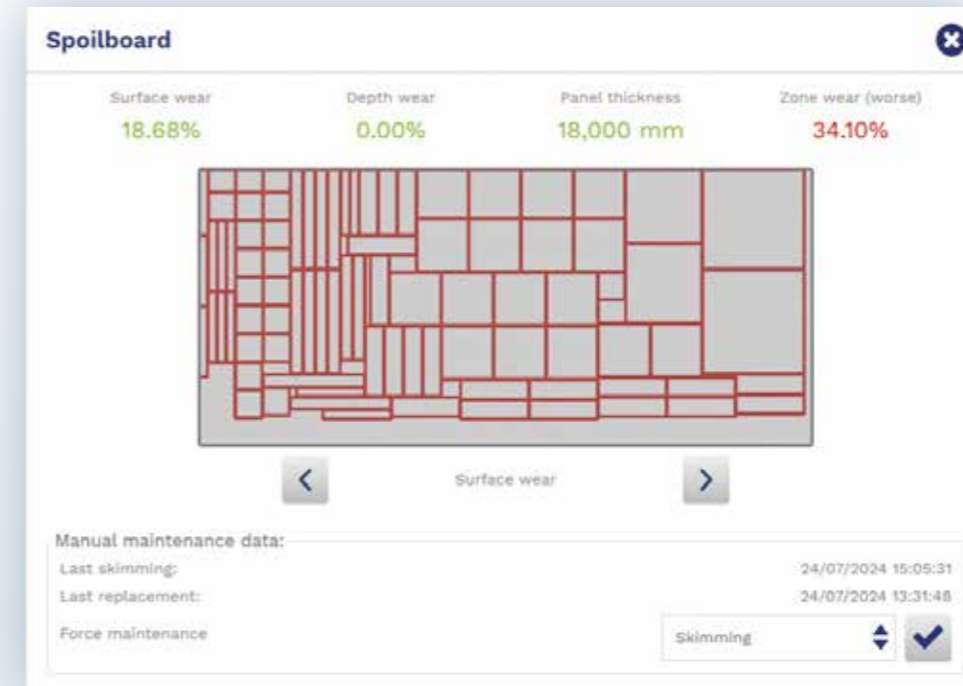


### Smart cut: the allied cutting strategy for nesting small pieces

It applies optimised cutting sequences and technologies that, without affecting the speed or layout of parts in the program, improve finish quality and reduce machining cycle times.

## SMS - Spoilboard Management System

Advanced solution to ease the supporting panel management by the operator. The software is able to proactively report when it is necessary to rectify or replace it.



## BENEFITS



### ZERO UNPRODUCTIVE TIME

No need for any second routing passes for fast and efficient production.



### ZERO WASTE

No compromise in nesting cutting quality, to grant always precise and perfect machining with no defect.



### REDUCTION OF ENERGY CONSUMPTION

Thanks to the optimisation of routing paths/layouts and shorter machining cycles.

# VACUUM MANAGEMENT

## MACHINE-INTEGRATED SYSTEMS TO IMPROVE VACUUM MANAGEMENT WITH NO WASTE.

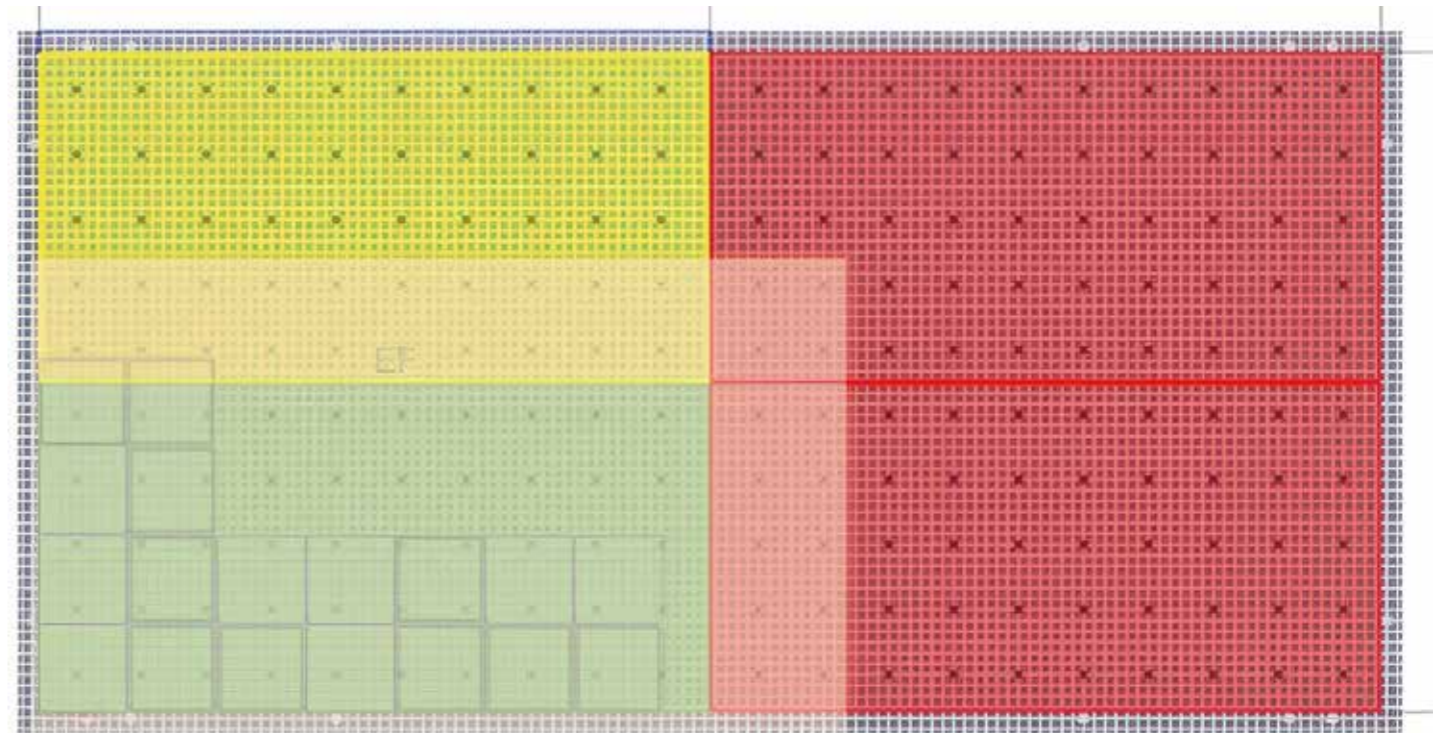
### SMART VACUUM: VACUUM ONLY WHEN NEEDED AND WHERE NEEDED

Smart system which, by column switching, allows the vacuum to be concentrated only on the parts that are being processed or still to be processed. In this way, the areas that have already been machined are disconnected from the vacuum, which is redistributed in equal parts to the remaining ones, so that the tightness of the workpieces is always kept at its maximum.



