Application Notes

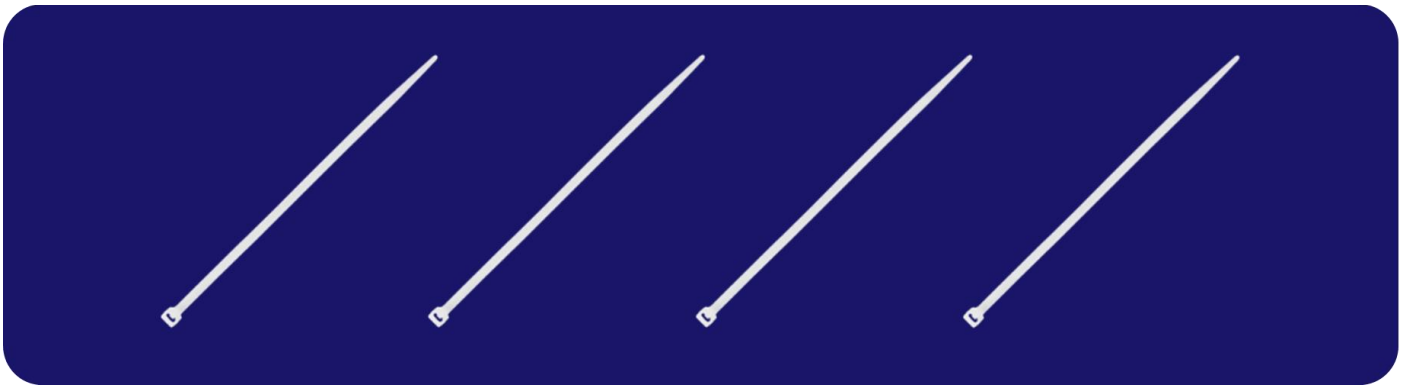
Automated Kitting of Large Plastic Zip Ties

Industry Insights

In the packaging sector, automation plays a key role in managing product variability and maintaining reliability within compact layouts. As manufacturers increasingly move toward flexible kitting solutions, systems must be able to **handle large and complex** parts with consistent accuracy. Traditional feeding systems often struggle with bulky or elongated plastic parts, where overlapping and unstable positioning can compromise process reliability.

Handled Parts

This application handles large-sized plastic zip ties, characterized by their length, flexibility, and tendency to overlap when handled in bulk. These features make stable orientation and proper spacing particularly challenging for conventional feeders. A flexible feeding solution is therefore essential to ensure continuous, accurate, and reliable handling.



The Configuration

The automated cell performs a **kitting operation**, combining the large plastic zip ties with other components before packaging.

The configuration includes:

- **FlexiBowl® 800**: ensures stable separation and orientation of the large flexible zip ties, using its combined impulse and rotational motion to prevent tangling and overlapping.
- **FANUC LR Mate 200iD Robot**: executes the pick-and-place tasks with precision, guided by vision feedback.

- **2D iR Vision System**: detects the exact position and orientation of each zip tie on the FlexiBowl® surface, eliminating the need for mechanical orientation devices.
- **Conveyance System**: transfers the selected parts to the kitting and packaging area within a compact layout, optimizing floor space and workflow efficiency.

Precision and Efficiency

The integration of FlexiBowl® and the FANUC iR Vision system guarantees stable feeding even for long and flexible parts. The solution minimizes manual intervention, ensuring continuous operation and reliable kit composition. Its compact and modular design simplifies maintenance and allows future adaptations to other part types or kit configurations.

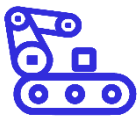
Results

The system provides **stable and repeatable feeding** of large flexible parts, enabling consistent kitting accuracy and smooth process flow. By overcoming the limitations of traditional bowl feeders, it supports higher productivity, fewer stoppages, and simplified product changeovers. This configuration demonstrates how flexibility and precision can coexist in space-optimized production environments.

Key Points

General Industry

Fanuc Robot



Kitting Process

Compact Layout