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Aerospace Parts Manufacturer Uses Box Latch™ Products to Invent Sustainable, Reusable Box System

The Problem

Manufacturing high quality parts for the aerospace industry is one thing; shipping them safely is another. These long, narrow, odd shaped parts are not easy to stack and, because aluminum is a soft metal, they are easily damaged. Packing and boxing them for shipment is time consuming and expensive.



Northwest Metalcraft's Innovative Custom Built & Labeled Boxes

The Solution

The box on the right shows Northwest Metalcraft's (NWM) raw aluminum parts being prepared for shipment to the finishers for the application of a primer coating. The box on the left shows the parts complete with green Boeing primer packed in plastic bags, ready for final shipment to the customer.

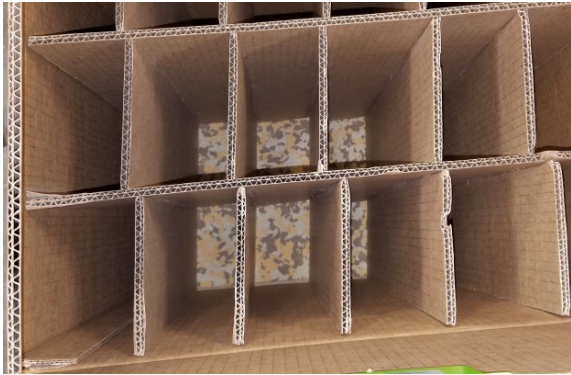
After parts are shipped to and completed by the finishers, they cannot simply be replaced in the boxes in which they arrived. This is because the aerospace industry employs stringent FOD (foreign object debris) guidelines to prevent cross contamination of finished products. Since the same boxes are used for raw parts with risk for grind dust or coolant residue, the poly bags protect the parts from FOD during transit.

To save time and money a key objective was to preclude re-handling these parts; Moreover, aluminum dings easily thus, the need for partitioned boxes. They assured peace of mind that the parts are handled properly when a day's worth of work is easily in the thousands of dollars.

The first batch of parts NWM manufactured did not have the custom packaging illustrated above. It took more than a minute to correctly package each odd shaped part. The upfront work NWM's engineers did with CAD models allowed their custom packaging solutions provider, Anderson Paper, to produce the perfect dividers and double walled corrugated boxes. The benefits were immediately evident at the NWM facility. However, it soon became obvious that the benefits were equally important when the finishers, i.e., point B in this closed loop system, received, stored, unpacked and, most notably, repacked the parts for safe transit back to NWM. As NWM's manufacturing manager pointed out during the package development planning, the taping and untaping required for each cycle would quickly ruin the expensive boxes. **That is precisely the challenge that was solved with the Box Latch™ brand of products.**

The two parts NWM manufactures are different in width by about 3/8". To reduce the number of containers needed in the supply chain flow, the box partitions were sized to fit the larger part, thus, accommodating both. NWM is now manufacturing a new family of parts that are 30" long and much more fragile due to a thinner wall thickness. This configuration allows for repurposing boxes by double stacking them, a solution that will pay supplemental dividends down the road.

Inserting a 1/4" piece of recycled neoprene/foam on the box bottoms prevents denting of the aluminum and chipping of the primer during transit.



Recycled Neoprene on Box Bottoms



The Box Latch™ as A Tag Holder

By using the Box Latch™ as a tag holder, the time and motion savings have continued to grow. To track the effectiveness of this reusable material handling system, the bottoms of the boxes are marked during each cycle. The neon green latches were chosen specifically with the bright orange locks to wake everyone up to the idea that these boxes are NOT disposable.

As a side note, staff members love using the Corner Clips seen in the first photo on page one of this case study because that means they no longer have to fight open box flaps.

The Savings

The "Replace" and "Box Latch" markings were preprinted on the boxes to illustrate exactly where the latches are to be inserted. The "Do Not Destroy" and "Reusable" instructions indicate the importance of reusing these expensive containers. The material cost per box is \$26.05. Adding \$5.42 to assemble them produces a \$31.50. Purchasing two Corner Clips and a Box Latch™ with one anchor cost \$4.95.

There are many reasons this cost savings and sustainability project has been successful.

1. **Strength:** The boxes are custom built and double walled to move 40# of parts over and over again.
2. **Labor Costs:** This investment has yielded big dividends on the second time through the production cycle. After painstakingly packing the first batch, NMW learned that they would save 20 minutes of packing time with every box they filled.
3. **Time:** The dividers also save time by making it easy and fool-proof to count parts in boxes or inventory.
4. **Cost of Poor Quality:** because of the competitive nature needed to win a contract like this, there was no room to learn what the COPQ would be as a result of damaged parts; it had to be right from the start.
5. **Sustainability:** These custom boxes will keep approximately 200 regular cardboard boxes out of a landfill per year.
6. **ROI:** Total ROI is yet to be determined. However, with an estimated re-use of 20 times, NWM's \$4.95 investment per box for the Box Latch™ Products will save \$625/box over its lifetime – an extraordinary 126:1 ROI in this line of business.

Box Latch™ Products Made by Eco Latch Systems, LLC boxlatch.com