### VACUUM MANAGEMENT: NO VACUUM LOSS IN AREAS WHERE IT IS NOT NEEDED

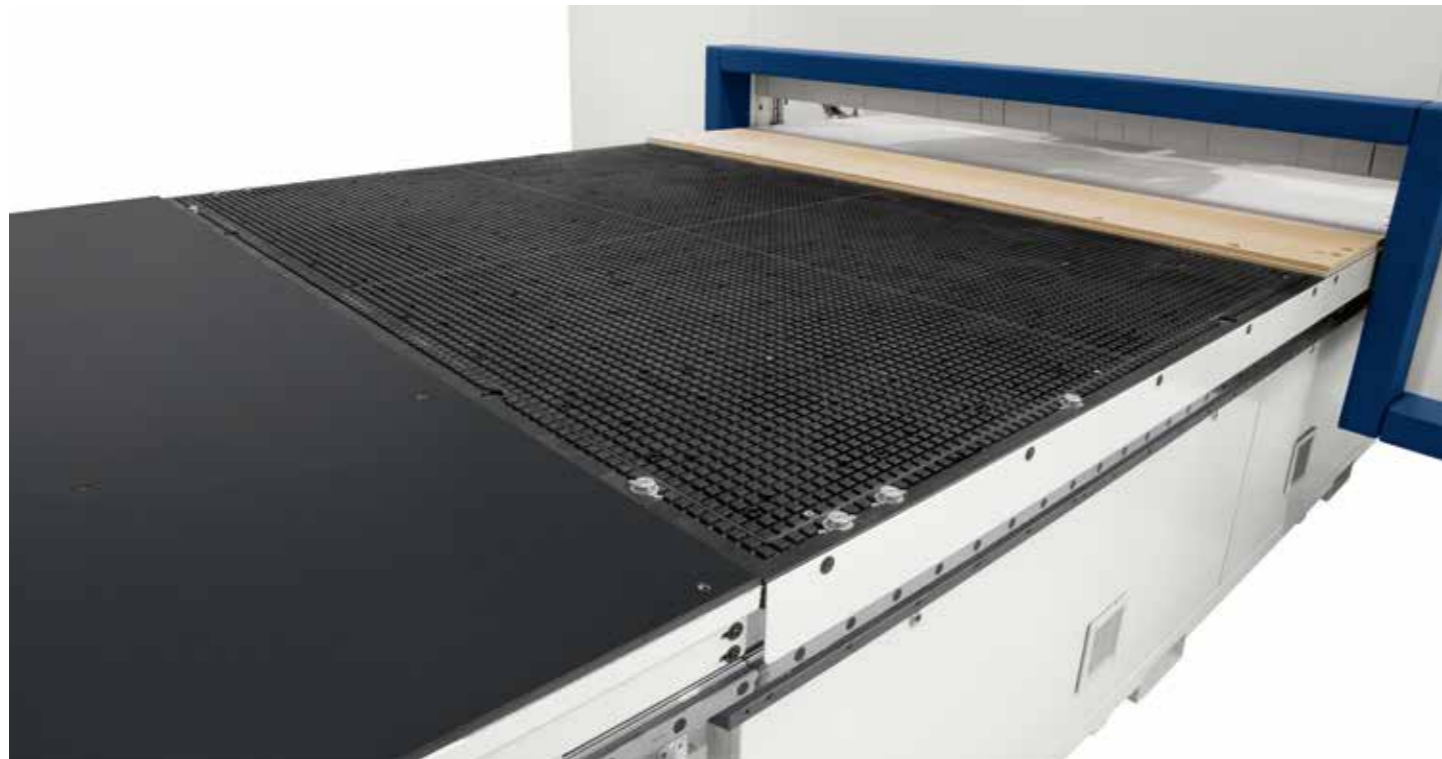
During programming, it is possible to manually or automatically define which vacuum zones need to be activated or deactivated when the machine is operating, for the efficient handling of irregular shaped panels with dimensions below the machine work table.



