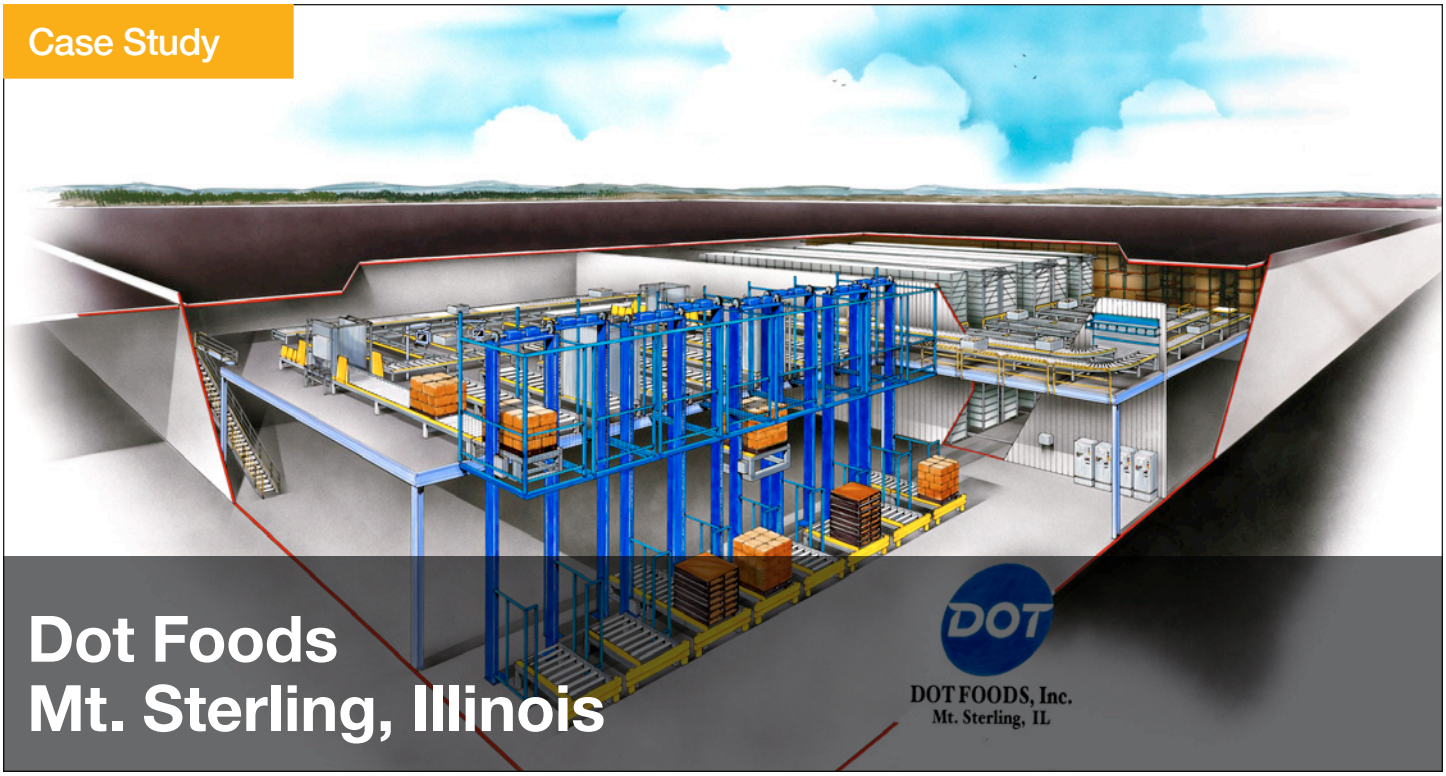
Case Study



Dot Foods
Mt. Sterling, Illinois

The Dot Foods freezer automation project includes an Automated Storage & Retrieval System (ASRS) designed to replace existing PIR (Planned Item Retrievals of low quantity skus) operations. In addition to the ASRS, the solution utilizes a front-end conveyor system designed to improve existing PIR operations and create a more labor friendly environment. When the ASRS receives requests from the Dot Foods' wms, the appropriate inventory is automatically retrieved from storage and conveyed to a centralized picking area with operator workstations.

Project Description

The Dot Foods freezer automation project includes an Automated Storage & Retrieval System (ASRS) designed to replace existing PIR (Planned Item Retrievals of low quantity skus) operations. In addition to the ASRS, the solution utilizes a front-end conveyor system designed to improve existing PIR operations and create a more labor friendly environment.

When the ASRS receives requests from the Dot Foods' wms, the appropriate inventory is automatically retrieved from storage and conveyed to a centralized picking area with operator workstations.

The Dot Foods Freezer ASRS was designed in concert with Dot Foods' personnel to ensure a total system solution that is both functional and versatile. The solution is designed to accommodate aggressive growth factor that will result in a significantly increased total processing volume.

Automated Storage and Retrieval System Benefits

- The ASRS provides dense storage for freezer items resulting in lower refrigeration costs.
- The ASRS provides increased inventory accuracy for PIR items.
- The ASRS reduces the labor that would otherwise be required to search the conventional freezer space for PIR items.
- The ASRS allows PIR order selection labor to reside outside the freezer in a labor friendly environment.

Specifications

The ASRS storage rack is a free standing, three aisle system.

- Each of the three aisles is 78 bays long and 14 tiers high.
- There are a total of 6,552 bins, 24 inches wide by 48 inches deep in two different heights (18" and 24"). Individual dividers can be added

to the bins to allow multiple skus per bin when appropriate.

- Each of the bins has a weight capacity of 500 lbs.
- The ASRS is capable of housing just under 90,000 cubic feet of product.
- The ASRS is capable of retrieving and putting away 120 bins per hour.
- Roller conveyor delivers storage pans to operator workstations.
- GMA pallet conveyor for transportation of picked orders to the dock.
- 4 Operator Workstations.

The objectives of the automation include:

- Provide dense storage for slow moving inventory currently defined as Planned
- Item Retrievals.
- Eliminate the congestion and inefficiency of current PIR activity (order picking and receiving).
- M inimize the workforce required to service the PIR area.

Storage and Retrieval Machines

The automated system includes three 750 lb. Storage and Retrieval Machines (SRMs), with variable speed drives, single deep bin extractor units and a programmable logic controller (PLC). The SRM extractors are designed to efficiently push and pull bins using handles built into both sides of each bin. This programmable motion ensures that care is taken, and product damage is minimized, when transporting the bins into and out of the storage locations.

The machines are positioned vertically and horizontally by laser providing extremely accurate storage and retrieval of all bins. The ASRS delivers to and retrieves from three end of aisle conveyor interfaces where the bins are deposited and then conveyed to the assigned work station.

The 750 lb. Miniload Storage/Retrieval Machine is a proven and reliable industry standard. Designed for long term use and easy maintainability.

Miniload Roller Conveyor

A section of Miniload roller conveyor interfaces with each aisle and carries product from the aisle to the operator workstation. Up to six pans can be queued up in front of each operator workstation, allowing for a continuous stream of uninterrupted activity.

Control System

All of the system software was designed, programmed and implemented by Dematic.

The Equipment Management Software (EMS) manages the interface between the Dot Foods' wms and the ASRS.

The EMS maintains inventory accuracy for every item. The system contains extensive security, management and diagnostic tools.

DEMATIC

dematic.com

Order-No. NA_CS-1007 | Printed in USA 04/16