

Benchmark Briefing

Scaling for Growth with Automation





Scaling for growth

A startup company founded in 2002, DC Dental has shaken up the dental supply industry with their commitment to value, delivery speed and high-quality customer service. They are the fastest growing, full service dental supplier in the country, delivering competitively priced supplies to dental professionals in the mid-Atlantic region.

Using a flexible, client-oriented business approach they are able to create more personalized relationships with the dentists they serve. To support this, DC Dental inventories over 20,000 of the most commonly used dental products – from burs to bibs to curing lights - in their Baltimore, MD warehouse. Their success is dependent on getting the correct product from the warehouse to the dentist as quickly as possible while maintaining the best price.

Two Vertical Lift Module Kardex Shuttles, four Horizontal Carousel Modules and carton flow rack are batch picking orders in a pick and pass fulfillment strategy utilizing Kardex Power Pick System inventory management software.

Increased
inventory by 54%

Reduced
labor by 63%

Saved
73% floor space

Case at a glance

Site

DC Dental, Baltimore, MD, USA

Application

Order fulfillment and distribution of dental supplies

Equipment

Two Vertical Lift Module Kardex Shuttles and Four Horizontal Carousel Modules with Kardex Power Pick System inventory management software



Gaining efficiency

The integrated solution utilizes a pick and pass fulfillment strategy with a 20 position batch cart that moves between three zones (zone one - two, 6.4 m tall Vertical Lift Module Kardex Shuttles (VLMs), zone two – four, 17 m long Horizontal Carousel Modules (HCMs) and zone three - carton flow rack), all managed by Kardex Power Pick System inventory management software. Since implementation, DC Dental has handled a 54% volume increase with 67% less labor and 73% floor space savings.

The warehouse picks an average 2,500 lines per day to fill roughly 480 orders using only four order pickers (compared to 12 order pickers previously required). "The system has the ability to handle up to 3,500 lines per hour with our current labor resources, but we haven't needed it yet," says Friedman. Important for a fast-growing company like DC Dental, the system is designed to handle extreme scale. "We could double in size and only need to add about three additional people in our warehouse," said Friedman.

Due to productivity gains, DC Dental was able to extend order cutoff time by an hour. "Orders placed before 4:00 pm EST ship out the same day, furthering our commitment to our customers with even faster delivery," said Friedman.

Reaching capacity

DC Dental uses the latest warehouse and distribution technologies and innovative systems to keep efficiencies high and overhead low, allowing them to pass these cost savings along to their customers.

They hit a bump in the road after a 2012 acquisition increased warehouse volume by 54% overnight. As their existing 2,787 m² facility was quickly nearing capacity and product began to fill the aisles in the warehouse, Howie Friedman, CFO/COO, set out to find a solution. "We considered outsourcing to a 3PL, but it was important to us to keep distribution in house to ensure we maintain our customer commitments of speed and value that have made us successful," said Friedman. Not wanting to partner with a 3PL provider, Friedman narrowed in on automated storage and retrieval solutions to fill the gap between what people and software could accomplish.



Two, 6.4 m tall Kardex Shuttles
Four, 17 m long Kardex Horizontal Carousels
with Kardex Power Pick System software



Picking 2,500 lines per day
to fill roughly 480 orders



Reduced labor by 67%

Automation – benefits and processes

Using space savings as justification

Using automated storage and retrieval systems, roughly 1,207 m² of shelving was consolidated into 325 m², a 73% space savings. This recovered floor space allowed DC Dental to reduce the overall footprint of the facility from 2,787 m² to 1,858 m². They resigned their lease, saving nearly EUR 1.0 Mio. in rent and utilities over the next 10 years. Combining this savings with the 67% labor savings, ROI justification for this project was easy.

Fast & accurate orders

Using light directed technology for picking and putting activities in addition to a scan verification step has increased pick accuracy from 94% to 99.5%. The combination of these measures has created a strong image for DC Dental in the marketplace as a supplier that provides quick and accurate orders.

