



Automation



Overview

Since its inception in 1991, Metafold Engineering Pvt. Ltd. has undergone a remarkable journey of growth and transformation. Beginning with a fabrication of simple material movement trolley, the company has continuously expanded its product portfolio to meet the evolving needs of the storage industry, establishing itself as a prominent player in the market.

Our state-of-the-art engineering and production facility covering an extensive area of 1,25,000 sq. ft. boasts an impressive manufacturing capacity of 1500 tons per month. This robust infrastructure empowers us to effectively serve a diverse clientele across various industrial sectors not only in India but also internationally.

Metafold operates through four specialized divisions: Warehouse, Automation, Machine Shop, and Roll-Out. Each division focuses on specific product lines, enabling us to offer comprehensive solutions and serve as a ONE-STOP DESTINATION for all storage-related requirements.

We take immense pride in our positive outlook and noteworthy achievements within the storage industry. Our unwavering commitment to customer satisfaction has paved the way for an exceptional track record of delivering projects on time, solidifying our reputation as a reliable and trusted partner.



Creating[®]
space
within
space



VISION

To create a
DIVERSE AND SUSTAINABLE ECOSYSTEM
where our
EMPLOYEES AND CLIENTS
flourish in a non complacent market,
driving
MUTUAL GROWTH AND SUCCESS.



PURPOSE

To FUEL customer's growth
by
enhancing productivity and
ease of operations
through our
Simple but yet innovative,
effective and reliable solutions.

Our Core Values



TEAM WORK

Collaborating effectively with others to achieve
common goals through shared effort and
communication.



CUSTOMER DELIGHT

Making customer satisfaction our priority by
actively listening, anticipating needs, and
delivering best service.



INTEGRITY

Upholding honesty and ethical principles,
consistently doing what's right, even when no
one is watching.



EXCELLENCE

Continuous improvement and setting high
standards to achieve the best possible results in
every task and endeavor.

IN PLANT MANUFACTURING FACILITIES



ROLLING SHOP Capacity: 1000 tonnes/month



CNC SHOP Capacity: 150 tonnes/month



FABRICATION SHOP Capacity: 500 tonnes/month

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Stacker Crane ASRS



RACK AUTOMATION

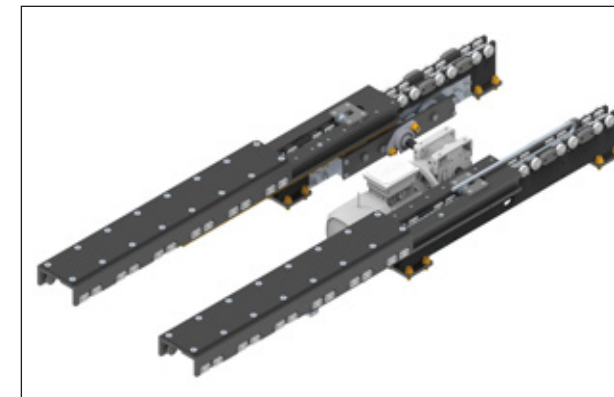
Automated Storage and Retrieval Systems (ASRS) thrive in applications where high volumes of inventory move in-and-out of manufacturing or distribution operations. Upgrading to an automated storage system improves throughput and efficiency with reliable, secure storage that eliminates damage to products and equipment while providing safer, more ergonomic working conditions.

Metafold Solutions experts have designed and integrated automated storage solutions across a variety of industries and product handling needs. With this expertise, they can assess your operational needs, business objectives and technology options to identify a right-sized automated solution to reliably and effectively handle the complexities of moving and storing payloads in your facility. From large, heavy pallet storage to smaller, lightweight goods, or custom features that accommodate unique requirements, our experts work with you to integrate the appropriate level of flexibility and functions to support current labor availability, security of goods, throughput and efficiency, and maximize your vertical space for reduced facility expansion costs.

APPLICATIONS

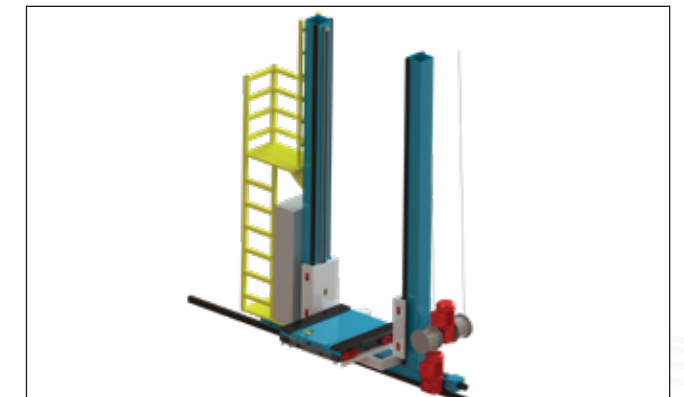
ASRS Stacker Cranes follow the goods-to-person (GTP) principle and are managed by a central system for inventory control and crane coordination.

The horizontal carriage on the mast offers two options:



Telescopic forks can efficiently handle single or double deep racks, making them versatile for various materials and handling needs. This solution is limited to selective pallet racking, after every four deep pallet an additional aisle is required.

