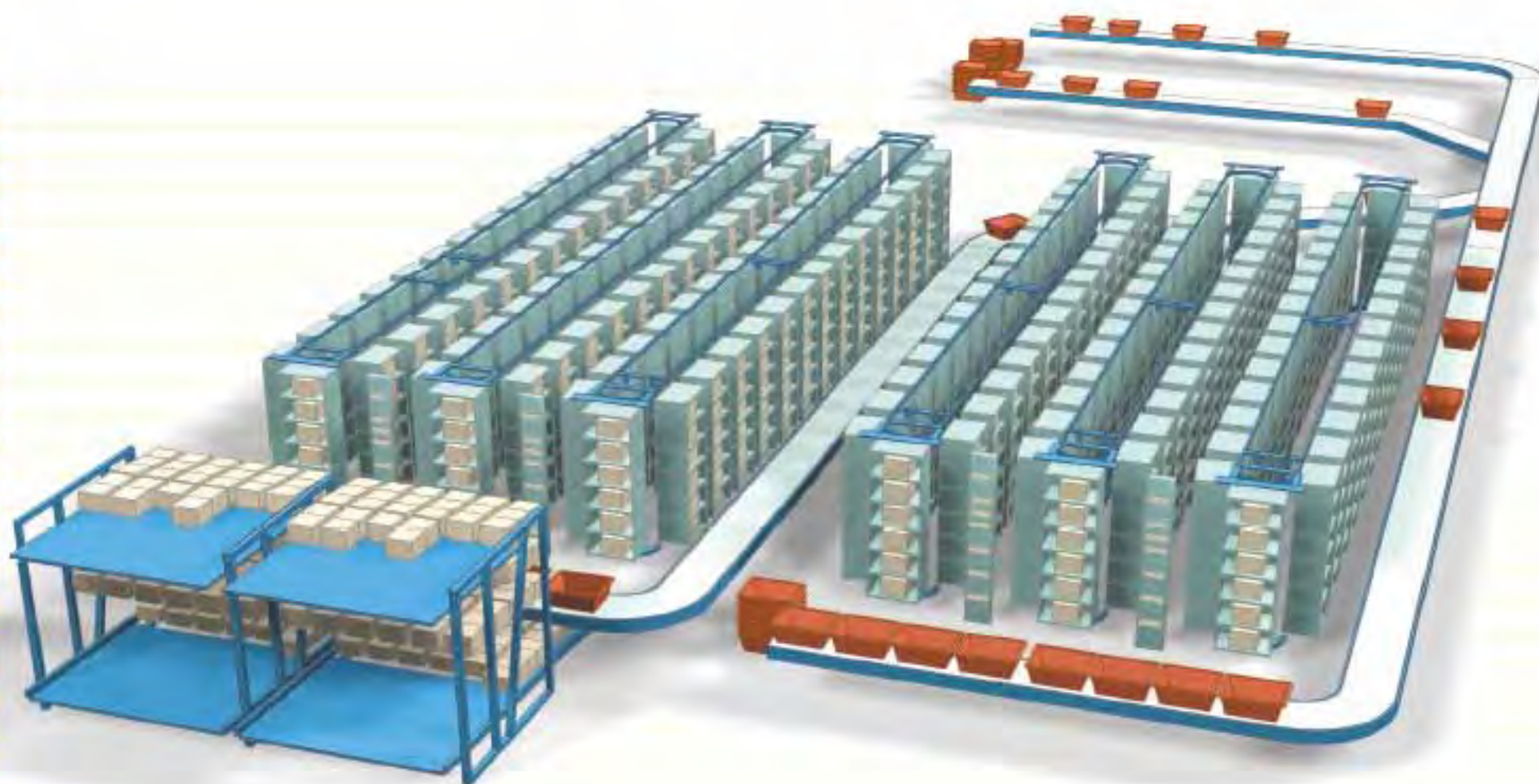




HORIZONTAL CAROUSEL SYSTEMS

At White Systems, we're solutions-driven

As the inventor of the original horizontal carousel, White Systems leads the industry in providing high-density automated storage and retrieval systems. Backed by over 60 years of experience, White Systems horizontal carousels provide maximum throughput, order accuracy, storage density and labor savings – all greatly increasing customer satisfaction. White's horizontal carousel systems are a major contributor to a company's ability to create and sustain its competitive advantage. Now on our fifth generation of product innovations and improvement – White produces the widest selection of carousel and software solutions.

