



Automated Storage & Retrieval Systems

Our
Range Of
Products:

- Vertical Carousels – V Store
- Lean Stores
- Automated Storage & Retrieval Systems
- Mobile Compactors
- Heavy Duty Racking Systems

Get in touch now for pricing & information

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WHO WE ARE

We are a highly respected, young and innovative organization based on the principles of innovation, quality and customer delight as our corner stones. We pride ourselves in being one of the few companies which specialize in “end to end automation” solutions for our clients. Be it our software or automated storage solutions, our focus is on delivery of solutions that will make significant positive and measurable difference to our client’s business.



We have a strong focus on process compliance and a standards driven operation, which is reinforced by our certifications such as ISO 9001:2008, ISO 14001:2004, CE & OHSAS 18001:2007

Our client base, comprising of large multinationals, government and defence organizations as well as Small and medium enterprises are testimony to our product quality, commitment to customer service and a partnership approach.

VERTICAL CAROUSELS – V STORE



Vertical Storage Carousel Constructional Features

- The most modern and cost-efficient Storage and Retrieval system for today's industry.
- Use of the complete available height for storage.
- Works on a simple Paternoster principle.
- Works on a two vertical chain loop mechanism which is electrically driven.
- A sheet metal cladding ensures protection this assembly.
- A window is provided at ergonomic level for easy loading and unloading of material.
- Entire control using a PC based software with versions for inventory and document management, a PLC controller and an emergency manual mode.
- The system is available from 2 m to 20 m.
- Modular construction.
- Specially designed trays to suit shape, dimensions and weight of the material to be stored.
- Low noise due to well-engineered guiding mechanism using high quality bearings.
- Fast retrieval due to higher speed and shortest path logic built in.
- Low power consumption due to energy efficient motor and other components.
- More compact design compared to other equivalent systems to save floor space.
- Higher up time due to proven design and reliable manufacturing.
- Ease of interface of the bundled software with existing systems, ERP, Warehouse Management Systems.

VERTICAL CAROUSELS – V STORE



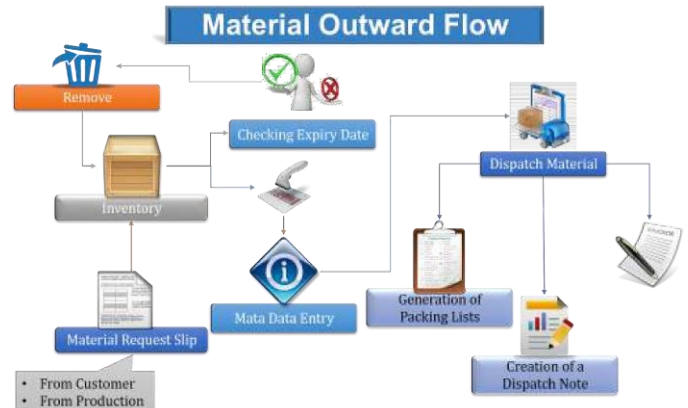
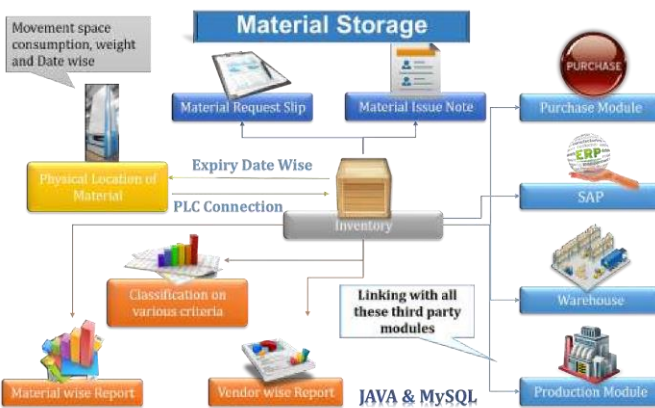
CONTROLLER

- Advanced PLC controller with HMI for numeric display.
- Quick material retrieval using the shelf number or even the part number.
- The system rotates in clockwise or anticlockwise direction to select the shortest possible path.
- Can be interfaced with computer and provision of RS232C serial port

