

Lifting away container handling and storage problems

- an ALM Customer Profile



ALM lift moving a nested ProBox from supply conveyor and turning 90° to place it on the assembly conveyor.

The Problem:

For many years, Pioneer delivered its seed products in 3,000-pound capacity bulk sacks. However, the bulk sacks didn't stack well in warehouses or travel well in freight trucks. They developed a new rigid plastic IBC which Pioneer calls the ProBox. The ProBox is a reusable two-part bulk storage container. When assembled, the container has a 2,500-pound-capacity. For storage the container's top section inverts and nests over the bottom section doubling the number of containers that can be stored in its warehouse.

To manually assemble the nested container, they needed a forklift and two operators. Pioneer's operators were only able to disassemble or assemble about 10 to 12 containers an hour.

"The process was inefficient and potentially unsafe," says Ed Burgess, Pioneer project manager. "The container's weight and dimensions made it very difficult for operators to manually lift and manipulate, which eventually could've led to operator injuries such as back or shoulder strains. Considering that we have plans for more than 500,000 ProBoxes dispersed among our various facilities, manually disassembling and assembling that many containers will be physically difficult for the operators."

Container handling problems led Burgess to search for another solution. He traveled to the Powder Show in Rosemont, Illinois, to meet with Doug Grunnet, president of ALM Materials Handling.

The Solution:

ALM developed a design for a stationary lift allowing it to receive containers stacked three high. Both ALM and Pioneer did extensive testing and based on those results Pioneer purchased several units. Since installing the stationary ALM lift and manipulator, Pioneer's automated system is easily run by two operators. And they only have to perform four manual tasks: The new stationary lift also rotates horizontally enabling Pioneer to minimize its container handling process floor space and maximize the forklift's efficiency. Now three containers can be loaded on the conveyor at one time instead of one.



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The Result:

"The new lift has increased and improved our container handling efficiency and productivity. It has also helped create a whole new container handling flow diagram. We went from a conveyor line that was a 50-foot straight line to a U-shaped conveyor line that's about 20 feet long on each side. We've economized our space, increased our efficiency, and increased our output since installing the lift in our system," says Burgess. "We're able to assemble 50 to 60 containers per hour now, whereas with the Juggler and the old conveyor line we could only handle 20 to 25 containers per hour; that is, when the Juggler wasn't broken down," says Burgess.

"We haven't had any lift failures since installing the new lift. In fact, ALM has bent over backwards to help us solve our container handling problems. They've really worked hard to provide us with a lift that meets all of our container handling requirements," says Burgess. "Pioneer plans to purchase more ALM stationary and portable IBC lift and manipulators to use in its other facilities. In the future, many of Pioneer's facilities will be using ProBoxes to transport seeds and ALM lifts to handle the containers."



ALM lift un-nesting the ProBox

View from operator platform of nested containers with ALM lift rotating box upper half. On left, system MMI, man machine interface, color touch screen provides complete box handling system controls.



Operator removes box lid prior to un-nesting.

Pioneer Hi-Bred International, Inc., a Dupont business headquartered in Des Moines, Iowa, produces, markets, and sells soybean and hybrid seed corn to various agricultural industries and farmers in more than 70 countries worldwide. Pioneer also markets and sells hybrids or improved varieties of sorghum, sunflower, alfalfa, canola, and wheat, as well as forage and grain additives.