



Planetary Grinding Machine for Single Crystal Diamond

Technical Details

CHARACTERISTIC	MODEL	MODEL
Machine	PG3+	PG3B
- Dimensions (w x d x h)	900 x 800 x 1800mm	900 x 800 x 1800mm
- Total machine weight	800kg	830kg
Machine control		
- Machine control via	Separate control box	Separate control box & touch screen
- Memories	None	Last stored position
- Storage	None	Industrial PC
- Control box dimensions (w x d x h)	600 x 600 x 1200mm	600 x 600 x 1200mm
Wheel spindle		
- Wheel spindle type	High frequency	High frequency
- Wheel bearings	High precision	Air - cartridge type
- Wheel speed range (via inverter)	0 - 12,000 rpm	0 - 12,000 rpm
- Wheel spindle tilt (conical clearance)	0 to +20°	0 to +20°
- Oscillation of wheel spindle	Yes	Yes
- Maximum stroke length	28mm	28mm
- Wheel position adjustment range	0 - 100mm	0 - 100mm
- Oscillation frequency (via inverter drive)	0 - 32 strokes/min	0 - 32 strokes/min
- HF spindle cooling system	Not applicable	Recirculating treated water
- Spindle nose taper	12 degrees	12 degrees
Wheel spindle coolant unit:		
- Pump capacity	Not applicable	100 litres
- Motor power	Not applicable	0.14kW
- Coolant unit dimensions (w x d x h)	Not applicable	700 x 620 x 450mm
- Coolant unit weight (w x d x h)	Not applicable	20kg - dry weight
Planetary Motion:		
- Wheel planetary motion:	Yes	Yes
- Jog (clockwise & counter clockwise)	Yes	Yes
- Continuous (clockwise & counter clockwise)	Yes	Yes
- Lock in position	Yes	Yes
In-feed:		
- Load application	via dead weight	via dead weight
- Weights provided	0.5kg - 3kg (0.5kg steps)	0.5kg - 3kg (0.5kg steps)
- In-feed table travel length	25mm	25mm
- In-feed travel resolution	0.1 microns with optical scale	0.1 microns
Cross table fixture:		
- Travel length	12mm	12mm
- Tool height adjustment ('K' axis)	85mm	85mm
Pivot details:		
- Movement ('C' axis)	182 degrees (+/- 91 deg)	182 degrees (+/- 91 deg)
- Resolution (using vernier scales)	0.003 degrees	viewed on touch screen
- Digital readout	via AD2 (optional extra)	0.001 degrees
- High resolution digital read out (optional extra)	Not available	Air-cartridge type
- Pivot bearings	High precision	Automatic
- Pivot motion	Manual/Automatic option available	75mm
- Radius maximum	75mm	with special arrangement
- Larger radii	with special arrangement	Yes
- Hard spot arc focus facility	No	
Tool clearance formats		
- Cylindrical (via tool holder tilt)	Yes (+/- 20°)	Yes (+/- 20°)
- Conical (via wheel spindle tilt)	Yes (0 - 20°)	Yes (0 - 20°)
Optics:		
- Options available (not included)	Microscope OR projector OR VS5-G vision system	VS5-G camera vision system recommended
- Projection light source (on/off)	Yes	Yes
- Optics mount movement (X / Y)	12 / 12 mm	12 / 12mm
- Magnification (microscope & projector)	x30 or x50	x30 or x50
- Magnification (VS5-G vision system)	Zoom x60 - x400	Zoom x60 - x400
Wheels:		
- Grinding wheel recommended	"SAM" metal bond	"SAM" metal bond
- Roughing grade	1000# (typical)	1000# (typical)
- Finishing grade	2000# (typical)	2000# (typical)
- Super-finishing grade	Cast iron lap or 5000#	Cast iron lap or 5000#
- Grinding wheel adaptor / hub	Required	Required
- Adaptor bore taper	12 degrees	12 degrees
Electrical Requirements	Single phase 220v; 5.6 amp	Single phase 220v; 5.6 amp
Optional extras	Applicable	
1. CF13 - Coning & indexing fixture	Yes	Yes
- Capacity via collets (to be specified)	up to 12 mm	up to 12 mm
- Continuous rotation possible	Yes	Yes
- Indexing plate (to be specified)	12 or 16 position	12 or 16 position

