

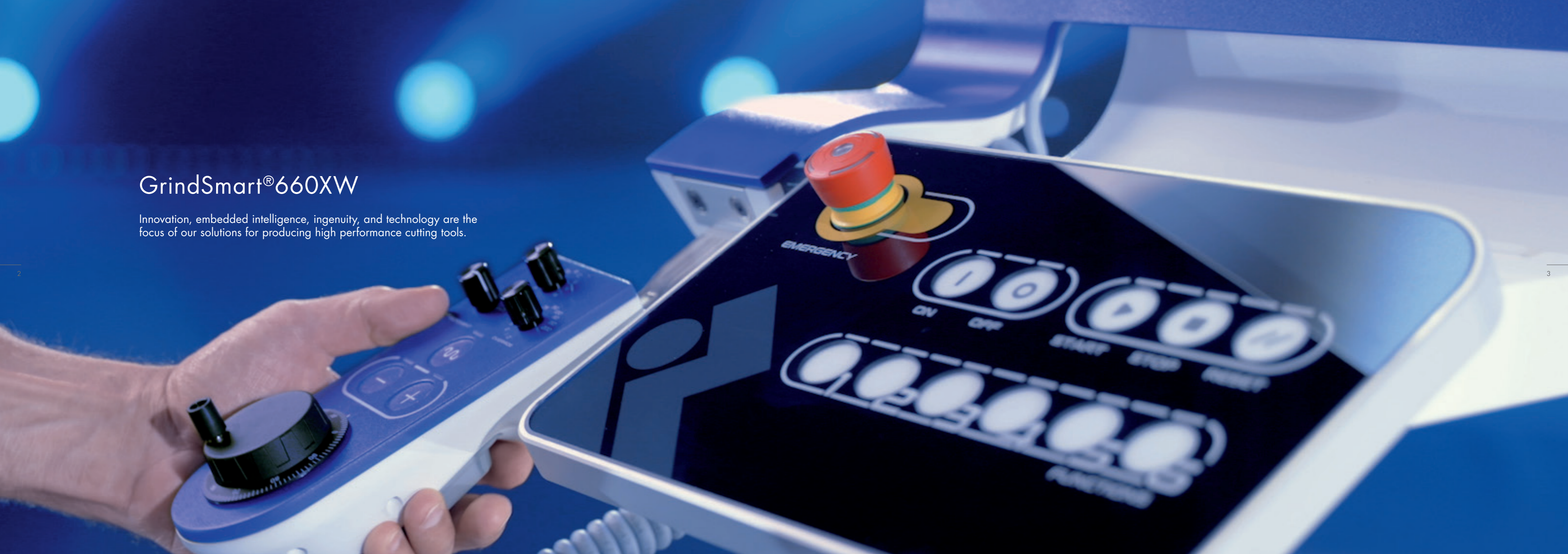


# GRINDSMART® 660XW

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# GrindSmart®660XW

Innovation, embedded intelligence, ingenuity, and technology are the focus of our solutions for producing high performance cutting tools.











## UNIQUE AXIS CONFIGURATION WITH SMALL FOOTPRINT

The GrindSmart®660XW has been designed for rotary cutting tool applications ranging from diameter 0.1 to 12.7mm in an amazingly compact layout which includes a large capacity tool loader and a high-speed wheel changer with 6 wheel-pack positions. The machine features the latest linear and torque motor technology on each axis, as well as a 14kW synchronous spindle motor. All these components are cooled with the same coolant oil providing a perfect thermal stability, unbeatable accuracy in production as well as extremely good surface finish on the tools.

The machine features 4 linear and 2 rotary axes. The unique aspect is the workhead which is mounted on a CNC linear axis. With this feature, the tool grinding and the well-known Rollomatic peel grinding process are combined together into a single machine model. The benefit of the traveling workhead for peel grinding operations is that the grinding wheel is always on top of the steady rest while the workhead axis is pushing the tool through the grinding wheel, providing excellent process stability. This CNC workhead axis is also a great benefit for drill applications, as an innovative steady rest design combines optimal tool support for fluting and for pointing.

