

Trusted Partner In  
**Integrated Systems**  
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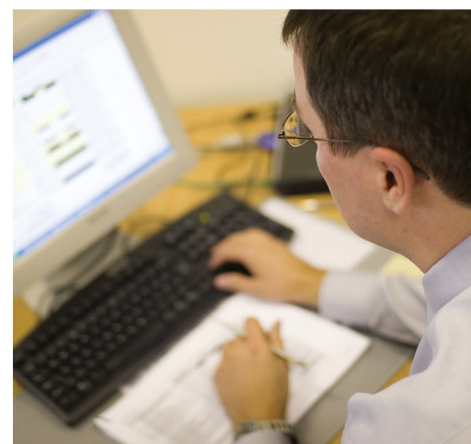
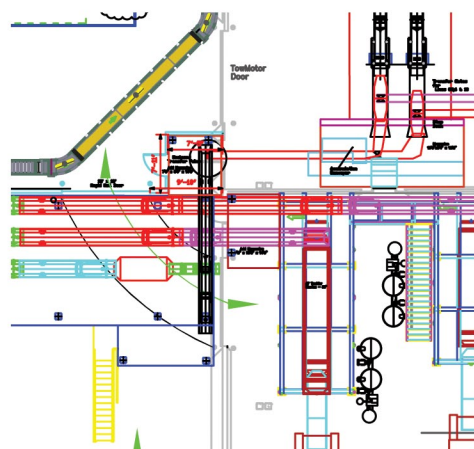


**Material Handling Integration**



# Integrated Systems

The primary key to any successful and efficient operation is not what specific types of equipment and automation are in place. Far more important is that everything works together seamlessly to support your processes and customer requirements while improving quality and driving unnecessary cost out of your operation. Whether you need additional work space, storage, conveyance or automation, KMH uses our deep domain expertise and understanding of the available options to recommend appropriate solutions. We then ensure that all of the independent pieces are pulled together in the most cohesive manner to deliver the strongest possible project ROI.



## 1. Discovery

With our team of seasoned engineers specializing in data revelation, benchmarking, and application analysis coupled with our meticulous controls group, KMH works in concert with your team to synergize the material components to deliver compelling results. Following a carefully constructed process, we consolidate the key elements uncovered during our interactive Operational Audit phase into a meaningful road map to operational efficiency.

## 2. Application Engineering

Overlaying this key data with industry benchmarks and Key Performance Indicators, KMH's team brings trusted material handling solutions to your operation. Working in concert with key partners, our team develops multiple design concepts for consideration.

## 3. Collaboration

With continued collaboration with your operational and financial team, KMH methodically combines the best of breed in material handling components in a value stream map and design layout to optimize information, technology, space, labor and movement.

# Automation

Automation incorporates control systems and information technologies with material handling products to enhance the movement of materials throughout a production, warehousing, and distribution process. Implementing the appropriate automation technology to an application may result in very rapid ROI for your organization. Let's take a closer look at some examples of automation to identify some opportunities that may assist you in your efficiency improvement goals.



Start	Finish	Estm. Effort	Client Prio	01/06	05/06	11/06	15/06	21/06	26/06	01/07	06/07	11/07	16/07	21/07	26/07	31/07
n 01/06/2006	07/06/2006	32	40													
n 07/06/2006	28/06/2006	80	70													
n 07/06/2006	28/06/2006	40	50													
n 28/06/2006	28/06/2006	4	2													
n 28/06/2006	05/07/2006	24	30													
n 29/06/2006	01/08/2006	40	40													
n 29/06/2006	15/08/2006	16	40													
n 29/06/2006	15/08/2006	4	16													
n 29/06/2006	31/08/2006	4	3													
n 29/06/2006	31/08/2006	1														
n 29/06/2006	01/08/2006	16	3													
n 29/06/2006	15/08/2006	40	30													



## 4. Integration

These activities result in a cohesive integration of your product and operational characteristics with practical material handling solutions to drive down unit cost per item shipped. The resulting cost savings provide meaningful ROI for your organization.

## 5. Managed Implementation

With consensus reached throughout milestone hurdles, KMH provides a realistic implementation schedule and proactive communication. With the various components in motion, KMH' Project Management Team and Installation Crew assure a smooth execution of the plan with minimal interruption to your operation.

## 6. Support

Upon installation and debug, KMH works hand in hand with your operational and support team to drive continuous improvement and years of dependable service.

