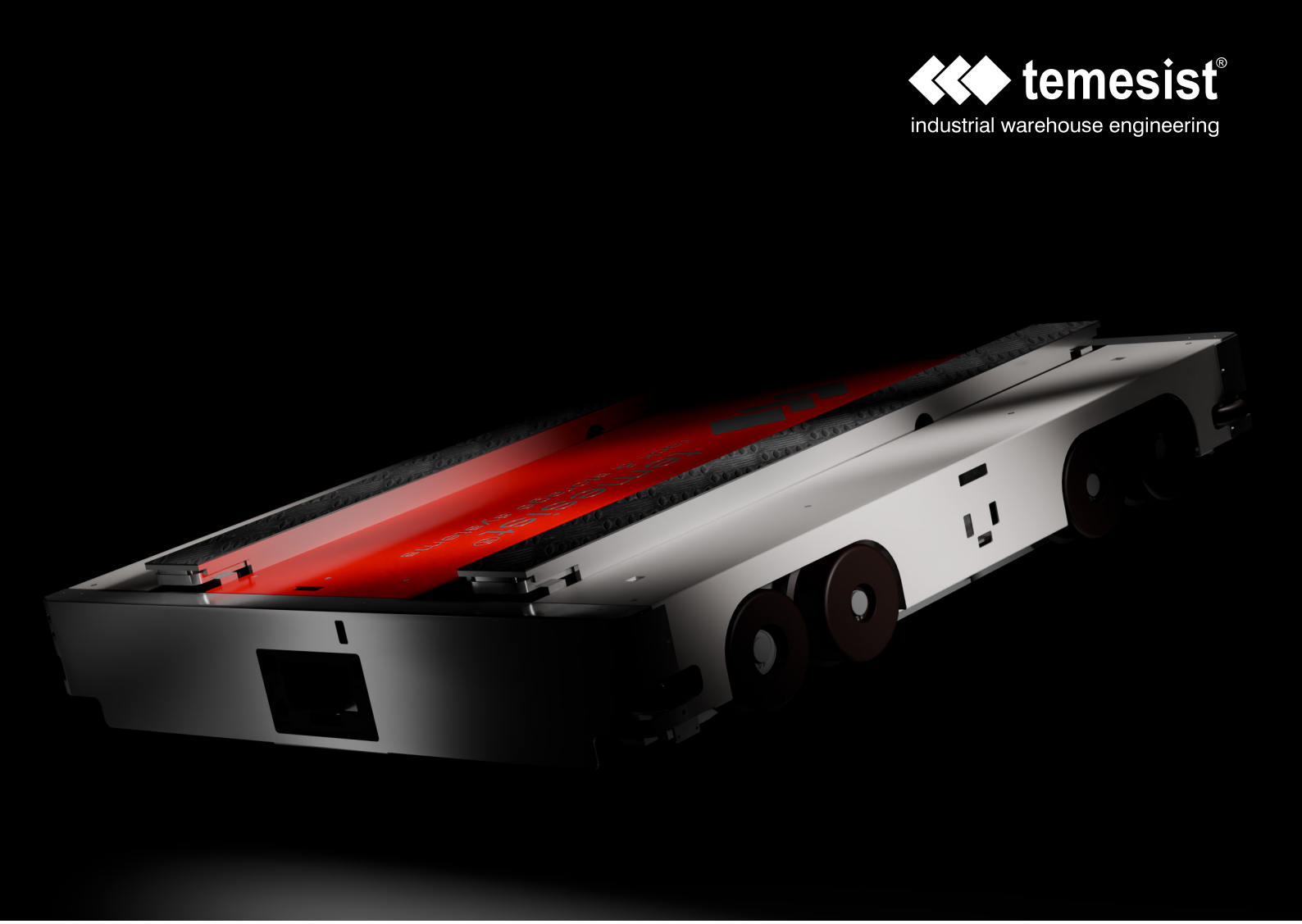
temesist®
industrial warehouse engineering



Our Story

Since 1980 Temesist has remained as one of the largest and most reputable manufacturers of storage and semi-automatic rack systems in Turkey specializing in designing, manufacturing and marketing industrial racking products.

