

Conveyor Case Study #7a

Miles of Conveyors for UNDER ARMOUR® Distribution House

In 2015 UNDER ARMOUR® completed two new distribution centers, the larger of the two was built in Mt. Juliet, Tennessee. This facility now occupies over 1 million square feet.



The Challenge

PACLINE was contacted to supply the **empty carton and tote conveyor systems** which were to be fully integrated with the other roller and belt style conveyors in the picking and packing areas - over 12 miles of conveyors in all would be installed in this facility.

UNDER ARMOUR® needed a system to deliver and remove both totes and cartons between different packing areas and on two different levels. Space was at a premium due to the extensive floor conveyor systems and packaging and staging equipment.

The Solution

Of the 12 miles of conveyors installed at UNDER ARMOUR® in Tennessee, 1.2 miles was PACLINE's enclosed track overhead conveyor for delivering and removing empty cartons and empty totes.

PACLINE provided 3 overhead monorail conveyor loops with custom tray carriers:

- Loop #1 – 2900 ft. long with 6 drives
- Loop #2 – 2750 ft. long with 5 drives
- Loop #3 – 830 ft long with 2 drives

The two longer systems worked in unison to:

- Deliver empty totes from the main level Value-Added-Services (VAS) packing areas to be consumed in the 2nd level Distribution / Packing Areas.
- Remove empty corrugated cardboard cartons from the 2nd level Distribution / Packing Areas to be consumed at the main level Value-Added-Services (VAS) packing areas.

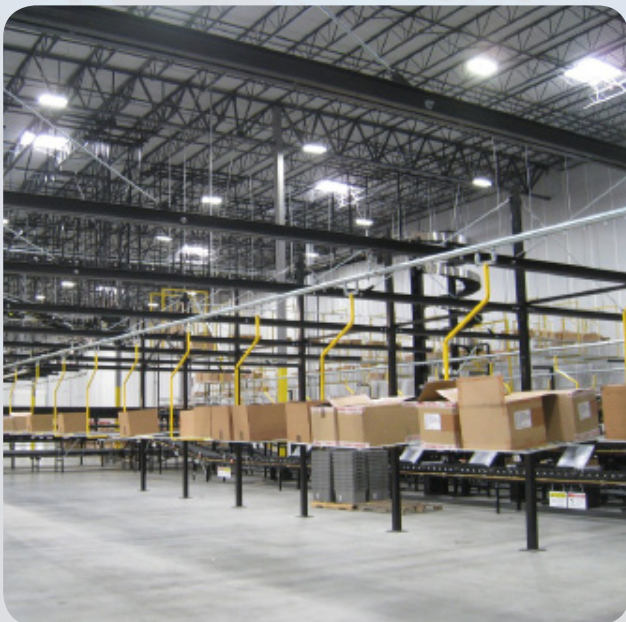
Both overhead monorail conveyor loops pass through a small area – a combination trash and new carton make-up area, as well as a tote re-balancing area – to ensure the proper mix of cartons and totes before entering their respective Distribution and VAS areas. Each tray carrier was designed hold 2 cartons or totes.

To address the space constraints, PACLINE was able to weave the overhead conveyor system in and out of some rather tight areas. Also, where needed, the PACLINE conveyor was hung from the mezzanine and ceiling to ensure easy loading and unloading access for the various packing operators, while avoiding the creation of additional obstacles.



Unique “suspension bridge” support structure

To further minimize floor obstacles and avoid hanging very long steelwork from the ceiling in one area of in this very tall building, PACLINE designed an efficient suspension bridge style of structure for the shortest of the three overhead conveyor loops (830 ft.) This allowed floor supports to be located well away from the operator areas, yet provide a stable, cost-efficient conveyor support structure.



Integrated control system

PACLINE provided the control panels for the overhead conveyors that were fully integrated with the master floor conveyor control panel to communicate and display data on a single touch screen display (HMI).

The Results

- The small ‘footprint’ or floor space area, used for a combination carton-trash, recycling and carton, makeup area was designed with double-stacked conveyors. This minimized the floor space requirements and also minimized the number of operators, yet still allowed loading and unloading on both sides of the wide tray carriers.
- PACLINE offered improvements to the consultant’s original proposed layout that allowed for easy carrier access, balanced access to both sides of the wide carriers, and maintained the small floor space combination carton-trash, recycle, make-up area.
- PACLINE also provided full project management and coordination with UNDER ARMOUR®, their consultants, as well as the material handling equipment supplier.

Installation process

- PACLINE provided complete turn-key mechanical and electrical installation.
- During the installation stage, PACLINE’s experienced installers were able to provided quick, on-site changes and re-routing of their overhead conveyors when belt conveyor bed and other interferences were identified in field.