



GRINDSMART®

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GrindSmart®

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





## GrindSmart® 630 & 530 SERIES

### LINEAR MOTORS FOR THE LATEST AXIS MOTION CONTROL

The latest linear motion technology of the GrindSmart® series is equipped with linear motors, combined with the torque motor on the rotary axis, provides more benefits such as enhanced surface finish and reduced maintenance costs. The oil used for cooling and lubricating the linear motors is the same as the coolant oil. This ensures consistent thermal stability during setup and production without incurring additional energy consumption.

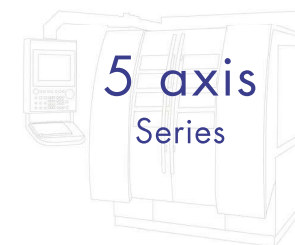
The 2 families are differentiated by the number of axes, respectively 5 for the 530 and 6 for the 630. The 6<sup>th</sup> axis concept of this machine is unique in the grinding industry. It provides improved accuracy on ballnose endmills, or corner radii with a possibility to incline the grinding wheels and allows for easier programming with shorter empty moves during grinding operations.

Two innovative measurement processes are available touch probe and laser for unattended production and automatic drift compensation, enabling the GrindSmart® 630XW to offer an unparalleled productivity rate that can reach a 99% uptime.

The machines' small footprint allows for a minimum use of factory floor space.



6 axis  
Series



5 axis  
Series



GrindSmart®  
630XW3

GrindSmart®  
630XW

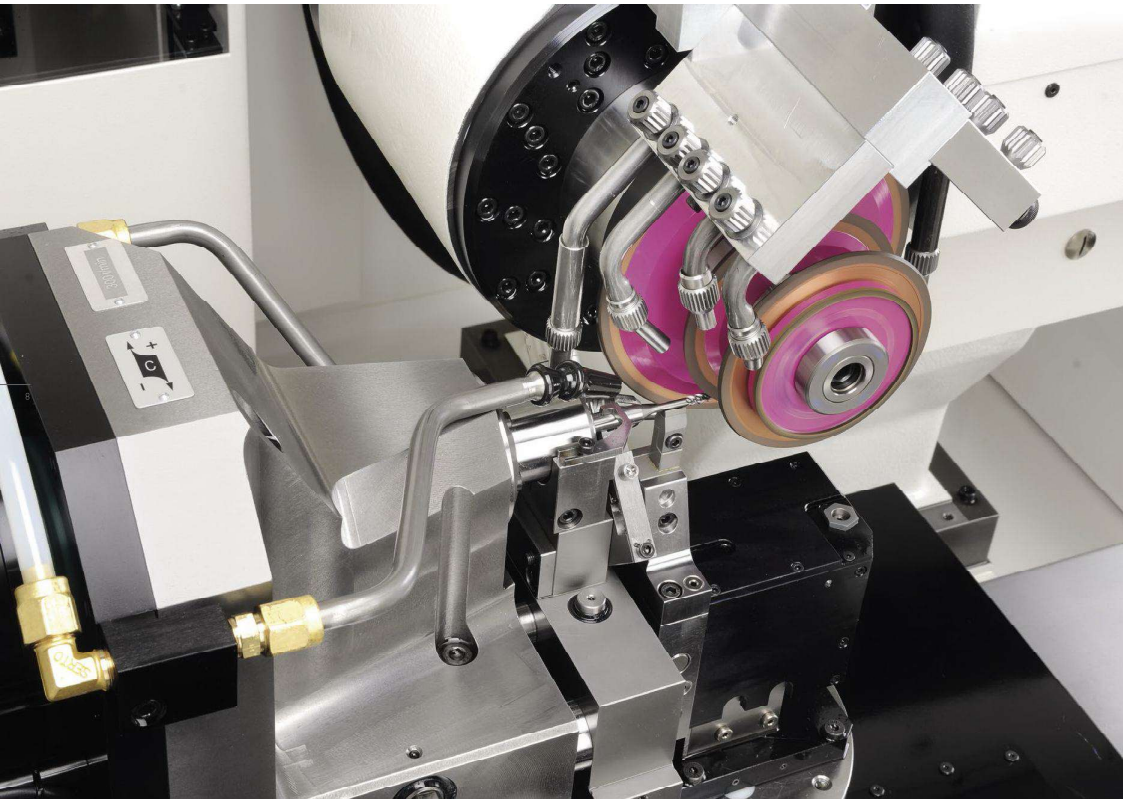
GrindSmart®  
630XS

GrindSmart®  
530XW

GrindSmart®  
530XS

GrindSmart®  
530XF





## GrindSmart® 630XW3/630XW/630XS

The 6-axis precision tool grinders GrindSmart® 630XW3, XW and XS have been designed for high performance and specialty tool manufacturing for both long and short batches. They cover a wide range from  $\varnothing$  0.1 to 20.0 mm (.004" - .75"). As standard, the three models include an automatic high speed pick & place tool loader with a capacity of up to 1,360 tools along with either a high-speed wheel & nozzle changer with 16 positions on the 630XW3 or 6 positions on the 630XW, or alternatively a double spindle on the 630XS which accommodates two wheel packs.