From its foundation up to the present Temesist produces various kinds of high quality and economic rack systems using high level technologies, which let to be in line with the latest international standards in this sector. Our head office is located in Istanbul, there are domestic branches in Adana, İzmir, Samsun, Çorum and Bilecik. We have our own companies in Germany, UK, Bulgaria and Serbia.

Temesist has an international quality certificate ISO and produces products

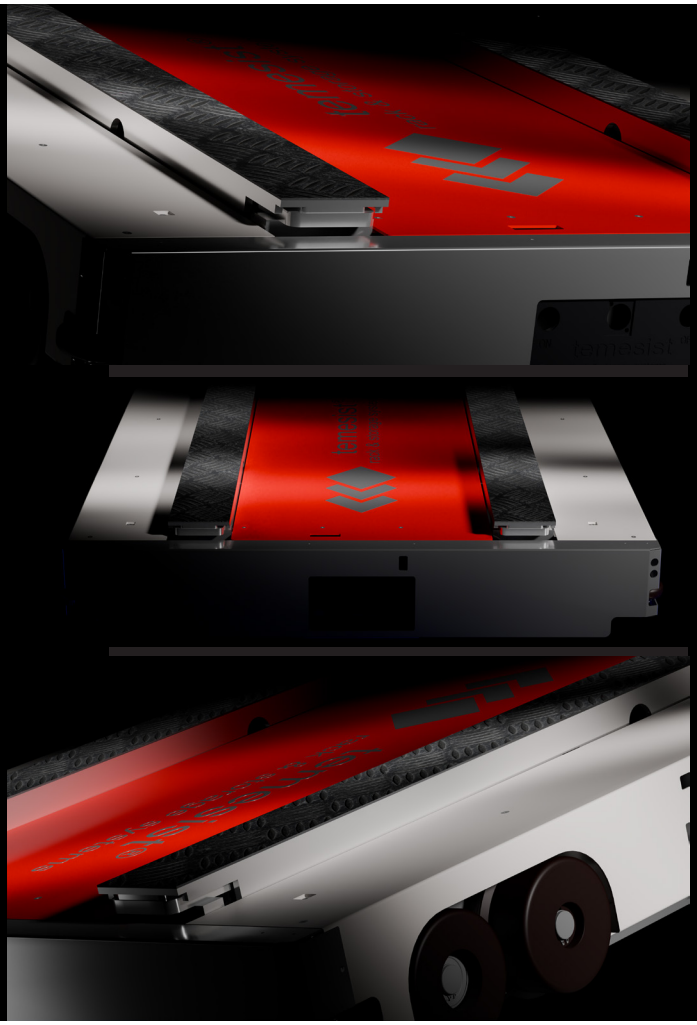
according to EN15512 and RMI standards. Temesist exports its high quality products to over 80 countries including Germany, Croatia, Bulgaria, Azerbaijan Kazakhstan, UAE, Senegal, Sudan, Ukraine, Iraq, Algeria, Georgia, Uzbekistan. Our working principle is based on the customer satisfaction and reliance.

Temesist is continuously involved in research and development projects.

TEMESIST FOURWAY SHUTTLE

Introduction to Four Way Shuttle

Four-way shuttle system: a complete level of warehouse location management (WMS) and the ability to send equipment (WCS) can ensure the stable and efficient operation of the overall system. A buffer conveyor line is designed between the elevator and the rack to avoid waiting for the radio shuttle and elevator to operate. The four way shuttle and elevator transfer pallets to the buffer conveyor line for transfer operations, thus improving efficiency.Four-way shuttle system can be well adapted to special application environments such as low warehouses and irregular shapes, and can meet operating scenarios such as large changes of inbound and outbound efficiency, and high efficiency requirements. Since four-way shuttle system can achieve flexible project expansion and equipment increase, it can meet the demands of going online in batches and reduce customer investment pressure. The four-way shuttle system is a cutting-edge solution designed to optimize warehouse operations, offering increased efficiency, productivity, and space utilization. It revolutionizes traditional warehousing methods by providing seamless multidirectional movement for storage and retrieval of goods.



