



## Erect, Pack, Seal & Palletize System

### Disposable Hygiene Products

#### Project Overview

This wet wipes manufacturer needed to expand its secondary packing capabilities to accommodate an increasing number of product and pack configurations. The current line, consisting of a gantry packer and a robotic palletizer, lacked the desired flexibility. Based on previous experience, this customer was confident in Pearson's ability to provide a full Erect, Pack, Seal and Palletize solution that could accommodate multiple SKUs, handle various case sizes and easily adapt to handle new products.

## Customer Objectives

### Highly flexible, reliable solution

The solution would require high speeds, reliability, increased throughput, and connect with the existing system without sacrificing limited facility space.

Pearson's solution needed to accommodate:

- 140 products per minute (ppm)
- 15 current SKUs
- 15 future SKUs
- 30 case sizes
- 15 pack patterns
- 28 pallet patterns

### Consistent high-quality output

The new solution would need to address the wet wipes shifting in their primary packaging, which caused mispicks downstream.

Some products with snap lids and resealable flap openings open during picking, causing moisture to escape and damaging the equipment over time. One product has a large flap opening that doesn't provide enough surface area for traditional vacuum suction.

### Intuitive operating platform

Heavy turnover forced the customer to continuously dedicate time to training new employees. Anything helping new and inexperienced users to quickly gain operational independence would be extremely valuable to this customer.

Also adding new recipes to their system without the need for onsite technician help by the OEM would be highly appreciated.

## Pearson Solutions

Two lines with six FANUC M10 robots each meet aggressive throughput requirements of 140 ppm (50 cases per minute [cpm]).

Three end-of-arm tools (EOAT) with automatic tool changeover ensures speed and accuracy of new settings to keep downtime to a minimum while alternating pack patterns and case sizes.

To minimize bottlenecks at the palletizer station, an overhead narrow belt conveyor allows for a full minute of accumulation, while a pallet pre-build station enables continuous palletizer operation even if the load build station is occupied.

A handpack station further accommodates vertical packing for small batch runs.

By using vision and line tracking to locate the product, and side belts to align and stabilize it for picking, mispicks from shifting products could be avoided.

To prevent the snap lids or resealable flaps from opening during the picking process, Pearson incorporated three different EOATs:

- 1) Most products are picked by applying suction to both the flap/lid and the surrounding packaging to prevent the product from opening.
- 2) A vacuum plenum with a stainless steel skirt directs and strengthens the suction on the sealed ends of the product for a successful pick.
- 3) The third EOAT picks three products at a time using six small suction cups.

Over the past years, Pearson has developed one of the most advanced and user-centric HMIs in the secondary packaging industry. The intuitive and consistent, icon-based interface assists with troubleshooting, fault recovery and changeovers, while adding or editing recipes is a quick and easy process.

## Sequence of Operation:

Wet wipe pouches enter the secondary packaging line and split into two lanes via a lane diverter. A 90° jump transfer moves the product toward the robotic case packing or handpack station, where side belts center the product on the conveyor for efficient picking.

Simultaneously, knockdown RSC cases are formed on the case erector using servo-driven vacuum set-up arms. The erected RSCs are then conveyed to the robotic case packer or handpack station.

Per line, six robotics use vision and tracking to identify the pouches' position and orientation, and then pick and load the product into cases using articulated motion.

Full RSCs are discharged from the packing station and transported over a checkweigher to a case sealer, where the top flaps are folded and sealed using pressure-sensitive tape.

Cases are then conveyed past a photoeye that detects open flaps, and flawed cases are rejected from the system.

A spiral conveyor elevates the sealed RSCs to the second floor and transports them on a narrow belt conveyor that allows for close pack accumulation. A second spiral conveyor returns cases to the first floor where they are conveyed through beam arrays that ensure correct orientation for palletizing. Upon approaching the palletizing cells, a pallet and a slipsheet are released from their respective dispensers.

Per cell, a palletizing robot then stacks the cases, inserting slip sheets as needed. If the primary load build station is occupied by a pallet being stretchwrapped, the palletizer uses an upstream pre-build station instead. After the stretchwrapped pallet is conveyed downstream, the pre-built pallet will convey to the load build station where the stack is either completed or stretchwrapped for stability.

The full pallet is conveyed downstream and the sequence repeats.

