

## Ames Improves Packing Efficiency By Making Boxes On Demand



### Building Better Customer Experiences from the Inside Out

The Ames shovel was first created by founder Capitan John Ames in the mid 1700's. Through the decades that followed, Ames shovels and hand tools have been synonymous with functional design, durability, and innovation. The culture and characteristics of the Ames people and their products have built bridges and monuments, supplied soldiers with necessary tools during wartime, and provided workers with proper mechanisms to support large-scale infrastructure construction. The breadth of Ames tools are engineered and constructed to be the right tool to produce the desired result with the least amount of time and effort. The initiative and customer-focus that spurred Mr. Ames to make some of the world's first functional shovels, is the same focus that drives the company business today. The U.S.-based manufacturing plants follow lean manufacturing principles driven by continuous improvement and end-to-end value driven operations. It is this drive and focus that sparked a team within the Pennsylvania facility to evaluate how they were packing and shipping their products to customers.

### Digging Deep

Manufacturing in many industries is a rewarding yet challenging business. Higher operating costs, global competition, and margin pressure are just a few of the ongoing challenges manufacturers face day-to-day. The reward of the work comes not only in the form of customer-facing products and programs but also in the internal wins achieved by teams of people working together to improve the operating structure. This was true of the team that worked on improving the plant's packing and shipping process. Lead by Packaging Engineer Phil Lemke, supported by Steve Koncar, Distribution Manager, Matt Mickle, Operations Supervisor, and accompanied by various buyers and shop floor personnel, the

team worked to find alternatives to the purchase of pre-made, die cut boxes.

The Ames manufacturing product database consists of over 1500 items. Ames shovels, rakes, hand tools, and yard & garden accessory products are shipped to their customers hundreds of times per day. The Ames' customer base consists of home and garden retailers, big box home improvement warehouses, and ecommerce distribution centers. The product is sold on the retail floor and packaged and shipped direct to consumer via ecommerce sites. The demand for Ames quality products continues to grow as Ames retail customers shift a greater portion of sales online, the resulting mix and diversity of items sold per order changed. The varying product mix has proven challenging for Ames' customers; finding the right sized box for any given variable order.

**“We deliver added value to our customers because we are very good at packing & shipping our products.”**

*-Phil Lemke, Packaging Engineer*

Internally Ames also faced challenges with packaging products for shipping. The purchase of pre-made corrugated shipping boxes is ideal for product applications where there is little variation in order configuration and the dimensions of the items to be shipped are fixed. Like their customers, Ames struggled to properly and efficiently pack a varying mix of products in addition to the new products the Ames design team developed. The company was purchasing high volumes of boxes when they only needed a few just to meet minimum order requirements. “A custom product run might only require 42 boxes but we had to order over 420 just to meet the minimum requirements” - notes Operations Supervisor Matt Mickle. Most of the time this means the 387 boxes sit on a shelf taking up warehouse space and are eventually discarded due to lack of practical use.

## Trenching a New Path

The Ames Kaizen team evaluated their current state of packaging for shipment. The team summarized they had 45 different box SKU's which had to be inventoried, stored, and maintained. The packing area was unorganized and inefficient, and boxes were not always right-sized for the product shipment. The combination of these challenges resulted in significant increases in labor and shipping costs. The team researched ways to improve their current packing operations and found the WestRock Box On Demand® process of making right-sized shipping boxes in-house. The Box On Demand technology allows manufacturers to produce right-sized corrugated shipping boxes in-house and on demand. The CNC machine precisely and quickly cuts and creases corrugated fanfold to produce any quantity of boxes needed and virtually any type. Box On Demand provides companies with a box machine to use in their facility. Operator training is provided to employees and 24/7 technical support is included. Ames would only purchase the corrugated fanfold they needed to make shipping boxes.

This collaborative process creates an end state that not only produces right-sized boxes for each order, but also establishes labor optimization and increases output.

The BOD evaluation process concluded the best system for Ames was a Compack 3.0 meter machine with gluer and Matrix™ Dimensioning System. The complete system allows Ames to make single boxes when needed and to produce boxes in batches for higher quantity product orders. The 3.0 meter machine allows 4 different fanfold sizes to be placed in the machine at one time. This flexibility gives Ames a wide range of box size and configuration options.