We solve the toughest item order picking challenges in e-commerce fulfillment applications, warehouses and distribution centers, manufacturing stockrooms, hospitals, or anywhere there are critical items that just have to get out the door or into use. These systems provide dramatic increases in throughput, productivity, space utilization and management – and often pay back their investment within 12-18 months.



Labor Productivity

Gains up to 800% over the use of conventional shelving and racks are accomplished by eliminating wasted walk and search time. White's software automatically queues orders, batches picks and prepositions the carousel for picking.

Improved Service to your Customers

Flexibility and efficiency expands your capacity to provide your customer what they want, when they want it and how they want it. Integrating inventory control software, light directed picking, and bar code scanning assures up to 99.9% accuracy.

Fast Payback (ROI)

Increased efficiencies allow companies to recover their investment within 12-18 months. White can perform a custom ROI analysis for your business process.

High Throughput

Picking rates up to 500 lines per hour, per operator allow a single worker to be as productive as eight workers picking from static shelving. Items are brought to the operator, eliminating non value-added walk and search time.

Extended cut-off times

Orders can be prioritized by computer based on shipping times and thus increases the ability to ship more orders in a day.

Inventory accuracy

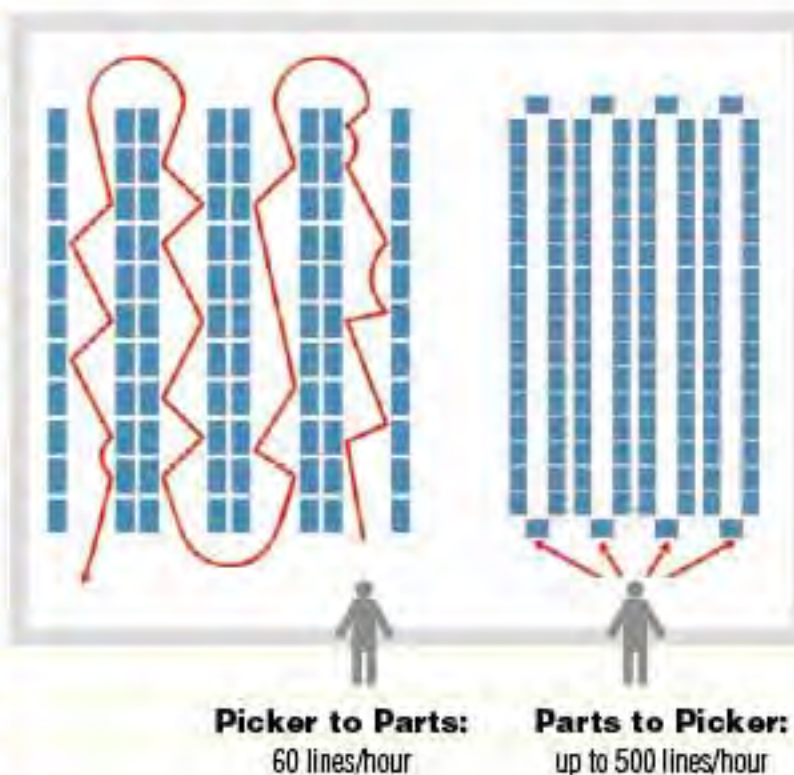
By providing accurate and timely inventory data, both the inventory levels and shortages can be reduced dramatically.

Space reduction

The carousels recover lost floor space by achieving the same storage capacity in 30% less space than with static shelving.

Equipment reliability

Durable and well engineered, White's carousels provide nearly 100% uptime. With the largest and only dedicated service engineering team in the material handling industry, providing preventative maintenance audits and services, upgrades and retrofits, White ensures maximum system uptime, reliability and long life.



Picker to Parts:
60 lines/hour

Parts to Picker:
up to 500 lines/hour

Features and Benefits

For case studies of how companies have benefited from using horizontal carousel systems please visit the performance reports section of our web site at www.whitesystems.com.

A horizontal carousel is an automated storage and retrieval device consisting of a series of linked vertical storage bins mounted on a horizontal oval track. When activated, the bins rotate to bring the required items to the operator or an automated picker. The carousel operation can be controlled by a simple foot switch, push-button microprocessor controls or via software.