The ultra-efficient synchronous spindle motor on the 630XW3 and XW models provides constant rotation speed and torque regardless of the motor load. This technology offers the advantage to obtain perfectly consistent and high quality surface finishes, especially when the motor load is high.

This unique design of the new GrindSmart® series offers the greatest flexibility and reliability as well as an exceptional level of accuracy among all tool and cutter grinders on the market.



### ADVANTAGES

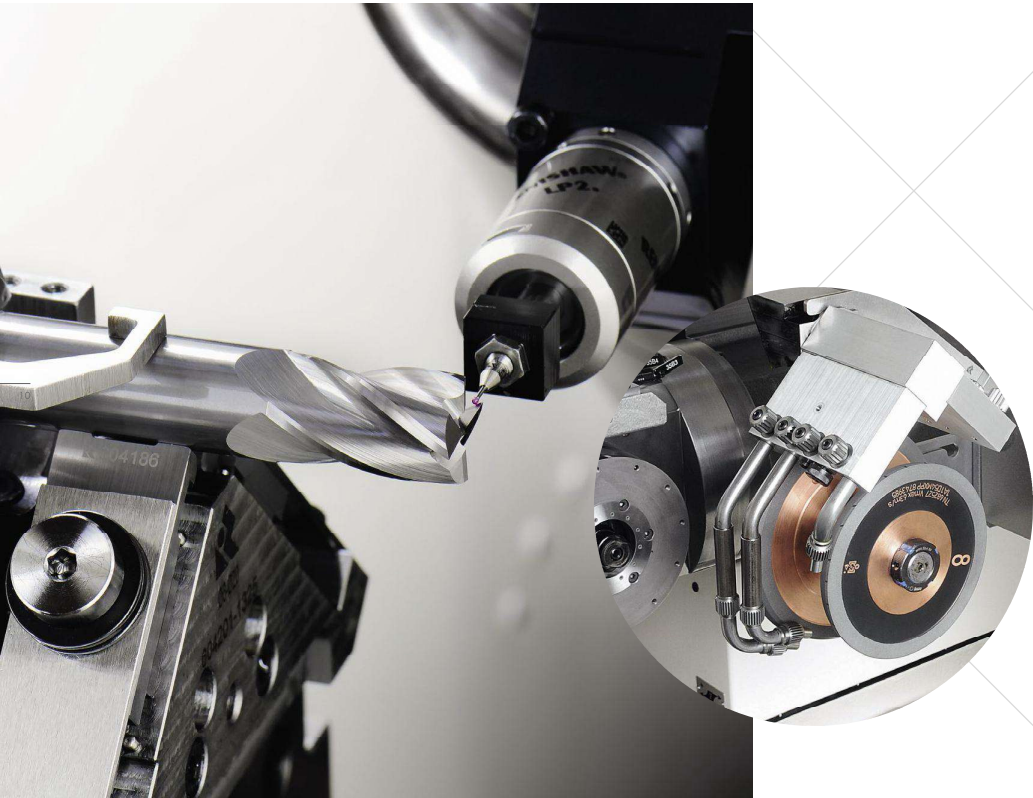
#### GrindSmart® 630 series

- > Typical productivity: 8,000 - 10,000 pieces per month
- > Patented shank guide and steady rest support to reach a concentricity of less than 0.002 mm
- > Short axis movements for greater stability and precision in production
- > Linear and torque motors provide mirror surface finish
- > Small footprint allows optimal use of available shop-floor space

- > JobManager software for unattended production of tools with different geometries
- > 6-axis kinematics for more flexibility and precision

#### GrindSmart® 630XW3/630XW

- > Enhanced productivity thanks to simultaneous changing of the wheel & nozzle packs during the tool loading/unloading cycle
- > High-performance synchronous spindle and redesigned HSK50 attachment provide consistent and high quality surface finish
- > Unique grinding capacity enables production of micro tools and large diameter tools all with the same machine



## GrindSmart® 530XW/530XS

The 5-axis precision tool grinders GrindSmart®530XW and XS have been designed for manufacturing high performance rotary cutting tools in both long and short batches covering a wide range from Ø 0.1 to 20.0 mm (.004" - .75") and Ø 25.0 mm (1") for rotary burs. The GrindSmart®530XW includes as standard a fast and reliable 6-position SmartChanger wheel changer providing highest flexibility and autonomy in grinding processes management. The GrindSmart®530XS features a direct drive single side spindle which accommodates a wheel pack of up to 4 wheels. Both models offer optional an automatic high speed pick & place tool loader with a capacity of up to 1,360 tools.

The ultra-efficient synchronous spindle motor on the 530XW model provides constant rotation speed and torque regardless of the motor load. This technology offers the advantage to obtain perfectly consistent and high quality surface finishes, especially when the motor load is high.



