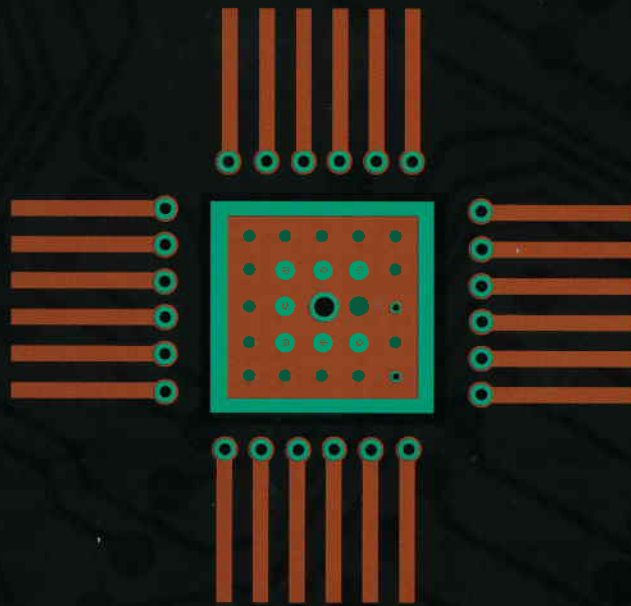


Excellon



Uniline 2000

Uniline 2000

Single Spindle Drilling System

Winning the small lot challenge — one hole at a time.

In a world of shrinking lot sizes, greater density of circuitry, and increasing cost pressures, the **Uniline 2000** delivers critically needed levels of versatility, precision, speed and efficiency to the printed circuit board industry. The result: A modular system that offers simplicity in operation, higher speed, greater accuracy — and significantly **lower cost per hole**. The **Uniline 2000** is ideal for drilling high precision multi-layer boards or test fixtures.

An extension of Excellon's field-proven line of precision drilling products, the **Uniline 2000** provides substantially increased speeds and greater accuracy. This combination of speed, accuracy and solid platform opens the door to increased stack heights.

At the same time, with its single-spindle modular design, the **Uniline 2000** is the ideal solution for problems created by today's smaller lot sizes: idling between jobs, extra operator set-up costs, and poor machine utilization. The **Uniline 2000** gives you the flexibility to put drilling capacity where you need it — and to switch between jobs quickly, easily and cost-effectively.

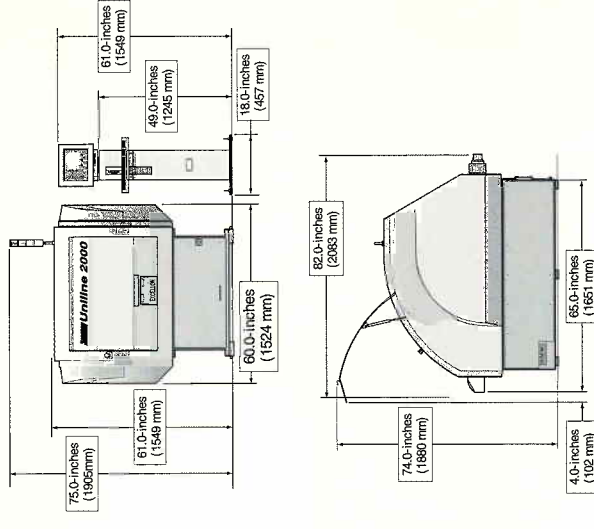
Easy to operate color touch screen monitor with clear, color-coded controls. Four screens operate the entire system.



And the modularity of the **Uniline 2000** allows you to expand your capacity as your production needs grow. It can be linked to the **System 2000** or other Unilines, run individually with cart loading, fed by a **Rabit™** or run totally in manual mode.

As part of the **Excellon** family of drillers and routers, and the automation that links them together, the **Uniline 2000** is backed by world-renowned **Excellon** service and support. From application process engineering and operator training...to installation, field support and trouble shooting...to spare parts and machine maintenance... **Excellon** is with you every step of the way.

The Uniline 2000: The high speed, high accuracy, low-cost modular alternative for today's small lot sizes.



Features:

- Manual single spindle system
- State-of-the-art controller (Sun Microsystems SPARCstation with object-oriented programming)
- Log files and SPC data for analysis and diagnostics
- Large panel size — 24" x 30" (610 mm x 762 mm) with edge clamps
- Highly efficient Tool Management System
- Options including, tool metrology gauge (TMG), (which includes depth control) microdrill pressure foot (MPF) and software options
- Optional 125K or 175K spindle
- Optional 960 TMS ringed Excellon, ringed or ringless Eurocassette
- Optional autoload capability: dedicated cart, conveyors, Rabbit controlled moveable pins (Uni-Slide™)