Customer Orders/
eCommerce Activity

ERP/MRP/WMS Systems

Spectrum™ Software + Controller

Custom bins, adjustable shelves

White offers a wide choice of bin depths; heights and widths, with adjustable wire shelves that may be adjusted in moments to reflect increased density requirements or changing inventory specifications. Special bin designs and industry specific containers can be accommodated.

Bin Widths: 14.75 inches – 40 inches
Bin Heights: 6 feet – 20 feet
Bin Weight Capacity: up to 3000 lbs
Rotation Speed: up to 80 ft/minute
Carousel Length: 12 feet – 150 feet

Lighttree III™ pick-to-light operation

The vertical Lighttree III systems, aligned with every shelf level on the Horizontal Carousel, show operators where to pick and how much to pick from the carousel to provide the **highest levels of productivity and accuracy**. The modules can be adapted for unique and specific requirements. Each module has a large, one-inch, dual color, 10 character alphanumeric display plus two direction arrows.

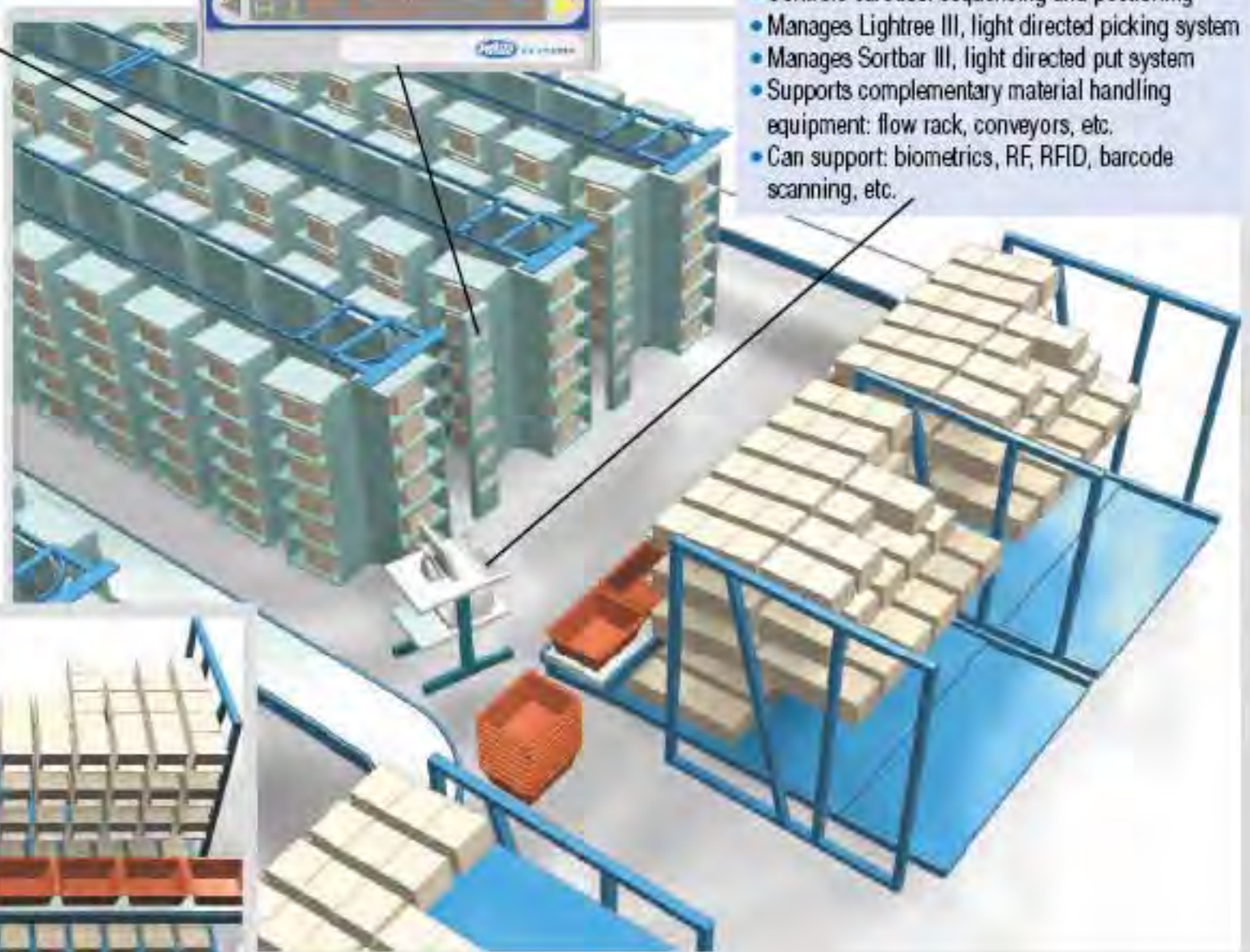
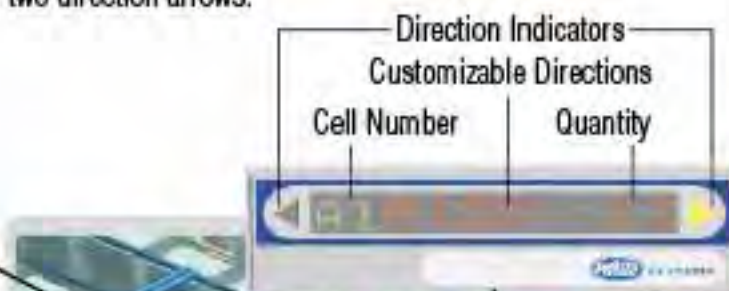
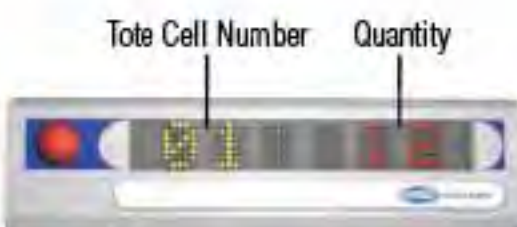
Integration software and controls – Easy as 1-2-3