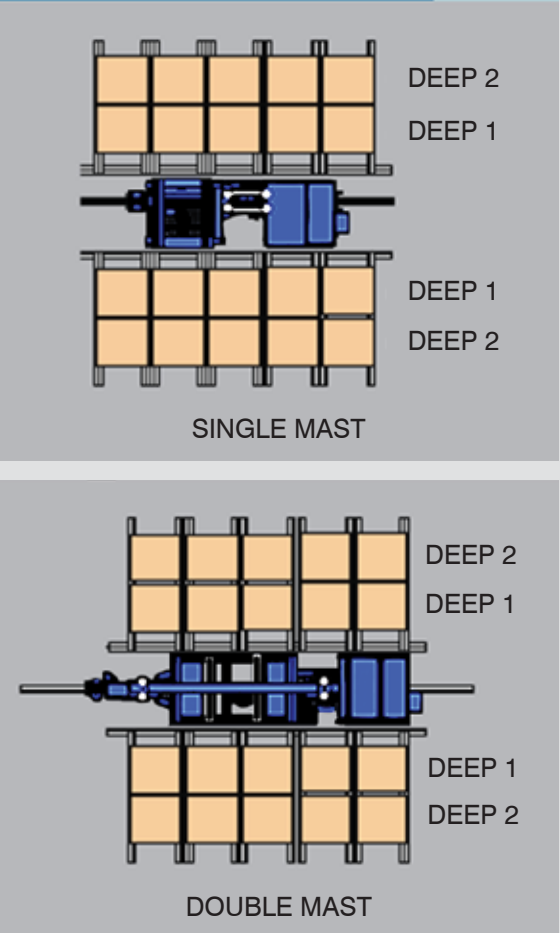
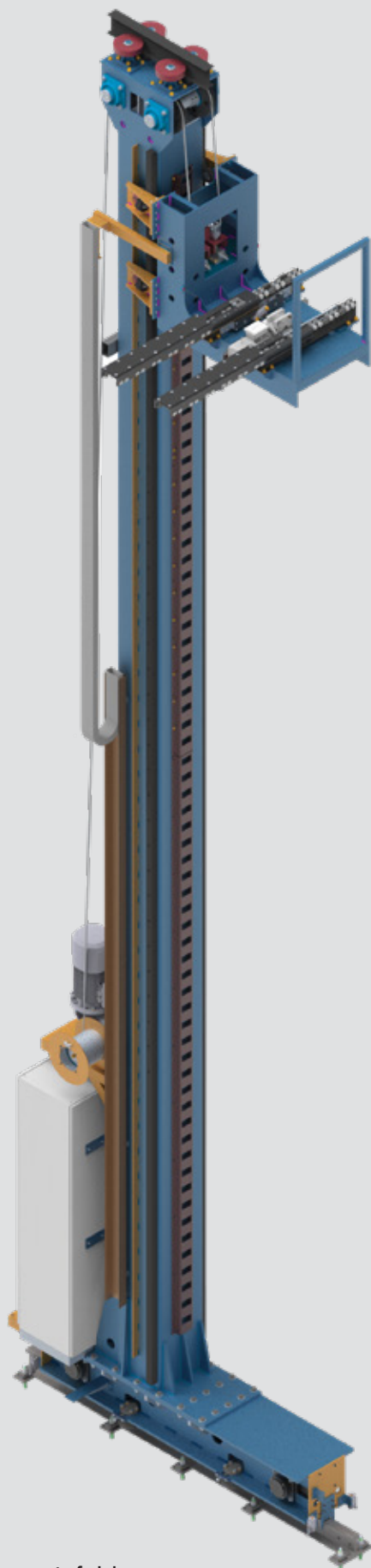
Telescopic Forks for high throughput but lower batch quantity








Integrated Radio Shuttles cranes, racking structure is converted into high-density racking. The horizontal carriage stops in front of the desired bay, and the radio shuttle travels within the rack for pallet storage or retrieval.

Integrated Radio Shuttles for larger batch quantities but lower throughput.

Stacker Crane




-  **Guaranteed Pallet Throughput**
-  **Controlled Inventory**
-  **24/7 Availability**
-  **High Efficient Regenerative Drives**
-  **WMS Operated**

OPERATIONS

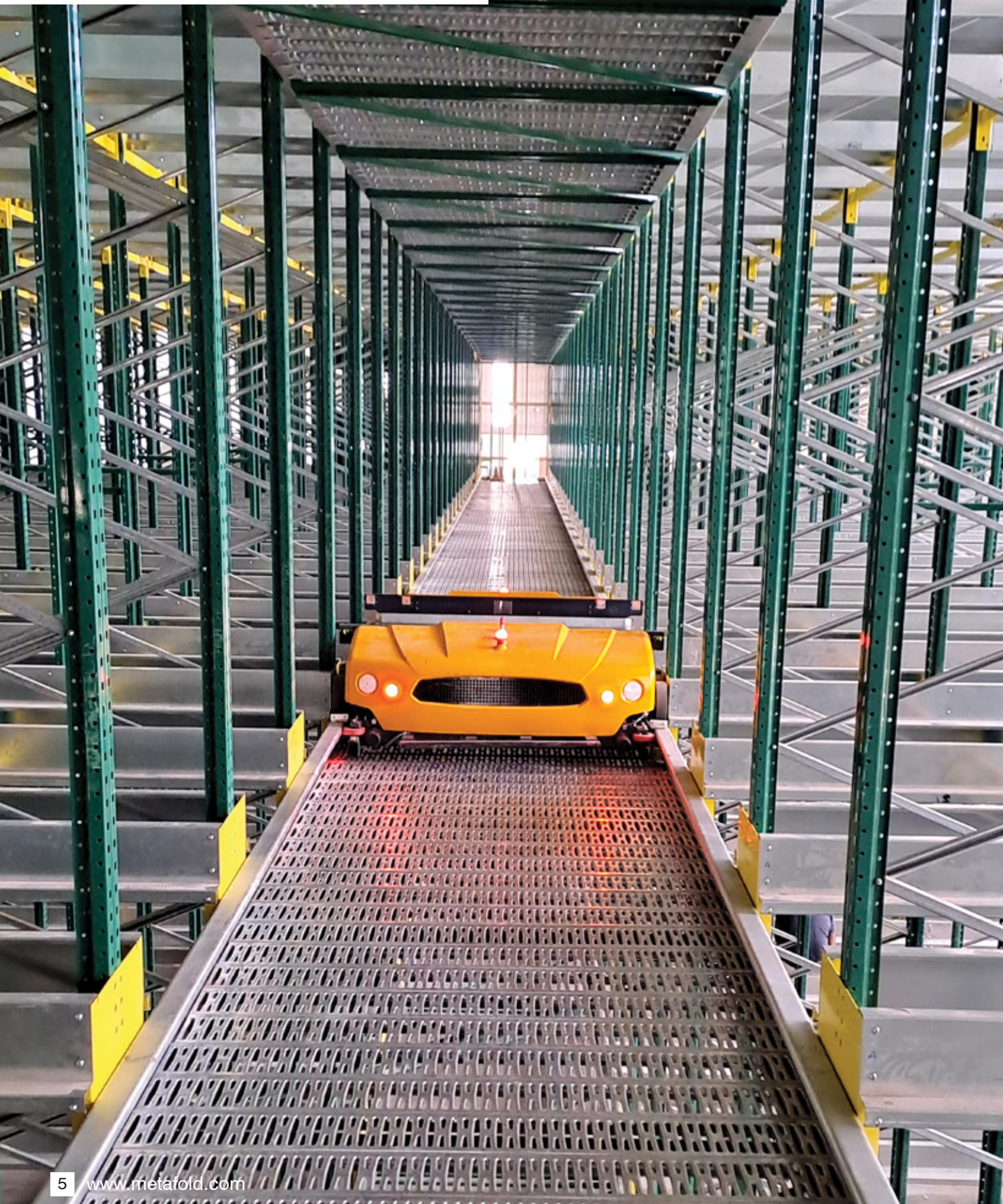
The Stacker Crane ASRS is designed as per the customers process requirement. Stacker crane ASRS form a part of a comprehensive solution that incorporates other automation technologies like conveyors, AGVs, AMRs, pick and place robots and efficient material movement methods to address all your needs.