### ADVANTAGES

#### GrindSmart®530 series

- > Typical productivity: 8,000 - 10,000 pieces per month
- > Patented shank guide and steady rest support to reach a concentricity of less than 0.002 mm
- > Short axis movements for greater stability and precision in production
- > Linear and torque motors provide mirror surface finish
- > Small footprint allows optimal use of available shop-floor space

#### GrindSmart®530XW

- > Enhanced productivity thanks to simultaneous changing of the wheel & nozzle packs during the tool loading/unloading cycle
- > High-performance synchronous spindle and redesigned HSK50 attachment providing consistent and high quality surface finish
- > Unique grinding capacity enables production of micro-tools and large diameter tools all with the same machine

- > JobManager software for unattended production of tools with different geometries

## GrindSmart® 530XF

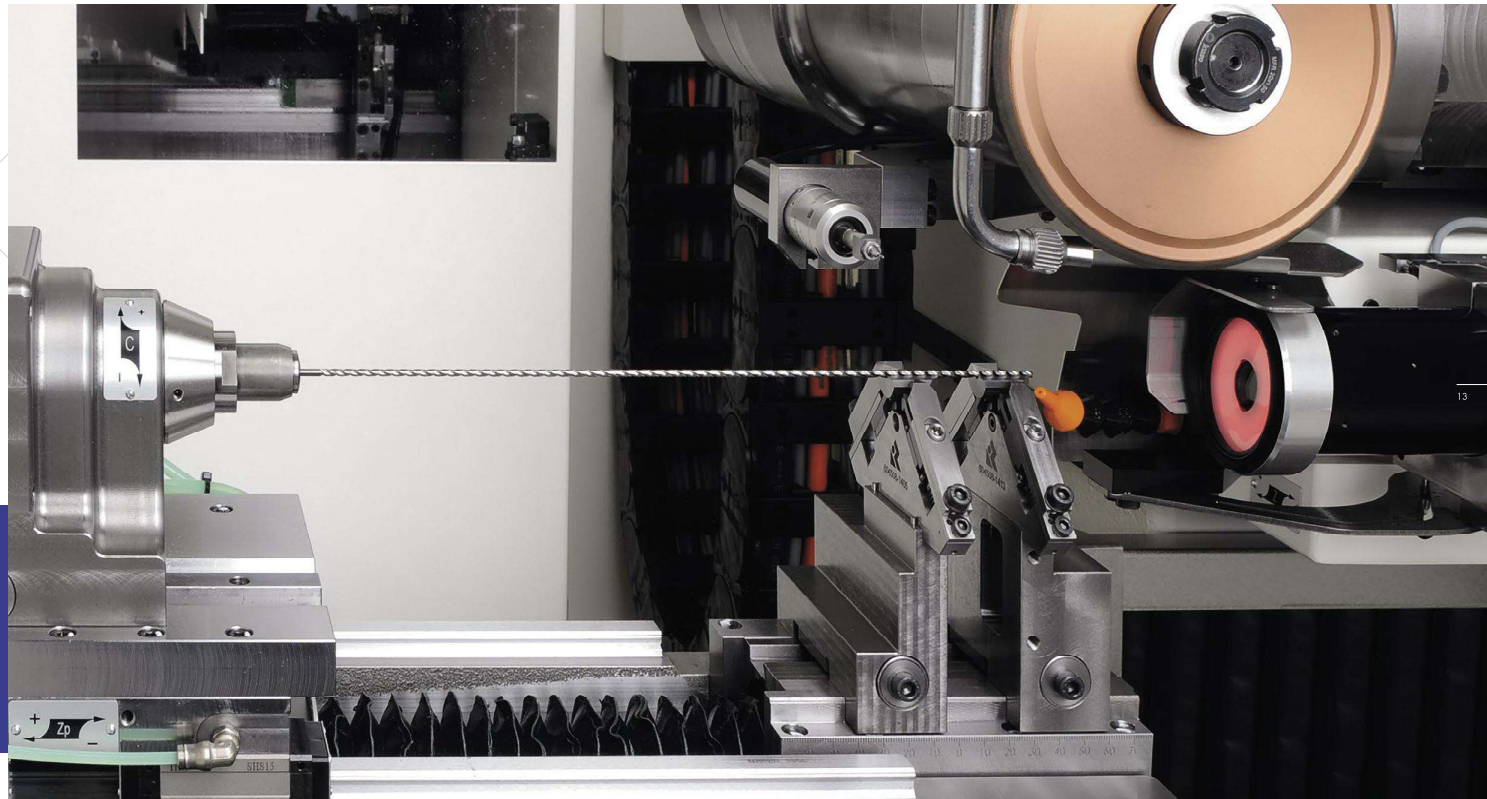
Equipped with linear motors, the new generation of GrindSmart®530XF has been designed for the production of ultra-long drills ranging from  $\varnothing$  0.3 up to 8.0 mm [.012" - 0.3"] with the ability to reach diameter and length ratios beyond 200xD.

A special feature of this model is the motorized workhead axis which combines with the X and Z-axis for long flute and relief grinding. The machine control ensures that the grinding wheel remains on top of the steady rests during fluting and clearance grinding, thus allowing extreme cutting lengths up to 280 mm (11") as well as small diameter tools to be ground.

