

RG9A

Graphical User Interface (GUI)

- 21.5 inch touch screen monitor
- Coborn .net software
- Remote diagnostic / support

Control System

- CNC Control System
- Industrial PC, Intel i7 processor, Windows platform
- 3 Phase, multi voltage / frequency supply

Vision System

- Integrated closed loop measuring / inspection
- High resolution GigE camera
- System mounted on X / Y stage 0.0001m resolution

Dressing

- In process wheel dressing
- Electrically driven with programmable speed
- Variable contact pressure

Rotary Axis

- Optional RM130 or RM250 units
- Continuous or indexing 0.001° programme resolution
- Hydraulic, HSK and ISO adaptors



OPTIONAL

Linear Axis

- Optional LM50 or LM100 units
- Helical / stepped tool production
- 0.001mm program resolution

Pivot

- Coborn high precision spindle
- High dynamic stiffness
- 0.001° program resolution

Composite Granite Base

- Optimum vibration damping
- Excellent thermal stability
- High stiffness

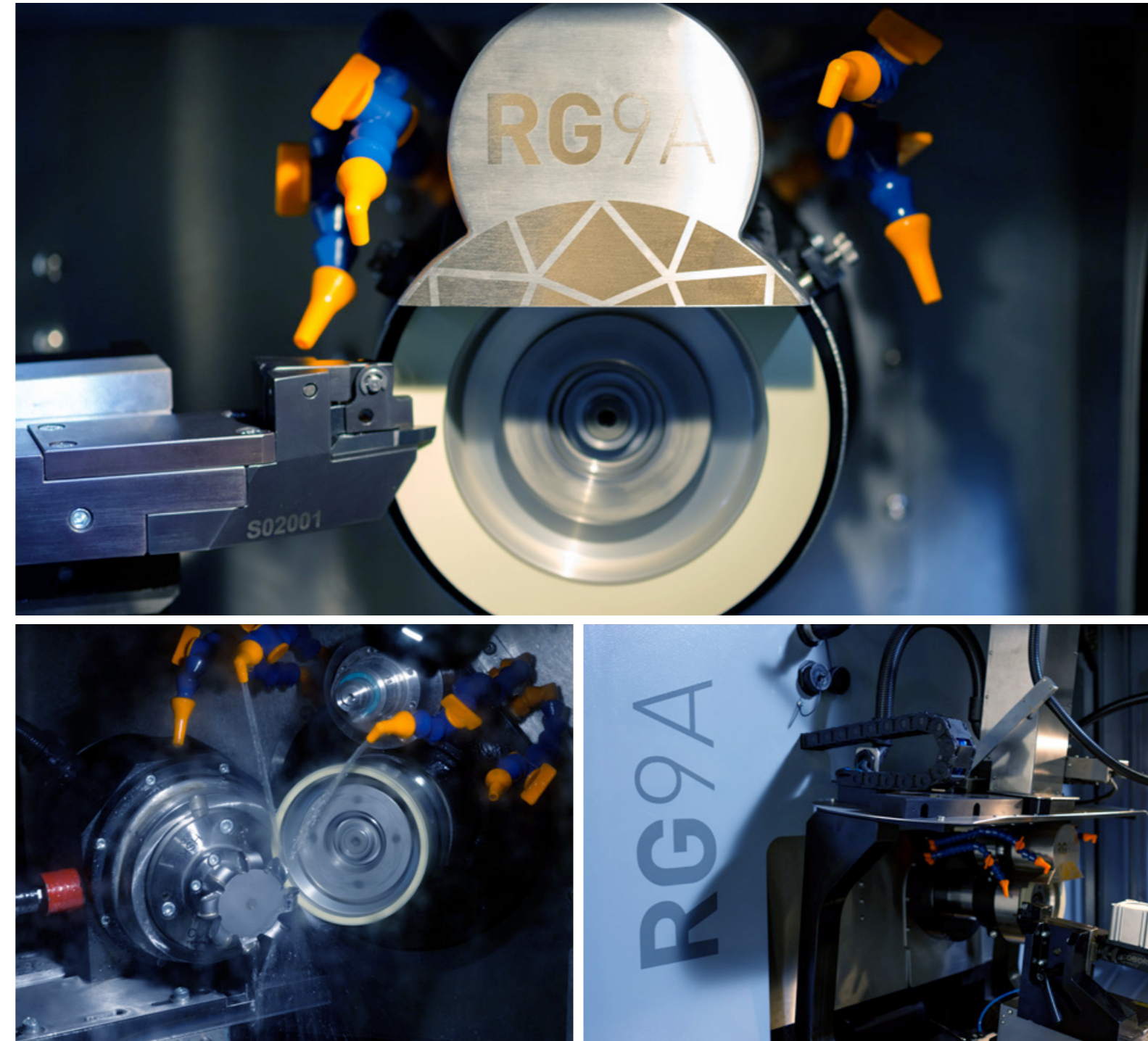
Robot (optional)