ADVANTAGES

Often selected for its dynamic functionality, efficient use of space, and improved work environments, these technologies can integrate with other automation technologies and warehouse software for even greater efficiencies. Other benefits include:

-  **Increase throughput and efficiency**
with various storage configurations, transport mechanisms, and horizontal and vertical speed options
-  **High density storage**
makes the most of available footprint and maximizes vertical space
-  **Accurate, real-time inventory data**
eliminates the need for physical inventory inspections
-  **Safe and efficient pallet handling**
provides high level of process reliability
-  **Eliminate damaged or missing inventory**
with safe and secure storage and improved picking processes
-  **Reduce travel between operations**
for improved order cycle time
-  **Inventory storage security**
with secure enclosures and real-time inventory control
-  **Turnkey or custom solutions**
providing a right-fit solution for your operation
-  **Ease of installation and maintenance**
with modular design and built-in diagnostics
-  **Integrate into larger systems**
to further streamline operations and improve workspace ergonomics
-  **Ensuring safe operation**
involves mitigating mast vibrations, which is achieved through the implementation of anti-oscillation devices and damping programs

Mother Child Shuttle



REVOLUTIONIZED AUTOMATION

Mother Child Shuttle ASRS or also known as Multi-deep Pallet Shuttle ASRS is a dense automated system, wherein the mother shuttle operates within the main aisles and acts as a carrier transporting the child shuttles to the appropriate bay location within the structure. The child shuttles, in turn, travel within the individual storage bay where they are responsible for retrieving and storing goods.



The Mother Child Shuttle ASRS stands as a pioneering advancement in the domain of storage solutions, enhancing the utilization and efficiency of automation in storage while maintaining its inherent simplicity. This solution integrates various types of equipment that collaborate harmoniously:

- Compact Battery Operator pallet shuttle (Child Shuttle)
- Bus Bar powered Shuttle-carrier (Mother Shuttle)
- Pallet lift
- Inbound and Outbound conveyors
- Buffer conveyors



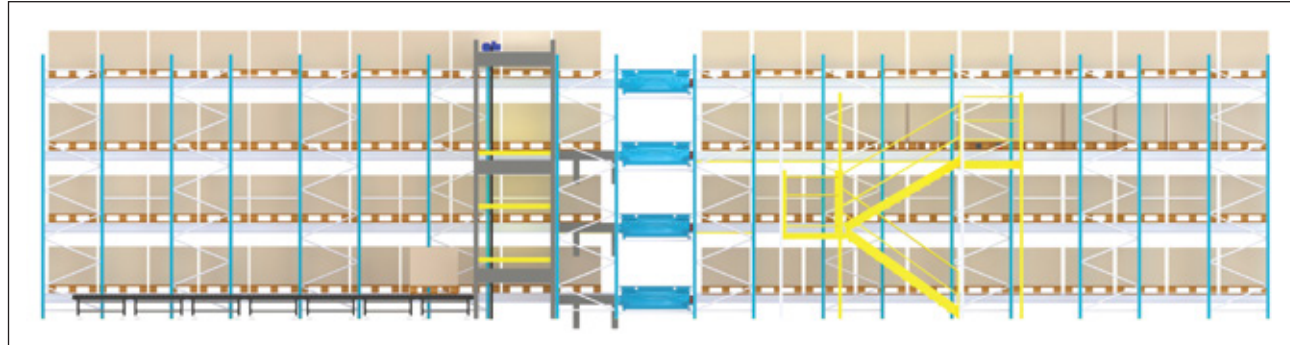
**100% automated
storage operations**



**Safe and efficient
pallet handling**



**Modular design
for scalability**



SYSTEM ARCHITECTURE

Our Shuttle Fleet Control Software (SFCS) serves as the central control hub for the entire system and ensures that your entire inventory is easily accessible and handled with the utmost safety and efficiency.



APPLICATIONS

Mother Child Shuttle ASRS systems are commonly used in high-intensity inventory operations with large batch quantities of SKU. This system provides increased storage capacity, faster retrieval times, reduced labour requirements and improved inventory accuracy.

OPERATION

The stacking and retrieval processes in these fully automated systems are customized to your needs. Specialized training is provided to certify operators in operating these systems.

