



Planetary Scaif Benches for Single Crystal Diamond

Coborn's Planetary Scaif benches are generally used to polish facets on single crystal diamond tools. They may also be used in gem diamond polishing. The bench combines the high speed rotation of a scaif plate with a relatively slow, smooth, horizontal planetary motion. The planetary motion speed is variable between 0-50 cycles/minute.



This motion gives a number of advantages over a standard scaif:

- The plate does not become tracked as polishing takes place over an annular band. The scaif surface remains smooth and flat.
- The motion results in a constantly changing angle of attack: this gives a 'self-zooting' action producing line free facets without manual work.
- In many situations the tang can be set on the machine and the diamond or tool left to polish
- 'Knarted' stones become easier to polish as the angle of attack constantly changes.

All planetary benches are fitted with a 2.2kW, adjustable height spindle. The working height of the plate surface can thus be re-established after the plate has been remachined. PS benches can be supplied with either a fixed (type A) or adjustable (type B) planetary stroke. An inverter drive can be fitted as an optional extra.





Strengths

- A diamond or tool in a tang can be placed on the plate and left to polish without manual movement.
- The plate does not become "tracked" since it moves under the diamond.
- The polishing angle of attack constantly changes so that difficult 'knarred' stones are more easily polished.
- A 'self-zooting' action operates producing line free facets.
- An optional inverter can be fitted to control the speed of spindle from 1,500-4,000 rpm.
- Planetary stroke on B Type benches mechanically adjustable from 4 - 32mm by 24 steps.
- Standard bench 920mm wide x 610mm deep. Welded steel construction.
- Bench top made from 23mm steel plate for stability, covered in plastic laminate to reduce wear on tangs.
- Top can be drilled and tapped as required for fixtures.



Planetary Scaif Benches for Single Crystal Diamond Technical Details

CHARACTERISTIC	MODEL	MODEL
Machine - Machine type - Dimensions (w x d x h) - Total machine weight - Bench construction - Bench top	PS2 A-S Fixed stroke 934 x 630 x 914 ± 50mm 290kg approx Welded steel frame 23mm steel plate, plastic laminated coated	PS2 B-S Adjustable stroke 934 x 630 x 914 ± 50mm 300kg approx Welded steel frame 23mm steel plate, plastic laminated coated
Planetary Motion: - Stroke amplitude adjustment facility - Planetary motion adjustment method - Planetary motion range - Planetary motion speed - Planetary motion direction (viewed from above)	Not applicable - fixed stroke Not applicable - fixed stroke Fixed - to customer request in range 4 - 32mm Adjustable 0 - 50 cycles/min Clockwise	Yes - adjustable Mechanical adjustment - 24 steps 4 - 32mm Adjustable 0 - 50 cycles/min Clockwise
Spindle - Spindle type - Spindle power - Height adjustable - Height adjustment range - Speed range (without inverter fitted)	Coborn precision spindle 2.2kW (2.9 H.P.) Yes 19mm 2.850 rpm at 50Hz	Coborn precision spindle 2.2kW (2.9 H.P.) Yes 19mm 2.850 rpm at 50Hz
Electrical Requirements	3 phase	3 phase

Optional extras	Applicable
1. Spindle speed control inverter drive - speed control range	Available 1,500 - 4,200 rpm
2. Bi-directional spindle rotation	Available
3. Expanding nose	Allows plate to be removed easily and centred
4. Expanding nose spanner	To fit above expanding nose
4. Cast iron scaife plates	Available - ask for details
5. Impregnated plates	Available - ask for details
6. PB1 - Portable balancing unit	Allows plate to be dynamically balanced on the machine