Benefits of Four Way Shuttle in Warehouse Operations

01 Space Optimization

The four-way shuttle maximizes vertical and horizontal space, allowing for higherstorage density.

02 Increased Productivity

Optimized picking and storage processesresult in significant time savings and fasterorder fulfillment.

03 Reduced Labor Costs

Automation reduces the need for manuallabor, leading to cost savings and improvedoperational efficiency.

04 Enhanced Accessibility

Efficient storage and retrieval capabilitiesensure quick access to inventory, reducing picking time.

05 Reduced Downtime

Minimizes downtime by streamlining operations and maintenance tasks.

06 Reporting Capability

Realize real-time sharing and management of storage material data: complete report output according to needs, such as: daily/weekly/monthly reports, all reports can be exported to files.

Features and Specifications of Four Way Shuttle

Innovative Design

The four-way shuttle features a compact and agile design, integrating advancedtechnology for seamless operation.

Customizable Configurations

Modular and adaptable, it can be tailored to fit diversewarehouse layouts and operational requirements.

Advanced Guidance Systems

Precision navigation and control systems ensure safe and reliable movement within warehouse spaces.

How Four Way Shuttle Improves Efficiency and Productivity

Efficient Space Utilization

Maximizes warehouse space utilization, reducing the need for additional storage areas.

Enhanced Productivity

Streamlines order picking and replenishment processes, resulting in increased output.

Precision and Accuracy

Ensures accurate inventory management, reducing errors and enhancing reliability.

Benefit

The four-way shuttle is used for the automatic carrying and conveying of pallet goods in the storage. This system is an intelligent storage equipment integrating intelligent control, automatic handling, unmanned guidance and other functions. The four-way shuttle can cooperate with the lift to complete the six dimensions of front and back, left and right, and up and down operations.

Resilience

The four-way shuttle can automatically inventory and pick up, intelligent levelling, automatic climbing, automatic lane and layer change, and can also reach any position of the warehouse according to customer needs, so that the warehouse space utilization rate can be maximized. The four way shuttle racking system is suitable for special warehouses and can be matched with lift to reach any height required by customers.

Usability

The height of the four-way shuttle is small in size, which can efficiently use the warehouse space.

Reliability

All equipment products and control components in the 4 way shuttle is very reliable. The control system consists of stable and simple elements, uses specific algorithms, and combines the simple and solid mechanical structure of the trolley to achieve the purpose of stable, accurate, fast and reliable operation of the shuttle.

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Four Way Shuttle Advanges

Four way shuttle, which is one of the most important steps in warehouse management, we have had the chance to find more optimum solutions. Four way shuttle are popular in many industries with its unique advantages, such as medicine, food, sea food, textile, auto parts, automotive industries, chemical, logistic, transportation, electronics and other industries.

The use of four way shuttle provides many advantages to businesses in the following points:

1. The processing capacity is more that of standard warehouses. The four-way shuttle system can make full use of the warehouse space and have more pallet positions.

2. The four way shuttle system can be implemented anywhere on the top and bottom of racking system and in the top space to optimize the existing warehouse space. It can optimize the existing warehouse space. The warehouse efficiency of the four-way shuttle is flexible and controllable and reliable. If there is more demand for efficient growth, you only need to increase the number of four-way shuttle and the workload of the project transformation will be very small, or never.

3. It supports multiple storage and processing of goods. Goods of different sizes can be stored in non-fixed cargo positions after packaging. The lifting connects the upper and lower stations to ensure maximum storage density and space utilization. The investment is low, and the quantity of equipment is equipped according to the customer's demand. While meeting the customer's demand for efficiency, the cost investment can be reduced;

4. It supports multiple storage and processing of goods. Goods of different sizes can be stored in non-fixed cargo positions after packaging. The lifting function connects the upper and lower stations to ensure maximum storage density and space utilization.

5. The same interchangeable means of transport ensure rapid replacement. The working platform in the tunnel allows operators to safely access the goods and is also convenient for maintenance

6. Easily add more shuttles at any level in further increase the processing capacity

7. Thanks to the lift system used in the four-way shuttle system, you have the opportunity to design a much higher warehouse. You can load more reliably than forklifts and cranes.