### ADVANTAGES

#### SUSTAINABILITY

- > No additional chiller needed as linear, torque and spindle motors are cooled with the regular coolant oil
- > Programmable warm-up mode
- > Sleep mode or auto shut-off at cycle end
- > Highly efficient synchronous spindle motor technology providing 14kW and 23Nm
- > Smaller footprint compared to other machine brands on the market

#### USER FRIENDLINESS

- > Ultra-modern and easy to use control panel with a very large touch screen monitor
- > Height adjustment of the control panel for optimal operator comfort
- > An ergonomic "handset" can be detached from the control panel to help the operator in the setup procedures
- > Excellent machine accessibility for setup and maintenance
- > Sampling for manual inspection can be done without cycle interruption thanks to the "Shuttle"



# ULTRA-EFFICIENT LEAN GRINDING PROCESS

Reducing lead time, combining multiple grinding operations and optimizing process management are challenges which the new GrindSmart®660XW is capable of meeting.

With an innovative 6-axis CNC axes configuration including a traveling workhead, the GrindSmart®660XW has been specifically designed to combine all grinding operations needed for manufacturing rotary cutting tools in a single machine model. In particular, an ultra-efficient lean grinding process has been developed to grind applications in one clamping from solid blanks, including blank preparation, geometry grinding and peeling of long necks.

Combining all these operations on a single machine means that only one setup is required which will reduce setup times. As the process eliminates all non-added value operations, the time taken from the beginning to the end of the manufacturing process is significantly shortened and the production management is drastically simplified.

