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Case Study: Box Latch™ Products at Work for Belimo USA



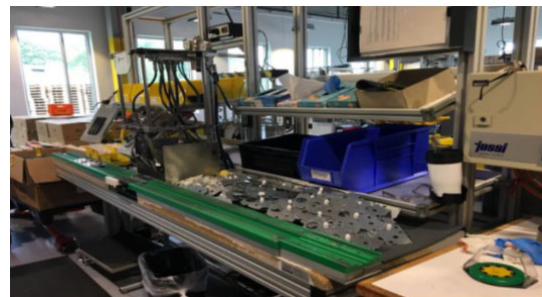
Abstract

This case study was performed at Belimo USA, belimo.us in conjunction with the manufacturing of its HVAC actuators and valve systems. It focuses on how the use of Box Latch™ Products has optimized assembly systems as it conserved floor space, reduced touch points and cut freight costs.

The patented Box Latch™ is placed on boxes or cartons to hold the flaps closed. It reduces the need for tape, allowing boxes to be re-used without tape-induced damage. Employing Box Latches™ enabled Belimo to replace heavy wooden crates received from their supplier with re-usable corrugate boxes, saving money and the environment. Their filled, partitioned, palletized, shrink wrapped, corrugate boxes have now been used 12 or more times for shipping parts from their downstream supplier in Wisconsin to Connecticut with empty boxes returned to Wisconsin. Moreover, applying Box Latches™ has reduced damage to box contents.

Introduction

Belimo is a Swiss company with multiple locations worldwide and a staff of more than 1,500 people. It is the global market leader in the development and production of actuator and valve solutions. This case study starts at Belimo USA, located in Danbury, CT. The prior system for transporting metal parts from a supplier located a **thousand miles away** had been via wooden crates. Upon arrival assembly cell workers lifted parts out of large wooden crates stored in an aisle across from the assembly cell and placed them en masse on the tables shown below wasting time and motion.



A Cost Effective Solution

Instead of using wooden crates, they now use corrugate boxes closed with Box Latches™, reducing the number of touch points in the assembly cells seen below. Because of these characteristics, they had incurred high freight-costs, difficulties moving the crates within both facilities and excessive handling by forklift drivers and assemblers.

In 2016, Belimo learned about Box Latch Products through the boxlatch.com website. Michael Gallo at Belimo decided to place partitions in reusable corrugated boxes arriving in reusable boxes from headquarters in Hinwil, Switzerland.



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Costs for purchasing partitions to insert in the “free” re-usable boxes from Switzerland were remarkably less than for new wooden crates. Moreover, the corrugated boxes held more parts, reduced the number of pallets shipped and could be reused with ease. Transportation expenses dropped exponentially because of reduced weight and space.

In addition to these savings, the corrugated boxes made handling of parts more efficient at the manufacturer’s



Partitioned box with easily countable and accessible parts replacing plastic tote



Corrugated boxes closed by Box Latches™ efficiently stacked on pallets

location in Wisconsin and within the Belimo facility in Connecticut. The partitioned corrugated boxes were placed in assembly cell racks directly in front of assemblers for efficient, one part at a time access, leaving assembly cell work surfaces neat and clean. Each of these changes reduced the number of times parts were touched. These changes fulfilled Belimo’s lean manufacturing procedures while saving huge sums of money and the environment.

Results

Belimo has been using the Box Latch products for nearly 3 years with increasing application in packaging, storage, line-assembly and transportation systems. The number of pieces per shipment from Wisconsin to Connecticut increased by 156% which, in turn, decreased transportation costs per piece by 55%. Overall, savings amounted to **\$75,000 year**.

The number of pallets with empty partitioned boxes transported the opposite direction, i.e., from Connecticut to Wisconsin decreased by more than 6 percent per year. Costs per pallet were reduced by 32% due to lower weight while the number of parts per pallet increased by 7 percent. This reduced transportation costs from Wisconsin to Connecticut by more than **\$17,000/year. Combined savings = \$92,000 per year.**

Belimo spent \$500 to purchase partitions for their re-usable boxes, which up to this point had been sent to recycling. They spent \$1,000 for Box Latches™, instead of \$15,000 for a new set of wooden crates. **Net savings = \$13,500.**

Conclusion

Based on information generated during this study, Gallo stated that: “We have done the calculation and now know that most of our original 500 boxes have completed nearly twelve cycles and are still going strong. The decision to use the partitioned, free, corrugate boxes closed with Box Latches™ is a highly sustainable investment.”

Introducing the Box Latch™ has led to great reductions in transport and labor costs, not to mention the savings on tape, boxes not purchased, reduced labor costs from fewer touch points and freeing up additional floor space. Moreover, the use of the Box Latches, based on *lean manufacturing principles*, has contributed to the company’s sustainability mission. All in all, Belimo is very happy with this innovation and continues to further apply it within its operations.