- Stäubli 6 axis robot system
- Nominal load capability 2kg
- Integrated to main control system
- Standard pick and place grippers

Automation (optional)

- The RG-Auto is 'Robot ready' and the robot can be added on a 'plug-and-play' basis
- Pallet / conveyor options for un-manned loading and un-loading
- Pneumatic / Magnetic gripping systems
- Integrated post process operations

RG SERIES



Coborn Engineering Ltd
Chesham Close, Cedar Road
Romford, Essex, RM7 7PJ, UK
Coborn.com

Tel: +44 (0)1708 744666
Fax: +44 (0)1708 725187
Email: sales@coborn.com



RG SERIES

MULTI-FUNCTIONAL CAPABILITIES

The RG9A is an extremely versatile machine, which can make small or large batches of tools, exactly to suit your customer order.

The RG9A features simple, user-friendly software, where simple programming blocks can be built step-by-step to produce the tool forms and geometries you need. This makes it ideal for automotive, aerospace, plastics and hard turning industry applications:

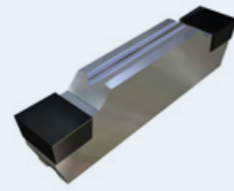
Brazed inserts and shank tools
Grooving tools
Multiple clearance angle tools
Saw blades and cutter blocks
Multiple radius tools
PcBN tools with K-lands
Rotary tools such as end mills, reamers, saw blades and cutter blocks
Helically ground single & multiple flute PCD cutters
Peripheral Grinding

TOOL FORMATS

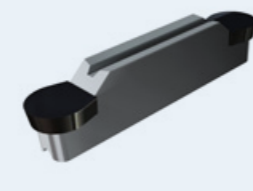
The RG9A meets the market demand for small, medium and large batch sizes in a very wide range of possible tool formats.

Single point turning/milling inserts and shank type tools
Simple radius and multiple blended radius tools
Grooving tools with blended radii
Large radius wiper inserts
Multiple clearance angles
Tools with K-land chamfers
Rotary tools: end mills, reamers, single and multi-tooth cutters and saw blades
Straight helical and radial helical cutters

