

Benchmark Briefing

# Zone Picking with ASRS





# ASRS Zone picking supports manufacturing

## Customer parts promise at core of automated zone picking strategy

With an industry leading reputation for groundbreaking tractor and utility vehicles Kubota's parts promise is what keeps customers coming back. With 20+ years of legacy parts and additional inventory for new models introduced every year, the parts inventory at Kubota's 60,000 square foot (sq ft) part center in Markham, Ontario has steadily grown to over 78,000 SKUs.

Kubota's parts center utilizes a pick and pass strategy with three picking zones. Six Horizontal Carousel Modules (HCMs) manage the fast-moving SKUs; four Vertical Lift Modules Kardex Shuttle manage the medium moving SKUs, and the slower moving SKUs are stored in hi-bay shelving.

## Case at a glance

### Site

Kubota, Markham, ON, Canada

### Application

Order fulfillment & distribution of spare parts

### Equipment

Six Horizontal Carousel Modules, four Kardex Shuttles and Kardex Power Pick System inventory management software

Increased  
productivity  
by 90%

Saved  
83% floor  
space

Improved  
worker  
ergonomics



# Zone picking with automation

Kubota now uses a pick and pass strategy with three picking zones, two of which are automated for maximum efficiency. Six Horizontal Carousel Modules manage the fast-moving SKUs; four Kardex Shuttles manage the medium moving SKUs, and the slower moving SKUs are stored in hi-bay shelving.

The complete system was purchased and implemented in phases. In the first phase, Kubota purchased six HCMs to replace a three-story mezzanine in coordination with a building relocation. The HCMs provided ergonomic picking and a dramatic increase in productivity.

In the second phase, Kubota added another work zone using four Kardex Shuttles. "We were out of space and were considering an expansion," says Ward, "the Kardex Shuttles allowed us to free up floorspace and avoid a costly building expansion."

## Paper picking mezzanine

"Our parts promise to our customers presents an operational challenge as we have to inventory parts that are only picked once a year. To meet our parts guarantee we must be able to find it," says Doug Ward, Logistics Manager, "and the system we had in place made that difficult."

Previously, Kubota inventoried parts in two zones: a mezzanine shelving area and a hi-bay shelving area. All orders started on the top and workers picked parts and carried them down to the second floor and collected more parts before traveling to the ground floor to finish picking from the mezzanine area. Once they had all the parts the needed from the mezzanine area they continued to the hi-bay shelving area to complete the order and then dropped it off at shipping.

The productivity rates and ergonomic risks prompted Kubota to look for a more efficient automated solution.



6 Horizontal Carousel Modules



4 Kardex Shuttles



Kardex Power Pick System inventory management software

# Automation – benefits and processes

## Productivity

In the mezzanine zone workers were picking an average of 20 lines per hour. “We couldn’t throw any more bodies into the mezzanine zone without people tripping over each other. With parts sales growing we needed to pick faster,” said Ward. Now, one person working in the HCM zone picks an average of 225 lines per hour while bagging and tagging. “We were able to increase our picking productivity by over 90% and only need one worker to manage the carousel zone,” said Ward.

Replacing some of the high-bay shelving with Kardex Shuttles in phase two also resulted in a productivity increase. With only one worker in the Kardex Shuttle zone and eliminating travel and search time in the hi-bay shelving, picking productivity has increased by 50%.

## Recovering floor space

The mezzanine at the old facility was three floors and occupied 9,000 sq ft (3,000 sq ft per floor). The HCMs in the new facility required 71% less floor space. Including the workstation, picking area and the six 24-foot-long HCMs the picking zone occupies 2,600 sq ft and the parts are all on one floor.

In phase two, Kubota installed two Kardex Shuttles to replace 2,400 square feet of 18’ hi-bay shelving. Shortly after, two more Kardex Shuttles were installed to replace 1,200 square feet of 24’ hi-bay shelving. With the workstation, picking area and four Kardex Shuttles now occupying 620 sq ft, Kubota was able to free up just under 3,000 sq ft of floor space to increase parts capacity in phase two: an 83% floor space savings.

## Ergonomics

Both HCMs and Kardex Shuttles are designed with goods to person delivery; delivering the stored goods when required to the operator at an ergonomically positioned access point. “Workers are now picking parts ergonomically in the automated zones, there’s no more walking up and down the stairs to pick parts orders. Everything is on one floor and delivered right to the worker,” says Ward.

## New & improved zone picking

The new system continues to use a pick and pass strategy but now has three picking zones. All orders start in the HCM zone. Orders are prioritized at order entry and priority orders that must ship the same day are sent to the top of the list.

The worker inducts up to eight orders into a batch and with the click of a button the Horizontal Carousel Modules spin to position for the first pick. Pick-to-light technology directs the worker to the exact location of the desired SKU and displays the quantity to pick. The worker picks the specified quantity and distributes the quantity among the batch of orders as directed by the put lights. The picks are organized so the next pick is always ready, eliminating wasted wait time. The worker picks round robin until all parts required from the HCM zone have been picked.

Completed orders are routed directly to shipping; remaining orders are routed to the next zone for further fulfillment. The Kardex Shuttle zone works the same way; the worker picks round robin from the four machine and distributes the SKUs among the orders on the batch station as directed by the pick and put lights. Once the orders are fulfilled from the Kardex Shuttle zone they are sent to the hi-bay shelving zone for further fulfillment or to shipping.

Using a man-up order picker with a custom batch cart, the remaining slow-moving SKUs are picked from the hi-bay shelving zone. When the order is complete the worker is notified on a handheld RF scanner and the operator delivers the completed orders to shipping.

## Room for growth

Part sales have grown steadily while labor requirements have only increased by 27%. "With the automation and process changes we've implemented; we've been able to manage 70% growth in the past 12 years with minimal increases to our labor force," said Ward.

The parts center is ready for whatever new model Kubota dreams up next.

"With inventory growing every year, the automated picking system we have in place has the capacity to sustain our growth for the next 5–8 years,"

**Doug Ward**, Logistics Manager at Kubota