

National Refrigeration and Logistics Services Provider

Unique automated blast freezer technology provides cost effective controlled processing.

Business Challenges:

- ▶ To meet increasing customer demand a top 3PL(Third Party Logistics) refrigerated-service company needed to transfer processed chicken, through a blast freezer, 24-hours a day.
- ▶ The product material flow system needed to input over 140 pallets in a two-hour period, as well as move the pallets from zone to zone within 15 minutes, to ensure a proper freeze cycle.
- ▶ The customer needed to increase storage capacity, but was restricted to the cubic space allotted to the operation.
- ▶ Employee turnover and related training costs were increasing due to the difficult environmental conditions in the freezer and the customer wanted to keep labor requirements low.
- ▶ Full control over temperature, time, product and lot integrity must be maintained while moving from zone to zone.

Highlights of the Project:

Retrotech was commissioned to design, build, and install a new product material flow system in a blast freezer environment. The project employed Retrotech's ACTIV® System, a high-density dynamic storage technology, to continuously move pallets of case-packed chicken through progressive temperature zones. ACTIV Systems have been used by a number of Fortune 500 food and consumer goods companies to support high-turn distribution, however this system was the first high-turn, blast freezer built in the USA using a modified ACTIV System design.

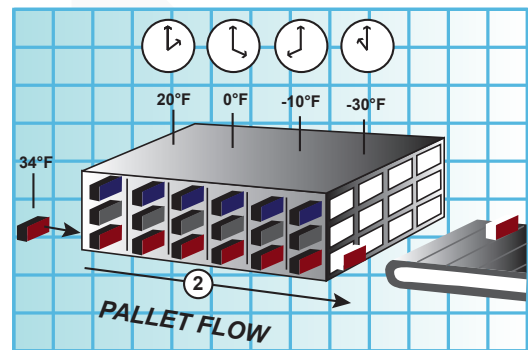
The fully automatic system is four levels high and four lanes across, with about 700 pallet locations. There are five physical zones (four blast zones and one unloading zone), separated by swinging doors, each at different temperatures ranging from -30F to -10F, plus a defrost cycle.

The ACTIV System software allows pallets to be placed adjacent to each other with appropriate pallet spacing between to allow for proper airflow. The system moves product down lanes to maximize the storage capacity of the available area while minimizing the amount of equipment inside.

As product is moved in the lanes, cold air is blasted across it. Depending on where the pallets are in the system, the air will be coming from different directions. The product stays in each zone for a specific time period before moving to the next zone. Each lot's dwell time in each zone determines when the load moves to the next zone. If two or more lots are stored into Zone 1, then the dwell time of all lots in Zone 1 is determined based on the induction of the last pallet of the last lot. The time in each zone can be adjusted through a user interface. All automated pallet movements from zone to zone are one-way, (i.e. towards Zone 5 at the output end of the system).

The fundamental components in the system are the VTLs (Vertical Transfer Lift), DLTs (Deep Lane Transfer) and CATs (Cross Aisle Transfer). Together, they move the pallets three-dimensionally to any position. At the core is a rack structure that is connected to the outside areas by input/output conveyors.

Using ACTIV's customized software, the system is able to control and track hundreds of pallets at once, moving them through the blast temperature zones, until they reach the controlled freeze point. The software gives operators the tools needed to manipulate the system at different levels with user-friendly screens that provide maintenance information, ability to move a DLT, CAT, or VTL's, exact pallet location, menus for event and error reporting and more.



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Results:

- ▶ The new system provides full control and absolute tracking of all product pallets throughout the blast freeze process.
- ▶ The high-density technology of the ACTIV System increased overall capacity and efficiently optimized available space.
- ▶ Mechanical systems operate in the frigid blast zones with high reliability and near zero downtime.
- ▶ System maintenance and safety are enhanced because normal inspection and upgrades take place outside the freezing rack structure and can occur without shutting down the entire system.
- ▶ Labor costs have been reduced and employee satisfaction has increased.
- ▶ Operations consistently achieve goals – receive and store 140+ pallets in two hours and move products within 15 minutes.

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