

CASE STUDY



Robotic Loading Cell Application

*Pallet Dispenser/
Stackers, Thru-Frame
Transfer, CDLR
Conveyors, Frame to
Frame Transfers*



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Overview

Is it whisky, or whiskey? For the non-afficionados, the answer is both. Scottish and Canadian brands are spelled without the letter “e” – all others include the letter “e.” Whisky or whiskey is a type of distilled alcoholic beverage made from fermented grain mash. Various grains are used for different varieties, including barley, corn, rye, and wheat. Whiskey is typically aged in wooden casks, which are usually made of charred white oak.

Charring the wood primes the wood, which impacts the spirit’s flavor. It opens the wood up, making it easier for bourbon to extract flavors. It also catalyzes key chemical changes that are essential to the distilling process. Most of the vanilla flavor in whiskey, for example, comes from the breakdown of lignin in

oak barrels, which is expedited by charring.

Our Product

200 Oak, Whiskey Barrel Heads on a 48” x 48” Plastic Flat Bottom Pallet Weighing Up to 2,000 lb. Maximum.

We worked closely with our system integrator, [Automated Systems International \(ASI\)](#), who focuses on the whiskey barrel industry. Since ninety-five percent of all bourbon whiskey is produced in Kentucky, it’s a huge economic contributor to the Commonwealth of Kentucky.

The two conveyor systems Alba supplied are used to carry pallets holding up to 200 finished barrel heads.



THE INDUSTRY'S PREMIER PROVIDER OF HEAVY-DUTY PALLET HANDLING CONVEYOR SYSTEMS

Biggest Challenge and Solution

Design a system allowing maximum product flexibility in the event the end user's head rounder or head char equipment didn't operate properly.

Alba provided a system that allowed the end user to both dispense and stack empty pallets with a single unit. Utilizing Alba's standard center drive equipment, the cell operates in forward and reverse directions – saving costs by avoiding the need for a second unit and saving valuable floorspace.

System #1 Process

ASI supplied a whiskey barrel head char loading, Denso robot and head conveyors. ASI utilized Alba's pallet dispenser to dispense pallets to a robot loading zone, providing accumulation for incoming heads to work in conjunction with the robot and head conveyors. This allowed ASI's head rounder to keep making barrel heads even if the whiskey barrel head char is down.

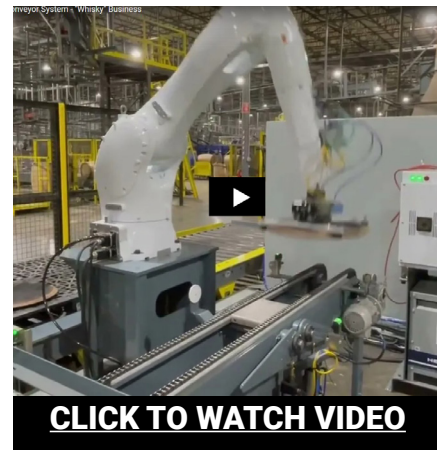
The robot palletizes the whiskey barrel heads to keep the head rounder running. When there are any gaps, the robot removes heads from the pallet and places them in the head char. When the pallet dispenser is empty, the line is reversed. The pallet dispenser now becomes a pallet stacker as it accumulates the pallets back into the stacker magazine.

System #2 Process

The charred barrel heads are delivered from the head char process via an ASI supplied conveyor. Then it accumulates the heads on a zoned accumulation conveyor and loads them onto plastic pallets using the Denso robot equipped with a custom end effector.

As pallets are loaded, they are conveyed to another CDLR conveyor when full. The pallet dispenser dispenses another pallet to start the process over.

The barrel heads are very lightly charred as compared to the rest of the barrel. If the barrel heads are charred too much, the heat bends them out of shape. Picture a burning piece of paper – it folds upwards as it burns. The same holds true for barrel heads – making them impossible to attach to the barrels.



Value-Added Features

Special Paint Color RAL 7031 (Blue Grey)
Adjustable Pallet Back Stops
Fixed End Stops