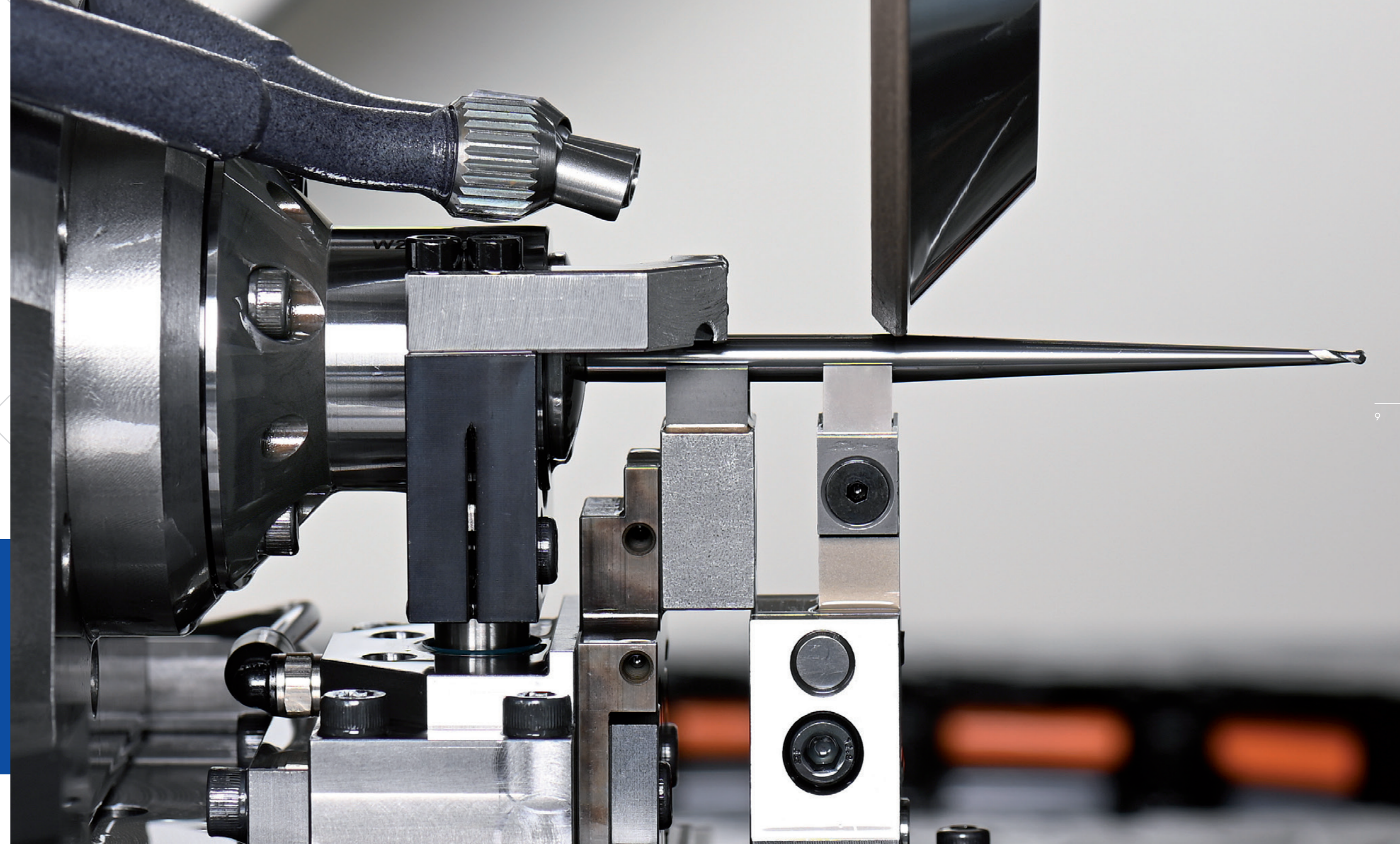
## ADVANTAGES

### EFFICIENCY

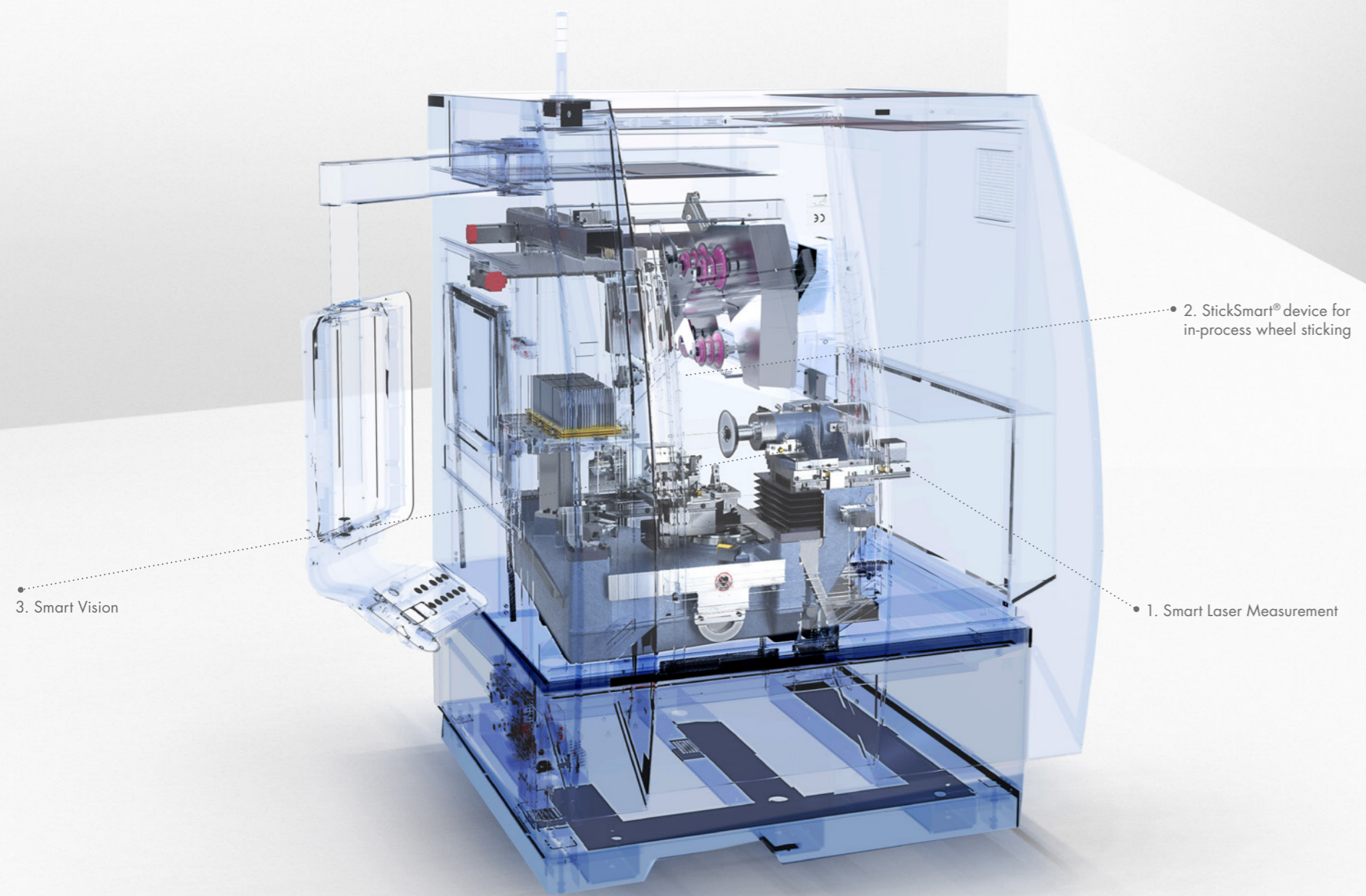
- > Shorter cycle time with the Ultra-Efficient Lean Grinding Process
- > Simple and lean production management
- > Entire manufacturing process is at least 3 times more efficient
- > Complete tool grinding in one single setup