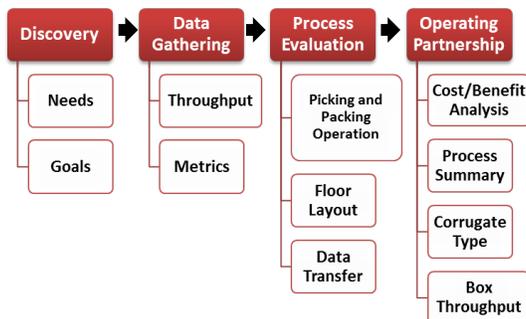


**BOD® Matrix™ Dimensioning System quickly scan LxWxH dimensions of any order**

The Matrix scan table allows Ames operators to quickly and accurately scan L x W x H dimensions of any product or order configuration and sends the data to the BOD machine for right-sized box production. The Ames and BOD team worked together to integrate the system into the new picking and packing order flow.

**Figure 1**

### BOD® Evaluation Process



Box On Demand works with customers through a multi-point process to determine packing needs and understand goals. [Figure 1] The process begins with BOD® packaging specialists working with Ames to learn their challenges and improvement objectives. Using this information the specialist incorporates the BOD system into a revised packing process.



**Corrugated fanfold bales stack and store easily. The bales feed into a BOD® machine to produce right-sized boxes on demand.**

Box on Demand also worked with Ames to evaluate their box needs, programming the standard regular slotted container (RSC) to have the opening of the box on the short-end rather than run the length of the box. Many Ames products are long and narrow, such as rakes and shovels; packing these items from the top of the box is slow and inefficient. The rotation of the box configuration allowed the long handled items to slide into the box easily. In addition the natural imbalance of



some of the hammers, picks, and rakes, creates potential for damage to the box during shipment. The BOD machine provides a dimensional allowance on these boxed items to add extra padding around the heaviest part of the product. Ames uses the trim from the box production as the padding for these items.



## Cultivating Relationships and Pride

The new on demand system and packing process changed the way Ames viewed the packaging area of the business. The Company showcases its design and manufacturing capabilities by giving plant tours to customers and vendors. The tours cultivate their working relationship and highlight the people and practices that continually deliver reliable, functional hand tools. Manufacturing had always given employees and management a sense of pride, but the packing and shipping area had been avoided during tours.

After the implementation of the on demand packing process, this area of the plant has become an integral and important part of the tour. Phil Lemke, Packaging Engineer notes, "Our new BOD packing process makes us good at shipping our products". The shift to making right-sized boxes on demand has created a sense of ownership in packing and has increased the value Ames offers to its customers the ability to right-size every box, per order

means Ames can drop ship for customers. In an ecommerce sale, cost reduction is critical and customer satisfaction is imperative. The Ames right-sized boxes protect items from damage during shipment, making the image on the front porch of the consumer or retail outlet clean and professional.

## Raking in Results

18 months after the Kaizen team implemented the start-up of the BOD<sup>®</sup> system, Ames has realized significant improvements and savings in packing and shipping.

- Reduced floor space from stored corrugate boxes by half.
  - The space is now used for product inventory.
- Eliminated corrugate waste and lost dollars from pre-made box obsolescence.
- Reduced packing labor costs.
- Increased the number of shipments per day.
- Reduced DIM charges.
- Significantly reduced the purchase and use of added dunnage.
- Increased customer satisfaction in the packaged and delivered product.

The Ames process of making right-sized boxes on demand has significantly changed the way its products are packed and shipped. "Today our packing operations are lean and efficient which has saved quantifiable time and money. The most significant improvement of right-size, on demand packing however is the value we deliver for our customers", notes Lemke. The quality of the Ames packing capabilities has increased drop ship orders for its retail and ecommerce customers. Drop shipping online orders reduces costs, increases margins on free shipping product orders, and improves the quality of the delivered package. Lemke also notes, "We manufacturer and sell quality designed and built yard and construction tools. The appearance and delivered quality of how our products are received by our customers and end-consumers is just as important as the way they are built."