8. The lift system is both safer and cheaper than crane and equivalent equipment.

Case Studies: Successful Implementation of Four Way Shuttle

01 Efficient Space Utilization

Maximizes warehouse space utilization, reducing the need for additional storage areas.

02 Enhanced Productivity

Streamlines order picking and replenishment processes, resulting in increased output.

03 Precision and Accuracy

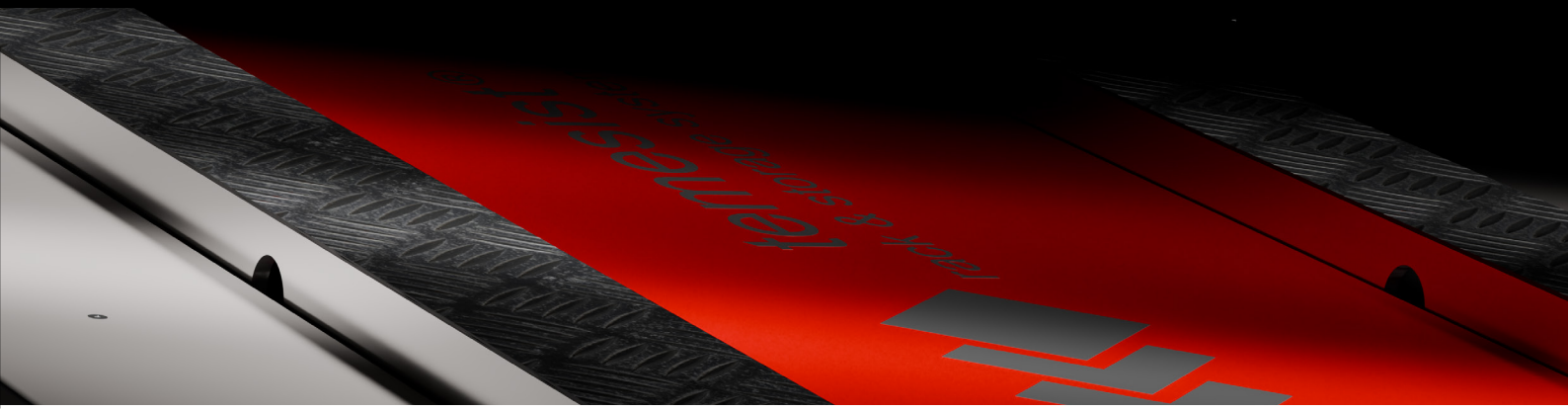
Ensures accurate inventory management, reducing errors and enhancing reliability

Comparison With Traditional Warehouse Systems

Space Utilization
The four-way shuttle offers superior vertical space utilization compared to traditional pallet racking systems.

Maneuverability
It provides multidirectional movement, unlike conventional forklifts and narrow aisles used in traditional systems.

Efficiency Gains
Comparatively, it delivers significant efficiency gains in storage, retrieval, and sorting operations.



Item	Specification	
Product Features	Model No.	Temesist 4 way
	Operation Model	Full automation/manual
	Self Weight	290 kgs
	Max load capacity	1500kg
	Position Model	Encoder and photoelectric sensor
	Position Accuracy	±2
	Temperature	
Drive Information	Battery Voltage	48V/40Ah
	Battery Weight	16.5kg
	Battery Life	6-7h
	Charging time	3-4 h
	Travel Motor Rated Power	1kw
	Direction Changing&Lifting Rated Power	0.75kw
Shuttle Size	Shuttle size	L1085*W965*H160
	Height of direction changing	30mm
	Length of lift board	1000mm
	Width of lift board	100mm
	Height of lift board	8mm
	C/C distance of lift board	631mm
	Wheelbase- Main Aisle	611mm
	Wheelbase- Sub Aisle	577mm
	Pallet Size	1200*1000/1200*1200
Shuttle Performance	Travelling speed(Empty/Full loading)	Empty 1.2 m/s Full Loading ≥0.8m/s 1000 kg -1500 kg
	Lift speed(Empty/Full loading)	Empty 1.3mm/s Full Loading ≥0.9mm/s 1000 kg -1500 kg
	Decline speed(Empty/Full loading)	Empty/Full Loading 1.3mm/s
	Travelling acceleration	0.2 m/S²
	Direction-change time	≤6 s
	Lift time	≤3 s
Wheel Information	Qty of wheels	Drive wheel-8pcs Weighing wheel-8pcs
	Size of wheels	All wheels 120mmx42mm
	Wheel Distance-Main Aisle	1076mm
	Wheel Distance-Sub Aisle	963mm

