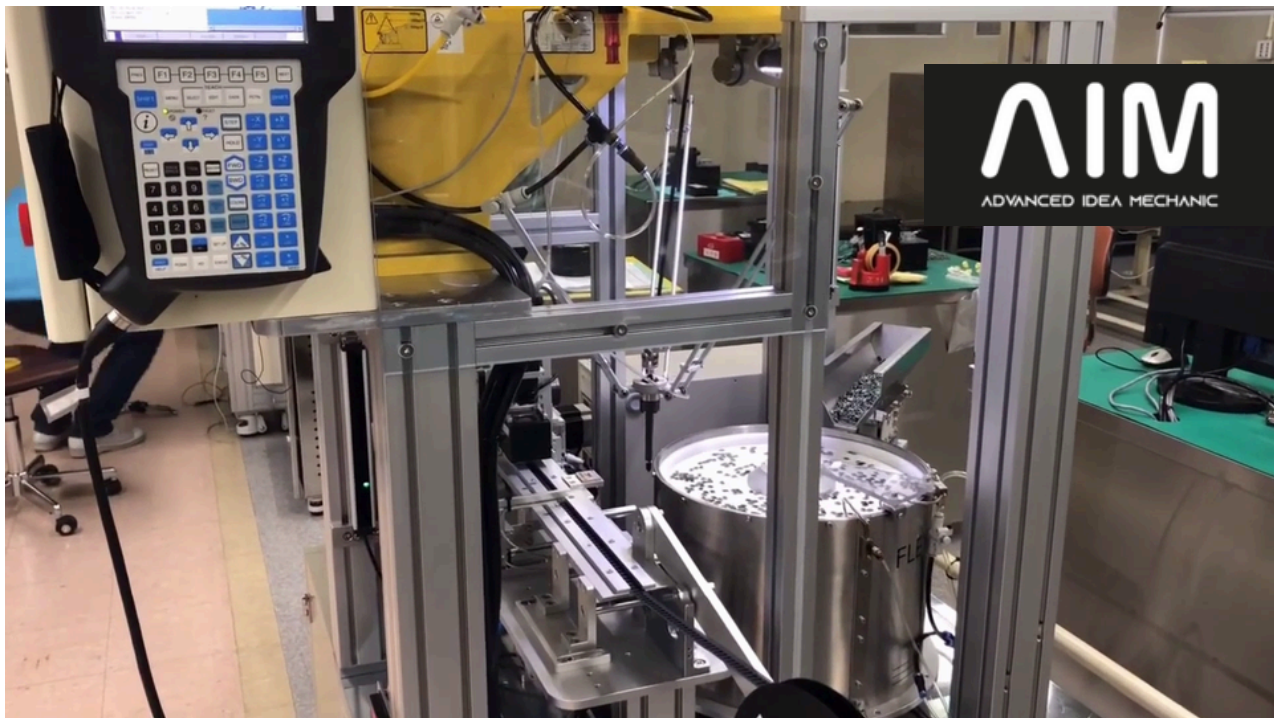


Ars Automation

Application notes

Case study: Flexible Solution for SMD Taping Machine



Introduction

The electronics industry is a fast-paced, competitive sector driven by the demand for smaller, more precise, and reliable components. To stay ahead, manufacturers must optimize production, ensure precision, and maintain high throughput. Advanced automation solutions address these challenges with flexibility, speed, and accuracy, making precision-driven systems essential for feeding and positioning microchips in SMD taping operations.

Handled parts

The system was designed to process 12 different types of microchips, each measuring as small as 4 x 6 mm (0.15 x 0.23 in). Given their delicate nature, these components require extremely careful handling to avoid damage and ensure flawless integration into the taping process. Moreover, strict compliance with Electrostatic Discharge (ESD) requirements was a critical factor to safeguard the sensitive microchips throughout the production cycle.

The challenge was to maintain consistent, high-throughput production while managing multiple product variations without requiring frequent and time-consuming reconfigurations.



Ars Automation

Application notes

System Configuration

At the heart of the solution lies the FlexiBowl® 350, equipped with an anti-static disc to ensure safe and precise feeding of the microchips. The system's integrated 5 MP vision camera plays a crucial role by detecting and aligning each microchip with exceptional accuracy, maintaining a positioning tolerance of just 0.1 mm.

The pick-and-place operations are performed by a FANUC robot equipped with a universal EOAT system, which ensures reliable handling of the microchips as they are transferred seamlessly to the SMD reel tape. The system also includes a 90° tilt unit that enables smooth part manipulation, maintaining a consistent throughput of up to 30 parts per minute.

The entire setup is designed within a compact and modular layout, allowing easy integration into existing production lines while offering scalability for future requirements.



FlexiBowl® 350

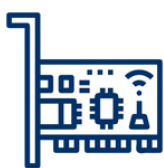
Traditional Operating Mode

Results

The solution has delivered significant improvements in efficiency, flexibility, and precision. With a consistent throughput exceeding 40 parts per minute and a maximum capacity of 50 ppm, the system meets the demands of high-volume production without compromising on quality. The FlexiBowl®'s anti-static disc and integrated vision system ensure the safe handling and accurate positioning of the delicate microchips, fully compliant with ESD standards.

Additionally, the ability to process 12 different types of microchips without the need for reconfigurations minimizes downtime and maximizes productivity. The compact and modular design further enhances the system's adaptability, providing the scalability needed to meet evolving production requirements.

This advanced solution offers the reliability and precision necessary to tackle the challenges of modern electronics manufacturing, helping the client achieve optimized operations with seamless performance.



Electronic



Assembly Process



FlexiBowl® 350



FANUC



Speed