PCB Prototyping Machine

Accurate 437R (A437R)

► Working Area: Standard (12x9x1.3 inch)
► Tool Change: Automatic (12 tools)
► Tool Calibration: Automatic with Precise Linear Gauge
► Depth Adjustment: Constant Automatic Surface Tracking
► Spindle Speed [rpm]: 5,000 to 100,000 programmable
► Spindle Motor: 3-phase induction motor; 100K/300W
► High precision positioning system with servo feedback
► Temperature compensation for the axes and material
► Video Camera / Microscope included

Detailed Specification:

Model:	A437R
Working area (XxYxZ)	304x229x33 mm, 12x9x1.3 inch
Machine design	Heavy duty aluminum and stainless steel platform
Machine table	16 mm, 0.625 inch stress relieved high stability aluminum alloy
Tool holders	**12**
Internal Resolution (X,Y,Z)	**0.1 µm**, 0.0000039 inch (0.0039 mil) *
Positioning Repeatability (X,Y,Z)	**1 µm**, 0.000039 inch (0.039 mil)
Absolute Accuracy (X,Y)	**7.5 µm at 254 mm (10 inch) **
Tool penetration control	Constant Automatic Surface Tracking - **CAST™**, surface tracking relative to tool tip, fully programmable fully automatic. Uses a linear gauge with **1 µm**, 0.039 mil resolution.
Tool Calibration	Precise Linear Gauge on the Z axis (0.039 mil, 1 micron resolution)
Spindle speed [rpm]	5,000 to 100,000 programmable
Spindle motor	3-phase induction motor; 100K/300W
Spindle drive	**PhACdrive™** (sensorless, vector control, DSP based)
Tool collet	3.175 mm, 0.125 inch
Spindle run out	5 µm, 0.0002 inch max
Collet control	Pneumatic direct, 6-8 Bars (85-115 PSI)
Tool Change	Automatic
Minimum drill diameter	0.2 mm (8 mil)
Minimum track size	0.1 mm (4 mil)
Minimum gap size	0.1 mm (4 mil)
Drilling speed	Up to 180 drill cycles per minute (varies with the distance between holes)
Homing system	Gold plated precision needle contacts
Max Travel speed (X,Y,Z)	Up to 150 mm/s, 5.9 inch/s
X/Y/Z positioning system	2 phase bipolar stepper motors with servo feedback, precision lead screws anti-backlash nuts Precise Linear Gauge on the Z axis (**1 µm**)
X/Y/Z stepper drivers	**PhSTdrive™** SMART stepper drive with servo closed loop control (DSP based), supporting temperature compensation for the screw and material **
Interface to PC	USB 2.0
Spindle and vacuum start-stop	Program controlled, manual override available
Feed rate and Spindle speed	Program controlled, manual override available
Dimensions (WxDxH)	508x432x305 mm, 20x17x12 inch
Weight	33 Kg, 72 Lbs
Power Supply	100~240VAC, 50/60Hz 415W (45W stand by)
Machine control system	**PhCNC440™** CNC motion controller (up to 8000 command/sec)
Machine control programs	Industry standard G & M codes ASCII, PHJ job files
Control and Edit software	PhCNC, Windows based (Windows XP / Vista / 7 / 8) x86 & x64 Supporting firmware update for **PhCNC440™**, **PhACdrive™** & **PhSTdrive™** (X/Y/Z)
Imports	Gerber RS-274X files; Excellon Drill and Definition files; AutoCAD DXF 2D files; CAM350 files; PhCNC printer driver.
Camera	Fiducial / inspection video camera / microscope (USB 2.0) included.
Warranty	1 year included in the price of the machine. It is an option to buy second and third year of warranty.

* The high internal resolution is used to achieve better servo control; temperature compensation for the screw and material; low noise and smooth movement
** To achieve the max accuracy, machine must be warm up for at least 30 min.