# WORKTABLE

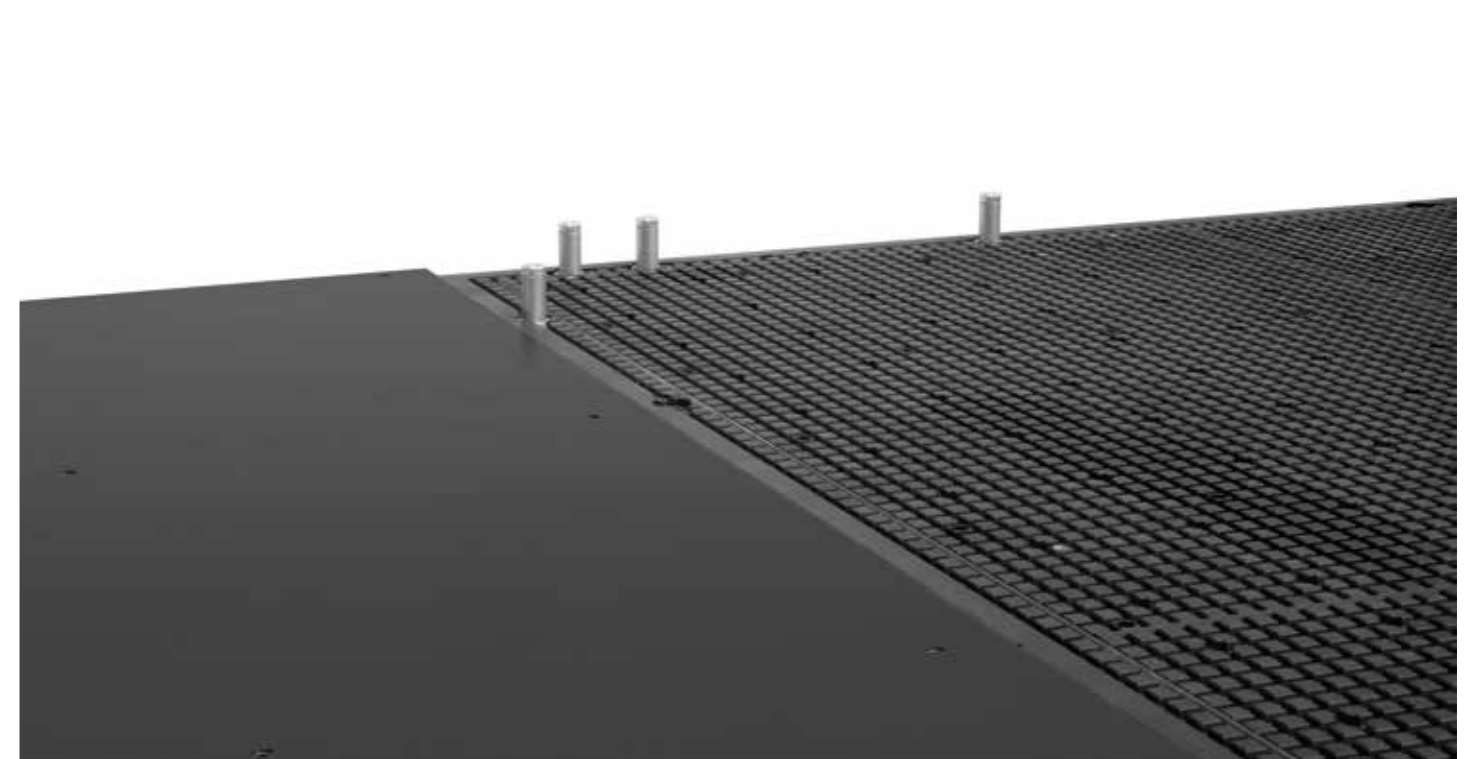
## “PHE” (PHENOLIC HIGH EFFICIENCY) WORKTABLE: STURDY, PRACTICAL AND CRUSHPROOF

A special system of air ducts and deflectors grants high-efficiency to the table, by enhancing the gripping force of the workpieces on the entire worktable surface while processing.



## MAXIMUM WORKPIECES TIGHTENING WHEN IT IS REQUIRED

Pneumatically activated static vacuum with the possibility to select from 4 to 8 vacuum areas according to the worktable dimension.

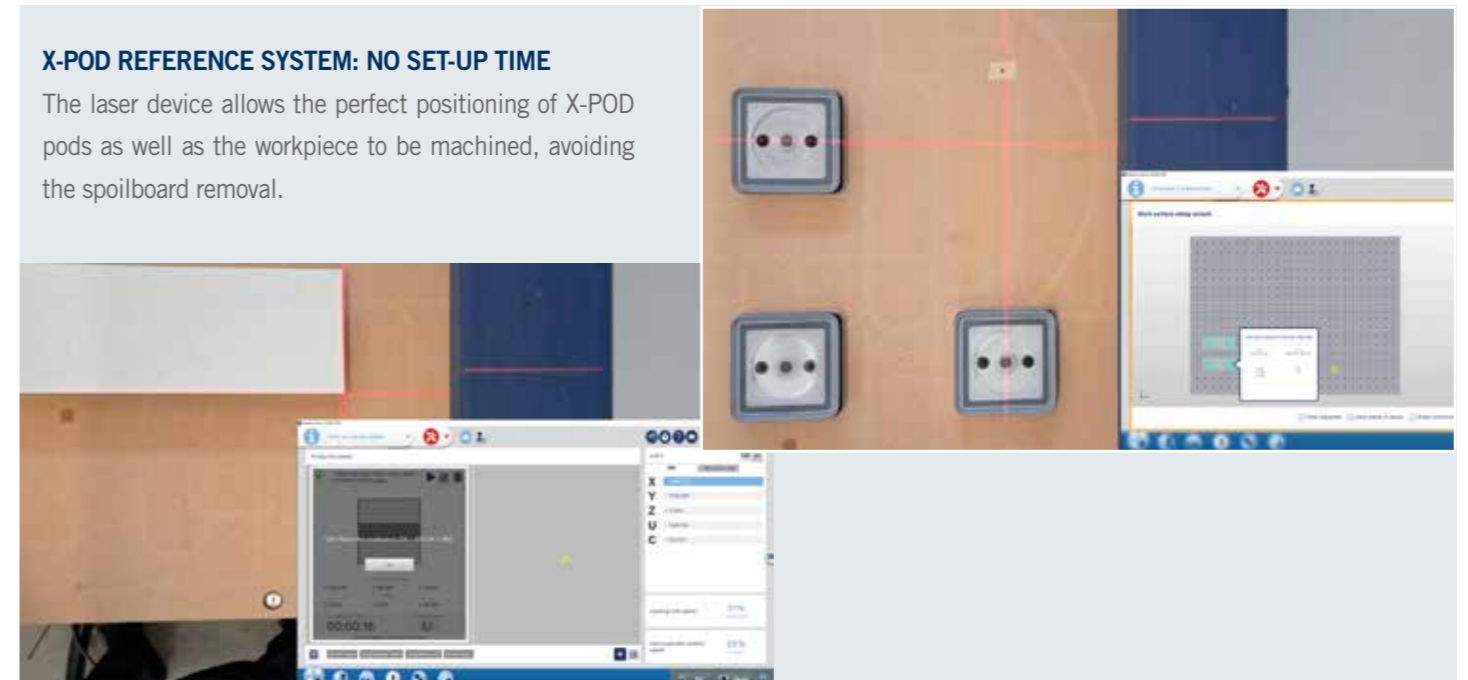


Any machining without removing the supporting panel and no obstacles due to the tubeless X-POD pods.



