

# Flex and Rigid-Flex Processing Workstation



## FP1000

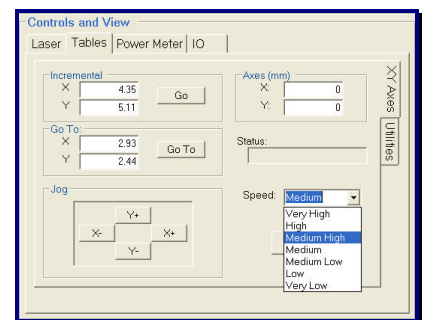
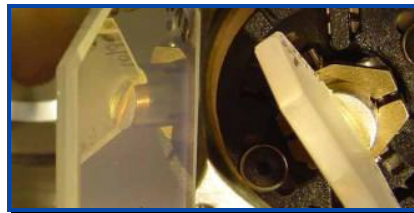
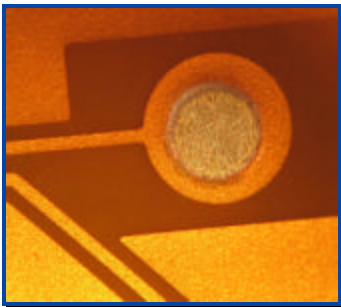
- Integrated laser machining tool for high volume production
- APS for superior process quality
- High performance motion stages for rapid, accurate panel processing
- Fully programmable job setup
- Windows operator interface
- Optional roll-to-roll configuration
- Fast job changeover for prototype work

RF-excited CO<sub>2</sub> laser source for optimized machining in all common polymer materials

- Polyimide
- Cover films (polyimide, acrylic, epoxies)
- Rigid-flex (FR4, aramid reinforcement)
- Solder resist

Configured for all applications

- Cutting, routing and circuit excising
- Skiving
- Via and through-hole drilling
- Defect repair



# Flex and Rigid-Flex Processing Workstation

The FP1000 is the ultimate processing workstation for flex, with high performance galvos for rapid point-to-point drilling and routing complex features. The CO<sub>2</sub> laser is appropriate for high speed machining (drilling, cutting and skiving) of polyimide. In addition, the system can process glass- and aramid-reinforced epoxies and resin-coated foil for rigid and rigid-flex applications as well as green ceramic tape for hybrid circuit manufacture. Consult the PPI applications note on processing of flexible printed circuits for more information.

## FP1000 Specifications\*

### System Hardware

- High peak power RF-excited CO<sub>2</sub> laser
- Configured with high performance galvanometer scanners for high speed feature skiving, cutting and via drilling
- Two drilling modes: conformal mask; direct drilling
- Galvanometer scanning field: 50 x50 mm (approx. 2" x 2")
- Maximum panel size: 533mm x 635mm (21"x25")
- Vacuum platen for panel hold-down
- Integrated power meter for accurate process control
- Precision linear motor XY stages with linear encoder feedback
- High performance motion and laser controller
- CDRH Class 1 enclosure
- Large process viewing window
- Automated vision system for precision alignment, and scaling, offset, trapezoidal and rotation compensation
- Beam placement accuracy: 20µm (3 sigma) over panel process area
- Ultrastable steel weldment frame with resonance dampening
- Compliant with CE and North American regulations

- Easy integration with customer-supplied roll-to-roll equipment
- Optional automatic panel loader / unloader
- Optional second galvo scan head to increase throughput

### Utilities

- Electrical: 208VAC, 3φ, 30A, 60Hz, or 400VAC, 3φ, 15A, 50Hz
- Exhaust: ablation debris removal through 3" diameter duct
- Dimensions (HxWxD): 2356 x 1626 x 2192 mm (93"x64"x86")
- Weight: 2773 kg (6100 lbs) net; 3377 kg (7430 lbs) shipping
- Water: 8 l/min, or optional closed cycle water chiller

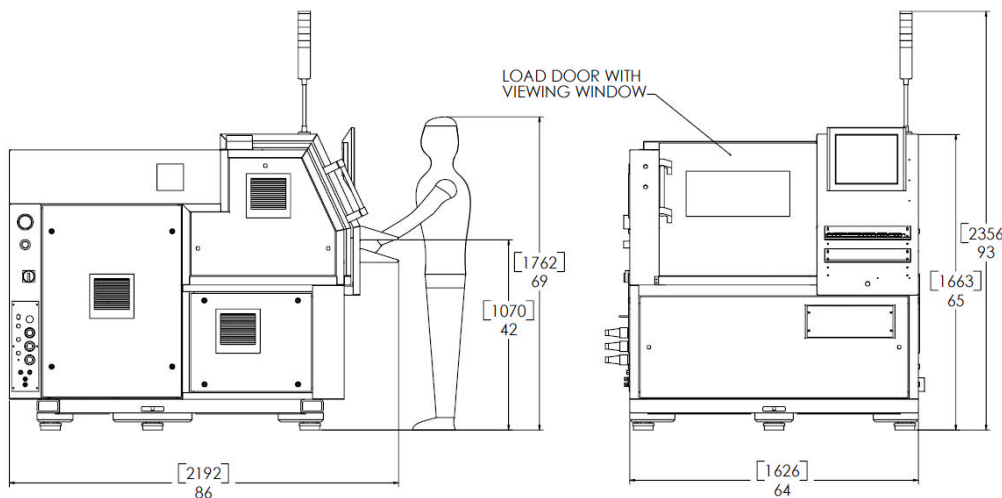
### System Control

- WindowsXP® based user interface
- User friendly operator screens
- Compatible with industry standard file formats
- Rapid drill file conversion and path optimization utility
- Full system diagnostics
- Password protection for access to configuration, set-up, and operating functions
- System monitoring for process integrity
- Saving of multiple job parameter files
- Emergency stop and safety interlock circuits
- Optional network interface

### Process Parameters

- Active Pulse Shaping™ for the CO<sub>2</sub> laser to optimize process quality
- Continuous line and area scanning, circuit excising or point to point processing
- Programmable laser pulse rate, pulse overlap, and scanning area
- Adjustable laser beam shape and energy density
- Automatically process stepped vias
- Via sizes from 40µm to 250µm
- Via roundness error: 10% maximum
- Drilling rates up to 500 blind vias/sec within galvo field
- Cutting rates up to 1000 mm/sec
- Consult PPI for processing rates in your material.

\*specifications are subject to revision



Contact the team at Process Photonics for help with your process requirements.

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