ADVANTAGES



**Higher throughput compared
to Stacker Crane ASRS**

due to multiple shuttles operating
simultaneously at every level



**Quick access and faster
delivery times**

through continuous loading and
unloading



Best use of space

as it provides high density storage
almost double than Stacker Crane
ASRS



Inventory storage security

with secure enclosures and
real-time inventory control



**Safe and efficient
pallet handling**

provides high level of process
reliability



Integrate into larger systems

to further streamline operations and
improve workspace ergonomics



Reduced Operational Cost

through increased utilization
of space

Auto Store

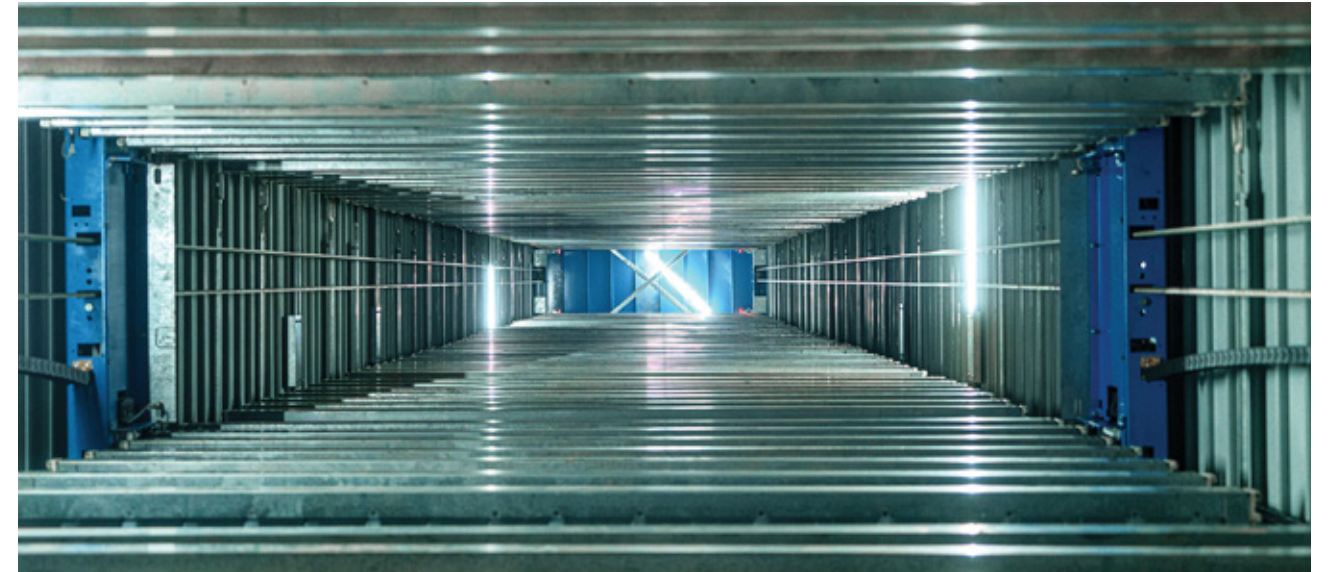
Metafold®

VERTICAL STORE-INSOL

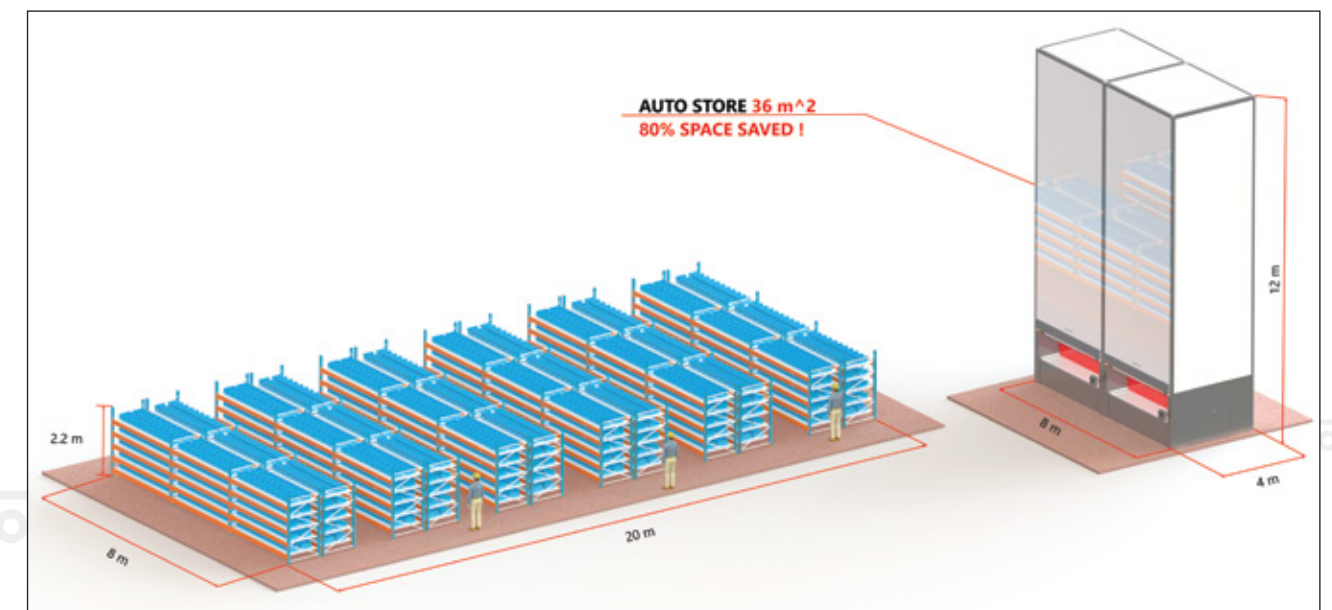
VERTICAL LEAN LIFT

Auto-Store is an innovative enclosed shelf-based automated storage and retrieval system that effectively maximizes capacity within a small footprint.

Based on the "goods-to-person" concept, the Auto-Store enhances productivity by directly delivering goods to the operator, eliminating the need for manual searching and retrieval. Our Indigenous Auto-Store solution features exceptional versatility, serving a broad spectrum of industries, from manufacturing facilities to warehouses, thanks to its modular and flexible design that easily adapts to your evolving business requirements.

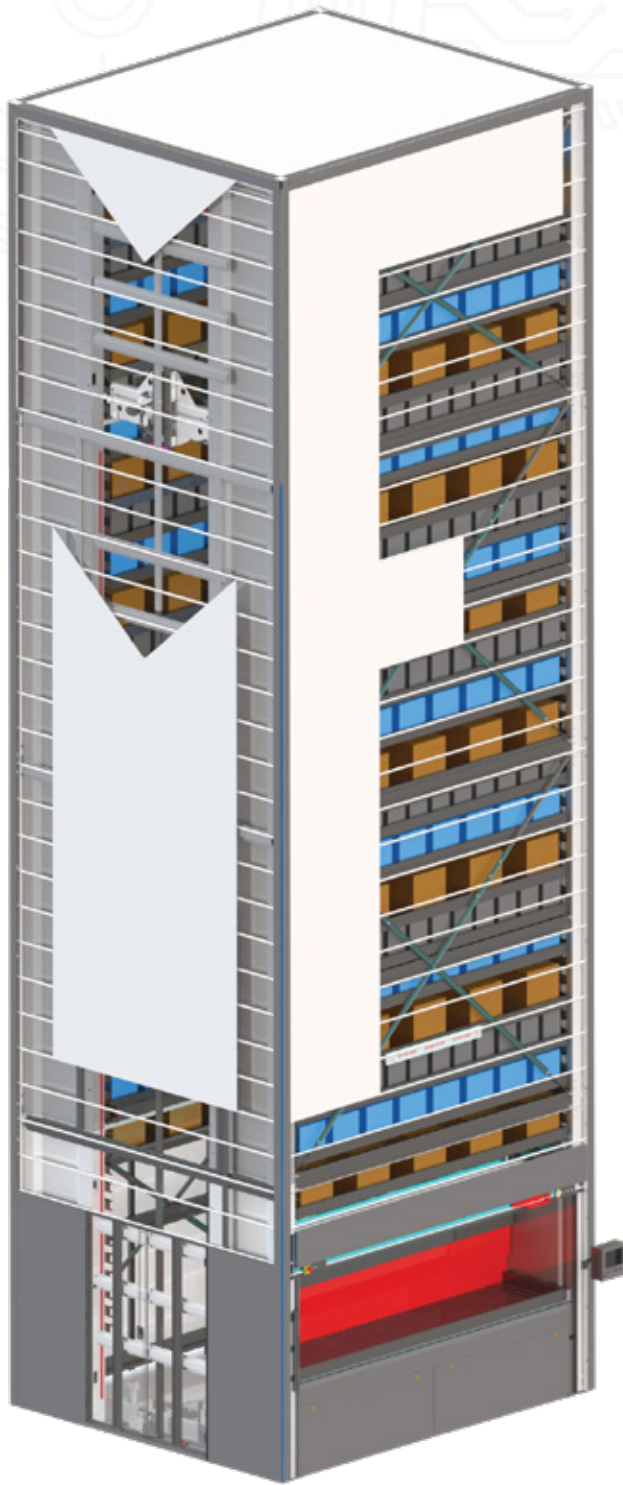


FOOTPRINT COMPARISON



Wherever there is a need for effective space utilization and speedy item retrieval, Auto-Store provides the optimal solution.