## X-POD REFERENCE SYSTEM: NO SET-UP TIME

The laser device allows the perfect positioning of X-POD pods as well as the workpiece to be machined, avoiding the spoilboard removal.



# OPERATING UNITS

## DRILLING AND ROUTING UNITS

### PERFORMING DRILLING HEADS

Minimum drilling time, due to the accurate study of spindles position, combined with high-quality drilling, as they can rotate up to 8.000 r.p.m.

- Minimum drilling time (8.000 r.p.m.)
- Top productivity with maximum machine uptime ensured by drilling heads with RO.AX technology, which minimises the maintenance time to be carried out every 1000 working hours.

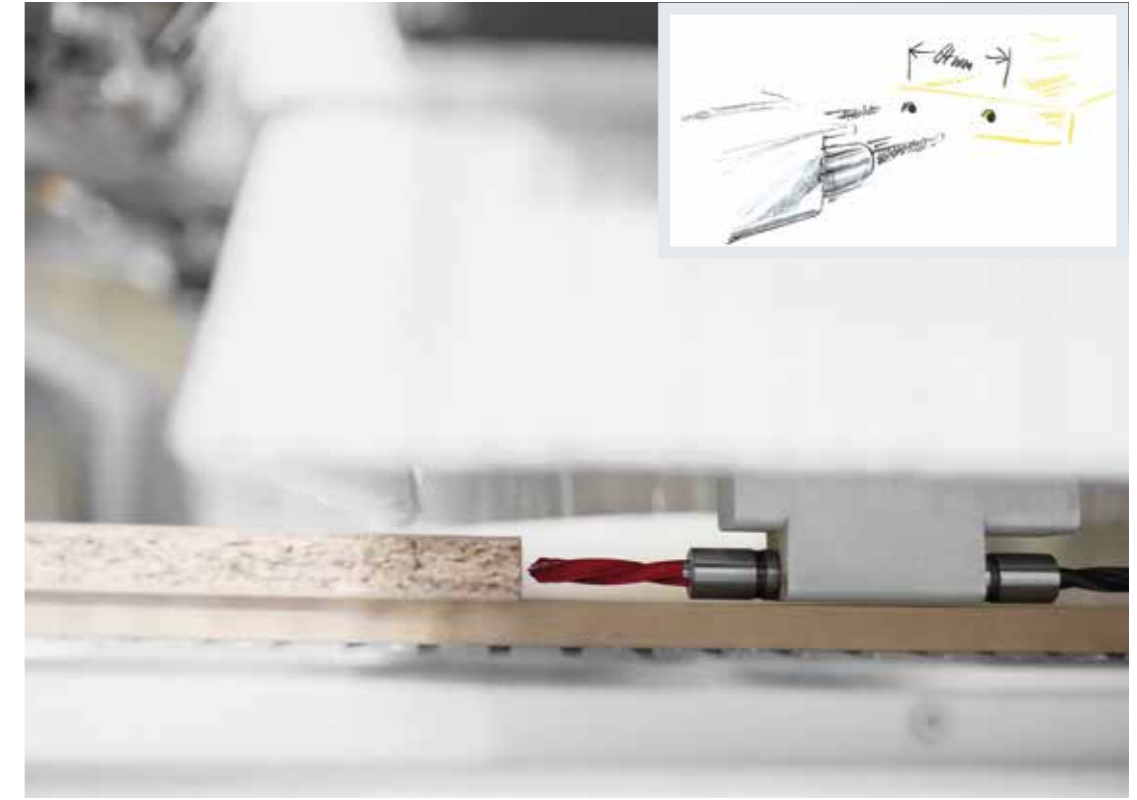
### EXCELLENT MACHINING PRECISION

with the 9.5 kW 3 or 4-axes electrospindles up to 24.000 rpm.



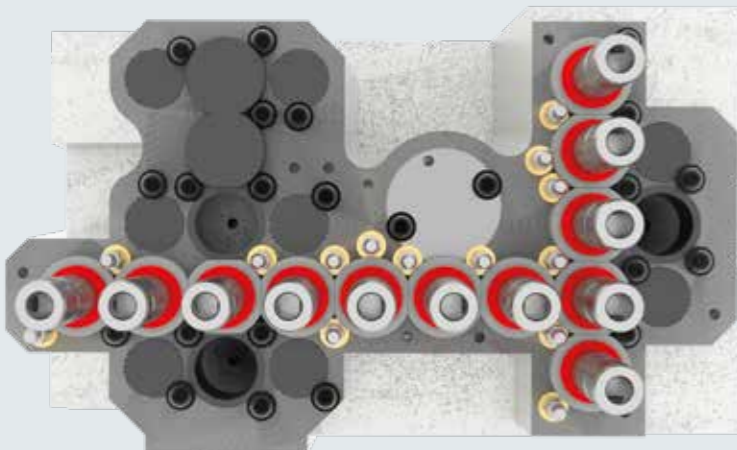
### LOWERED HORIZONTAL DRILLING HEADS:

ability to execute horizontal drilling without removing the spoilboard.