Mark VI



Excellon/Kennard Routing Machines



Century 2001



System 2000



Automation

Uniline 2000 Drilling Machine

*Specifications

TECHNICAL SPECIFICATIONS: MACHINE

Machine Base	Fine-grain, black granite guideway, straightness within $\pm 0.000040"$ (± 1 micron)
Dimensions & Weight	Machine Dimension: 82" L x 60" W x 75 H" (2083 x 1524 x 1905 mm) Machine/manual: 4350 lbs (1973 kg) per system Machine/cart : 4750 lbs (2155 kg) per system
Power Input	Per Machine: 230 VAC $\pm 10\%$, single phase, 20A, 50-60 Hz. UCS controller on multiple machines: 230 VAC $\pm 10\%$, single phase, 5A, 50-60 Hz
Axis Positioning	Split axis system: Table motion along the Y-axis, spindle carriage along the X-axis.
Table/Carriage Guide & Support	Precision recirculating ball linear rails
Leadscrews	Precision ground X, Y and Z recirculating pre-loaded ball screws.
Precision Z-Axis Module	Precision assemblies incorporating an air bearing linear guide, preloaded leadscrew and flexure coupling and Excellon air-bearing spindle.
Table Speed	1,000"/min (25.4m/min)
Drilling Accuracy	$\pm 0.0007"$ (± 0.0175 mm) per Excellon Dynamic Accuracy (EDA) Test
Position Accuracy	$\pm 0.0002"$ (± 0.005 mm)
Position Repeatability	$\pm 0.0001"$ (± 0.0025 mm)
Z-axis infeed/retract rate	Infeed: 500"/min (12.7m/min); Retract: 1400"/min (35.6 m/min)
Tooling Plates	Pin Clamp Tooling with Edge Clamps
Maximum Panel Size	With edge clamps: 24.0" x 30.0" (610 x 762 mm) Without edge clamps: 24.5" x 30.0" (622 x 762 mm)
Minimum Panel Size	With edge clamps: 12.0" x 14.0" (305 x 355 mm)
Maximum External Vibration	Floor double displacement (in Micro Inches)
Frequency Band	
5-10 Hz	Vertical: 160 X+Y: 40
10-15 Hz	Vertical: 200 X+Y: 50
15-25 Hz	Vertical: 225 X+Y: 75
25-35 Hz	Vertical: 130 X+Y: 25
35-60 Hz	Vertical: 25 X+Y: 38
Above 60 Hz	Vertical: <10, (<0.002 g's) X+Y: <10, (<0.002 g's)

TECHNICAL SPECIFICATIONS: SPINDLES

Number of Spindles	One
Spindle Specifications	Air bearing spindles (15,000 - 110,000 RPM)
Drill Bit Sizes	0.0039" thru 0.25" (0.1 thru 6.35 mm) common shank 0.125" or (3.175 mm)

TECHNICAL SPECIFICATIONS: CONTROL SYSTEM

Controller	UCS (SUN Micro Systems' Sparc station with Object Oriented Programming) and additional microprocessors for intelligent motion control. 24Mb to 128 Mb (depending on options) of dynamic RAM allowing virtually unlimited program size. 1.2 GB hard disk standard.
Data Input	Excellon DNC, 3-1/2" DOS compatible floppy, Ethernet

Software	UCS Operating System software includes "Quick Drill" feature and factory network capability for advanced process management. Multilingual capabilities.
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SPECIAL MACHINE OPERATING REQUIREMENTS

Ambient Temperature	To assure specified accuracies: 72 \pm 2°F (22 \pm 1°C)
Ambient Humidity	45-60%
Air Input	100-150 psig at 6 scfm (7.4-10.5 kg/cm ² at 170 N liters/min)
Air	25 microns or less particulate size
Maximum Water Content	0.20 oz./hr at 6 scfm (6 cc/hr at 170 N liters/minute)
Maximum Hydro Carbon Content	0.15 oz./hr at 6 scfm (4.4 gr/hr at 170 N liters/minute)
Temperature Range	60-100°F (16-38°C)
Humidity	+10°F (-12°C) maximum dewpoint at 1 atm
Vacuum	Driller with LTC Pressure Feet: 25 in H ₂ O (50 mbar), 11 scfm flow (311 N liters/min)
Floor Level	Not to exceed .12" (3.05mm) in any 48" (1219 mm) length. Not to exceed .50" (12.7mm) over total machine foot print.

STANDARD DRILLING FEATURES

Laser Tool Check (LTC)	Monitors every drill bit before and after each stroke, detecting broken bits instantly.
Tool Management System (TMS)	240 Tools

OPTIONS

Special Tooling	Available upon request
Tool Management System (TMS)	960 ringed, Eurocassette ringed or Eurocassette ringless
Tool Metrology Gauge (TMG)	Laser driven tool Metrology Gauge measures drill tool diameter and real dynamic run-out of the ringed drill bit and calibrates z-axis for depth control.
Micro Pressure Foot (MPF)	Permits selection of the pressure foot insert opening appropriate to the drill size being used
Power Input	200 VAC $\pm 10\%$, single phase, 20A, 50-60 Hz 208 VAC $\pm 10\%$, single phase, 20A, 50-60 Hz 240 VAC $\pm 10\%$, single phase, 20A, 50-60 Hz
Control System (UCS) for Multiple Machine Installation	200 VAC $\pm 10\%$, single phase, 5A, 50-60 Hz 208 VAC $\pm 10\%$, single phase, 5A, 50-60 Hz 240 VAC $\pm 10\%$, single phase, 5A, 50-60 Hz
High Speed Spindle	125,000 RPM or 175,000 RPM
Chiller	Coolant refrigeration unit.
Autoload	Cart or Conveyor System

*Specifications are subject to change without notice

M1290-A/04-97

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