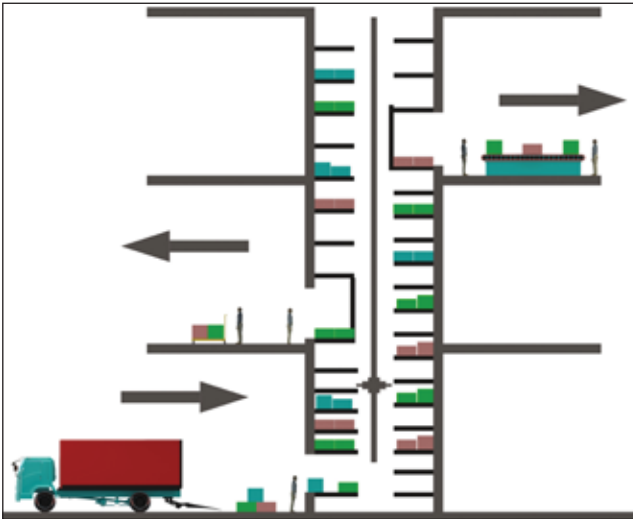
TECHNICAL SPECIFICATION



Tray Dimensions	Length (mm)	Up to 3650
	Width (mm)	650, 850, 1000
Load Capacity per Shelf (kg)		Up to 1000
Tray Adjustment Pitch (mm)		50
Tray Pitch (mm)		150*
System Height (mm)		15,000*

* Minimum value, actual pitch depends upon the load per shelf

** Standard height offered. For additional height, external supports are required. Get in touch with our technical experts for specific requirement of additional height.



MULTI FLOOR ACCESS

- Access points at different floor levels, front and back
- Reduce man and material movement time between different floors
- Eliminate Goods Lift
- Store material vertically from basement up to top floor
- Avoid multiple V Store location

ADVANTAGES

Since our first machine in 2008, we've evolved to our fifth generation. With around 20 distinctive features that distinguish us from existing designs in the market, we offer enhanced functionality, proactive monitoring, and customizable operational preferences, giving our customers a competitive advantage.



Efficient

- Quick storage and retrieval
- Up to 80% faster retrieval time than normal shelving
- Intelligent height and weight sensing and flexible tray height for optimum usage of vertical space
- Option of reinforced toothed belt drive for quiet operation or high duty chain drive



Secure

- Store safely and securely
- Password protected with data logging
- Smooth movement of trays for storing fragile products
- Automatic shutter doors for all access openings with safety interlock
- Tray wise User Access Control to prevent unauthorized access
- Avoid multiple V Store location



Options

- Standard single access, Optional Multiple Access up to three per machine
- Optional customized dividers and partitions available for trays
- Dual tray exchange option to reduce retrieval time



Save

- Lower floor space up to 80% smaller footprint
- Reduces material handling and storage racks
- Minimum maintenance
- Reduce personnel costs by reducing picking time



Safe

- Reduced risk of falling loads
- Light barrier for safe hand operation
- Over load detection system
- Automatic height sensing
- IP66 Certified operator touch panel



Ergonomic

- Adjustable tray positioning in access opening for ergonomic loading and unloading
- Swivel mounted operator panel



Modular

- Modular construction allows future height increase for expandable storage

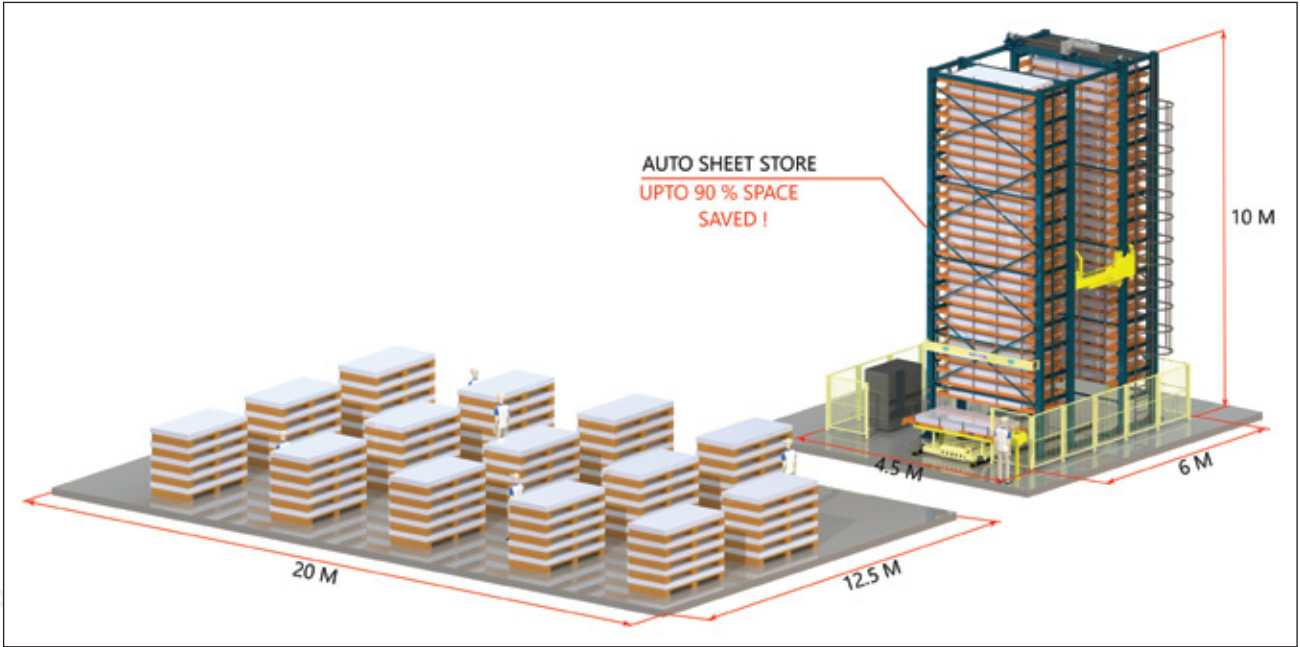
Sheet Store



EXTRA HEAVY DUTY AUTOMATED STORAGE SYSTEM

The Sheet Store is a robust and fully automated storage system designed for heavy-duty applications. By utilizing vertical space effectively, it minimizes the required floor space. By delivering the goods directly to the operator, this system reduces the risk of damage to raw materials and improves productivity.