### PRODUCTIVITY

- > Ultra-compact and integrated tool loader with a capacity of up to 1,360 parts and a super-fast 6-positions wheel changer
- > Simultaneous changing of wheel packs during the tool loading & unloading
- > Very short setup times with the latest Auto-Setup feature
- > Optimized axis configuration and movements provide shorter cycle times







# MACHINE OPTIONS

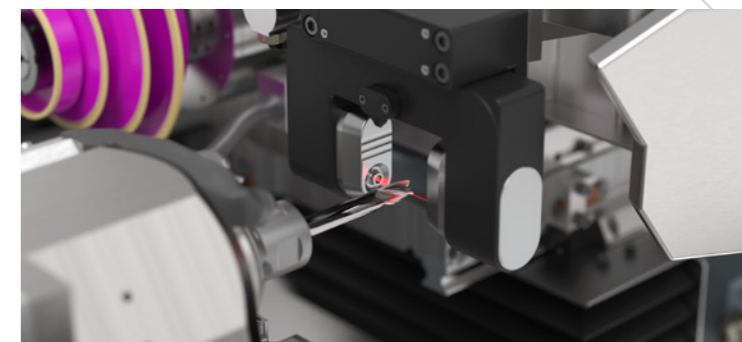
## EQUIP YOUR GRINDSMART®660XW IN A PERSONALIZED WAY

With fully customizable options and easily interchangeable tooling, the Rollomatic machines have been designed to satisfy a high level of current and future tooling requirements. Thus, each user with specific needs will find the options necessary to arrive at tailor-made solutions to grind a large variety of diverse cutting tools on this machine.

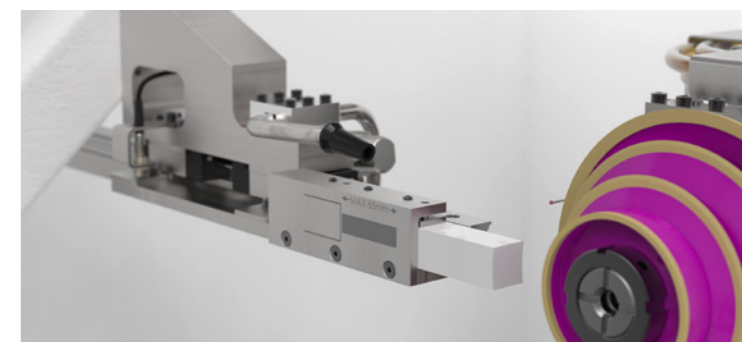
The in-process laser measuring option further increases the manufacturing autonomy of the machine and permits to maintain the tightest tolerances during unattended production.

Regular wheel sticking will maintain constant cutting efficiency of the grinding wheels. This feature is called StickSmart® and it can be programmed to occur automatically between operations or after a preset number of tools. Manual operator intervention for wheel sticking is therefore no longer necessary.

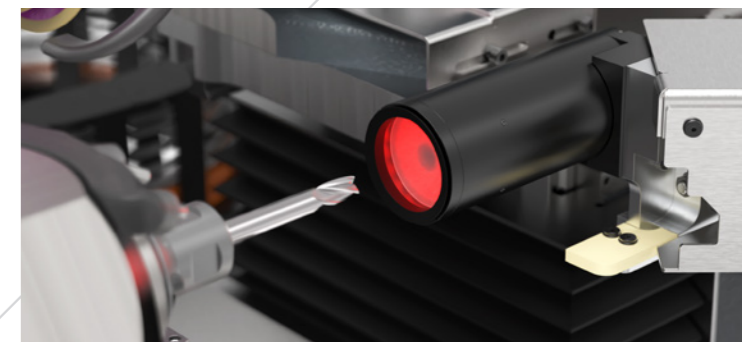
The Smart Vision camera has been developed to identify the position of coolant holes and then optimally orientate them prior to grinding operations. This device can measure holes from Ø 0.05mm to Ø 1.0mm on tools up to 8.0mm in diameter. The software also enables measurement cycles to be customized for specific applications.



