



## Efficient Vertical & Horizontal Palletizing

Cases of Dairy Products

### Project Overview

With two Pearson palletizers already operating in the field, this Pennsylvania-based dairy manufacturer was ready to automate their third line after labor shortages peaked during the Covid pandemic.

With the goal of maximizing their pallet capacity to save shipping costs, they needed a robotic solution that could stack, band, and upright their long, flat case styles to be vertically-palletized. They also needed the flexibility to run traditional RSCs through the cell to be stacked in a variety of horizontal patterns.

## Customer Objectives

Maximize pallet space by vertically-palletizing their long, flat case styles

The customer's long, flat case styles would be supplied to the palletizer laying horizontally, and would need to be uprighted for stacking in order to fit as many cases as possible onto each pallet.

## Pearson Solutions

Case stacks are loaded into a metal cassette that rotates 90 degrees to tip the stacks vertically. Using a combination vacuum cup+clamp end-of-arm tool, the cases are picked by the palletizing robot, then placed on end in the selected stack pattern.

### Eliminating all manual palletizing functions

All palletizing tasks would need to be carried out without human intervention, including the introduction of empty pallets, stacking of cases up to (4) layers high, banding of case stacks, and application of slip sheets between pallet layers.

A fully-automated solution incorporates an automatic pallet dispenser, automatic case stacker, automatic bander, and robotic palletizer equipped with a multi-functional end-of-arm tool to pick cases and slip sheets.

### Flexibility to easily change stack patterns with minimal disruption to production

The robot would need to handle horizontal cases, and the switch between various case orientations and sizes would need to be simple and quick to execute, resulting in minimal line downtime.

Switching from vertical to horizontal stack modes is simple and fast, only requiring the operator to make a new recipe selection with the click of a button on the palletizer's user-friendly HMI. No end-of-arm tool change is needed- only tool-free adjustments to the side guides, completed in less than one minute.



### Sequence of Operation:

Pallets are released from the pallet dispenser (1) as sealed RSC cases arrive from the second level of the facility via a spiral decline conveyor (2) and are transported into the palletizing cell. In vertical palletize mode, cases arrive to the palletizer laying flat and are stacked up to four high by a mechanical elevator (3). The cases are then banded together via a banding mechanism (4) and placed into a metal inverting cassette (5) which flips the case stacks 90 degrees (vertical). A robotic palletizer (6) then picks and places the case stack.

In horizontal pack mode, cases advance to the pickup location and stop until the correct number of cases are present. A reference pusher aligns the cases, which are then picked and placed into the selected pack pattern by the robot. The robot is equipped with a multi-functional end-of-arm tool that also picks and places slip sheets.

Complete pallets index out of the cell via a takeaway conveyor to the customer's existing stretch wrapper.

- 1 Pallet dispenser
- 2 Spiral decline conveyor
- 3 Case stacking station
- 4 Case banding station
- 5 Case inverter
- 6 Pearson robotic palletizer
- 7 Pickup location/reference pusher

