

Cargill Meat Solutions

Modernizing the Schuyler distribution center with a fast and flexible design solution.



**Cargill Meat Solutions
Schuyler, NB**

About Cargill:

Cargill Meat Solutions Corporation is a leading producer and distributor of fresh beef, pork and turkey products, including cooked and marinated meats. They provide various grades of boxed beef products to wholesale and retail distributors, and high-volume end users. Cargill is the second largest beef processor in North America and processes more than 7.6 million cattle per year. The organization employs over 30,000 people in eight countries.

Business Challenges:

- ▶ The Schuyler Distribution Center had limited automation, poor accuracy, high volumes of product damage, product waste and poor delivery.
- ▶ Needed to incorporate the existing automated equipment into the new distribution design solution.
- ▶ Remain fully operational, all upgrades had to be executed quickly without disruption to ongoing order fulfillment.
- ▶ Eliminate the use of a third-party storage facility.
- ▶ The distribution design solution must be flexible for future needs, accept non-uniform boxes and be compatible with Cargill Meat Solutions information management standards.
- ▶ Must be capable of managing a wide variety of production and shipping trends, without compromising the objectives of FIFO date management, maximizing weight to order, or fast shipping turnaround.

Highlights of the Project:

Cargill Meat Solutions in Schuyler, Nebraska needed to improve their box handling and shipping operations. Retrotech recently modernized Cargill's Friona, Texas facility and because it exceeded expectations it served as the basis for uptime and reliability baselines. Before the upgrade, the majority of the boxes at Schuyler were handled in a manually operated box buffer. There was some automation for single-box staging and pallet-load handling. The manual system had four levels of gravity racks in which the pickers placed the product onto a captive metal pallet from the input conveyor, one SKU per pallet. These filled pallets gravitated to the center of the system where pickers picked boxes for an order and placed them onto a takeaway conveyor. There were two levels of takeaway conveyors. These conveyors fed the extendable conveyors at the dock for truck loading. The automated portion of the system conveyed boxes to the Daifuku single-box buffer system. The box buffer system stored boxes until there was sufficient quantity to build a pallet. When assigned, these boxes were pulled in sequence from the system, sent to the palletizer and placed on captive plywood pallets for storage in the Daifuku unit-load Automated Storage and Retrieval System (ASRS). When needed for shipping, the pallet loads were requested from the ASRS and conveyed to the pallet exchanger where the load was transferred to a street pallet and loaded into a trailer.

The new system fully automates the box handling process once the beef is packed in the processing center. It is then conveyed from the existing facility to a new 40,000 square foot distribution building adjacent to the existing shipping docks. The building is essentially a giant refrigerator, with temperatures at a cool 34°. Boxes are conveyed and stored into the new mini-load ASRS or into the existing automated box buffer. The mini-load system consists of 15 aisles, where 15 cranes with dual-load handling devices process inbound and outbound boxes, utilizing 53,352 storage locations.

The custom Retrotech Warehouse Management System (WMS) directs the cranes and utilizes a storage algorithm to store boxes in the mini-load aisles. When orders are placed, the Retrotech WMS issues paired retrieves and conveys the boxes to sort lanes to be staged for shipping. Depending on customer needs, some boxes are sent through an automated palletizer and stretch-wrapping system, while others are diverted to the extendable conveyor for direct loading onto outbound trucks. The dual load-handling device increases efficiency and allows the system to continuously deposit product for customer orders while simultaneously storing cases into the mini-load aisles.

Retrotech selected viastore systems mini-load Storage/Retrieval Machines to deliver the high throughput needs of the box buffer and viastore systems/HK to supply the sorters and extensive box conveyor system, which spans over 5500 lineal feet. Custom WMS and material tracking/control software was developed by Retrotech, per Cargill specifications, to track inventory and manage all processes. The software provides the distribution center real-time visibility of production, customer orders and inventory, and allows shipping managers to optimize orders. When a trailer is available for loading the operator can initiate the order by instructing the WMS to start releasing the boxes of product to the palletizers or extendable conveyor. The boxes can then be loaded quickly onto the trailer.

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After installation came commissioning and extensive testing. This was carefully planned and executed to prevent interference with daily operations. Boxes filled with sand bags were used to commission the system and test all functions of the new and old system against detailed acceptance criteria. Upon completion of commissioning, testing and training on the new system, Cargill staff was given the reins to run real product or "Go Live".

Results:

- ▶ Retrotech successfully navigated existing equipment and daily operations to eliminate the need to shut down operations.
- ▶ All of the existing material handling equipment was utilized in the new system design.
- ▶ Throughput capacity doubled, with dramatic reductions in cost-per-case handled.
- ▶ Employee safety has improved and there was a significant reduction in shipping staff.
- ▶ The software provides the distribution center real-time visibility, traceability of production, customer orders and inventory, and allows shipping managers to optimize orders to deliver cold, fresh, and on time.
- ▶ The new system is able to build mixed SKU (same box size) pallet loads by sorting, palletizing and stretch wrapping them for shipping.
- ▶ The distribution center consistently achieves peak operating goals. It receives boxes from production up to 60 boxes/minute and outputs to the shipping dock up to 70 boxes/minute.

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