



# Multiway Horizons

Empowering Smart Manufacturing  
with AI-Enabled Flexible Robots

[www.mw-r.com](http://www.mw-r.com)

# Multiway Horizons

We leverage machine vision and AI technologies to develop adaptable solutions that drive smart manufacturing and intelligent logistics. Through vehicle-road collaboration, vehicle-factory collaboration, and comprehensive monitoring of business dynamics, we enable visualized management and ensure a secure operational environment facilitated by an edge computing data processing platform. This guarantees the stable operation of the factory, cost reduction, and improved efficiency.


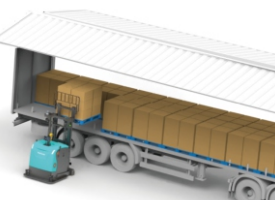




## Three Key Functions


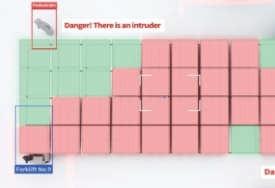
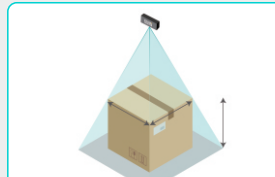
- Empower Robots Enhance Solution Flexibility**  
  
**Deep Integration of Business Scenarios**  
Shorten delivery cycles and increase profitability
- Create a Safer and More Efficient Smart Factory Environment**  
  
**Ensure Safe and Efficient Operations**  
Manageable operations and traceable information
- Reduce Costs and Enhance Accelerate Smart Manufacturing and Empower Enterprise Operations and Management**  
  
**Assist in Management Decision-Making**  
Agile design of information technology infrastructure

# Function Module




## Flexible Empowerment

			
<p><b>Cage Stacking</b></p> <ul style="list-style-type: none"> <li>• Cage deformation detection</li> <li>• Stacking safety inspection</li> <li>• Cargo offset detection</li> <li>• Disassembly and stacking at different heights</li> <li>• Single-side clearance of up to 10mm is supported</li> </ul>	<p><b>Automated Loading and Unloading for Vehicles</b></p> <ul style="list-style-type: none"> <li>• Compatible with multiple vehicle types (wing body, flatbed, van)</li> <li>• Location planning for different cargos (optimized space utilization)</li> <li>• The maximum tilt angle of the tailgate dock leveler is 8°</li> </ul>	<p><b>High-Bay Storage</b></p> <ul style="list-style-type: none"> <li>• High-precision cargo picking and placing</li> <li>• Cargo unloading space detection</li> </ul>	<p><b>Pallet Posture Recognition</b></p> <ul style="list-style-type: none"> <li>• Support pallet deviation of up to <math>\pm 45^\circ</math> and <math>\pm 80</math> cm</li> <li>• Compatible with various types of pallets, cages, etc.</li> <li>• Non-stop pallet pose identification by visual perception</li> <li>• Non-standard carriers support online modeling by users for rapid deployment</li> <li>• Support side placed, front picking;</li> </ul>