White offers several levels of off-the-shelf and customized software programs to meet specific applications – from simple transaction processing to full inventory control. White's complete suite of Spectrum™ software offers everything from batch picking, carousel and off-carousel work zone control, operating light directed systems, RFID, bar code scanning, and hot picks, to replenishment and supervisory reports. These software packages can be interfaced with most inventory management WMS, ERP and MRP software systems to best meet your business requirements.

Sortbar III™ light directed put

The horizontal Sortbar III shows the operator where to place a product to complete an order, **increasing accuracy and picking speed**. A light activates to indicate the tote position on the workstation. Each module has a large one-inch, dual color, 6 character alphanumeric display.

- Optimizes picking activities
- Controls carousel sequencing and positioning
- Manages Lighttree III, light directed picking system
- Manages Sortbar III, light directed put system
- Supports complementary material handling equipment: flow rack, conveyors, etc.
- Can support: biometrics, RF, RFID, barcode scanning, etc.





StorBot robotic systems

White's StorBot family of robotic inserter/extractors for automated carousel systems allows cases, totes and containers to be stored, retrieved and delivered to a remote workstation automatically via conveyor or other robotic device. No direct labor is required and the system is *designed to run 24/7/365*.

Multiple models to meet your needs:

White has produced a *continuing stream of new designs* assuring the correct equipment for virtually every customer application. White pioneered the top drive carousel, and then developed the heavy duty bottom drive carousel that has become the reliability standard of the industry, followed by the patented Twin Bin carousel doubling the number of pick faces.

The Customer Service and Support (CSS) Difference

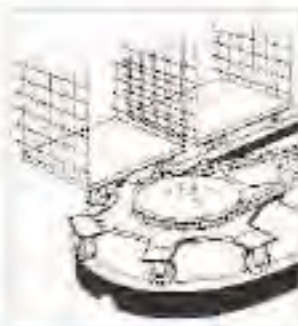
CSS Difference

With the largest and only regionally based dedicated service engineering team of employees in the material handling industry, we understand the critical role carousel systems play within our customers' business process. To ensure *maximum system uptime and reliability* the Customer Service and Support (CSS) team offers the following services:

- System installation and start-up
- Equipment service and repair
- *Emergency response*
- Preventive maintenance and troubleshooting
- Service and Preventative Maintenance contracts
- Live 24/7 *technical support* hotline
- Full service MRO parts supply with \$3+ Million in part inventory
- Equipment and system audits
- Product enhancement and modifications
- *Upgrades and retrofits*
- Equipment relocation
- Customized training programs



Top Drive units are available for lighter duty and/or lower capacity applications.