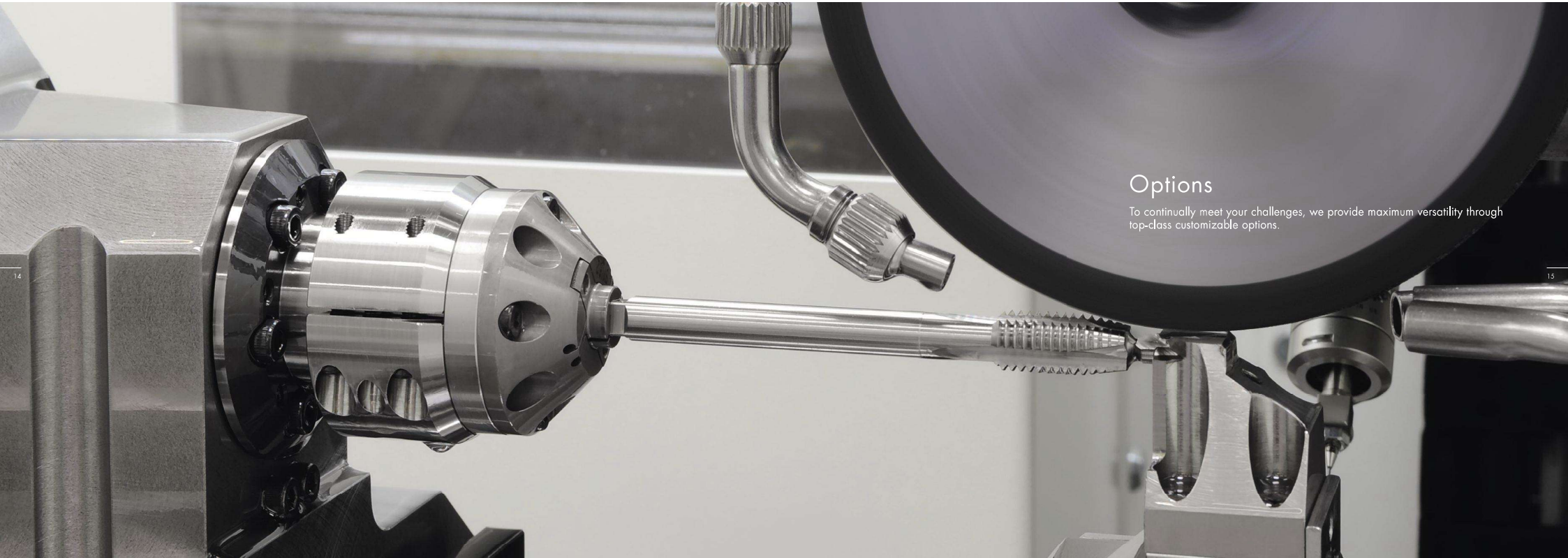
The standard equipment supplied with this machine includes a high-speed automatic wheel & nozzle changer that can hold up to 6 wheel packs (24 grinding wheels), an automatic high speed and reliable pick and place tool loader with a capacity of up to 1,360 tools, and patented tool guide systems offering a very easy setup.

### ADVANTAGES

- > Motorized workhead axis for extreme flute lengths
- > Patented shank guide and double steady rest support system for grinding both micro drills and other applications such as milling cutters with long neck on the same machine
- > Linear and torque motors provide mirror surface finish
- > Unique grinding capacity enables production of all kinds of cutting tools even mold endmills in one clamping
- > including cylindrical grinding
- > Enhanced productivity thanks to simultaneous changing of the wheel & nozzle packs during the tool loading/unloading cycle
- > High-performance synchronous spindle and redesigned HSK50 attachment providing consistent and high quality surface finish
- > Ultra-compact tool loader integrated into the machine without taking up any additional footprint



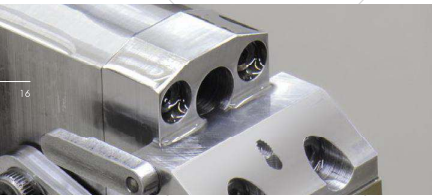




## Options

To continually meet your challenges, we provide maximum versatility through top-class customizable options.





# INNOVATIVE HANDLING SYSTEMS

## MAXIMUM VERSATILITY

Tool producers with special applications will easily find a tailor-made solution in one of the Rollomatic models.

6-axis kinematics are particularly suitable for manufacturing inserts, medical tools, and other non-cylindrical tooling that require special clamping. Rollomatic offers an extensive variety of tool holding solutions to meet this demand.

In addition to a large range of clamping solutions, Rollomatic also offers special handling systems for the automatic loader.



Round shank clamping



Side entry collet



Clamping for blades



Disk clamping



Dog bone clamping



Square clamping with tailstock for taps & reamers



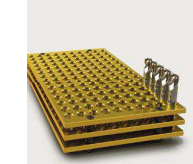
Collet clamping for profile inserts



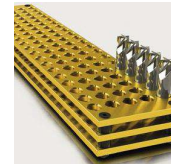
Clamping for inserts with hole in the center