This system is specifically designed for storing various items such as sheets (with or without bundles), moulds, dies, bar coils, and more. It offers efficient and organized storage solutions for a wide range of materials in an optimized footprint.



TECHNICAL SPECIFICATION

Cassette	Length (mm)	Up to 6200
Dimensions	Width (mm)	Up to 2000
Load Capacity per Shelf (kg)		Up to 5000
System Height (mm)		12,000
Max Live Load (kg)		180,000

Metafold is the first Indian company to introduce this product into Indian market in 2015. Now in its fourth generation of design, Metafold has successfully sold over 25 systems across India and internationally.

ADVANTAGES



Safe

- Reduced risk of damages to material and injuries
- Pallet safety during storage in location is ensured by wheel stoppers
- Stopper pins are provided to safeguard sheets stored to avoid damage due to sliding
- Safety barrier to avoid unauthorized entry in access area
- Over load detection system is use of lift is overloaded with material



Efficient

- Organized and quick storage and retrieval of sheet metal
- Material change over time reduced to larger extend
- Instead of fork lift, cranes also can be used to load and unload the material
- Automatic and faster access to different pallets with higher work efficiency



Save

- With excellent space utilization, it lowers floor space up to 90% with smaller footprint
- Time saving due to direct automated access with out addition lifting devices
- Reduced operational costs and adds bottom line earnings

AUTOMATED PLATE
LOADER SYSTEM

Companies in Sheet Metal business, always faces challenges

- **Storage of Raw Material**
- **Material movement from the storage space to the Laser Bed**
- **Picking and Sorting of Cut pieces from Laser Bed to Sorting Table**
- **Space required for manual material movement**
- **Higher cycle time due to dependency on manual operation**

Our Sheet Store integrated with an Automated Plate Loader System provides a comprehensive solution to above challenges.



Raw Sheets are lifted using the vacuum cups, while the processed sheets are lifted by fingers spanning all over the length of the sheet. To lift the sheet from the laser bed, the fingers are designed to fit into the toothed bed gap, raising the entire processed sheet from underneath. This design prevents cut pieces on the sheet from falling during material movement.

The Girder motion is guided on the Linear motion guide and rack and pinion rail and is controlled by a Servo Motor. This approach ensures that the lifting bed always remain aligned with the storage pallet and the laser bed. Due to this confirmed alignment, the horizontal travel speed of the girder reaches 60m/min.

TECHNICAL SPECIFICATION

Payload (kg)	250 kg
Boom/LT Travel, Length (mm)	As per requirement
Vertical Lift of the Sheet from Base (mm)	700
Finger Metallurgy	Aluminium Extrusions

FEATURES



Unlock
Efficiency



Fault
Removal



Sturdy
and
Robust
Build



Precision
Loading
for
Enhanced
Accuracy



High-Speed
Operation
for
Optimal
Utilization



Versatile
Handling
of Large
Plates

Pipe Store

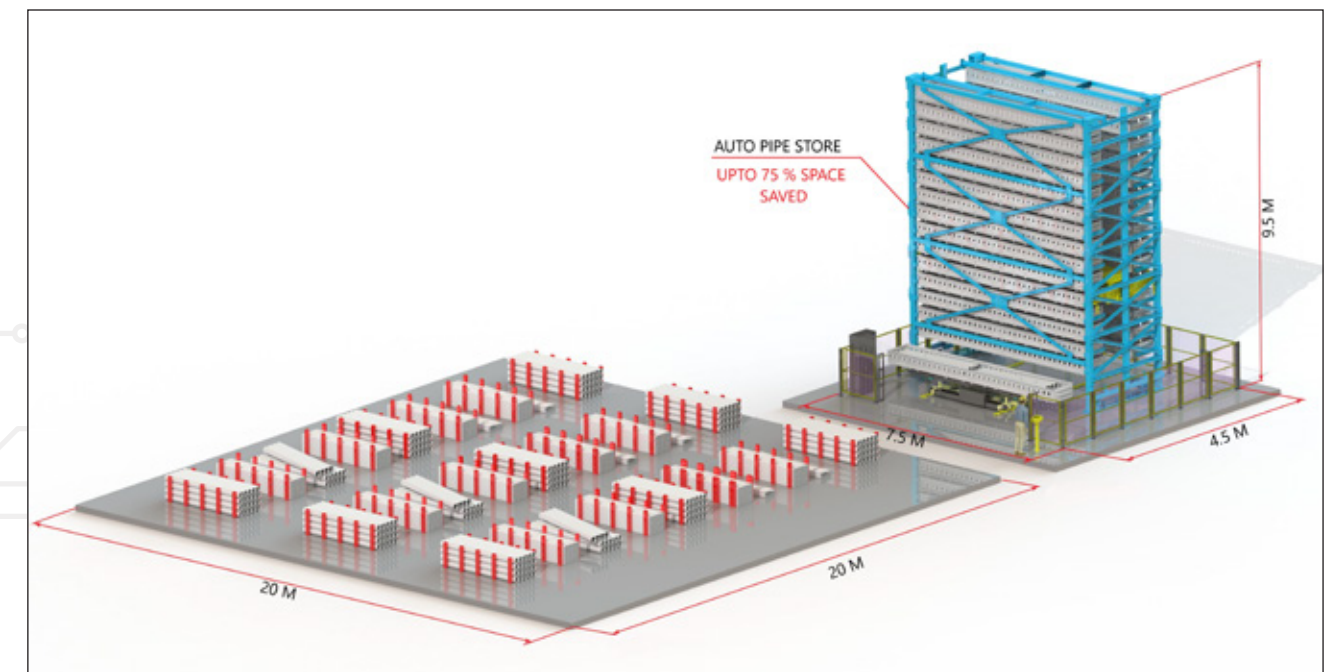


LONG SPAN GOODS AUTOMATED STORAGE SYSTEM

Pipe-Store is an advanced and robust automated storage and retrieval system designed specifically for the storage of lengthy materials such as pipes, bars, tubes, billets, aluminium extrusions, commercial sections, and more. This innovative system utilizes vertical space efficiently, allowing for maximum capacity while occupying a smaller footprint compared to traditional block storage methods.

