

Solution Guide

High-Density Buffering





Automated buffering

Operations use buffer systems when their manufacturing process includes a wait or hold step (waiting for paint to dry), or their material handling process requires reserve inventory to absorb expected variations in demand. Common buffer systems such as mini-load automated storage and retrieval machines and multi-shuttle solutions manage buffer inventory well but come with a hefty price tag.

While these solutions work well in larger operations, they are not able to scale down to handle smaller volumes cost effectively. The Vertical Buffer Module (VBM) Kardex Miniload-in-a-Box* is specifically engineered to buffer up to 10,000 totes both cost-effectively and energy efficiently.

A cost effective solution

The Kardex Miniload-in-a-Box is an enclosed shelving system where product is accessed by a movable mast that travels the aisle to store and retrieve totes from predetermined locations. Totes can be delivered to a variety of access points (picking station or automatic conveyor connection) per the operator's requirements. Each unit can be fitted with up to four access openings.

The VBM is designed to buffer less than 25,000 SKUs or 10,000 totes. It handles two standard totes sizes - 600x400mm and 640x440mm. Totes can be further sub-divided to maximize SKU capacity - easily accommodating 25,000 SKUs in 10,000 totes.

 Which one is right for you? Download our [Buyer's Guide Miniload vs VBM](#)

* formerly Kardex Compact Buffer

How it works

- Individual items, components, work-in-process or kitted parts are placed in reusable totes that are inducted into the Kardex Miniload-in-a-Box either manually or via an automatic conveyor system.
- Upon induction, the Kardex Miniload-in-a-Box automatically scans the tote's license plate number and the internal Kardex Power Pick System inventory management software assigns it to a rack-based storage position.
- The Kardex Miniload-in-a-Box utilizes an energy-efficient, pulley-based crane equipped with an automated load interface device that grips the load securely. The internal crane transports the load to its storage position and inserts it into the rack.

Buffered items can be retrieved in two ways

#1 Manual Turntable

An operator accesses the system via a touch screen at the ergonomic picking station and scans or keys in the item(s) required. The Kardex Power Pick System software directs the unit to deliver the requested tote to the turntable. The operator removes the stored item from the tote and routes it to its next destination (assembly line, consolidation, packing, etc.).

#2 Automatic Conveyor

In coordination with the WMS/WCS systems, the Kardex Power Pick System software directs the crane to retrieve the tote and deliver it to an attached conveyor. The conveyor automatically takes the tote to the next destination (assembly line, order consolidation, packing, etc.).

Further, the Kardex Power Pick System software can also be programmed for sequenced delivery of required items, ensuring that the right parts are provided at the right time and in the right order.





Automated buffering provides



Eliminates operator travel time for increased productivity



Sequences delivery of kits to assembly or packing



Increases pick accuracy to 99.9%