1. Smart Laser Measurement

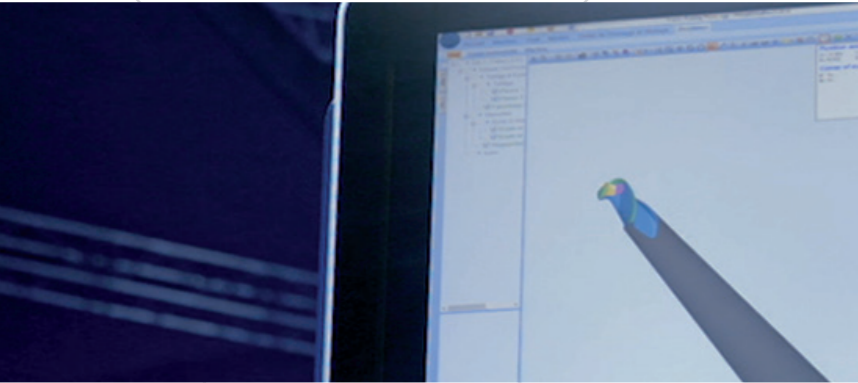


2. StickSmart® device for in-process wheel sticking



3. Smart Vision





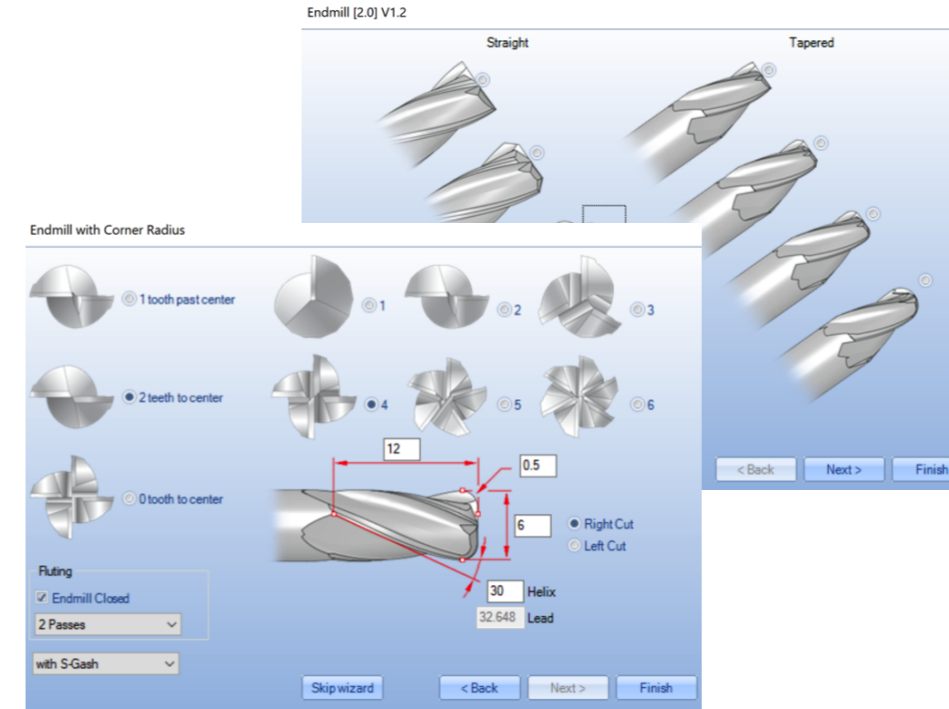
# VIRTUALGRIND® PRO

## UNLIMITED PROGRAMMING SOLUTIONS

The powerful and flexible VirtualGrind®Pro software was developed by our own team of software engineers to meet all the requirements of our customers. VirtualGrind®Pro is modern, user-friendly and specifically optimized for Rollomatic grinding machines. Offering a perfect combination, the user can program a tool in only a few clicks and grind all types of standard or special cutting tools.

GrindSmart® machines are delivered with the complete software suite offering the user a variety of choices for any tool needed. Thus, the user will be able to manufacture, at any time, the most up-to-date tools thanks to free software updates throughout the entire machine lifetime.

A 3D simulator displays both the programmed tool and machine movements before grinding in order to reduce setup time, enable faster verification and avoid any possible collisions while optimizing production time.



## WIZARD ASSISTANT

Wizard assistant enables programming a tool in just a few clicks.

