

Benchmark Briefing

# Managing Fluctuating Demand





# Managing fluctuating e-commerce demand

Automation manages order fulfillment to handle spikes in customer demand

Headquartered in Mississauga, ON, TSC is a leading multi-channel retailer, offering a vast assortment of exclusive products and top brand names to customers throughout Canada. With roots as a televised shop-from-home service reaching into over 7 million Canadian households, TSC expanded into e-Commerce, growing into one of Canada's most innovative retailers. They provide customers shopping convenience with exceptional selections in Health & Beauty, Jewelry, Home/Life-style, Fashion/Accessories and Electronics.

Over 15,000 quality products are available to customers 24-7 with the click of a button or a quick phone call. Managing and distributing 15,000 rotating SKUs can be quite the challenge, but TSC is meeting customer delivery expectations at every turn. Three Vertical Carousel Modules Kardex Megamat with inventory management software enable batch picking for jewelry distribution – using 54% less labor and increasing productivity by 600% in 75% less floor space.

## Case at a glance

**Site**  
TSC, Mississauga, ON, Canada

**Application**  
E-Commerce order fulfillment of jewelry

**Equipment**  
Three Kardex Megamats with Kardex Power Pick System  
inventory management software & 120-position batch station

**Reduced**  
labor by 54%

**Saved**  
75% floor space

**Increased**  
throughput by  
600%



# Operations makeover

Now, three, 29-foot-tall Kardex Megamats combined with Kardex Power Pick System inventory management software are used to manage the jewelry and coin inventory. "Because of the small size and high value, jewelry was perfect for carousel technology," said Sue McGibbon, Jewelry Manager.

The flexible fulfillment solution is driven by customer demand. "Our order volume is highly variable depending on the current promotions - some days have 600 orders and some days 100 orders. That was a big labor challenge for us in the past, especially at the peak when lines required to pick per day are as high as 2,000 lines per day with one shift," said McGibbon, "but with the carousels we're able to manage the fluctuation easily."



3 Kardex Megamats, each 29 feet tall



Kardex Power Pick System inventory management software



120-position batch station

## Flexible fulfillment

TSC is supported by a 300,000 square foot (sq ft) warehouse equipped with the latest material handling technology, shipping roughly 10,000 orders a day. Accounting for 20% of the business, jewelry order demand is highly variable depending on the shows and promotions currently running. Order fluctuation was a challenge for labor resources, sometimes stagnant and other times overwhelmed. Jewelry needed a flexible order fulfillment solution that could scale to handle demand peaks, but also work efficiently during slower periods.

# Automation – benefits and processes

## Recovering floor space

Previously, jewelry was stored in open shelving within a cage area managed by a security officer. With growth year after year, jewelry was quickly running out of space and struggling to keep up with e-Commerce customer demand. With the transition to automated Vertical Carousel Modules, over 8,000 jewelry and coin SKUs are now managed in 75% less floor space.

## Reducing labor & increasing throughput

With the implementation of the VCMs and moving returns handling to another department, jewelry distribution requires 10 people; down from 22 previously required to receive, pick, pack, ship and process returns.

Further, throughput has increased from a previous average of 40 lines per hour per person to an average of 165 lines per hour per person, now a standard facility KPI. At peak times the system handles 240 lines per hour per person. Meaning jewelry distribution now requires 54% less total labor and has increased productivity by 600%

## Ergonomics

As a leading employer in the area, TSC employs a dedicated and seasoned workforce, most employees in the jewelry area have been there for over 20 years. "The three carousels reduce the work area of the operator to 32 feet, and with ergonomic delivery there is no wear and tear on the body," said McGibbon, "There is definitely an element of employee satisfaction that comes with the carousels."

## Order processing details

When customer orders are received online or by phone, jewelry orders are split separately from floor inventory. "Once the order is placed, then the fun really begins," says McGibbon. Orders for jewelry are downloaded into the Kardex Power Pick System for easy fulfillment.

To start, the operator scans a paper order followed by a tote license plate, placing the order paper into the tote cell - this ties the order to the cell location. Each tote has 12 compartments and there are 10 totes in a batch – allowing the operator to fill 120 orders simultaneously. Once each order is assigned a tote location the operator is ready to pick.

As directed by the Kardex Power Pick System, the Kardex Megamats deliver the required SKUs to the access window, pinpointing the exact location and quantity to pick using pick-to-light technology located at the work counter. The operator picks the correct quantity and turns to the batch of 120 orders to distribute them.

Above each batch position is a display monitor showing the operator the exact tote cell to place the item, and the quantity required. As each SKU is deposited into the tote cell, the operator confirms the put. Once all the SKUs are distributed among the orders, the operator turns back to the Kardex Megamats to pick the next item. This allows the machines to always work one step ahead of the operator, minimizing operator wait time.

Upon completion, orders are sent to the shipping area where they are checked for accuracy by scan of the paper order and a scan of the item(s) within the compartment. "The pick-to-light on the carousels work, pick accuracy is steady at 99.9%," said McGibbon.

## Stocking inventory

If a show or promotion is planned for a jewelry item, it is inventoried in the floor area on a pallet due to the size of the inventory and the velocity of the anticipated orders. Once the show or promotion for the specific item has ended, the remainder of inventory is stored within the VCMs.

## Handling returns

Returns are a challenge for any distribution operation, but especially retail. Jewelry sees an average of 2,500 pieces returned weekly. Returns start as a manual process with all jewelry having to be thoroughly inspected and cleaned before it can be returned to inventory.

Once this process is completed and the item is deemed acceptable to return to inventory by the returns processing center, it is returned to jewelry. Upon receipt, the operator processes each return individually, assigning a storage location within the Kardex Megamats using the Kardex Power Pick System software.

## Jewelry shines

Jewelry distribution is managing and filling orders faster than ever.

“The carousel system has given us the flexible solution we need for our operations,”

**Sue McGibbon**, Jewelry Manager