Application Notes

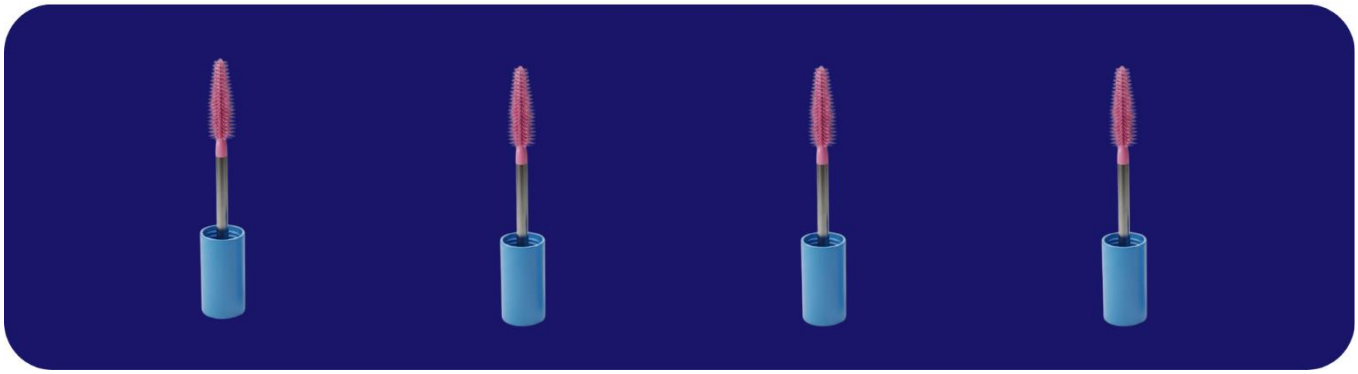
Automated Assembly of Mascara Brushes

Industry Insights

In the cosmetics industry, mascara production requires high-speed, precise and repeatable assembly processes to ensure consistent finished product quality. Proper handling of mascara brushes is a crucial step in the process, as each component must be fed, oriented and assembled with the utmost accuracy.

Automation makes it possible to increase productivity, reduce cycle times and ensure flexible handling of different formats, while also simplifying changeover operations.

Handled Components



The automated system handles the feeding and assembly of mascara brushes intended for the cosmetics industry.
The mascara brushes are loaded in bulk into the hopper and distributed onto the **FlexiBowl® 800**, where they are singulated and oriented to enable robotic picking.

The vision system identifies the position and orientation of each component, providing the robot with the coordinates required for fast and reliable picking before transferring the components to the assembly station.

Configuration

The solution developed by Effedi Automation integrates a FlexiBowl® 800 with an Epson robot and a vision system, creating an automated cell designed to maximize productivity and reduce cycle times.

The configuration includes:

- **FlexiBowl® 800** for flexible feeding of mascara brushes. Thanks to the combination of vibration and surface movement, the system distributes and orients the components without the need for dedicated tooling.

- **Vision system**, which detects the position and orientation of the components and transmits the coordinates to the robot for picking.
- **Epson robot** with RC700-E controller, responsible for picking and handling the components during the assembly process.
- **Dedicated brush insertion system**, developed by Effedi Automation, which inserts the brushes into the bottle in parallel with the robot operations, eliminating a potential bottleneck and significantly reducing cycle time.
- **Intuitive HMI interface**, designed to allow operators to create and modify recipes without programming skills. The system currently manages 12 recipes, with the possibility of future expansion, while configuring a new recipe takes approximately 10 minutes.

Results

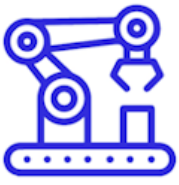
The solution developed by Effedi Automation delivers:

- Productivity of **35 ppm**
- Reduced cycle time thanks to the dedicated insertion system operating in parallel with the robot
- Reliable feeding of mascara brushes with uniform distribution on the FlexiBowl® 800
- Fast format changeover through recipe management via HMI
- New recipe creation in approximately **10 minutes**
- Management of **12 recipes**, with the possibility of future expansion

Key Points

Cosmetics

EPSON Robot



Assembly Process

35 ppm