Claw clamping with platform for milling inserts



Cassette for round shank



High-capacity cassette for round shank



Cassette for blades



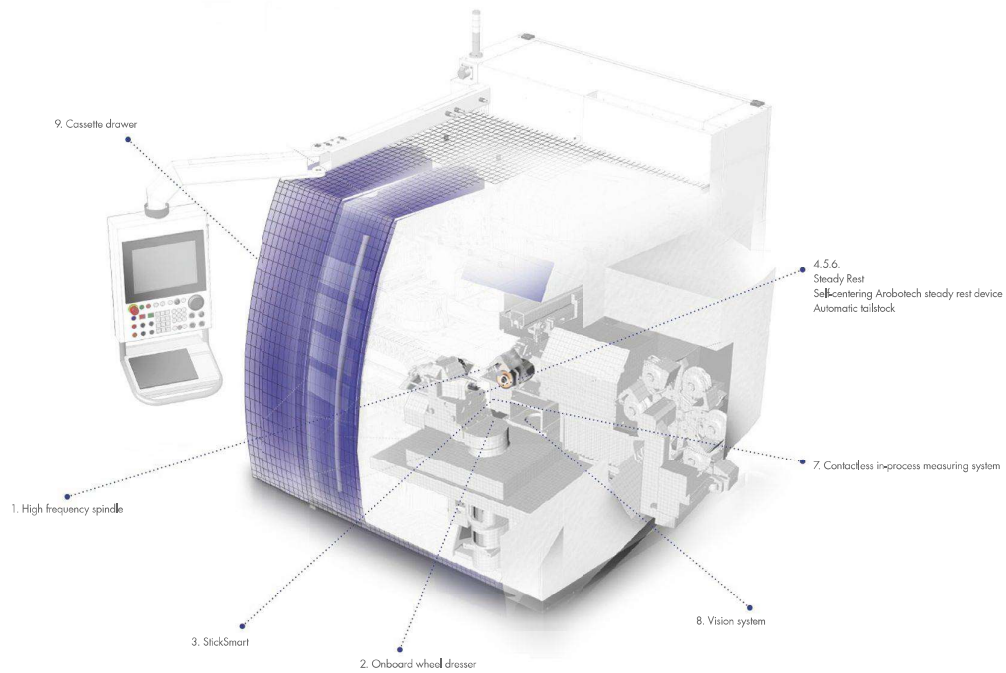
Cassette for inserts with hole in the center



Cassette for disks



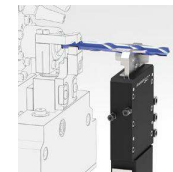
Cassette for milling inserts



## MACHINE OPTIONS TO MAXIMIZE PRODUCTIVITY

With fully customizable options and easily interchangeable tooling, the Rollomatic machines have been designed to meet any sort of requirements. Standard, custom-made, and high-performance rotary tools, inserts, interchangeable heads, reamers, taps, step and form tools, burs, threading tools, surgical and dental instruments and much more can be efficiently produced on the Rollomatic machines.

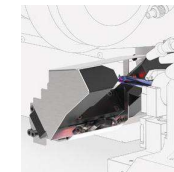
The integrated and flexible handling system allows for complete automation for any application. Choose adequate options for improving your production process.



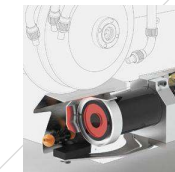
5. Self-centering Arabotech steady rest device



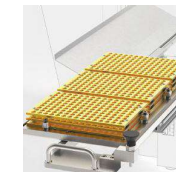
6. Automatic tailstock



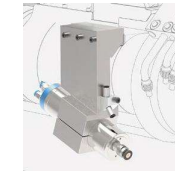
7. Contactless in-process measuring system



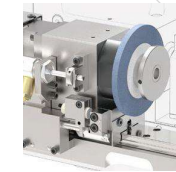
8. Vision system to locate miniature coolant holes



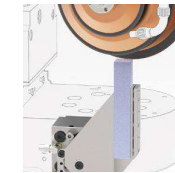
9. Cassette drawer



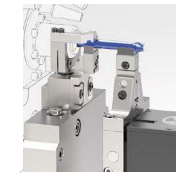
1. High frequency spindle 27,000 or 75,000 rpm



2. Onboard wheel dresser



3. StickSmart device for in-process wheel tracking



4. Steady Rest

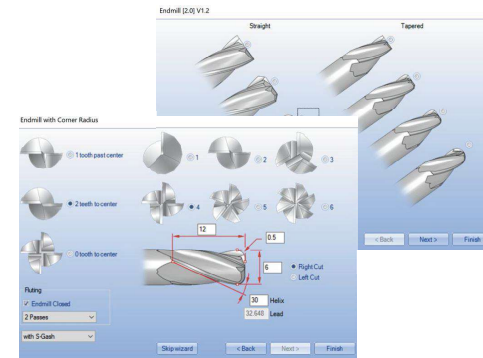


## VIRTUALGRIND® PRO UNLIMITED PROGRAMMING SOLUTIONS

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 customer 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, avoid any possible collisions while optimizing production time.



## WIZARD ASSISTANT

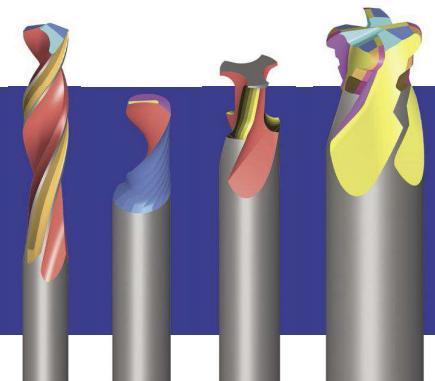
Wizard assistant enables programming a tool in just a few clicks.