# System Automation



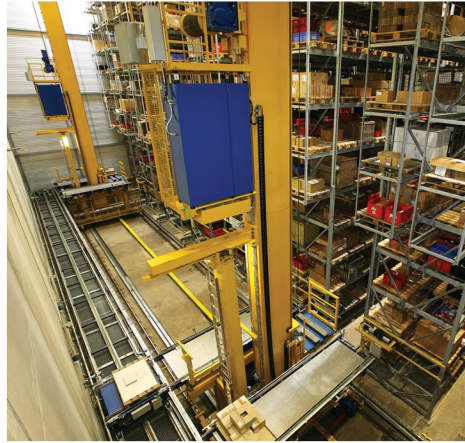
## Conveyors

KMH provides a wide range of conveyor solutions ranging from gravity, belted, live-roller, and tabletop conveyors, to controls, induction, and sortation. Whether you are handling unit loads, pallets, dry goods, or food, KMH can match the right solution to your unique operation.



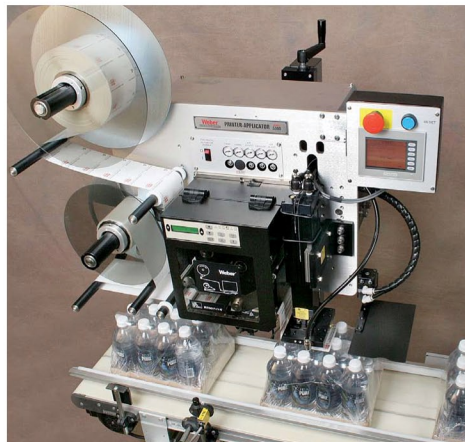
## AGVs

Automated Guided Vehicles (AGVs) transport items without the need for a human conductor. Depending on your application criteria, KMH will help select the appropriate style of AGV to meet your needs. Some AGV's are designed to pull a train of carts while others are made to lift and/or carry loads on top of the vehicle. Conveyor bed tops are also common ways to integrate an AGV with production, pick up and discharge cells. KMH can help you determine which, if any, AGV is right for you.



## AS/RS Systems

From unit storage and buffering systems to fully integrated storage and retrieval automation, KMH can help you implement a phased approach towards warehouse storage and retrieval to fit within your capital budgets and ROI criteria. With increased accuracy, reduced shipping costs, improved space utilization, and improved picking efficiencies, AS/RS might be a good fit for you.



## Print & Apply

Print and Apply technology typically processes host and/or shipping information through specially designed automation to print and apply labels onto the moving parcels in order to drive down cost per unit shipped. Our engineering team integrates this technology with a properly designed shipping layout to assure maximum throughput within a specified budget.



## Robotics

Robotics deals with the science of applying a variety of controls and mechanical functions to derive a repeatable yet flexible range of motion for performing tasks in a specified time frame. If you want to investigate safer and more efficient handling of prescribed units in areas ranging from production cells to palletizing applications, please consider a KMH-designed robotics' solution and corresponding ROI.



## WMS Systems

Through our comprehensive network of partners, KMH brings best in class warehouse solutions ranging from simple barcoding systems to fully functional Warehouse Management Systems, Manifesting, Yard Management, TMS and slotting. Based on our knowledge of your operation, we can recommend and implement the solutions that best fit your requirements.

# Technology



## Hardware

From bar code scanners, labels and ribbons to mobile computers, printers and tablets, KMH can help integrate the right hardware for your application. After a comprehensive survey process, KMH can install the proper wireless infrastructure to support the solution and provide hardware maintenance contracts and support beyond implementation.



## Pick/Put-To-Light

Depending on your throughput requirements, KMH helps you evaluate various ROI generating options such as Pick-To-Light or Put-To-Light. Customers typically apply Pick-To-Light in high throughput SKU locations to improve efficiencies and accuracy. Put-To-Light is often used in batch picking and order consolidation stations. Properly applied, these technologies can yield rapid ROI in high volume applications



## Voice-Directed Picking

KMH offers voice-directed picking options for applications where product profile, volumes, and environment do not necessarily support paper or light-directed picking platforms. In a voice-directed scenario, the system directs operators to locations and operators confirm picks all via voice command. Applications for voice-directed picking may include small SKU profiles, heavy item pick weights, and freezer/cooler environments.



## RFID Technology

RFID or radio-frequency identification allows for passive transmission of data from a tag to a reader within a certain proximity of the tag. These tags can store multiple layers of data and do not have a line of site requirement like bar code labels. Furthermore, unlike bar codes which scanners can only read one at a time, RFID readers process hundreds at a time. Allow KMH to discuss the viability of RFID technology in your supply chain.