Bottom Drive units offer heavier duty performance and capacity, longer life, less maintenance and greater serviceability.



Quad Bottom Drive units are designed for larger live loads; heavier duty cycles; and to provide more precise bin positioning when bin heights exceed 8ft.



Twin Bin carousels double the bin locations and reduces the number of carousels and workstations needed.



Double and Triple Tier structures with multi-level mezzanines as well as high bins with lift tables allow building heights to be utilized.



Pallet carousels are used to handle pallets; to building mixed pallet loads, for picking, work in process and buffering.

Productive, cost effective solutions for distribution, manufacturing and office environments

Each application has unique requirements but regardless of the facility you manage, the industries you serve or the products you handle, White delivers the right combination of system, software and support to provide *dramatic savings for you in labor, time, and space.*

With the White team, you get a group of professionals who have the experience, knowledge and technological resources to objectively evaluate your materials handling challenge and provide the proper business solution. We're with you at every step, from simulation engineering, project management, and mechanical, control and software engineering — to installation, integration, acceptance testing and production start up.



Distribution Applications

Picking and Consolidation –

Carousels can be used to sort merchandise by routing, shipping destinations, or carrier speeds, *providing extended cut-off times and increased accuracy levels.*

Split Case Order Picking –

carousels deliver the *highest throughput, density and pick accuracy* for single SKUs or inner packs.

Manufacturing Applications

Kitting – Horizontal carousels are used for high-density storage, increased control and speed in building multiple production kits.

Automated Full Case

Handling – The StorBot inserter/extractor robot allows cases to be stored, retrieved and delivered for any application.

High Density Stockroom

Storage – By eliminating walkway/clearance aisles and providing a high-density storage solution that delivers parts to the operator *more parts can be picked in less time.*

Burn in Testing – Carousels equipped with power to each shelf within a bin allow for a wide variety of testing applications.

Progressive Assembly – Continually revolving carousels enable work to be distributed or transported between workstations or quality control checkpoints efficiently.

WIP Buffer – Carousels serve as temporary repositories of assemblies and sub-assemblies, providing *consistent flow between multiple work zones to maximize productivity.*

Environmentally Controlled

Storage – Carousels can be equipped to handle adverse or sensitive environmental conditions from freezers, to clean rooms, to ovens.

Pallet Handling – Bottom drive carousels store heavy-duty pallets for picking, buffering, WIP, building split pallet loads, and other manufacturing applications.

Office applications

Media – Carousels used for high-density storage of computer cartridges, CDs and other electronic media, increase productivity, cost efficiency and security, and reclaim space.

Record Keeping – Carousels provide enhanced productivity, high density, and very *accurate records retrieval and filing*, eliminating walk and search time.

Integrated System Solutions

At White, we understand no single piece of equipment can accommodate all material management needs. That's why we develop integrated system solutions.

Here are the key components:

Horizontal Carousels: White developed and pioneered the carousel concept from its inception. Today we're still the leader. Our horizontal carousels are more advanced, cost-efficient and reliable than ever. The only manufacturer with both bottom-drive and top-drive carousels to handle the full range of applications, White has led the industry in innovation, solving the toughest challenges.

Vertical Carousels: Leading companies use White's vertical carousels to increase storage density, order accuracy and efficiency while reducing inventory and man-hours.

Vertical Lift Modules: Adds flexibility and speed to high-density storage. Leading the industry in volume and weight capacity, White has taken VLM technology to the next step with the Power Column 2 – fewer machines to do the same job.

Software & Controls: White Systems offers a full line of software and controls to meet specific customer demands – from Spectrum/MMS, a state-of-the-art software package with either full inventory management or transaction processing capability to full custom systems integrating carousels, pick-to-light, conveyors and bulk – from induction to packing. Fully supported. Proven. Reliable.

Customer Service: White has the industry's largest factory certified field service group. From a single part to around-the-clock on-call maintenance contracts. Moves, upgrades, major overhauls. Nobody beats White in service.

Complementary Equipment and Accessories



Horizontal carousels are a key component to increasing operational productivity while reducing warehouse costs

Graphic courtesy of Bastian Material Handling LLC.

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