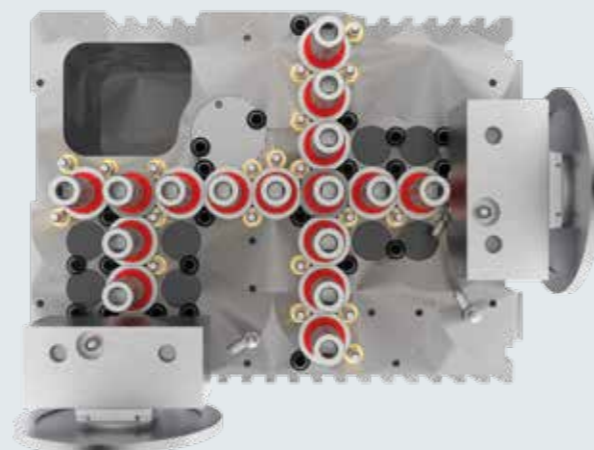


## DRILLING HEADS FOR VERTICAL PROCESSING

F12V

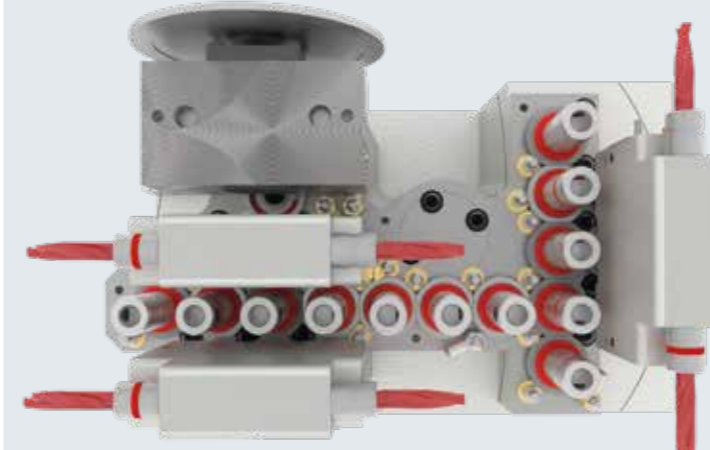


F16VLL

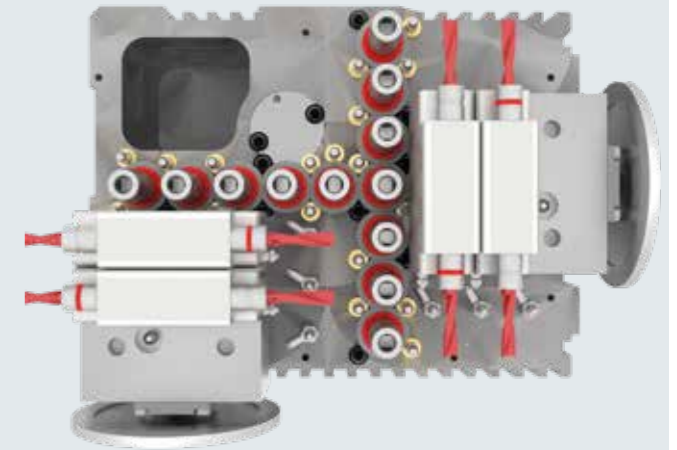


## FULL DRILLING HEADS FOR VERTICAL AND HORIZONTAL PROCESSING

F18LR



F20LLR



# TOOL CHANGERS AND DRILLING HEADS

## TRB SIDE TOOL CHANGER

with up to 19 positions.  
Standard for versions without  
loading automation.



## TOOLS ALWAYS AVAILABLE

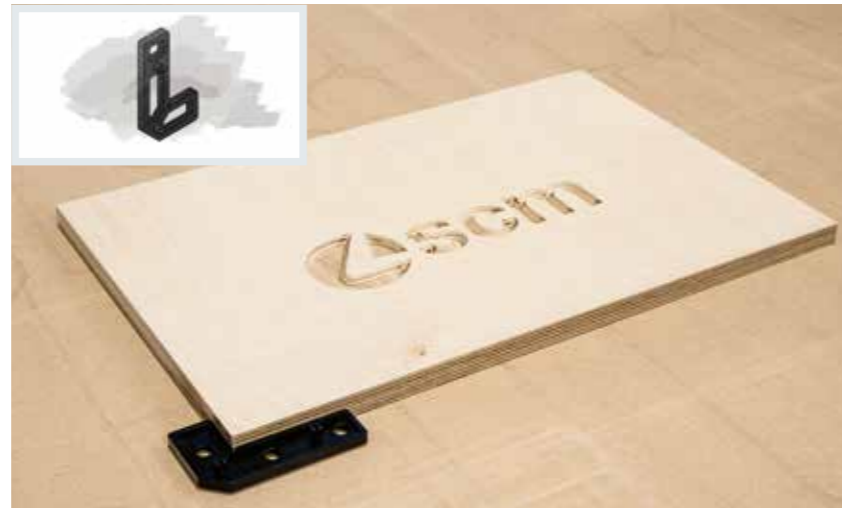
thanks to the  
**R12 rear tool changer.**  
Standard for versions with  
loading automation and as  
an option on the others.



## POSSIBILITY OF EXTENSIVE CUSTOMISATION

With angular heads having 1, 2 and 4 outlets with HSK taper couplings for angled routing, drilling and blade grooving machining, with plays elimination system or fixed mechanical couplings.

# SMART SOLUTIONS



### XS DEVICE

Plug&Play device to refer all the pieces directly on the spoilboard, even the smallest one that would not reach the reference stops of the machine.



### NO DUST

with four air blowers positioned on the electrospindle and X-Y orientated, to ease the waste extraction.



### LARGE-DIAMETER TOOL LENGTH DETECTION DEVICE

Positioned on the machine base side, it allows to automatically detect the length of the tool.

### EYE-M CONTROL PANEL

Modular control panel that combines ergonomic and flexibility to the SCM's high technological performances – all in an iconic design.



### WIRED TECPAD

7" color touch-screen remote control.