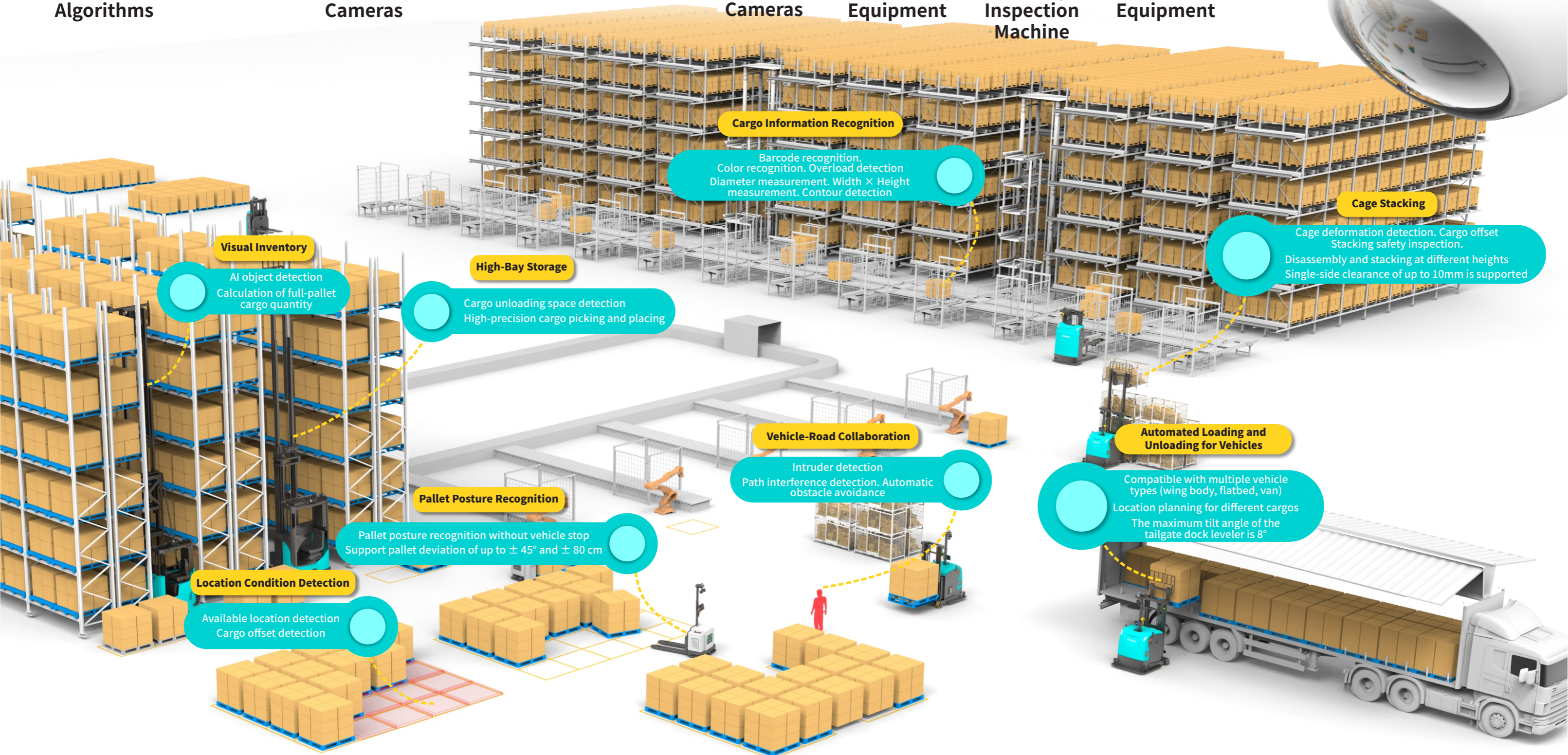
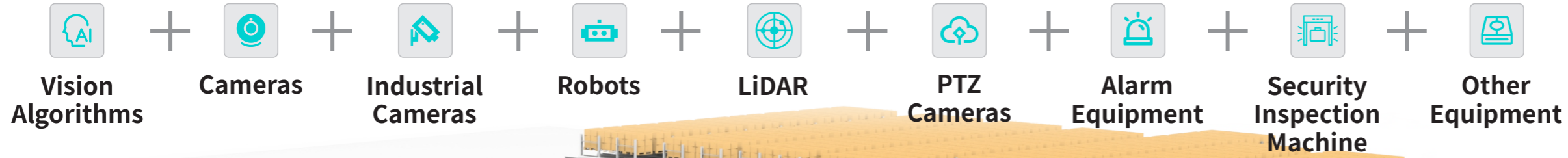
## Operation and Management

	<p><b>Visual Inventory</b></p> <ul style="list-style-type: none"> <li>• Inspection of images for full-pallet cargo</li> <li>• Calculation of full-pallet cargo quantity</li> </ul>		<p><b>Storage Location Detection</b></p> <ul style="list-style-type: none"> <li>• Available location detection</li> <li>• Offset detection</li> <li>• Detects presence or absence of any cargo at any slot: no training required</li> </ul>
	<p><b>Cargo Information Recognition</b></p> <ul style="list-style-type: none"> <li>• Barcode recognition</li> <li>• Chinese character recognition</li> <li>• Overload detection</li> <li>• Diameter measurement</li> </ul>		<ul style="list-style-type: none"> <li>• Color recognition</li> <li>• Quantity calculation</li> <li>• Contour detection</li> <li>• dth × Height measurement</li> </ul>

## Safety Monitoring

	<p><b>Vehicle-Road Collaboration</b></p> <ul style="list-style-type: none"> <li>• Intruder detection</li> <li>• Foreign object detection on tracks</li> <li>• Path interference detection</li> </ul>		<p><b>Environmental Safety Detection</b></p> <ul style="list-style-type: none"> <li>• Open flame and smoke detection</li> <li>• Calculation of full-pallet cargo quantity</li> </ul>
	<p><b>Worksite Safety Inspection</b></p> <ul style="list-style-type: none"> <li>• Face recognition</li> <li>• Off-duty detection</li> <li>• Fall detection</li> <li>• Uniform detection</li> </ul>		<ul style="list-style-type: none"> <li>• Helmet detection</li> <li>• Glove detection</li> <li>• Abnormal behavior detection</li> <li>• Cargo overturning detection</li> </ul>