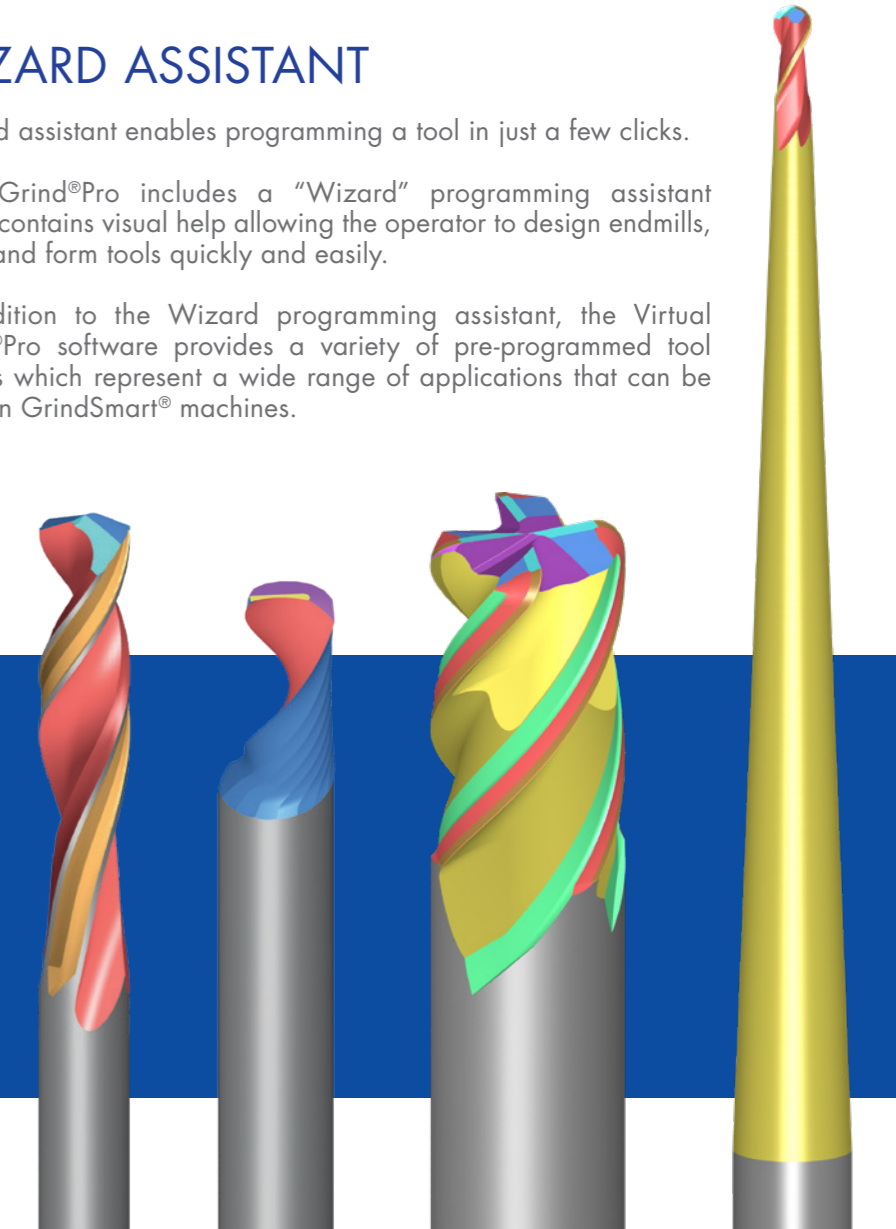
VirtualGrind®Pro includes a "Wizard" programming assistant which contains visual help allowing the operator to design endmills, drills, and form tools quickly and easily.

In addition to the Wizard programming assistant, the Virtual Grind®Pro software provides a variety of pre-programmed tool models which represent a wide range of applications that can be used on GrindSmart® machines.

## ADVANTAGES

### VIRTUALGRIND®PRO

- > All software features and packages are included with Rollomatic machines
- > Free software updates during the entire machine lifetime
- > 3D simulator
- > Program tools in just a few clicks with the Tool Wizard
- > Wide range of tool programs available within the built-in tool library
- > Offline access for pre-production work on an external PC







# ROLLOMATIC AUTONOMOUS GRINDING™

Our vision of "Autonomous Grinding" is to provide Rollomatic machine users with a fully autonomous machine capable of managing the production by itself with very little human intervention.

A part of this ambitious project is the ability of the machine to manage the offsets to get the first parts within specification. Further items include to be able to achieve unattended production over several days within very tight tolerances and to interact with external robotic and automation systems.

The Autonomous Grinding project also includes machine connectivity and communication exchange systems with other equipment such as measuring machines, laser etching, etc.

