

# The Pinnacle Micro M100 FPC Assembly Cell

*Revolutionizing precision manufacturing with dual-arm, AI-driven robotics that seamlessly enhance scalability, performance, and accuracy.*

Precision manufacturers relying solely on human labor for FPC assembly struggle to compete in today's fast, tech-driven market. Customers demand shorter runs, faster turnaround times, and higher quality, leaving many unable to scale operations. Skilled worker turnover averages **40%**, forcing constant hiring and training cycles that drain resources and cut productivity.

The Pinnacle Micro M100 solves these challenges with next-generation robotic automation that combines human-like dexterity with machine precision. Its self-learning platform uses 3D computer vision, cognitive processing, and synchronized dual-arm coordination to execute complex, multi-step FPC insertion, bonding, and soldering operations with exceptional accuracy. Designed for high-mix, low-volume production, the Pinnacle Micro M100 enables complex assembly, simultaneous handling, and real-time adaptive alignment—turning traditional facilities into high-velocity operations.

The Pinnacle Micro M100 allows manufacturers to scale efficiently, reduce downtime, and eliminate human error while lowering operating costs. Unlike legacy automation, which lacks cognition and dexterity for delicate FPC handling, the Pinnacle Micro M100 maintains consistent quality at high-yield production performance, delivering measurable ROI and keeping operations competitive.

## Key Benefits

The Pinnacle Micro M100 is the only AI-driven, next-generation robotic automation purpose-built for FPC automation that can resolve the most significant hurdles faced by modern-day precision manufacturing facilities, with capabilities that include:

- **Eliminates Reliance on Human Workforce.** Make the constant hiring, training, and re-hiring cycle a thing of the past.
- **Enables Short Runs and Fast Turnarounds.** Find new revenue streams with the ability to meet rapidly changing market needs.
- **Boosts Productivity and Efficiency.** Maximize manufacturing output while achieving consistently high product quality.
- **Improves Financial and Operational Performance.** Significantly reduce annual costs per work cell, **40%** turnover rates, and weeks-long reconfiguration cycles.

## Unparalleled Assembly Yield And Performance

The Pinnacle Micro M100 delivers unmatched performance and precision, cutting waste and accelerating time-to-market:

### 2X

**Speed**

Maximize your manufacturing output

### 22µm

**Precision**

Boost consistency in your production quality

### 40µm

**Motion Accuracy**

Virtually eliminate material waste

### 409

**Frames Per Second**

Optimize quality, efficiency, and cost-effectiveness

### 99.95%

**Assembly Yield**

Make production errors a thing of the past

### 10Yr

**Lifespan**

Expected operational life cycle

## Best-in-Class Assembly Rate Yield

The **99.95%+** rate achieved by the Pinnacle Micro M100 is more than a standardized lab test; it's the average achieved in true production environments inside actual customer facilities—across complex, multi-step FPC assemblies. That enables you to successfully complete even the most demanding jobs with minimal returns—expanding your business opportunities while maintaining customer satisfaction.

## Unparalleled Accuracy

The Pinnacle Micro M100 boasts an unmatched level of precision and accuracy that translates into substantial gains for your business. The **22-micron-level precision** boosts consistency in production quality, enabling you to successfully complete even the most demanding FPC assembly jobs. And the **40-micron motion accuracy** virtually eliminates material waste and quality failures, helping you run leaner and more efficiently than ever.

## Maximum Performance

When rapid time-to-market is a clear requirement, the Pinnacle Micro M100 is there for you. A human workforce is slow and requires breaks, vacations, and sick days—and it can take weeks or longer to train them on new processes. In contrast, the Pinnacle Micro M100 has a functional output that's twice as fast as your best worker; can run virtually non-stop 24 hours a day, 7 days a week; and rapidly adapts to new manufacturing tasks without extensive programming or training. The work cell is ideal for shorter runs, requiring just **15 minutes** to be reconfigured for a new process. This flexibility enables the Pinnacle Micro M100 to be utilized for one process for the day shift and another for the night shift—so the job can be completed in half the time.

## Product Features

The Pinnacle Micro M100 combines numerous proprietary technologies into a unified solution for FPC manufacturing:

- **Synchronized Dual Arms:** AI-driven coordination mimics skilled operators with precision and repeatability for delicate FPC handling.
- **Denali 3D Vision System:** Captures 3D images at 22µm accuracy, instantly adapting to part variations for FPC connector alignment.
- **Onboard High-Performance Servers:** Zero-latency processing delivers 40µm motion accuracy and eliminates waste.
- **Swappable, Custom-Designed End-Effectors:** Quick-change tooling protects delicate FPC components and switches workflows in minutes.
- **Integrated Robotic Cell:** Compact, plug-and-play design with synchronized motion and efficient power use.






## Unique & Patented Product Features

The eBots platform combines numerous proprietary technologies into a unified solution for precision manufacturing, delivering industry-leading assembly yield and accuracy to deliver exceptional operational efficiency:

- **Synchronized Dual Arms:**  
To mimic skilled human movements
- **Proprietary Denali 3D Vision System:** For high precision accuracy
- **Customized Onboard Servers:**  
Eliminating latency
- **Swappable, Custom-Designed End-Effectors:**  
To meet a wide range of needs
- **Fully Integrated Working Platform:**  
For autonomous robotic assembly

## Wide Range of Use Cases

The Pinnacle Micro M100 is ideal for any FPC application where high performance and precision are essential, or that require short runs with fast turnaround times. These include:

-  Smartphones & Consumer Electronics
-  Computing Hardware
-  Small Medical Devices
-  Cable Assembly & Insertion
-  Precision Optics

# Transform Your Business

The Pinnacle Micro M100 transforms legacy FPC manufacturing facilities into high-velocity production centers that deliver exceptional results while significantly reducing operational costs. Manufacturers typically achieve complete return on investment within months, then continue to reap financial benefits over the system's impressive **10-year** operational lifespan. The platform's adaptive intelligence enables rapid response to changing market demands and evolving product requirements without lengthy reconfiguration periods.

With unprecedented versatility, the Pinnacle Micro M100 handles any FPC product thickness or dimension, eliminating the constraints of legacy automation systems. The solution delivers superior performance, precision, and scalability while maintaining a remarkably compact footprint, maximizing valuable factory floor space.

The financial impact is substantial, with each Pinnacle Micro M100 system significantly reducing annual costs per work cell. By automating complex FPC precision tasks, manufacturers can reduce their dependency on attracting and retaining skilled workers in an increasingly dwindling labor market. Production capacity can be easily scaled up or down without the traditional limitations imposed by workforce availability, providing manufacturers with newfound agility to meet changing business requirements.

## Gain A Competitive Advantage

Unlike most robot manufacturers who only guarantee repeatability, eBots guarantees both accuracy and repeatability. This distinction is crucial—repeatability without accuracy simply means perfectly repeating a misalignment. The Pinnacle Micro M100's guaranteed **22µm** accuracy ensures high yields and consistent quality, even across complex and variable FPC assembly tasks.

**Learn how next-generation robotics maximizes your existing investments.** Contact Sales at [eBots.com/contact](https://eBots.com/contact) or +1 (510) 771-0115.