ADVANTAGES

- **Smooth operation:** The system ensures jerk-free movement even at start – stop operations due to VFD (Variable Frequency Drive), avoiding damage to the stored material. Special technology for smooth engagement/ disengagement of moving parts ensures noise level well below 70 db.
- **Safe and secure:** The curtain sensors at the material retrieval window stop the system in case the material is protruding outside the tray or if an operator tries to access the shelf while it is running. Locking provision for the entire system and emergency stop switch provide further safety.
- **Low power consumption:** The system operates on single phase or three phase supply of 230 Volts and draws 10 Amp current. Specially developed energy-efficient power management of Tech-Mark systems ensures further power saving.

VERTICAL CAROUSELS – V STORE



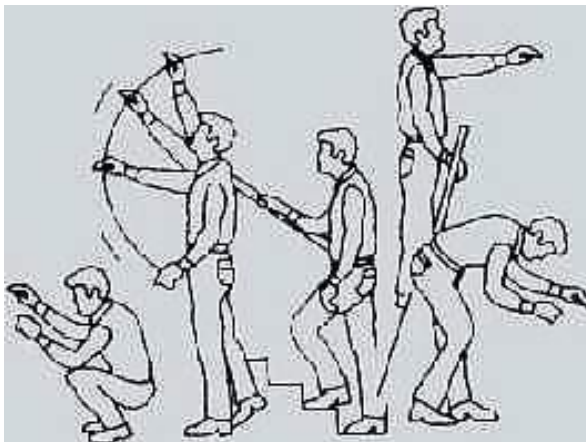
ADVANTAGES

- **Quick retrieval of material:** The automated system increases number of pick-ups per shift, effectively reducing manpower engagement. Typically, this system is nearly 80% more efficient than conventional storage.
- **Optimum space utilisation:** Effective use of optimum height results in floor space saving up to 80%.
- **Manpower saving:** Less manpower engagement compared to conventional stores.
- **User-friendly:** Even an unskilled person with a little training can very effectively use the Carousel Storage Systems. In case of power failure, it can be operated manually. Routine maintenance requires only oiling and greasing, which can be carried out easily by quickly removing the side covers.
- **Power backup (optional):** Single phase UPS provision for operating the system in case of power failure. Can also be operated manually.
- **Quick installation:** Our large manufacturing capacity allows shorter delivery periods. No special provisions are required on site such as pits/foundation and hence, this modular system can also be installed quickly on site.
- **Operations @ a Click:** The bundled software ensures all parts, documents can be retrieved at the click of a mouse from anywhere. Easy interfacing functionality of our software with existing systems makes the systems really integrated.

LEAN STORES

- Ideal for mid-sized, mid-weight and heavy weight components varying in shape, size and weight.
- System offers higher flexibility to accommodate a variety of items to be stored.
- The pitch between two trays can be variable, allowing storage of items with variable dimensions.
- In this system, trays are stationary while the retrieving mechanism is moving, which increases load capacity per shelf (up to 1MT per tray).
- The PLC-controlled platform known as retriever is similar to a lift, moves up and down to locate a particular tray while storing/retrieving the material. The desired tray is brought to the operating window located at ergonomic level for easy loading or unloading of material.
- Very easy to operate and maintain and allows full utilisation of the available height.

Efficient Ergonomics



Lean Store - Constructional Features

- The system is completely enclosed using sheet metal cladding and has one operating window at ergonomic level.
- The operating window is lockable using electro- mechanical mechanism. Additional sensors provide higher safety to the operator as well as operating system.
- The system is constructed using precision fabricated pipes, channels and sheet metal and can be customised to suit the customer's requirements.
- Retrieving mechanism or platform is fitted to vertical chain loops at four corners of the platform which give upward and downward motion to the platform.