### BAR-CODE READER

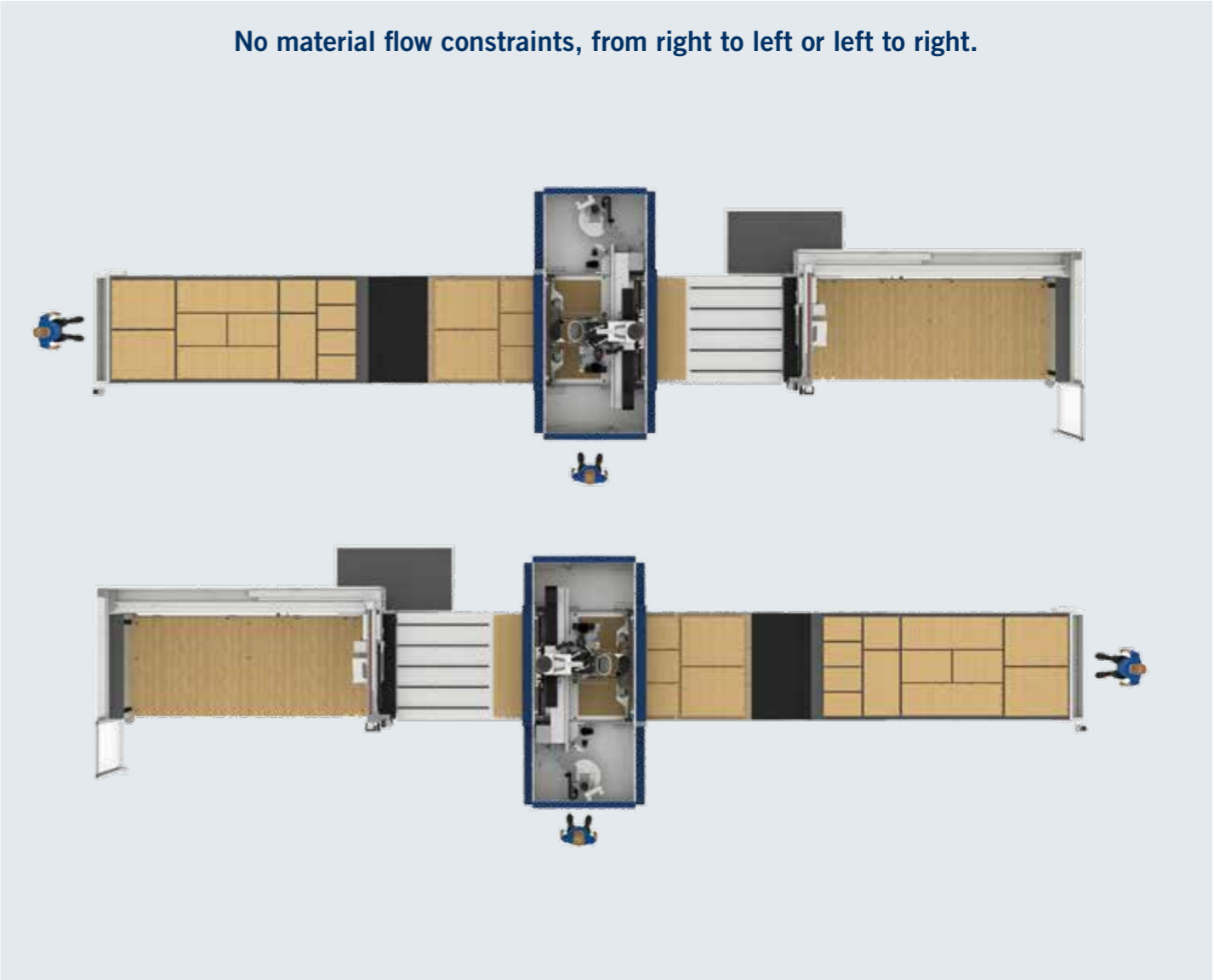
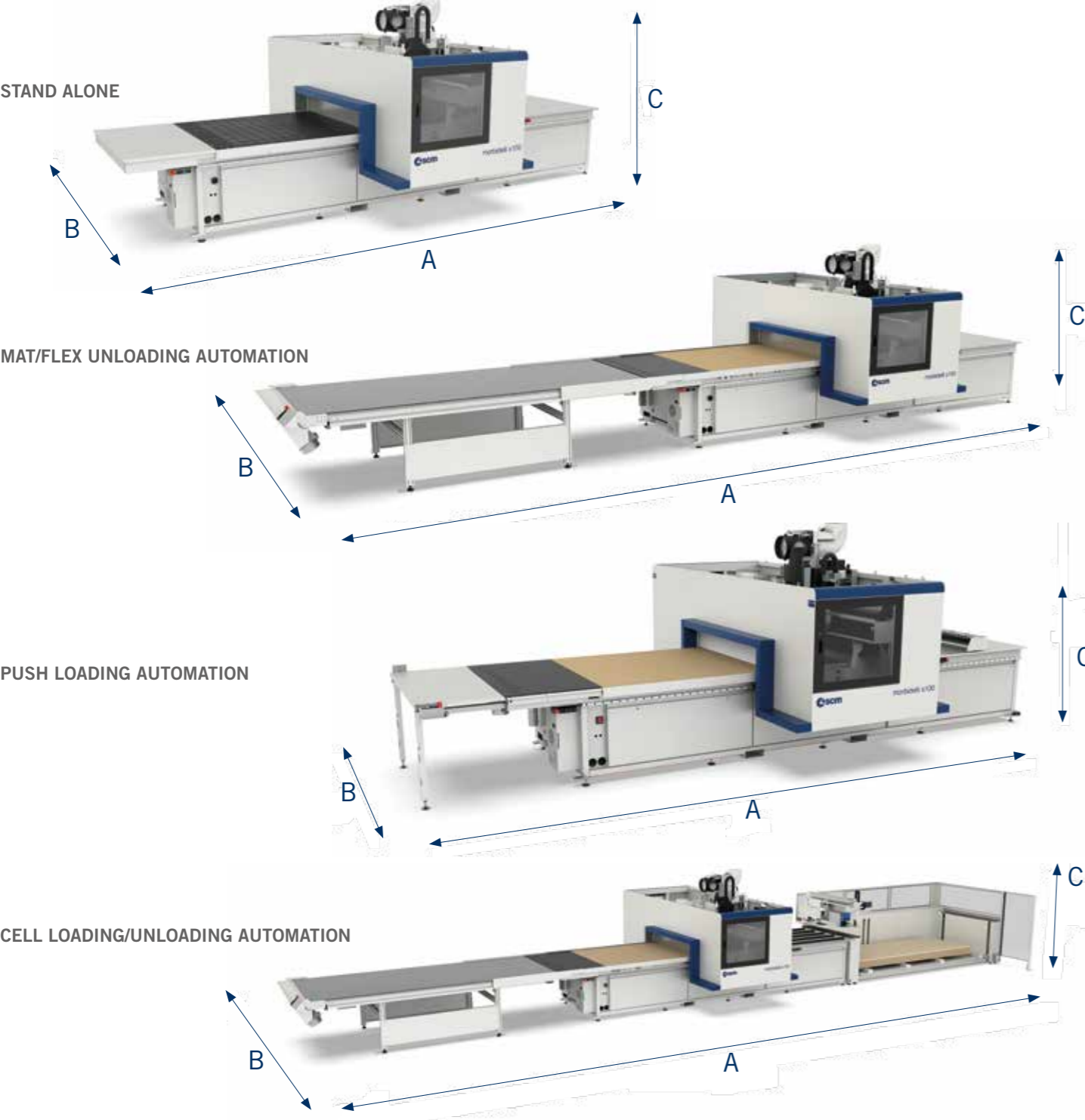
Quick and simple scanning of the label associated to the panel by means the bar-code reader.