## CONNECTIVITY

### RMONITOR

- > Visualization of real-time data via a mobile app (notifications included)
- > Display of the machine production rate over a chosen period

### RCONNECT

- > Uses a standard OPC-UA protocol
- > On-demand information is reported in a standardized format and can be used to improve the production process over time
- > Possibility to read and edit any machine data





# WORLDWIDE CUSTOMER SUPPORT

## RESPONSIVE & IN CLOSE COLLABORATION

Rollomatic pays special attention to customer needs, levels of product training, and helps to maintain high production capabilities of their machines. To do this, Rollomatic has developed an extensive international network of know-how.

## ROLLOMATIC LEARNING CENTER

More than 200 training courses are conducted yearly by our highly qualified multilingual personnel to deliver key learning objectives through continual workforce upskilling to guarantee the sustainable growth of the customers. We pledge to share our experience and expertise in the design of cutting tools as well as grinding technology and procedures encompassing all stages: perfect machine setup, grinding process optimization, unattended production and tool measurement.

The series of Rollomatic eLearning courses are user-friendly and include effective software training that enhances the operator's know-how and the ability to increase the machine productivity.

## AFTER-SALES SERVICE

Rollomatic offers its customers a free hotline that responds to their requests in a reactive and accurate manner during the entire machine lifetime. The mission of its After-Sales Service is to provide qualified and competent technical assistance thanks to a team of technicians specially trained on all new products and machine customizations.



## ADVANTAGES

### TRAINING AND CUSTOMER SUPPORT

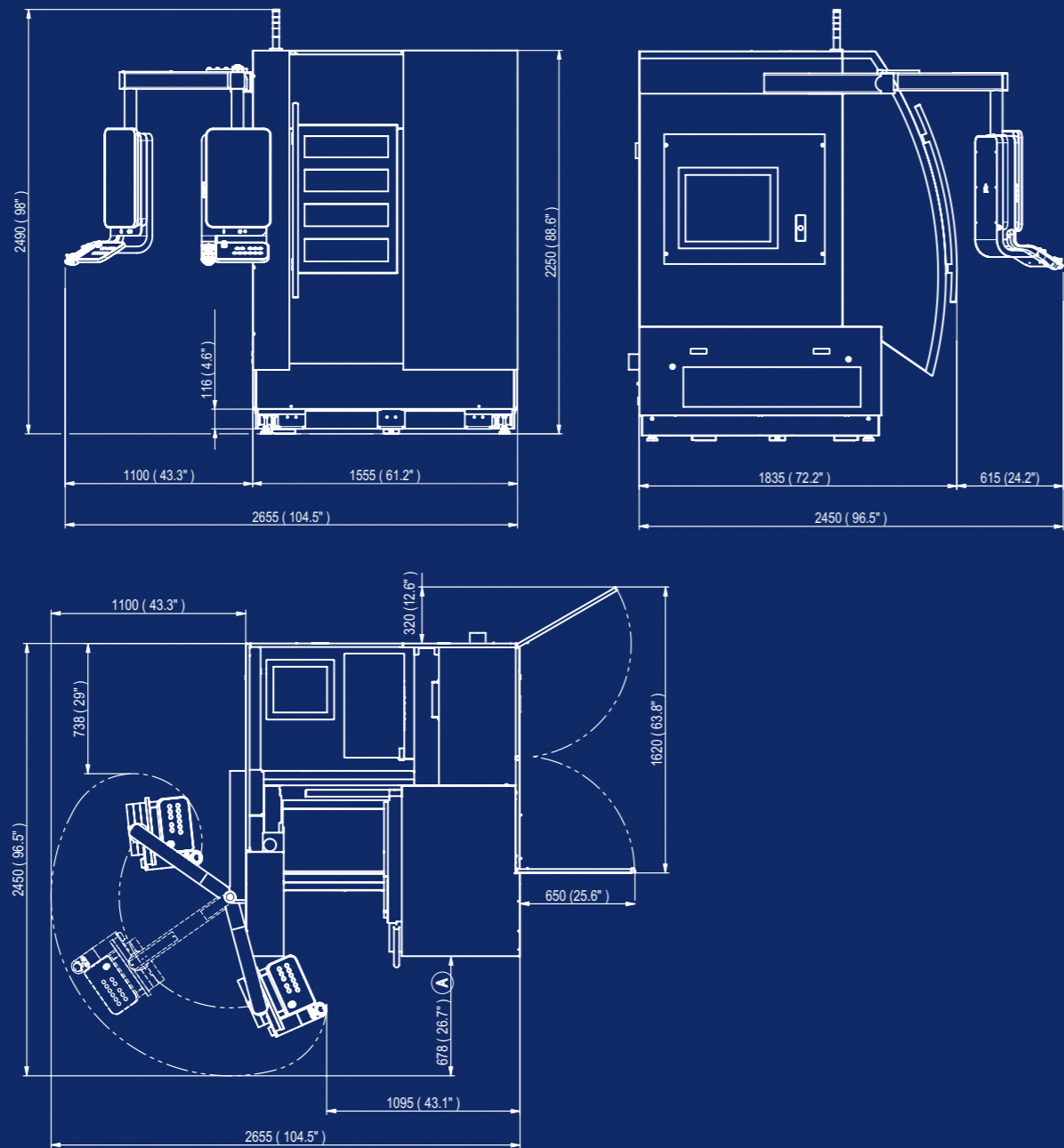
- > Training according to specific customer needs
- > Wheel profiling techniques
- > Assistance in designing new tools
- > Sharing of tool measurement techniques
- > Long-term commitment to support users of Rollomatic machinery
- > Training on our software provided at all levels of knowledge
- > Openly sharing our grinding know-how and expertise