LEAN STORES



- **Quick retrieval:** The system is faster as compared to vertical carousel. In this system, only the retriever is moving and not all the trays, ensuring faster retrieval.
- **Space saving:** Utilizes complete height and saves horizontal space up to 80%.
- **Optimum storage capacity:** This system allows larger tray dimensions compared to vertical carousel and also varying pitch is possible, allowing storage of material of different shapes and sizes in the same system.
- **Higher load capacity:** Shelves are stationary and can be designed for 1MT load capacity (per shelf).
- **Safety of material:** Totally enclosed system, avoids damage to material from external influences and protects material from theft.
- **Manpower saving:** High degree of automation reduces manpower requirement.
- **Effective inventory control:** Material can be accessed only after entering the part number and quantity, in turn ensuring timely update of record. This allows precise inventory control.
- **User-friendly system:** Very easy to operate and maintain after a brief training.
- **Smooth operation:** Only the retriever is moving up and down with the help of a chain and sprocket mechanism, thus ensuring very low noise and jerk-free material handling.
- **Operator safety:** Curtain sensors at the opening window ensure the operator safety during operation and prevent accidents. Emergency switch at front allows instantaneous halting during operation in case of an emergency.

AUTOMATED STORAGE & RETRIEVAL SYSTEMS



An **automated storage and retrieval system** (ASRS or AS/RS) consists of a variety of computer-controlled systems for automatically placing and retrieving loads from defined storage locations. Automated storage and retrieval systems (AS/RS) are typically used in applications where:

- There is a very high volume of loads being moved into and out of storage
- Storage density is important because of space constraints
- No value is added in this process (no processing, only storage and transport)
- Accuracy is critical because of potential expensive damages to the load.

AUTOMATED STORAGE & RETRIEVAL SYSTEMS



ADVANTAGES

- An efficient AS/RS system helps companies cut expenses by minimizing the amount of unnecessary parts and products in storage, and improving organization of the contents of a warehouse. Due to automated processes, it also allows for more storage space due to high-density storage, narrower aisles, etc.
 - Automation reduces labor costs while lowering workforce requirements and increasing safety.
 - Modeling and managing the logical representation of the physical storage facilities (e.g. racking, etc.)
 - Enabling a seamless link to order processing and logistics management
- in order to pick, pack, and ship product out of the facility.
- Tracking where products are stocked, which suppliers they come from, and the length of time they are stored. By analyzing such data, companies can control inventory levels and maximize the use of warehouse space. Furthermore, firms are more prepared for the demands and supplies of the market, especially during special circumstances such as a peak season on a particular month. Through the reports generated by an AS/RS system, firms are also able to gather important data that may be put in a model for it to be analyzed.

AUTOMATED STORAGE & RETRIEVAL SYSTEMS

Mini Load AS/RS

The Mini-Load ASRS Crane is a highly dynamic automated storage and retrieval system designed to efficiently and expeditiously handle small parts, totes, trays, and cartons. Capable of rapid acceleration and high-speed movement on a three dimensional axis, the Mini-Load Crane is ideally suited for automatic inventory storage and retrieval in high density warehouse operations and for dynamic picking / automated replenishment in order fulfillment systems. Being a renowned organization

of the market, we are engaged in offering Automated Storage and Retrieval System. The products offered by us are available in various specifications and can be also customized as per the client's specifications. These systems are developed using topmost grade raw material and sophisticated technology in conformity with the certified industrial norms. In order to deliver the defect free range, these products are tested against the various parameters of quality set by the international industry.

CONSTRUCTIONAL FEATURES

- **Cost Effective System:** Single retrieving mechanism for a large storage area saves on the cost of the system.
- **Integral Storage:** Single, integral storage area due to optimal utilization of height and depth ensures high density storage and allows easier control.
- **Space Storage:** Automated Storage and Retrieval System Floor Space Saving Complete height utilization, extreme narrow aisle for column movement ensures considerable floor space saving.
- **One Man Operation:** One person can operate the system very easily since storage and retrieval is completely automated.
- **Fast Retrieval:** High speed and simultaneous movement in both the planes ensure fast retrieval of material
- **High Safety of Stored Material:** Completely enclosed system with locking of operating window.
- **Easily Expandable:** Modular system allows easy expansion of racks and main carriage being the same, the additional cost is comparatively lesser.

