

**TL1**  
SIMPLIFYING DIAMOND  
COBORN.COM

## TL1 – The Dual-Purpose Table Lapping and Wheel Preparation Machine

The TL1 is the latest addition to Coborn's single crystal and natural diamond processing range of machinery. The TL1 is a dual-purpose machine that may be used to generate the final cutting edge on SCD tooling after processing on Coborn's Planetary Grinding machine ranges, or it can be used to prepare a grinding wheel before use.

To enable the PG machines to produce high-quality SCD tools, new wheels need to be prepared correctly. This process can take up to three days and during that time the premium grinding machines will not be producing tools - or profit. The TL1 is a cost-effective solution to this problem. Wheels can be prepared while the precision machinery continues to produce tools uninterrupted. One TL1 can provide prepared wheels for many grinding machines.

The second function of the TL1 is for table lapping to produce the final cutting edge either for new or repaired SCD tools. This process is a more hands-on operation but still releases the more expensive machinery to enable continued tool production. The TL1 features a fixed stop which enables the tool to be returned to the same position to continue the lapping process after the tool is removed and examined.

The TL1 offers a cost-effective solution to dramatically improve productivity by performing the more basic operations. The machine replaces the need for skilled, manual bench work and no specialist training is required.

### ASSOCIATED MACHINES

The TL1 may be used in conjunction with our Planetary Grinding machine ranges for processing SCD tools, which are illustrated below



PG6

- Low and controlled waviness tools
- Complex profile tools
- Elliptical, parabolic, hyperbolic and blended radii profiles
- Facetted, cone and radiused indenters
- Concave profile tools

The PG6 is an automatic, ultra-high precision planetary grinding machine for processing natural or synthetic single crystal diamond (SCD) tools. The PG6 features a new closed loop nano-stop for more accurate finishing of the radius form and acoustic tracing to enable acoustic monitoring of the grinding process. The high resolution PoE camera is used in conjunction with an improved optical lens system to enable tool measurements and geometry validation.



PG3B

- Low and controlled waviness tools
- Facetted, cone and radiused indenters

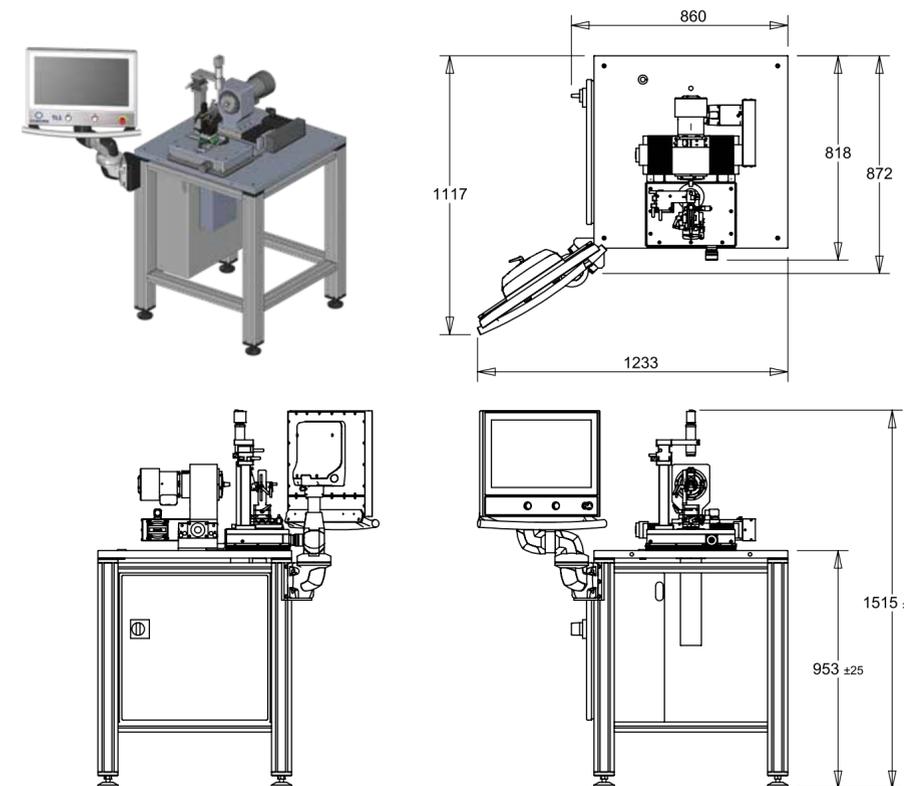
The PG3B is a semi-automatic planetary grinding machine for SCD tooling with a programmable pivot. The machine features air bearings for both the pivot and the water-cooled wheel spindle. The pivot motion is automatic and controlled via a touchscreen. Pivot angle limits, dwell time at end of stroke and pivot speed can all be pre-set. Tools are inspected via a V55G vision system.

## TL1 TECHNICAL SPECIFICATION

### Characteristic

Machine Dimensions (w x d x h)	1233mm x 1117mm x 1515mm
Machine Weight	150kg
Main Spindle	0.25 kW
Speed Range	Programmable 12,000 rpm lap spindle
Grinding Wheel	Ø86mm metal bond wheel
Pivot Spindle	Manual pivot, 10 degrees movement left/right
Electrical Requirements	220V, single phase
Camera Inspection	Image displayed on touch screen
Floating Table	Manual weight change; maximum weight 4kg
Programmable Traverse	100mm of travel
XYZ Adjustable Fixture	25mm in X, 25mm in Y, 100mm in Z and tilt capabilities of ± 20°

### DIMENSIONS AND FOOTPRINTS



**TL1**

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