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

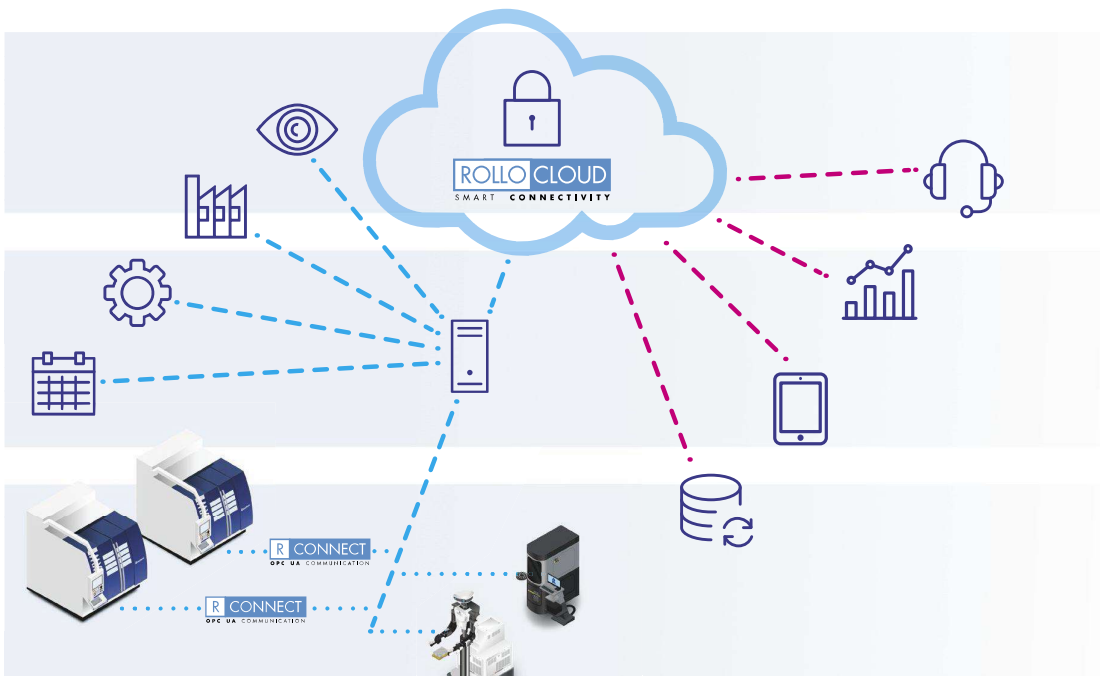
In addition to the Wizard programming assistant, the VirtualGrind®Pro software provides a variety of pre-programmed tool models which represent a wide range of applications that can be used on GrindSmart® machines.

## ADVANTAGES

- > 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







## SMART CONNECTIVITY AT THE HEART OF INDUSTRY 4.0

The concept of autonomous grinding, machine connectivity, unattended production and communication exchange systems are at the heart of our priorities. Production/manufacturing facilities composed of smart, connected machines allow information to be quickly shared with all internal and external logistic points at the manufacturing plant.

Rollomatic has developed three different services to respond to this new industrial space:

1. RMonitor is a machine monitoring software that can be used as a real-time production cockpit to improve the productivity, provide scheduling flexibility and display manufacturing history.
2. RConnect is designed to extract data from your Rollomatic machines, by using the standard communication protocol OPC-UA. The data can then be transferred to ERP programs, factory management software or measuring machines where it can be processed. Available through a license and directly connected via a local area network, this technology requires no additional equipment on the machine.
3. RolloCloud is the off-site platform that provides a series of modular cloud services including computing, data storage and data analytics. This IoT platform collects the data from your machines, analyzes it and presents it in an easy-to-understand format.

### ADVANTAGES

#### **RMonitor**

- > Visualization of the status of the machine in real time
- > 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

#### **RolloCloud**

- > Visualization of real-time data via a mobile app (notifications included)



# 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.

### TRAINING & SUPPORT

Our courses are taught by qualified, multilingual application engineers both at customer sites and our training centers in Switzerland, Japan, the USA, Taiwan, and China. Based in Switzerland, our showroom offers a stable environment with the latest generation peripheral equipment including wheel profiling and balancing, surface finish and tool geometry measurements.

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 skills, unattended production and grinding as well as tool measurement.

### 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

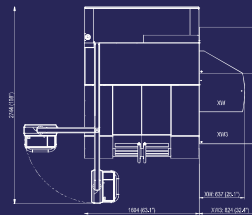
- > A support hotline consisting of highly qualified technicians trained in machine diagnostics
- > 70% of service cases are able to be solved remotely
- > Constant in-house stock of consumable parts reserved for after-sales service
- > Remote maintenance diagnostic service