AUTOMATED STORAGE & RETRIEVAL SYSTEMS

Single Deep AS/RS

Single-deep automated storage comprises direct retrieval of all unit loads in storage from either side of any storage and retrieval machine. It is ideal for a lower range of items that require instant accessibility to every unit load. Standard single-deep AS/RS operate using a telescopic fork. We are the prominent manufacturer and supplier of a wide range of Automated Storage and retrieval System. This is a modern unit load storage

and retrieval system that combines the advantages of several systems that are simple, efficient, modular and easily expandable system. It not only utilizes its full height, but also its depth to any extent. In order to ensure the quality and efficiency of these systems, these are checked on various parameters in order to offer defect-free products to our prestigious clients.

CONSTRUCTIONAL FEATURES

- Positive hoisting by chain
- High speed 24 to 40 dual cycles per hour
- Simultaneous X & Y axis motion
- Current through shrouded bus bars/ leading trolley, trailing trolley
- On-board diagnostics identify SRM faults for rapid repair and recovery
- Double arm lifting carriage ensures stability/rigidity of system
- Lifting carriage is guided on 8 rollers, ensures smooth and quiet operation
- Load extraction - multiple choices e.g.
- Single arm telescopic fork
- Core sensing ensures error-free operation
- Ergonomically designed work station
- Aisle changer hardware for multiple aisle racks
- The drive and control panel are mounted at floor level for easy access
- High rate of acceleration
- Machine height up to 16 meters (Lattice structure mast)

AUTOMATED STORAGE & RETRIEVAL SYSTEMS

Double Deep AS/RS



We are involved in offering a wide gamut of Double deep ASRS that is manufactured using high grade raw material and the latest technology as per the set universal standards. These products are tested against various parameters under the

strict supervision of our adroit professionals to ensure flawless deliveries. In addition to this, our offered products can also be customized as per various specifications from our prestigious clients.

MOBILE COMPACTORS



Principle

The basic idea here is to eliminate the floor space requirement between two fixed racks and utilize this space to accommodate more racks. Here, the racks are mounted on guiding tracks which allow forward and backward movement. This type of arrangement requires only one aisle for access and storage and retrieval of material.

Constructional Features

- Sturdy and precision-fabricated racks using high quality material.
- Precisely engineered guide rails, gears, sprockets and chains for smooth, jerk-free movement and low noise or vibrations.
- Sealed bearings with lifetime lubrication
- Sheet metal cladding, ensuring protection from dust, damage or theft.
- Position locking of racks during usage to ensure operator safety.
- Complete system can be locked to prevent unauthorised access.
- System requires minimal maintenance.

Overview of Compactor Storage Systems

Tech-Mark™ offers you the ultimate mobile storage system with the latest 'Easy Glide' technology for a noise-free, effortless and smooth operation for years together. The system offers security of stored material and proves to be very cost-effective. This system requires lesser space than conventional racking systems/cupboards. It can save up to 60% of floor space compared to conventional static shelving or can increase the storage capacity by almost 100%. The system glides on steel tracks and consists of mobile base units onto which different shelving options can be assembled. When a particular rack is required, the appropriate aisle is opened up by mechanical or electrically driven bases. Only one aisle is required to service multiple racks.

