

Fulfillment Warehouse Cuts Shipping Cost and Improves Packing Efficiency By Making Boxes On Demand



Customer Satisfaction Drives Change

Oklahoma City based Petra Industries is a distributor of a wide-range of electronics, automotive, houseware, recreation & fitness, and computer accessories. Petra Industries takes great pride in the quality of its operations, people, and processes and the company is laser-focused on performance metrics that drive customer satisfaction. One critically important metric for Petra and their customers is cost control. Management at Petra continually looks for ways to improve existing order fulfillment layouts and processes while seeking new or alternative technologies to allow their people to work faster while maintaining efficiency and accuracy.

In a fulfillment environment costs are measured and evaluated from every angle. The level of scrutiny on cost allows areas of bottlenecks and inefficiency to show quickly. This was true within the Petra picking area for items that did not fit into the standard boxes available or were too large for envelopes. The oddly sized and shaped items were funneled to a station where a team of people would individually pack each item. The manner in which items were packed for shipping were coined “Christmas Wrap” because each item was individually wrapped using a flexible corrugate material resulting in a covering that resembled a Christmas wrapping. The process was inefficient and added costs due to lost throughput. While only 3% to 5% of the overall output of the company, the team at Petra knew this was an area that needed improvement. Using Petra’s continuous improvement focus as a guide, Johnny Arballo, outbound manager, and Mike Williams, outbound supervisor, studied their options.

Right-Sizing Boxes Makes Cents

The term Right-Size Boxes means a corrugate box is made to the exact LxWxH requirements of the item or items to be shipped. Adding the concept of making boxes on demand vs. pre-purchasing ready-made boxes means that a company can produce individual boxes in their own facility, that are sized per order and made as needed. The concept of right-sized box making on demand appealed to John and Mike so they contacted Kevin McKnight at Box On Demand®. As Kevin learned of the current state of the “Christmas Wrapping” area and visited the site to understand the Petra goals, he determined the packaging area could be dramatically improved with a Box On Demand (BOD) system.



In addition to the evaluation process for a new box making machine, the packaging specialists at Box On Demand also evaluate the layout and process of how the boxes will be made and packed. Once

on site some of the elements reviewed are; current space, mode of operation, flow from picking to packaging to loading. The site evaluation coupled with the box usage data allowed the BOD team to make a comprehensive recommendation of equipment. In Petra’s case a collaborative discussion with Mike and John also led

to recommendations for floor layout and some necessary ancillary equipment. The team at Petra was excited about making positive changes to their troubled packing line and looked forward to implementing the recommended improvements.

Peak Season; the Joy and Pain

The timing of Petra's BOD® equipment delivery and installation was early November. For any online retailer or fulfillment facility this is the time of year when Get It Done takes on an even higher-level of urgency. When the Box On Demand Nextmode 2.5 machine and Matrix Dimensioning Scan Table arrived along with the BOD installation technicians, John and Mike were moving at full peak season pace. A decision was made to initially forgo the recommended flow and layout and 'fit' the equipment on the floor with the least amount of disruption. The technicians placed the machine where instructed and trained the Petra team to operate the patented Matrix Dimensioning Table and NextMode machine.

Even with a less than optimum packing line set up, the BOD System proved a tremendous asset. The packing time was reduced by 25% from a high of 2:00 min/package down to 30 seconds.

The Right Pack Line Flow Delivers Results and Improved Metrics

After peak fulfillment season was over, John and Mike revisited the box making layout arrangement outlined in the original planning meetings with BOD. The Petra team performed well during peak season with the BOD system in a less-than-ideal set up. Now it was time to realize the box making system's full potential and achieve the goals they set out to hit. The revised layout would allow the Petra team to achieve maximum throughput in this area. Kevin McKnight from Box On Demand returned to Petra to support the team in the transition to the improved layout. John and Mike worked with Kevin and the team to relocate the BOD Machine and the Matrix Dimensioning Table so the output of the box machine was facing the shipping docks. A roller conveyor was installed for easy material flow and less movement requirements between the box making process and the packing process. Two pack lines were created with a packer at each station. One operator scans the

dimensions of the item or items to be shipped in a given order from the pack cart and sends the data to the BOD Nextmode machine. As the machine makes the box, the operator uses the conveyor to move the products down the line. The operator glues the box using the BOD ILG5 automatic gluer and then places the right-sized box with the order in front of the packing lines. The two packers select each order from the conveyor on a first-in-first-out basis to complete the packing process. The right-sized box for each order eliminates time and costs associated with adding void fill. The revised layout allowed the packed and labeled boxes to be placed on pallets at the end of each pack station. Floor material handlers monitor the skids and move them into the loading dock area when full.

Quantifiable Cost Savings

The new Petra pick and pack process has produced quantifiable savings and delivered on process improvements. The layout of the Matrix Dimensioning table and NextMode box making machine freed up 72 square feet of floor space allowing for a streamlined and safe fork truck lane. The right-size, on-demand box making machine has reduced corrugate cost by 18%. Labor allocated to the non-standard packaging line has been reduced by one person and excessive DIM weight shipping charges eliminated. The company has also realized quantifiable cost savings and increased throughput. In addition, the Petra employees have less strained movements and improved productivity. Overall the Box On Demand Right-Sized Packaging system has proved beneficial for Petra, its employees and its customers.

