

# THE CHALLENGE



## Meeting Customer Demand

Larger bundled product was requested by customers searching for volume discounts offered at club warehouses. The manufacturer's palletizer area was designed to handle cases, not consumer-ready product bundles.



## Bundle Capacity Expansion

To increase capacity and produce larger bundled product, the palletizer areas and conveyor lanes needed to be reconfigured and redesigned to efficiently move product from production to shipping.



# Expanding Packaging Capacity

## Solution: Redesigned and Reconfigured Line

Without disrupting existing lines or investing more capital, the line was reconfigured and redesigned to accommodate larger consumer bundles on the same line as the existing case product. The installation of the new line included conveyor equipment and bar code scanner software to give the manufacturer more control over how bundled product moves through each process. Flexibility and throughput increased better positioning the manufacturer in the market to meet current and future customer demands.



# EXECUTIVE SUMMARY

## ▶ **Manufacturer Expands Consumer Packaging Capacity – Without Disrupting Production**

**Client:** Fortune 100 CPG Manufacturer

### **Challenge:**

- Palletizer area unable to support packaging change required to meet consumer demand
- Plant's production schedule could not accommodate changes needed to update conveyors and palletizer

### **Solution:**

- Source, design, and install new conveying equipment
- Reconfigure line, so product from 11 assets can merge through 4 trunk lines and then divert to the appropriate palletizer areas
- Apply new software to enable barcode scanners to detect new packaging, separate it from regular cases and route as appropriate

### **Results:**

- Plant has the flexibility to expand capacity to meet consumer demand without disrupting existing lines or investing more capital
- Manufacturer maintained its shelf-space and now provides more varieties of product to its retail customers. All work done without impacting production

### **Packaging Changes to Meet Customer Demand**

When one of your largest retailers is asking for a packaging change to better meet consumer demand, you want to respond fast. The sales and marketing unit at a Fortune 100 Consumer Packaged Goods (CPG) manufacturer was getting the message that it had the opportunity to sell more product – or lose shelf space.

They would need to offer larger bundled product to satisfy customers searching for the volume discounts offered at club warehouses.

The barrier was the palletizer end of the line. It was designed to handle cases, not consumer-ready bundles. In order to increase bundle capacity, the company would need a system integrator that understood how to reconfigure palletizer areas and redesign conveyor lanes to effectively and efficiently move the newly configured product from production to shipping.

Complicating the challenge was the need to make the changes without severely disrupting the plant's current production schedule.

### **Choosing an Experienced Partner**

Polytron's history of automation and implementing successful projects with the manufacturer created the trust necessary for leadership to choose Polytron for expanding their consumer packaging capacity.

The line at the plant would need to be redesigned to accommodate bundles for delivery to business customers, like hotels and institutions, and consumer-ready packaging found in many club warehouses. This required the solution to piggy-back on the existing conveying system and expanding capacity, so cases and larger consumer bundles could be accommodated on the same line.

Polytron brings insight in understanding the requirement of handling plastic poly bundled product different than cardboard cases. The two product configurations present unique conveying profiles that had to be addressed in the conveyor hardware, speed designs and pallet forming.

## Smart Manufacturing Solution

In the reconfigured line, product from eleven different assets merge through four trunk lines and then divert to the appropriate palletizer areas. Polytron sourced, designed, and installed new conveying equipment, and applied a new software control scheme to enable barcode scanners to detect bundle packaging, separate it from regular cases, and route as appropriate.

Robust high-speed scanning was essential as it provides product data back into programmable controllers that make sorting decisions at a fast rate. This information is passed through a network of controllers to determine pallet stack patterns, storage information and production data output.

Production data tracking is a key output in determining how well production lines are performing. Polytron focused on the equipment level to determine how well merge points were processing packages and provided feedback as part of the integrated system. Throughput at these points were key success criteria going into the project. Knowing how well equipment is performing and establishing a good performance baseline was critical. If the plant team notices a reduction in conveyor merge performance over a period, this data can be compared to values during the initial commissioning phases. It can point to equipment related issues that can be scheduled into a preventative maintenance program.

## 3-D Emulation Model

In order to further prove the design plan and control methods, Polytron developed an emulation model of the merge points, trunk lines, and divert conveying system. This 3-D model technology allowed the project team to demonstrate the control's program ability to deliver the required function. Control hardware configuration and speed settings were established ahead of equipment installation. The modeling technology had a positive impact in reducing the amount of start up time required in commissioning the equipment. In addition, the model can be used in training modules and to evaluate future design changes to the conveying equipment.

## Increased Flexibility and Efficiency

The redesigned line gave the manufacturer more control over how bundled products move through the line, onto the forklifts, and out of the plant. Product can be bundled onto pallets in stacks of any number, shrink wrapped and shipped. As a result, the plant has the flexibility to expand capacity to meet the new demand from consumers without disrupting existing lines or investing more capital. The plant can meet demand as the market changes and increase volume based upon projected sales. The plant knows what it is able to deliver today and the peak capacity it is able to deliver – which allows sales and marketing to communicate clearly and accurately with both retailers and other customers.

The plant is now more productive with the downstream material handling and palletizing systems able to “take away” all of the new product sizes with the increased line speed. In addition, this manufacturer maintained its shelf-space and can provide even more varieties of product to its key retail customers. Flexibility and throughput increased making the manufacturer better positioned in the market to meet current and future demands.



**Customer has the flexibility to expand capacity to meeting consumer demand without disrupting existing lines or investing more capital.**

## All Done without an Impact on Production

Polytron's approach allowed the manufacturer to make the change without severely impacting plant production, providing the confidence and certainty in outcome the plant manager needed. This was accomplished through careful scheduling and working closely with the plant manager, planning teams, and engineering allowing the team to take advantage of preventative maintenance downtime windows and other scheduled breaks.



## About Polytron, Inc.

Since 1983, Polytron has been an industry leading system integration and engineering consulting firm delivering a broad spectrum of innovative manufacturing solutions. Polytron serves manufacturers in the food, beverage, consumer packaged goods, chemical, and life sciences industries across North America.



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