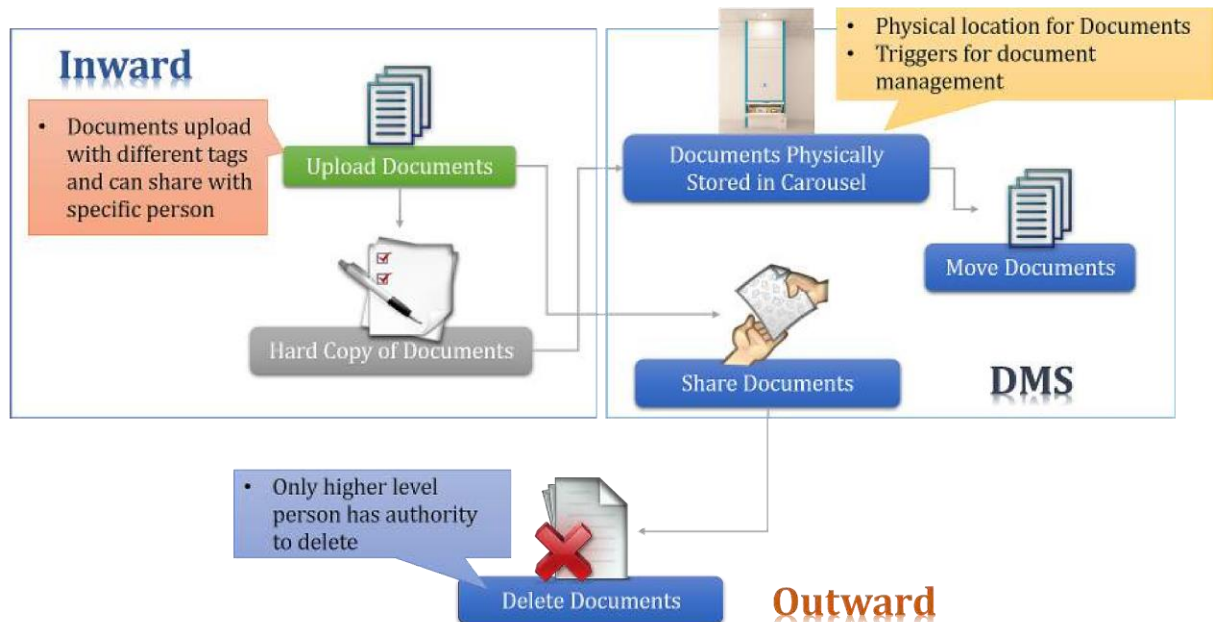
Advantages

- **Space saving:** Typically up to 60% space saving due to single aisle for multiple racks.
- **Higher storage density:** Due to single aisle, storage space availability increases by nearly 80% in the same area as that of conventional racking.
- **Safety:** Stored material is safe from dust, damage, external influences or theft and in-built system features ensure safety of operator.
- **Reduced human effort:** Very less human efforts required for moving the racks with heavy loads.
- **Easy to locate the material:** A list of stored material is available on an acrylic sheet holder on one side of the rack. This saves nearly 30% time of the user.
- **Individual locking racks :** Allows access to multiple racks simultaneously.

SOFTWARE FOR AUTOMATED STORAGE

Document Management System for Storage System

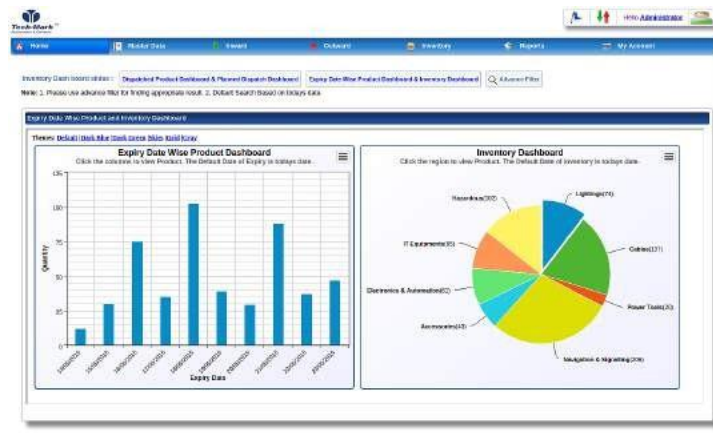
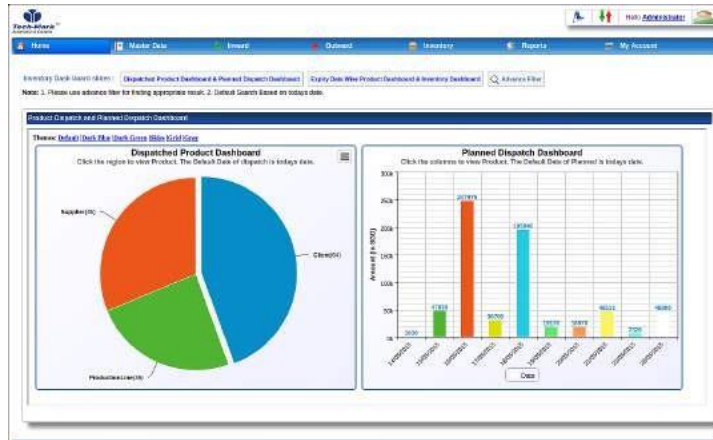
Document Management System - Flow