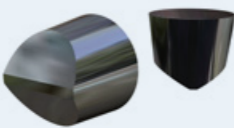
TOOLING



PCD/PcBN Square Grooving Tools



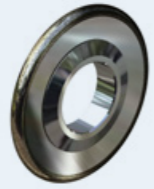
PCD/PcBN Radius Grooving Tools



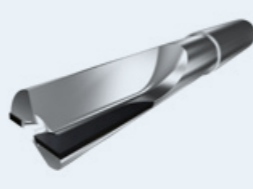
Peripheral Ground Solid Inserts



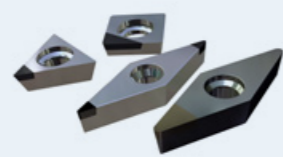
PCD Step Drills



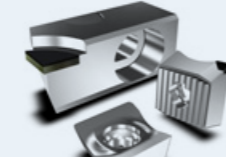
CVD Dresser Roll



PCD Helical Rotary Tool



PCD/PcBN ISO Inserts



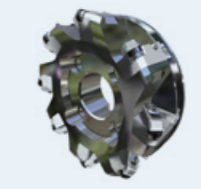
PCD/PcBN Cassettes



PDC Drilling Head Inserts

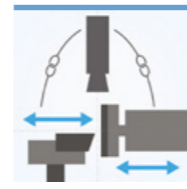


Orthopaedic Implants



Multi-tipped Cutters

AUTOMATION ACCESSORIES



The Vision System

Faster than contact probes, the ultra-high-speed vision system gives integrated, closed loop control of the machine using the image from the camera.

The high resolution camera enables:

- Automatic alignment of the tool before grinding commences
- Automatic detection of the brazed PCD/PcBN blank position to eliminate crashes and minimise cycle times by reducing 'air-grinding'
- In-situ, intermediate and final inspection of angles, flanks and radii, measuring to an accuracy of +/- 2µm



Rotary and Helical Tool Manufacture

The RG9A software enables complete control of the simultaneous movement of all axes. With coordinated movement of the rotary (RM) and linear (LM) axes, it is possible to grind the PCD edge of multi-tooth reamers where the

PCD is laid on a helix angle. Since wheel-in feed position can also be controlled simultaneously, it is possible to create cutters which are both helical, and have a convex or concave radius.



Dual Wheel

With this optional grinding software the RG9A can be configured to accept two grinding wheels mounted concentric to one another, facilitating rough and finish grinding in one set up. Additionally if the optional advance

K-Land software is purchased complex geometry rotary tools can also be manufactured.

Peripheral Grinding

The RG9A can be configured for the peripheral grinding of standard ISO series inserts, complete with K-Lands. More complex geometry tools can also be ground using the optional dxf. Import software.

The inserts can be either attached to an anvil by a screw, and ground using the RM unit, or alternatively if the insert is solid it can be held between anvils which are hydraulically clamped using a TSU2 (tailstock unit), robot loading is also possible using the TSU3.



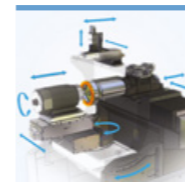
CNC Programming

Each custom program is developed, either on or off the machine, by building the required sequence of 'blocks'. Operator training takes just 3 days for the basic five-axis machine and an additional 2 days for the rotary/helical

programming course. The RG9A is a multi-tasking system and programs can be run whilst new programs are developed or old ones modified.

Programming the RG9A is simplicity itself. The software is:

- Menu driven and intuitive
- Designed with PCD/PcBN tool manufacture in mind
- Follows the steps associated with manual tool grinding



Machine Axes

With the optional rotary module (RM) and the linear module (LM) axes fitted, the RG-AUTO has 7 CNC machine axes and 3 CNC camera axes.



Robot

The RG9A is supplied "robot ready" and the optional Staubli 6 axis robot can be added to the machine to facilitate fully autonomous "lights out" production of tools.

The programming and setting of the robot couldn't be easier, with custom written macros embedded into the main control and a library of work holding accessories to choose from.

In Process Dressing

Dressing the grinding wheel regularly is important to keep it flat, the DA12 allows the wheel to be dressed using an adjustable pressure with both a programmable frequency and duration, this occurs in

process, giving minimal disruption to the grinding cycle.



OPTIONAL FIXTURES

Many optional fixtures are available and the most common are shown below. Coborn can also design and supply custom fixtures and tool holding solutions according to customer requirements

- LM50 & LM100: Linear Axis
- RM130 Rotary Axis
- RM250: Rotary Axis
- TSU1: Manual Tailstock Units
- TSU2: Hydraulic Tailstock Unit
- Optional Software Modules