Elevator

Rated Load	1500 KG
Maximum Travel Speed	40M/MIN
Maximum Conveying Speed	16 M/MIN
Maximum Walking Acceleration	<=0.5/S˙2
Maximum Conveying Acceleration	<=0.2/S˙2
Equipment Applicable to Intensive Storage With a Load	1500 KG

Advanced Design Concept | High Positioning Accuracy | Smooth Operation in Vertical Direction | No Settlement | Fast Speed

WMS (Warehouse Management Software)

Short Description:WMS is a set of warehouse management software that combines the real workflows and management experience of many businesses.

WMS (Warehouse Management Software)

The system supports company structure, multiple warehouses and business models. It can realize daily pallet flow and financial transactions, effectively control and monitor the whole process of warehousing operations in the whole warehouse, and provide robust intelligent management of warehousing information.

The warehouse management system (WMS) is provided to users in the form of a graphical interface to take control of inbound and outbound operation processes: inventory management, order processing, sorting and transportation.

APP

The APP system, preferred for small warehouses, is an information-based process control system that integrates the entire process of enterprise warehouse management, such as material storage, racking, inventory management, inventory counting, stock out, and product picking. APP can be operated on the PC side with WMS or independently.

WCS (Warehouse Control System)

WCS is a system for planning and controlling storage equipment between equipment and electromechanical control that integrates with the WMS system.

Through the integration and intelligent scheduling of automatic load handling equipment together with WCS, WMS, the system ensures the coordinated operation of multiple equipment and can realize the orderly connection. Thanks to full automation, it needs less manpower and can achieve the desired production target. Thanks to this system, work efficiency is greatly improved.

WCS provides the ability to interface with external systems (such as WMS), convert the management operation plan into operation order format, and send the inbound and outbound operation orders of the corresponding storage location to the automation equipment. When the WCS executes or fails to execute these orders, it provides feedback to the external system. It obtains the operation mode, status information and alarm information of the automation equipment, and dynamically displays and monitors the interface graphically.

Cost Analysis: Return on Investment for Four Way Shuttle

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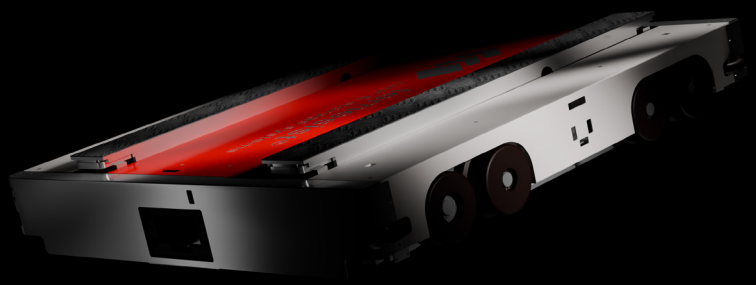
Operational Savings

Implementing the four-way shuttle results in substantial operational cost savings through automation.

20%

ROI Improvement

Tangible improvements in return on investment (ROI) are observed within a short period.



20%

Reduction in Labor Cost

Due to improvedefficiency and reduced manual handling.

25%

Space Utilization İmprovemen

Maximized storage leads to reduced facility expansion costs.

Conclusion and Next Steps

01

Implementation Plan

Develop a phased implementation plan with adequate training and support for staff members.

02

Performance Evaluation

Conduct regular performance evaluations to track the impact of the four-way shuttle on operations.