The Pipe-Store operates based on the "goods-to-person" concept, which significantly reduces the risk of damage to raw materials and enhances productivity, by delivering the goods directly to the operator. The Pipe-Store eliminates the need for manual searching and retrieval and thus saving valuable time and minimizing the potential for material damage, particularly in the case of round pipes.

Given the constant rise in the land prices and the increasing manufacturing capacity throughout India, it has become essential to capitalize in seamless and secure handling of raw materials, optimizing operational efficiency and preserving the integrity of the materials.



TECHNICAL SPECIFICATION

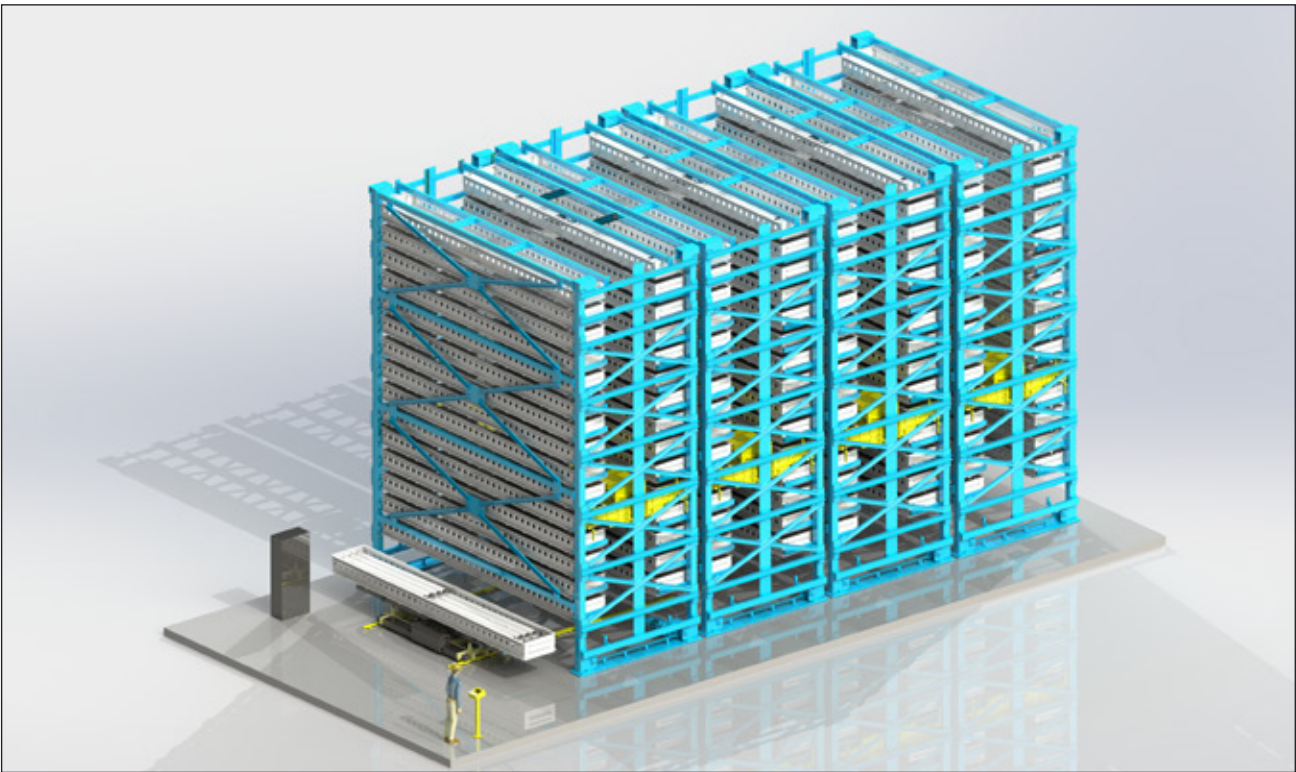
Cassette Dimensions	Length (mm) Width (mm)	Up to 6200 550, 850
Load Capacity per Shelf (kg)		Up to 2500
	System Height (mm)	10,000
	Max Live Load (kg)	90,000

Metafold is the first Indian company to introduce this product into Indian market in 2019. Now in its third generation of design, Metafold has successfully sold over 25 systems across India.

Companies face significant challenges when it comes to storing and sorting materials, particularly with:

- Managing large quantities of pipes exceeding 100 tons.
- Addressing rust issues caused by improper material storage.
- Tackling bowing in pipes due to uneven storage methods.
- Handling a wide variety of SKUs with variations in outer diameter, inner diameter, length, and metallurgy.

To mitigate the above challenges, our Back-to-Back systems with a shared feeder and extractor trolley provide a comprehensive solution for your storage needs.



Many OEMs have restrictions on the presence of EOT in the installation area. Our system is crafted to address this limitation. To facilitate smooth material movement, EOTs can be easily and cost-effectively integrated with the system.



ADVANTAGES



Efficient

- Organized and quick storage and retrieval
- Material change over time reduced to larger extend
- Instead of fork lift, cranes also can be used to load and unload the material



Safe

- Reduced risk of damages to material and injuries
- Safety barrier to avoid unauthorized entry in access area
- Over load detection system is use of lift is overloaded with material



Safety

- Heavy Duty Design
- Seismic-resistant structure
- Safety flange to secure cassette in its designated location
- Machine Safety Light Curtain