In addition, DC Dental installed cameras above each put station so every single item put into a customer order is recorded. Cameras were also installed above the shipping stations, so each package is captured just prior to being sealed along with the shipping labels being applied. This provides great control and insight into the picking and shipping process. "When a customer called to say a box was damaged, I was able to pull up the entire 4 box order with just a few clicks to see what went wrong and quickly fix it," said Friedman.

The order details

What sets DC Dental apart from the competition is the way they interact with their customers. Dentists can place orders in various ways – in person, over the phone, via email or online. All orders are received, reviewed and approved by the inside sales group. The order is marked as pending fulfillment within the ERP system (NetSuite) and is ready for the warehouse to begin processing.

NetSuite's WMS first separates case picks from overpack picks. When a dentist orders a full case of product, it is filled from another zone within the warehouse – the case is picked, a label is applied and it is shipped. Case picks account for roughly 30% of all packages.

The rest of the order must be overpacked in corrugated boxes. NetSuite first determines the box size required for the order (small, medium or large), and depending on the order size, will split one order into multiple boxes when needed. The WMS then passes the box information to the inventory management system Kardex Power Pick System for fulfillment.

[i Learn more about Kardex Power Pick System](#)



Filling orders

In the warehouse, replenishment is done each morning from 7:00 to 10:00 am and order fulfillment starts at 10:30 am. Orders are fulfilled in batches of 20. The batch cart is designed to hold 20 boxes. An order operator sorts the waiting orders in Kardex Power Pick System by box size and manually selects the first batch of orders (4 large, 10 medium and 6 small) to be filled.

All items required for these orders are stored in three pick zones – the Kardex Shuttle zone manages roughly 12,000 SKUs, the Horizontal Carousel Module zone manages roughly 7,000 SKUs and the carton flow zone manages roughly 850 SKUs.

After the order operator has selected the orders for the first batch, an order picker takes the batch cart to zone one – carton flow – where items are picked from the carton flow and put into the orders on the batch station to complete them. Picks in each zone are date and time stamped to provide traceability and accountability.

The order picker then moves the batch cart to the second zone – the HCMs – and lines the batch cart up with the put lights. Similarly, with the click of a button, the four HCMs spin to deliver the product required to the operator. Lights on the HCMs direct the picker where and how many items to pick from the carousel and put lights in front of the batch station direct the operator where to put items. To ensure accuracy, the operator must scan verify the item as it is placed into the box on the batch cart to verify the correct item is placed into the correct order.

When all items required from the HCM zone have been filled, the operator moves the batch of orders to the third and last zone – the Kardex Shuttle zone – and lines the batch cart up to the put lights. With the click of a button, the two Kardex Shuttles start to deliver trays containing the required products to the operator. Directed by pick-to-light technology, the picker removes the item(s) from the Kardex Shuttle tray and turns to disperse them among the 20 orders on the batch cart as directed by the put lights. Once complete, the operator confirms the put and the Kardex Shuttle lights up the next pick. The operator continues to pick from the two Kardex Shuttles and put into the correct order on the batch cart until all items required from this zone have been picked and placed into the orders.



Final processing

As soon as the last item is put into the order, Kardex Power Pick System communicates the complete order to NetSuite WMS and the order is marked as shipped and the customer is invoiced, even before it physically arrives at shipping. When all of the orders in the batch are complete, the picker moves the batch cart to a waiting area. The order operator retrieves and delivers the batch cart of completed orders to shipping.

Orders are picked directly into boxes to eliminate the task of repacking. At shipping, the original pick label is scanned and an invoice is generated if required by the customer. Shipment tracking information is automatically sent back to NetSuite for reference.

«Our innovative material handling strategy has influenced our reputation in the industry as a reliable, fast, customer centric dental supplier and has helped us obtain the rights to represent additional partners and product lines, »

Howie Friedman, CFO/COO DC Dental



Contact a specialist