## Slotting

To optimize your operational efficiencies, KMH provides counsel and recommends software on inventory profiling, otherwise known as slotting. This discipline centers around placing inventory SKUs in the best place in the warehouse in order to achieve picking/replenishment productivity, work balancing, pre-consolidation, ergonomics and accuracy.



## Controls

Once we agree on the design based on the value stream mapping and engineered layout, KMH's in-house Controls Team then turns our sights to the details of the nerve center which will control these independent functions. From Programmable Logic Control to PC based solutions, KMH provides a comprehensive array of controls and automation offerings.

# Space Saving



## Storage & Shelving

KMH represents a wide array of shelving solutions ranging from simple open back metal shelving to complex multi-level systems. With our slotting software, labels, and tote solutions, KMH can help you find a place for all your pieces and parts.



## Carousels

Whether horizontal or vertical, typically carousels are applied in distribution in order to bring the piece to the person as opposed to sending the person after the piece. Minimizing travel in picking can dramatically increase your picking rates. Safety and security are also key factors when selecting a carousel.



## Pallet Racking

KMH offers a myriad of industrial pallet racking solutions ranging from simple pallet storage to decked rack for hand pile applications and rack supported pick modules. Our design team will work within your facility constraints to assure optimal space utilization and operational efficiency all the while meeting industry safety codes such as RMI. We can also assist with fire suppression and permits if you need our help.



## Mezzanines / In-Plant Offices

If you are crowded for space, sometimes a second floor in your DC or production area can solve your problem. KMH takes into account Seismic considerations, product size, weight and flow, as well as lighting and order consolidation when considering a mezzanine or other space saving solution. Call now for an Operational Audit to help KMH "stretch your walls."



## Pick Modules

The proper application of carton flow and pick modules can help your company achieve increased picking rates. Typically fast movers are placed into a carton flow system that provides for First-In, First-Out inventory rotation and considerably high pick rates. Depending on volume, Pick or Put-to-Light systems can further enhance your efficiencies.



## Spirals

Spiral conveyors are commonly used to interface with multi-level conveyor lines to maximize cube utilization in a facility. Like a spiral staircase, spiral conveyors take up very little footprint while connecting multiple lines from multiple vertical distances.

# Safety & Ergonomics



**Lift & Tilt Tables**



**Energy Efficient Lighting**



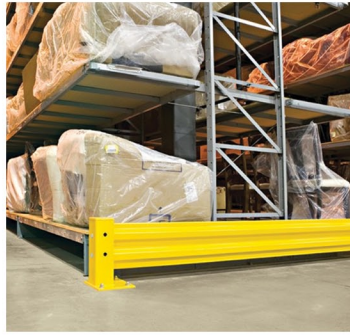
**Workstations**



**Manipulators**



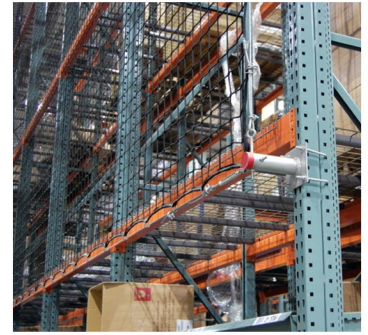
**Ball Transfer Tables**



**Guard Rails**



**Column Protection**



**Rack Netting**



## Our Team: Pulling The Pieces Together

With KMH's trusted process of discovery, application engineering, collaboration, integration, managed implementation and support, our team adds another set of eyes to the underlying goal of lowering your cost per unit shipped. It is our honor to join your team of professionals to meet this challenge.

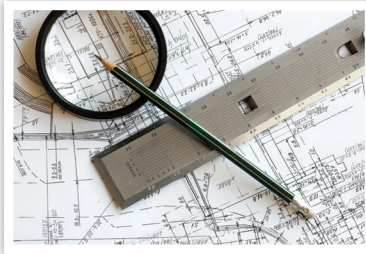
- Discovery
- Application Engineering
- Collaboration
- Integration
- Managed Implementation
- Support



**Material Handling Integration**



**Operational Audit**



**Engineering**



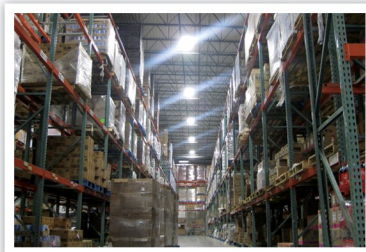
**Controls & Automation**



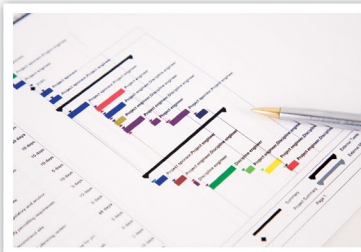
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