03

Expansion Opportunities

Identify opportunities for expansion and further optimization of warehouse processes using the shuttle system.

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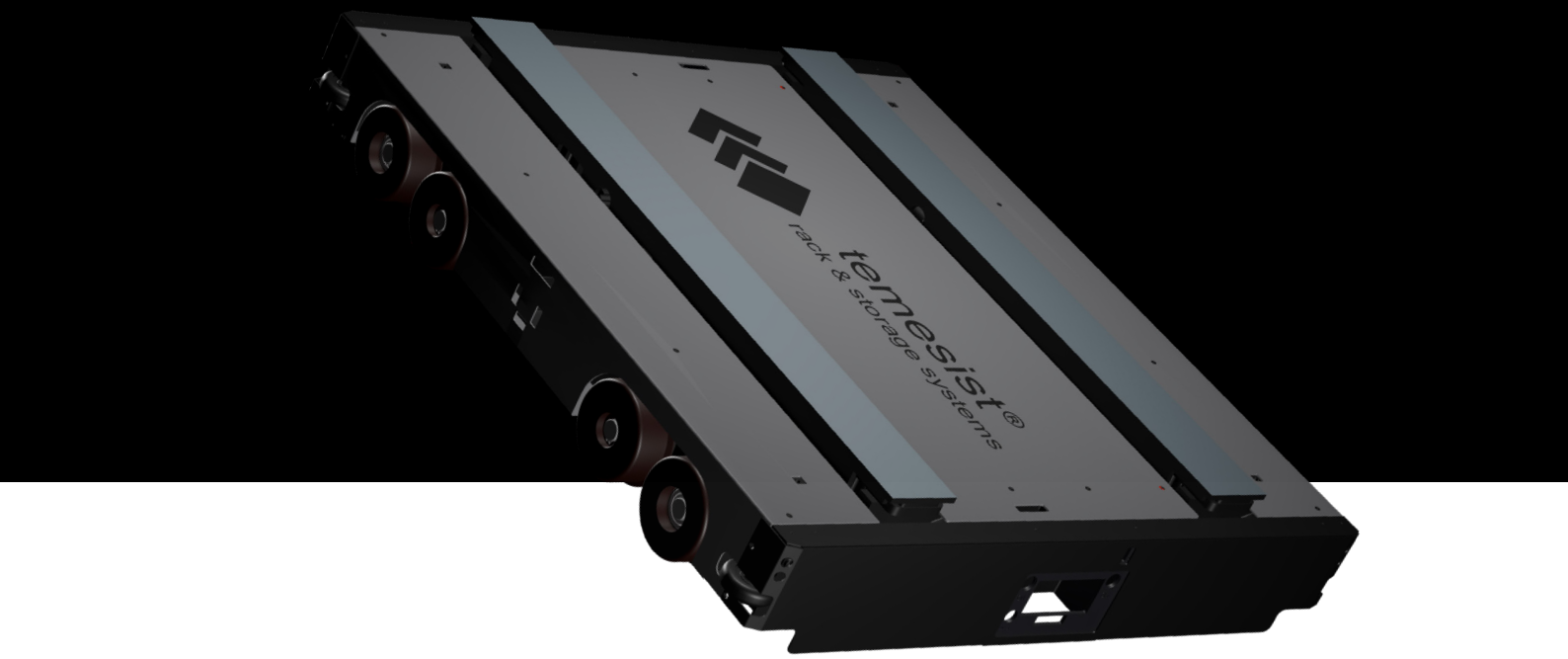

Four-way shuttle for cold storage

The four-way shuttle for cold storage is a special handling and transportation intelligent storage equipment developed by Haibrag for cold warehouse. It can safely and stably store and distribute goods in the low temperature.

Advcantages of four-way shuttle for cold storage:

- Using low-temperature batteries to ensure normal driving in the cold storage;
- Laminating the circuit board;
- The hydraulic system uses low-temperature hydraulic oil to ensure that the hydraulic pressure can run normally at low temperatures

Using scenarios of cold storage four-way shuttle:

Cold Chain Logistics
Fresh Food E-commerce
Pharmaceutical Raw Materials
Food Warehouse