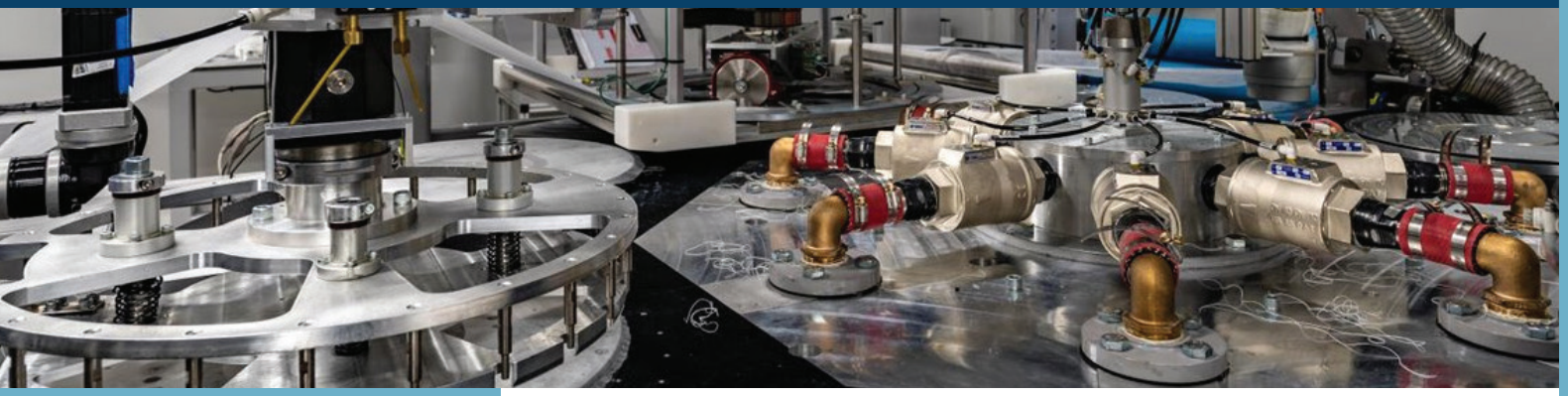
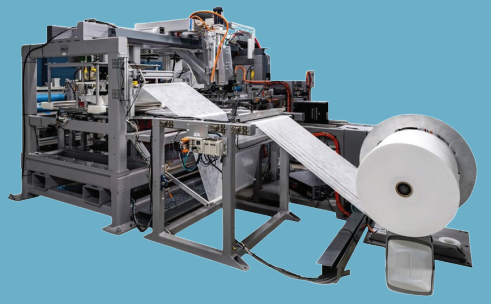
CASE STUDY

Reshoring PPE Production: The Hairnet Story



Overview

Integrion partnered with a U.S.-based PPE startup to automate production of sewn-style hairnets, a product previously made only by hand overseas. The result was a first-of-its-kind automated cell capable of producing one hairnet per second.



Key Metrics

The dual-machine system delivers one hairnet per second, producing millions annually. Weld temperatures are maintained within ±2°F for consistent quality, even with material variability.

1 HAIRNET
per second

±2°F
weld temperature

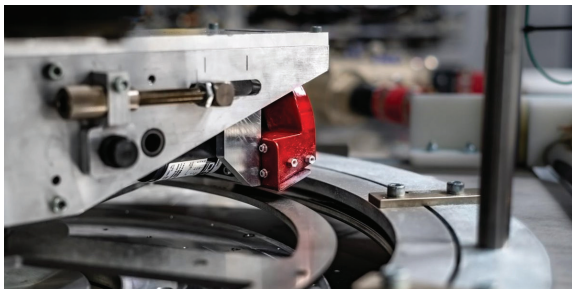
CHALLENGES

Sewn-style hairnets were in high demand but had no automated manufacturing process. The sensitive spunbond material, combined with the need for multiple sizes and rapid changeovers, made automation especially difficult.

SOLUTIONS

Integrion developed a thermoplastic welding process to replace stitching, ensuring durability without thread. A controlled cleanroom environment, combined with structured project management (APP), enabled precise, consistent production with flexibility for multiple SKUs.

- **Thermoplastic Welding**
- **Quick Change Abilities**
- **Controlled Cleanroom**



BENEFITS

Reduced Reliance on Overseas Manual Labor

By automating a product once made entirely by hand, Integrion ensured a steady, domestic supply of sewnstyle hairnets while minimizing vulnerabilities.

Delivered a Scalable, Repeatable Solution

The dual-machine system runs at one hairnet per second with precision and consistency, demonstrating how agile engineering can achieve both speed and reliability at scale.

Creating a Blueprint for Reshoring

This project proved how product and process can be co-developed to bring critical manufacturing back to the U.S., offering a model for other industries seeking supply chain resilience.

Building Resilient Supply Chains Through Automation

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