Save

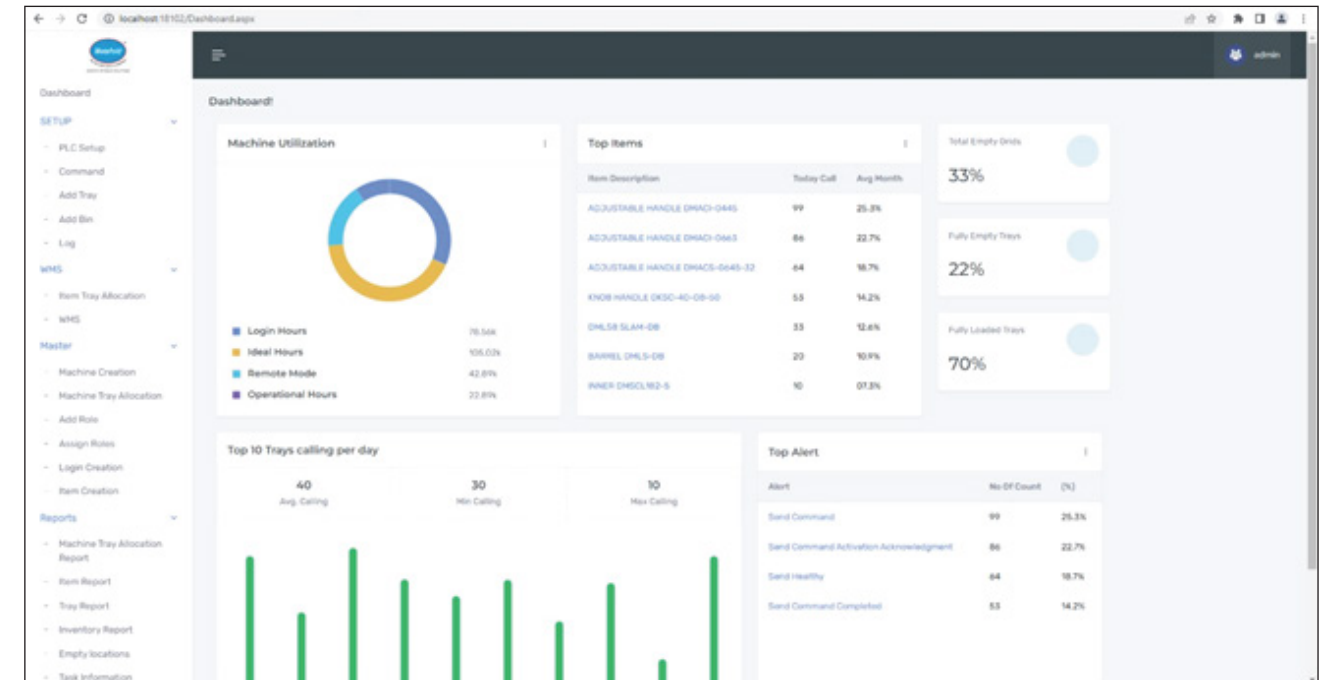
- Reduce floor space required by 75%
- Time saving due to direct automated access with out addition lifting devices
- Reduced operational costs and adds bottom line earnings



Operations

- Material extraction at either or both side of system
- Multiple access points as per customer requirement

Our Warehouse Management System (WMS) software is designed to provide businesses with an extensive array of features to enhance their inventory control processes. This robust system ensures real-time traceability, maintaining accurate records of all goods stored within the system. The software goes beyond basic inventory tracking by allowing businesses to monitor the performance and health of their entire inventory management setup.



One of the key advantages of our WMS is its user-friendly interface, where valuable data is just a simple click away. Users can effortlessly access information related to the status, location, and movement of their inventory items. This real-time visibility is instrumental in making informed decisions promptly.

The WMS software facilitates seamless monitoring and management of inventory, offering businesses the ability to optimize their stock levels, reduce wastage, and streamline their supply chain operations. By providing quick access to crucial information, our WMS empowers businesses to respond promptly to market changes and customer demands.

Our Warehouse Management System is a powerful tool that not only ensures accurate tracking of goods but also empowers businesses with valuable insights for efficient decision-making and overall optimization of their inventory processes.

FEATURES

- Real Time Inventory Stock
- Accurate Traceability and Record Keeping
- Different login credential for operator, maintenance and administrative manager
- Tray wise user access to prevent unauthorized access
- Different Mode of operations
- Single / Multiple WMS windows for operating multiple machines
- Online troubleshooting of system
- Usage pattern of the system for data analysis, if required
- Machine's entire data log at a click

ADVANTAGES



**Increased
Inventory Control**



**Access Master Data,
if required**



**Datasheets,
containing all
information related
to the system**



**Chronology of
Alarms and
Operating errors**



**System
Utilization Report**



**Access
Scheduled
Maintenance**



**Flexibility in choosing
appropriate location
for fast moving goods**



**Access to User
Manual offline**

INTEGRATE YOUR SAP / ERP WITH OUR WMS



**A step
closer to
Industry 4.0**



**System
driven
approach**



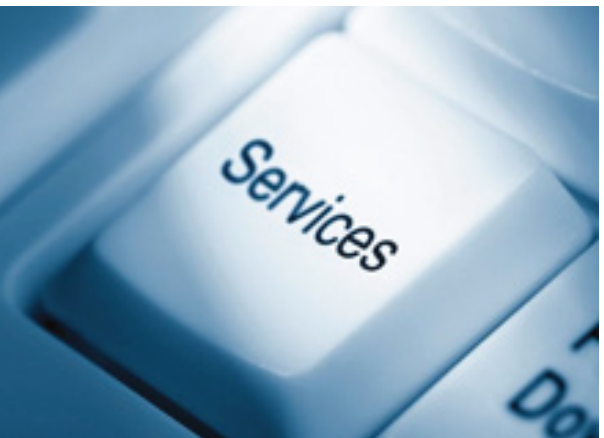
**Seamless
Integration**



**Customizable
as per
requirement**

SERVICES

From mechanical design to control panel assembly to software development, our entire system is developed and executed in-house, driven by a single goal: to provide prompt service whenever our customers require it, minimizing any potential downtime. Customer satisfaction serves as the cornerstone of our service team's performance, ensuring that we consistently deliver exceptional support and assistance to our valued customers.



Why Metafold?



PRECISION



HIGH
PRODUCTIVITY



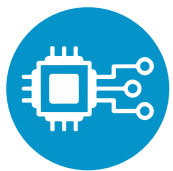
SUPPORT
SERVICE



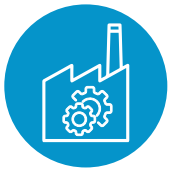
ON TIME
DELIVERY



QUALITY



IOT
COMPATIBLE
MACHINE



IN-HOUSE
MANUFACTURING



LASER
POSITIONING



ENERGY
RECOVERY
SYSTEM



ANTI-
OSCILLATION
SYSTEM

Other SBUs

WAREHOUSE STORAGE SOLUTION



Selective Pallet Racking Multi Tier Shelving Modular Mezzanine Floor Shuttle Racking

MACHINE SHOP



Storage Solutions for Shop Floor

ROLL-OUT

Mechanized racks for Sheets, Pipes and Moulds



Sheet Storage Rack Bar Storage Rack Mould Storage Rack

For more details log on to www.metafold.com

Happy Clients



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UKL

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praj

BAUER

Forbes Marshall

FMCD / FMEG

PHILIPS

Whirlpool

HAVELLS

orient electric

SONAI

Nick Mics

SEDEMAC

Godrej

IFB

Carrier

Midea

LOGISTICS

Mahindra LOGISTICS

GATI

Yusen Logistics

GXO

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Addverb Technologies

wipro

PARI

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WRITER INFORMATION

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PARKING

KLAUS

WÖHR

multiparking

CHEMICAL

RANDACK

UPL

ELEVATORS

Schindler

thyssenkrupp

PACKAGING

PROTECTOR

Creating[®]
space
within
space



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