# OVERALL DIMENSIONS

		STAND ALONE	MAT/FLEX UNLOADING AUTOMATION	PUSH LOADING AUTOMATION
		A	A**	A**
morbidelli X100 1224	mm/feet	5990 / 19.7	8300 / 27.2	6150 / 20.2
morbidelli X100 1536	mm/feet	7190 / 23.6	10700 / 35.1	7350 / 24.1
morbidelli X100 1836	mm/feet	7190 / 23.6	10700 / 35.1	7360 / 24.1
morbidelli x100 2231	mm/feet	6590 / 21.6	9500 / 31.2	6750 / 22.1
morbidelli x100 2243	mm/feet	7790 / 25.6	11900 / 39	7950 / 26.1

CELL LOADING/ UNLOADING AUTOMATION	FOR ALL MACHINE VERSIONS		
	A**	B*	C
	11020 / 36.2	4660 / 15.3	2340 / 7.7
	14620 / 48.1	4960 / 16.3	2340 / 7.7
	14610 / 47,9	5260 / 17.3	2340 / 7.7
	12850 / 42.2	5580 / 18.3	2340 / 7.7
	16450 / 54.0	5580 / 18.3	2340 / 7.7

\* maximum dimension with R12  
\*\* operator working area excluded (+1m /39”).



# M Maestro Digital Systems

SMART SOFTWARE AND DIGITAL SERVICES TO ENHANCE PRODUCTIVITY OF WOODWORKING AND FURNITURE INDUSTRIES.

SCM accompanies woodworking companies throughout their whole process combining machines with matching software solutions and digital services, with a constant strive to enhance company productivity.

The software solutions powered by SCM are developed to optimize machine usage as well as the entire process, providing integration with the different software existing in the company.

design > programming and data generation

Maestro office

Office

Factory

Maestro active

cutting > routing drilling edgebanding

## SOFTWARE

Simple, smart and open Maestro software are tailored on the machine technology as well as on the entire process. All Maestro software share a common mission:

**easy to use**, so that any operator can easily and confidently learn and use the software

**smart**, with algorithms and computing modules aiming at the best possible result

**open in order to integrate** existing software, and provide customer the coverage of all his process.

## DIGITAL SERVICES

Transforming the way it delivers services to its customers through digital technologies and particularly, the IoT platform that collects and analyses data coming from the machine, **SCM created a world of services enabled by Maestro connect**.

Meaning that connecting an SCM machine through Maestro connect will let customer subscribe a program of fast-evolving services and access a wide range of benefits that even go beyond the machine experience and will support and assist you through the whole life-cycle of your machine.

### Maestro connect IoT Platform

1 Machine monitoring, KPIs, early warning

2 Maintenance equipment

3 Predictive maintenance

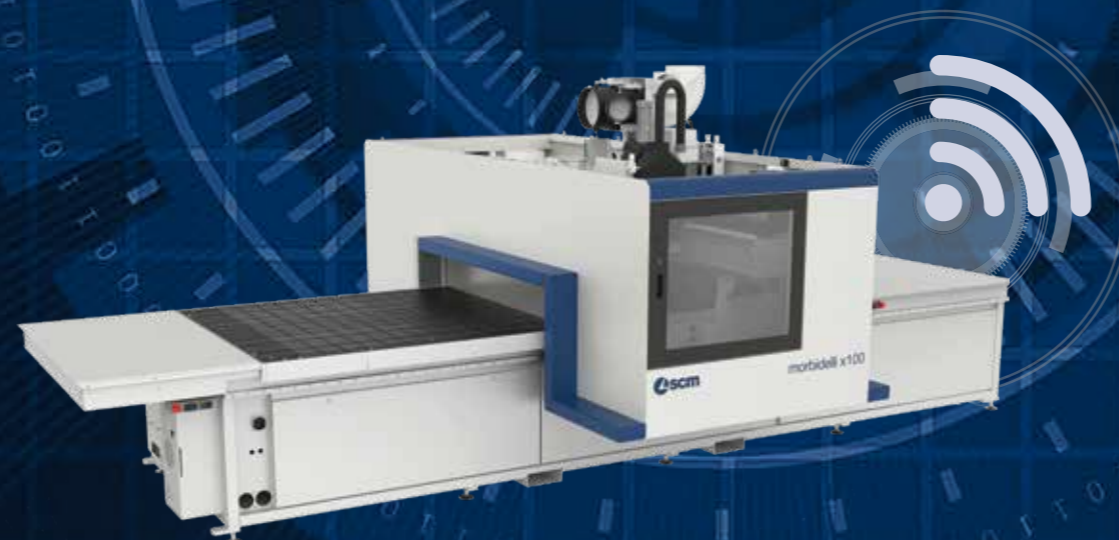
4 Report and historical data export to MES

5 Warranty extension

6 Augmented remote support

7 Smart learning, SELF-HEALING, video tutorials

8 Asset management with e-shop SCM Spare Parts



# A WORLD OF SERVICES FOR GREATER EFFICIENCY

## Maestro connect

### CONNECT YOUR MACHINE AND GAIN ACCESS TO A WORLD OF SERVICES

Connecting your machine through Maestro connect will let you subscribe a program of fast evolving services. You will access a wide range of benefits that even go beyond the machine experience and will support and assist you through the whole life-cycle of your machine.