### AFTER-SALES SERVICE

- > A support hotline consisting of highly qualified technicians trained in machine diagnostics
- > 70% of service cases are able to be solved remotely
- > Constant in-house stock of consumable parts reserved for after-sales service
- > Remote maintenance diagnostic service



**GRINDSMART®660XW FOOTPRINT**



**GRINDSMART®660XW TECHNICAL DATA**

<b>GRINDING RANGE</b>	Ø 0.1 – 12.7 mm (.004" – .5")
<b>CONTROL</b>	FANUC 30iMB
<b>X axis</b>	Stroke 350 mm (13.8")
	Fast travel 12 m/min. (473"/min.)
	Encoder type Absolute linear scale
	Resolution 0.00001 mm (.0000004")
<b>Y axis</b>	Stroke 130 mm (5.1")
	Fast travel 12 m/min. (473"/min.)
	Encoder type Absolute linear scale
	Resolution 0.00001 mm (.0000004")
<b>Z axis</b>	Stroke 125 mm (4.9")
	Fast travel 12 m/min. (473"/min.)
	Encoder type Absolute linear scale
	Resolution 0.00001 mm (.0000004")
<b>Zp axis</b>	Stroke 160 mm (6.3")
	Fast travel 12 m/min. (473"/min.)
	Encoder type Absolute linear scale
	Resolution 0.00001 mm (.0000004")
<b>B axis</b>	Stroke -61 to 111.5° (172.5°), direct drive
	Fast rotation 8640°/min.
	Encoder type Rotary measuring encoder
	Resolution 0.00005°
<b>C axis</b>	Stroke Tool rotation
	Fast rotation 0 - 3000 r.p.m.
	Encoder type Rotary measuring encoder
	Resolution 0.0001°
<b>GRINDING MOTOR SYNCHRONOUS</b>	
Power	11 kW (15 HP), direct drive
Peak Power	14 kW (19 HP)
Rotation speed	500 – 12000 r.p.m.
Grinding wheels	Ø 150 mm (5.9")

<b>WHEEL CHANGER</b>	
Wheel pack capacity	6
Number of wheels per pack	4
Attachment	HSK50E
<b>CLAMPING</b>	
Clamping system	Adapters Schaublin and Nann (W20/W12/W5/TR20)
Clamping range	Ø 0.5 – 12.7 mm (.02" – .5")
Collet clamping	Mechanical clamping/ Pneumatic opening
<b>ROBOT LOAD &amp; UNLOAD</b>	
Number of tools	Up to 1360 (6 cassettes)
Shank diameter	Ø 0.5 – 12.7 mm (.02" – .5")
Max. overall length	200 mm (7.9")
Speed	60 m/min [2362"/min.]
Clamping	Pneumatic
<b>TOOL SUPPORTS</b>	
Shank support	«V» clamping, Pneumatic
Cutting portion support	«V» or Half moon, Pneumatic
<b>MACHINE</b>	
L x W x H	1840 x 1560 x 2250 mm (72.4" x 61.4" x 88.6")
Weight	2500 kg (5512 lbs)
Total power	Maximum 18 kW 3 x 400V/25A

\* Specifications are subject to change without notice



[www.rollomaticsa.com](http://www.rollomaticsa.com)