# Flexible Vision Solution—Horizons System



### Visual Inventory

AI object detection  
Calculation of full-pallet cargo quantity

### High-Bay Storage

Cargo unloading space detection  
High-precision cargo picking and placing

### Cargo Information Recognition

Barcode recognition.  
Color recognition. Overload detection  
Diameter measurement. Width × Height measurement. Contour detection

### Cage Stacking

Cage deformation detection. Cargo offset  
Stacking safety inspection.  
Disassembly and stacking at different heights  
Single-side clearance of up to 10mm is supported

### Pallet Posture Recognition

Pallet posture recognition without vehicle stop  
Support pallet deviation of up to  $\pm 45^\circ$  and  $\pm 80$  cm

### Vehicle-Road Collaboration

Intruder detection  
Path interference detection. Automatic obstacle avoidance

### Automated Loading and Unloading for Vehicles

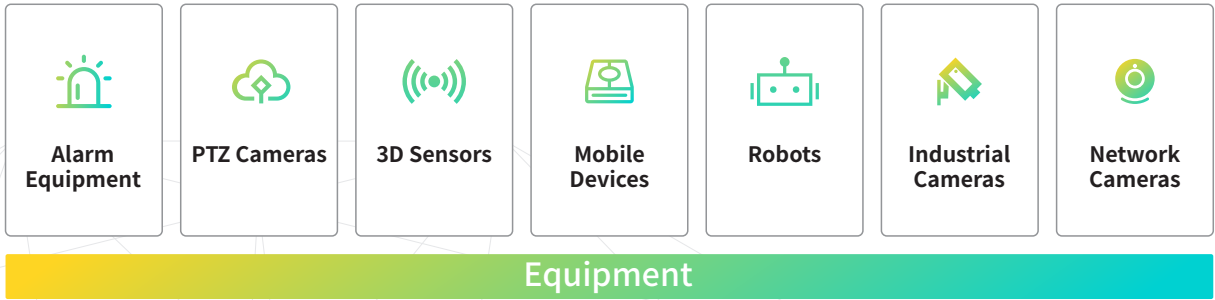
Compatible with multiple vehicle types (wing body, flatbed, van)  
Location planning for different cargos  
The maximum tilt angle of the tailgate dock leveler is  $8^\circ$