### FASTER SERVICE INTERVENTION AND PROBLEM RESOLUTION

Maestro connect provides real time data and Health Records of the Machine also to SCM Service drastically reducing its troubleshooting time.

### WORKING ALWAYS IN PERFECT CONDITIONS

Maestro Connect can provide a full kit of sophisticated sensor devices to detect and warn the operator in case of alarming conditions of the machine.

## DIGITAL SERVICES

### SMART MAINTENANCE: DOWN TIME REDUCTION

Maestro connect reduces maintenance downtime thanks to:

- Automatic maintenance notifications and scheduling, to prevent failures and work in the best conditions of use
- Direct connection to SCM Service thanks to an automatic ticket opening function

### SMART MACHINE: ANYTIME, ANYWHERE AWARENESS

Connecting your SCM machine means having your machine always at hand.

Maestro connect allows to display machine information in real time from any position and sends instant notifications to connected devices (PC, tablet, smartphones) in case of alarms or downtimes. Allowing customers to verify that recovery actions are immediate and without delay.

### SMART MANAGEMENT: PRODUCTION PERFORMANCE OPTIMISATION

Reports and KPIs allow further analysis thus increasing Customer Knowledge about his performance and results.

### SMART PARTS: FAST PARTS REPLENISHMENT

Repairs are scheduled proactively since the system provides Spare Parts suggestions and a direct Integration with Smart Parts e-shop.

### SMART LEARNING: EXECUTE WORK AND RECEIVE PROBLEM SOLVING SUPPORT

Maestro connect provides an intuitive Problem Solving Management System to help the operator to self-solve any issue.

### SMARTTECH: FASTER AUGMENTED SUPPORT

Maestro connect allows augmented reality support by means of Smarttech: the head-wearable computers with wireless connectivity that will bring the interaction between customer and SCM service to a higher level.

### SMART WARRANTY: YOUR MACHINE ALWAYS IN PERFECT CONDITIONS

Together with scheduled maintenance contracts, you can take care of your asset by doubling the warranty from 1 year to 2 years\* for complete peace of mind!

\*please read the complete contract to understand terms and conditions.

# TECHNICAL DATA

## morbidelli x100

CNC nesting machining centre for drilling and routing

### morbidelli x100

#### AXES

Vectorial speed X-Y axes "PRO-SPACE" version	m/min feet/min	70/1' 230/1'
Z-axis stroke	mm inch	150 9.8
Z-axis panel clearance	mm inch	150 5.9

#### ROUTING UNIT

Motor power 3 / 4 axes (up to)	kW (hp)	15 (20.5)
Rotation speed (up to)	rpm	24000
Available tools on tool changer (up to)	positions	31

#### DRILLING UNIT

Independent vertical spindles (up to)	no.	12
Independent horizontal spindles (up to)	no.	6
Rotation speed (up to/max.)	rpm	8000
Integrated blades (up to)	no.	2
Integrated blade, diameter	mm	125
Integrated blade rotation speed (up to)	rpm	10000



## 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.

The brochure includes and refers to option devices as well.



# WE'LL GO THE EXTRA MILE FOR YOU

SCM OFFERS A FULL RANGE OF **HIGHLY SPECIALISED SERVICES** WITH A QUALITY AND RELIABILITY THAT STEM FROM 70 YEARS OF EXPERIENCE IN THE INDUSTRY.





From installation and production start-up to services and maintenance. From training to the supply of specific original spare parts: **we provide solutions designed around you!**

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 spareparts@scmgroup.com  
 www.scmwood.com



My Scm

 <p><b>SERVICE AND MAINTENANCE</b></p> <ul style="list-style-type: none"> <li>• Remote support</li> <li>• Scheduled maintenance contracts</li> <li>• Warranty extension</li> </ul>	 <p><b>TRAINING SERVICE</b></p> <ul style="list-style-type: none"> <li>• Courses for machine operators</li> <li>• Software and programming courses</li> <li>• Training in production start-up</li> </ul>
 <p><b>SPARE PARTS</b></p> <ul style="list-style-type: none"> <li>• Recommended spare parts list</li> <li>• E-shop</li> <li>• Interactive spare-parts catalogues</li> <li>• Repairs on electronic parts, glue tanks and electro-spindles</li> </ul>	 <p><b>DIGITAL SERVICES</b></p> <ul style="list-style-type: none"> <li>• Maestro Connect - IoT platform to be constantly connected with your machines</li> <li>• Smartech - assistance with augmented reality</li> <li>• My Scm portal - opening of service ticket and single point of access to the apps and Services tools</li> </ul>

# THE STRONGEST WOOD TECHNOLOGIES ARE IN OUR DNA

## SCM. A HERITAGE OF SKILLS IN A UNIQUE BRAND

70 years of success gives SCM the centre stage in woodworking technology. This heritage results from bringing together the best know-how in machining and systems for wood-based manufacturing. SCM is present all over the world, brought to you by the widest distribution network in the industry.

- 70 years history
- 3 main production sites in Italy
- 300.000 square metres of production space
- 20.000 machines manufactured per year
- 90% export
- 20 foreign branches
- 400 agents and dealers
- 500 support technicians
- 500 registered patents

In SCM's DNA also strength and solidity of a great Group. The SCM Group is a world leader, manufacturing

## SCM GROUP, A HIGHLY SKILLED TEAM EXPERT IN INDUSTRIAL MACHINES

### INDUSTRIAL MACHINERY

Stand-alone machines, integrated systems and services dedicated to processing a wide range of materials.



WOODWORKING TECHNOLOGIES



TECHNOLOGIES FOR PROCESSING  
COMPOSITE MATERIALS, ALUMINIUM,  
PLASTIC, GLASS, STONE, METAL

industrial equipment and components for machining the widest range of materials.

## AND COMPONENTS

### INDUSTRIAL COMPONENTS

Technological components for the Group's machines and systems, for those of third-parties and the machinery industry.



SPINDLES AND TECHNOLOGICAL  
COMPONENTS



ELECTRIC PANELS



METALWORK



CAST IRON