GrindSmart®	630XW3	630XW	630XS
<b>GRINDING RANGE</b>	Ø 0.1 – 20.0 mm (.004" – .75")	Ø 0.1 – 20.0 mm (.004" – .75")	Ø 0.1 – 16.0 mm (.004" – .63")
<b>CONTROL</b>	FANUC 30iMB	FANUC 30iMB	FANUC 30iMB
<b>X axis</b>	Stroke: 300 mm (11.8")	300 mm (11.8")	300 mm (11.8")
Fast travel	12 m/min (473"/min)	12 m/min (473"/min)	12 m/min (473"/min)
Encoder type	Absolute linear scale	Absolute linear scale	Absolute linear scale
Resolution	0.00001 mm (.0000004")	0.00001 mm (.0000004")	0.00001 mm (.0000004")
<b>Y axis</b>	Stroke: 220 mm (8.6")	220 mm (8.6")	220 mm (8.6")
Fast travel	12 m/min (473"/min)	12 m/min (473"/min)	12 m/min (473"/min)
Encoder type	Absolute linear scale	Absolute linear scale	Absolute linear scale
Resolution	0.00001 mm (.0000004")	0.00001 mm (.0000004")	0.00001 mm (.0000004")
<b>Z axis</b>	Stroke: 180 mm (7")	180 mm (7")	180 mm (7")
Fast travel	12 m/min (473"/min)	12 m/min (473"/min)	12 m/min (473"/min)
Encoder type	Absolute linear scale	Absolute linear scale	Absolute linear scale
Resolution	0.00001 mm (.0000004")	0.00001 mm (.0000004")	0.00001 mm (.0000004")
<b>A axis</b>	Stroke: ±50° to 90° (140°)	±50° to 90° (140°)	±195° to 30° (225°)
Fast rotation	6480°/min.	6480°/min.	6480°/min.
Encoder type	Rotary measuring encoder	Rotary measuring encoder	Rotary measuring encoder
Resolution	0.0000125°	0.0000125°	0.0000125°
<b>B axis</b>	Stroke: -75° to 135° (210°), direct drive	-75° to 135° (210°), direct drive	-75° to 135° (210°), direct drive
Fast rotation	8640°/min.	8640°/min.	8640°/min.
Encoder type	Rotary measuring encoder	Rotary measuring encoder	Rotary measuring encoder
Resolution	0.00005°	0.00005°	0.00005°
<b>C axis</b>	Stroke: Tool rotation	Tool rotation	Tool rotation
Fast rotation	300 / 1000 r.p.m.	300 / 1000 r.p.m.	300 / 1000 r.p.m.
Encoder type	Rotary; on AC motor/measuring encoder	Rotary; on AC motor/measuring encoder	Rotary; on AC motor/measuring encoder
Resolution	0.0001°	0.0001°	0.0001°
<b>GRINDING MOTOR SYNCHRONOUS</b>			
Power	11 kW (15 HP), direct drive	11 kW (15 HP), direct drive	7 kW (10 HP), direct drive
Peak Power	14 kW (19 HP)	14 kW (19 HP)	11 kW (15 HP)
Rotation speed	500 – 12000 r.p.m.	500 – 12000 r.p.m.	500 – 10000 r.p.m.
Grinding wheels	Ø 200 mm (7.9")	Ø 200 mm (7.9")	Ø 200 mm (7.9")

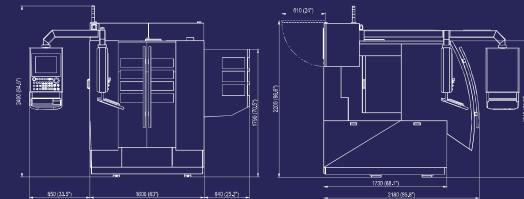
\* Specifications are subject to change without notice

GrindSmart®	530XW	530XS	530XF
<b>GRINDING RANGE</b>	Ø 0.1 – 20.0 mm (.004" – .75")	Ø 0.1 – 16.0 mm (.004" – .63") – .63" up to 25mm (1") for rotary burs	Ø 0.3 – 8.0 mm (.012" – 0.32")
<b>CONTROL</b>	FANUC 30iMB	FANUC 30iMB	FANUC 30iMB
<b>X axis</b>	Stroke: 300 mm (11.8")	300 mm (11.8")	300 mm (11.8")
Fast travel	12 m/min (473"/min)	12 m/min (473"/min)	12 m/min (473"/min)
Encoder type	Absolute linear scale	Absolute linear scale	Absolute linear scale
Resolution	0.00001 mm (.0000004")	0.00001 mm (.0000004")	0.00001 mm (.0000004")
<b>Y axis</b>	Stroke: 220 mm (8.6")	220 mm (8.6")	220 mm (8.6")
Fast travel	12 m/min (473"/min)	12 m/min (473"/min)	12 m/min (473"/min)
Encoder type	Absolute linear scale	Absolute linear scale	Absolute linear scale
Resolution	0.00001 mm (.0000004")	0.00001 mm (.0000004")	0.00001 mm (.0000004")
<b>Z axis</b>	Stroke: 180 mm (7")	180 mm (7")	180 mm (7")
Fast travel	12 m/min (473"/min)	12 m/min (473"/min)	12 m/min (473"/min)
Encoder type	Absolute linear scale	Absolute linear scale	Absolute linear scale
Resolution	0.00001 mm (.0000004")	0.00001 mm (.0000004")	0.00001 mm (.0000004")
<b>Zp axis</b>	Stroke: 250 mm		
Fast travel	12 m/min		
Encoder type	Rotary; on AC motor		
Resolution	0.00001 mm (.0000004")		
<b>B axis</b>	Stroke: -75° to 135° (210°), direct drive	-75° to 135° (210°), direct drive	-60 to 120° (180°), direct drive
Fast rotation	8640°/min.	8640°/min.	8640°/min.
Encoder type	Rotary measuring encoder	Rotary measuring encoder	Rotary measuring encoder
Resolution	0.00005°	0.00005°	0.00005°
<b>C axis</b>	Stroke: Tool rotation	Tool rotation	Tool rotation
Fast rotation	300 / 1000 r.p.m.	300 / 1000 r.p.m.	1000 r.p.m.
Encoder type	Rotary; on AC motor/measuring encoder	Rotary; on AC motor/measuring encoder	Rotary measuring encoder
Resolution	0.0001°	0.0001°	0.0002°
<b>GRINDING MOTOR SYNCHRONOUS</b>			
Power	11 kW (15 HP), direct drive	7 kW (10 HP), direct drive	11 kW (15 HP), direct drive
Peak Power	14 kW (19 HP)	11 kW (15 HP)	14 kW (19 HP)
Rotation speed	500 – 12000 r.p.m.	500 – 10000 r.p.m.	500 – 12000 r.p.m.
Grinding wheels	Ø 200 mm (7.9")	Ø 200 mm (7.9")	Ø 200 mm (7.9")