- Retrieval and storage of documents at a single click.
- Communication with the machine to automate the entire process of storage, search and retrieval of documents.
- Facility to define document indexing and tagging details.
- Functionality to have soft copy or hard copy or both in the system.
- Feature to define various levels of storage in the master module so that new physical storage can be added and integrated with the system.
- Various reports on storage, retrieval including a complete log of file handling along with user name, time and multiple such instances.
- Easy search and sharing of documents.
- Role based access to documents.
- Definition and mapping of documents to departments and document types aids in easier search.
- Colour coding functionality to match with the physical packing of documents in cloth.
- Upload of multiple documents at a single time possible, making work faster.
- Facility to view document online, download documents, based on user defined roles and controls.
- Optional interface with bar code based systems, CCTV systems and other client specific systems.
- Developed using open source technologies, in line and compliant with E-Governance norms, reducing licensing costs and issues.
- Can work in standalone or networked and web based mode as well.
- Mobile based access provided to system.

SOFTWARE FOR AUTOMATED STORAGE

Advanced Inventory / Warehouse Management System for Storage System



Reports in AIMS

Product Category	Product Name	Stock Price	Stock Price Rate	Stock Qty	Storage Type	Stock Status	Qty	Unit Price	Stock Cost	Stock Date	Stock Date	Expiry Date	
Navigation & Signaling	Navigation & Signaling	Product Line	Garrett Gateway	3221206	Carroll	Carroll 1	Tray 1	Unit 2	5	5000	16,000.00	28/05/2015	18/05/2015
Electronic & Automation	Electronic & Automation	Product Line	Nagat Circuit	94_20	Carroll	Carroll 1	Tray 4	Unit P	8.0	90	720.00	28/05/2015	30/05/2015
Navigation & Signaling	Navigation & Signaling	Product Line	Garrett Gateway	3221206	Carroll	Carroll 2	Unit 1	Unit 1	25	5000	125,000.00	28/05/2015	18/05/2015
Lighting	Lighting	Supplier	Ushankhara Suppliers	81_35	Carroll	Carroll 1	Tray 1	Unit 1	8	90	720.00	28/05/2015	18/05/2015
		Supplier	Ushankhara Suppliers	81_35	Carroll	Carroll 1	Tray 1	Unit 2	4	90	360.00	28/05/2015	18/05/2015
Accessories	Accessories	Supplier	Arvind Singh	3221206	Carroll	Carroll 1	Tray 1	Unit 1	2	650	1,300.00	28/05/2015	20/05/2017
CDMA	CDMA	Chart	Carroll Technology Solutions Pvt. Ltd.	208	Carroll	Carroll 1	Tray 20	Unit 1	20	100	2,000.00	28/05/2015	18/05/2015

- Gives the user full control of the storage and retrieval process for material inventory through a single and simple browser based interface.
- Provision for tracking inventory from suppliers, for clients as well from production line.
- Track raw material, in process and finished product inventory and storage.
- Generation of documents related to inward, movement and dispatch of inventory.
- Intelligence built in to guide the user to the correct available location for storage, based on product dimensions and available space.
- Triggers for various parameters such as dispatch date, expiry date and several others.
- Available API's, being open source and open architecture based system, to ensure ease of integration with various protocols and third party systems and Databases.
- Facility to integrate with a bar code based or RFID based tagging application and other existing client applications.
- Uses web technologies, can be accessed over a network or the internet through any device.
- Full inventory report.
- Category-wise and code wise or material name wise real time inventory view.
- Customer wise, vendor wise and user wise inventory reports.
- Complete transaction log report of inventory storage and retrieval along with user details and time stamp.
- Location wise inventory report.
- Date wise check-in, check-out view of inventory.
- Report on shelf life or expiry of materials.
- Cost of inventory report.
- Re-order level wise inventory report.
- Planned dispatch report.
- Customer/consumer wise report mapping materials to destinations and date of delivery or dispatch.
- All reports will be in listing as well as dashboard /graphical formats wherever required with further drill down facility.

OUR ESTEEMED CLIENTS



CE Compliance



ISO 14001 : 2004



ISO 9001 : 2008



OHSAS 18001:2007

Tech-Mark Automation & Controls

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