### Location Condition Detection

Available location detection  
Cargo offset detection

# Constituent Elements

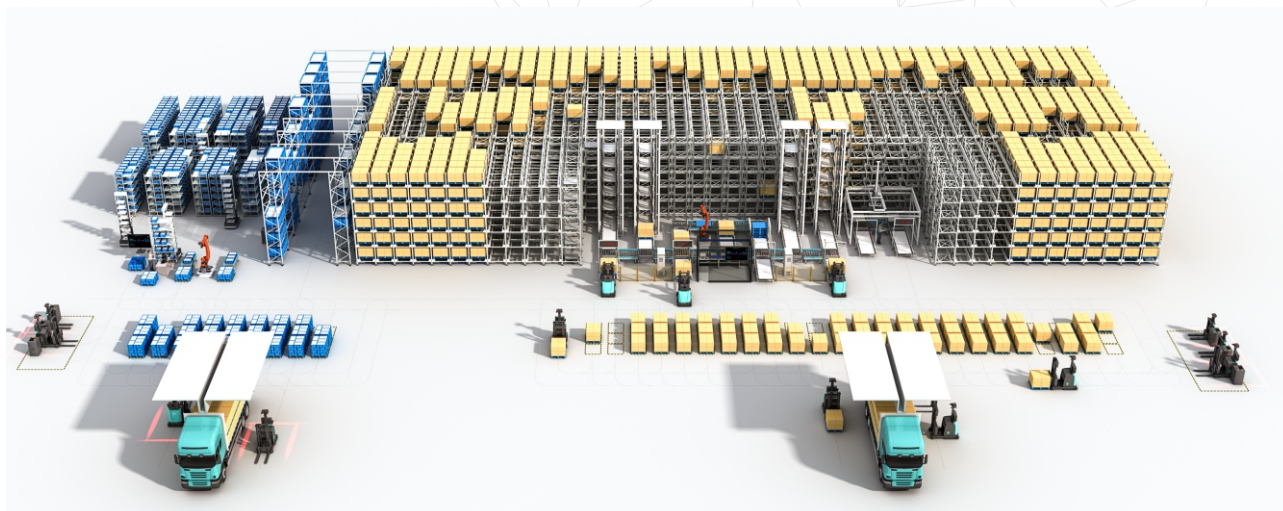
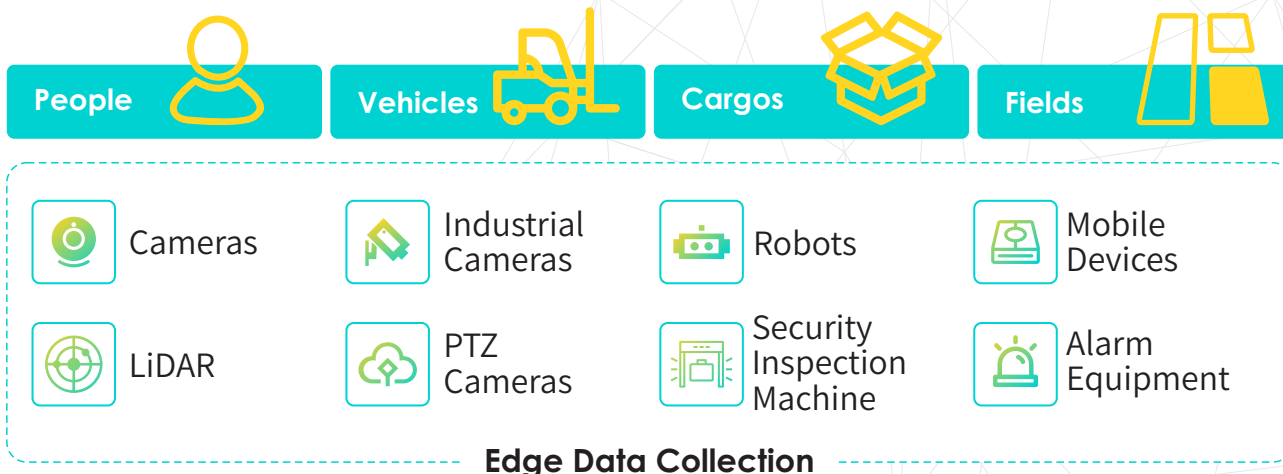
## Hardware Equipment



## Analysis of Applications



# Smart Factory Application

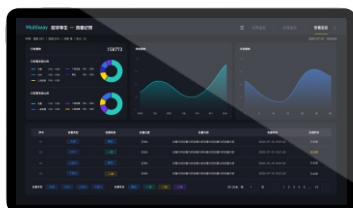


**Real-time AI Computing with Cloud Data Integrated**  
 Providing a Traceable Cloud Platform



**Real-time Computing Platform**

**Data Visualization Platform**  
 Intuitive and Intelligent Management Decision-Making



**Visualized Analysis Platform**

**Flexible Configuration and Management of Edge Device Services in the Cloud**  
 Make the Devices Manageable



**O&M Management Platform**

## Multiway Robotics

Multiway Robotics is committed to "Empowering the World with Billions of Robots" and takes "To create a new and efficient operating mode" as its mission, continuously driving the advancement of global productivity.

Global Presence: The headquarters is located in Shenzhen, China, with production facilities in Zhejiang Wuzhen. Multiway has also established subsidiaries in the United States, Germany, Japan, South Korea, and more, extending business, operations, and services to 40+ countries and regions worldwide.

Our Expertise: Focusing on advanced robotics and AI technology, Multiway Robotics is committed to delivering cutting-edge Smart Intralogistics Solution to our customers. Multiway offers a comprehensive, integrated innovation delivery platform and solutions, ranging from core sensors and algorithms to self-developed unmanned forklifts and upper-level control systems. Hardware products include a full range of unmanned forklifts and four-way shuttle, while software systems encompass WMS, RCS, WCS, on-site management systems, and various visual solutions.

Software: WMS, RCS, WCS, Multiway Horizons, Simulation

Hardware: AGV forklifts, AGV Tugger, AMR & Four-way Shuttle

After successfully delivering numerous benchmark projects in industries such as factories, warehousing, and logistics, Multiway has become a trusted and ongoing collaborative partner for many industry-leading customers.

## Contact Us

### Offices:

USA · Atlanta | Japan · Tokyo | Korea · Seoul  
Germany · North Rhine-Westphalia  
China · Shenzhen

**Hotline:** +86 133 9286 4873

**Official website:** [www.mw-r.com](http://www.mw-r.com)

**Email:** [sales@mw-robot.com](mailto:sales@mw-robot.com)

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