GrindSmart®	630XW3	630XW	630XS
<b>WHEEL CHANGER SMARTCHANGER</b>			
Wheel pack capacity	16	6	6
Number of wheels per pack	4	4	4
Attachment	HSK50E	HSK50E	
<b>CLAMPING</b>			
Clamping system	Adapters Schaublin and Nann	Adapters Schaublin and Nann	Adapters Schaublin and Nann
Clamping range	Ø 0.5 – 20.0 mm (.02" – .75")	Ø 0.5 – 20.0 mm (.02" – .75")	Ø 0.5 – 20.0 mm (.02" – .75")
Clamping type	Mech. spring clamping	Mech. spring clamping	Mech. spring clamping
<b>ROBOT LOAD &amp; UNLOAD</b>			
Number of tools	Up to 1360 (6 cassettes)	Up to 1360 (6 cassettes)	Up to 1360 (6 cassettes)
Shank diameter	Ø 1.0 – 20.0 mm (.04" – .75")	Ø 1.0 – 20.0 mm (.04" – .75")	Ø 1.0 – 20.0 mm (.04" – .75")
Max. overall length	300 mm (12")	300 mm (12")	300 mm (12")
Speed	65 m/min (2560"/min)	65 m/min (2560"/min)	65 m/min (2560"/min)
Clamping	Hydraulic	Hydraulic	Hydraulic
<b>TOOL SUPPORTS</b>			
Shank support	±Vx damping, Hydraulic	±Vx damping, Hydraulic	±Vx damping, Hydraulic
Cutting portion support	±Vx or Half moon, Hydraulic	±Vx or Half moon, Hydraulic	±Vx or Half moon, Hydraulic
<b>MACHINE</b>			
L x W x H	2180 x 2430 x 2200 mm (85.8" x 95.6" x 86.6")	2180 x 2240 x 2200 mm (85.8" x 88" x 86.6")	2180 x 1600 x 2200 mm (85.8" x 63" x 86.6")
Weight	3700 kg (8157 lbs)	3500 kg (7716 lbs)	3200 kg (7055 lbs)
Total power	Maximum 18 kW 3 x 400V/25A	Maximum 18 kW 3 x 400V/25A	Maximum 18 kW 3 x 400V/25A



GrindSmart®	530XW	530XS	530XF
<b>WHEEL CHANGER SMARTCHANGER</b>			
Wheel pack capacity	6	6	6
Number of wheels per pack	4	4	4
Attachment	HSK50E	HSK50E	HSK50E
<b>CLAMPING</b>			
Clamping system	Adapters Schaublin and Nann	Adapters Schaublin and Nann	Schaublin W12
Clamping range	Ø 0.5 – 20.0 mm (.02" – .75")	Ø 0.5 – 20.0 mm (.02" – .75")	Ø 0.5 – 8.0 mm (.02" – .32")
Clamping type	Mech. spring clamping	Mech. spring clamping	Mech. spring clamping
<b>ROBOT LOAD &amp; UNLOAD</b>			
Number of tools	Up to 1360 (6 cassettes)	Up to 1360 (6 cassettes)	Up to 1360 (6 cassettes)
Shank diameter	Ø 1.0 – 20.0 mm (.04" – .75")	Ø 1.0 – 20.0 mm (.04" – .75")	Ø 1.0 – 8.0 mm (.04" – .32")
Max. overall length	300 mm (12")	300 mm (12")	300 mm (12")
Speed	65 m/min (2560"/min)	65 m/min (2560"/min)	65 m/min (2560"/min)
Clamping	Hydraulic	Hydraulic	Hydraulic
<b>TOOL SUPPORTS</b>			
Shank support	±Vx damping, Hydraulic	±Vx damping, Hydraulic	±Vx damping
Cutting portion support	±Vx or Half moon, Hydraulic	±Vx or Half moon	Half moon
<b>MACHINE</b>			
L x W x H	2180 x 2240 x 2200 mm (85.8" x 88" x 86.6")	2180 x 1600 x 2200 mm (85.8" x 63" x 86.6")	2180 x 2240 x 2200 mm (85.8" x 88" x 86.6")
Weight	3500 kg (7716 lbs)	3200 kg (7055 lbs)	3500 kg (7716 lbs)
Total power	Maximum 18 kW 3 x 400V/25A	Maximum 18 kW 3 x 400V/25A	Maximum 18 kW 3 x 400V/25A





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