



KONICA MINOLTA

Giving Shape to Ideas

# AUTONOMOUS MATERIAL HANDLING

INTEGRATED AUTOMATION SUITE FOR EFFICIENT  
LOGISTICS & MANUFACTURING OPERATIONS

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**FORXAI**



# REVOLUTIONIZE MATERIAL HANDLING WITH AUTOMATION

In today's fast-paced manufacturing landscape, the demand for efficiency, accuracy, and adaptability is ever-increasing. Traditional material handling processes often face challenges such as limited productivity, or scalability, and human errors. At Konica Minolta, we recognize these challenges and understand the critical need for automation solutions that can revolutionize your operations.

## Empowering your operations with a customizable solution

Our integrated Autonomous Material Handling (AMH) solution **streamlines and automates material handling processes** across various industries - manufacturing, warehouse, logistics, food & beverage, etc. The AMH suite can be seamlessly integrated into existing infrastructure, providing real-time analytics for optimizing fleet performance, enabling efficiency gains, adaptive operations, and continuous improvement. Konica Minolta's AMH solutions offer the agility, scalability, and reliability to meet modern industrial demands.



### 24/7 efficiency and productivity

Automation streamlines repetitive tasks and allows non-stop operation, leading to significant efficiency gains.



### Improving safety

Lower the risk of work-related accidents due to automated handling of trolleys, ensuring a safer working environment for employees.



### Enhanced accuracy

Automated material handling ensures precise movements and consistent quality, minimizing errors and rework.



### Real-time visibility

You can gain real-time insights into material flow and operational performance, enabling process optimization.



### Flexibility and scalability

With the automated solution, you can quickly adapt to changing production needs and scale operations as required.



### Up to 50% cost savings

By reducing manual labour, our AMH solution can lead to significant cost savings compared to traditional operations.



### Building accessibility

Integrate smoothly with building infrastructure, including lifts, automated door operations, and proper illumination, to enhance operational efficiency.



# SOFTWARE APPLICATIONS BOOSTING PERFORMANCE

Staying ahead of competition requires not only efficiency but also adaptability and innovation. Konica Minolta's commitment to revolutionizing operations goes beyond hardware solutions. Our range of user-friendly software applications enhances Autonomous Mobile Robots (AMRs), offering a comprehensive approach to optimizing operations. From analytics to workflow control and infrastructure accessibility, our software programs are designed to empower businesses to thrive.

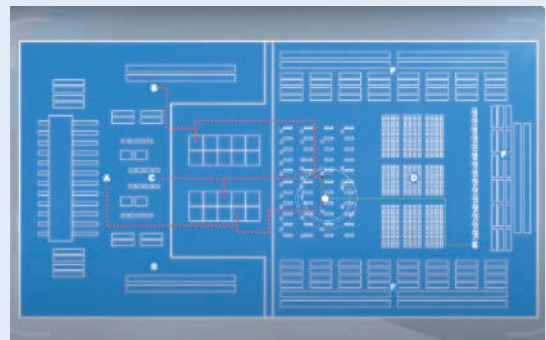
## Gain real-time insights: sConnect analytics platform



Unlock the power of real-time insights with the sConnect analytics platform. Identify areas for process improvement, both on and off-site, using detailed analytics. With the Overall Robotic Effectiveness (ORE) metric, equivalent to industry-standard OEE, **you can gauge fleet performance** based on availability, performance, and quality. Benefit from insights such as tasks completed, delivery speed comparison, and fleet utilization metrics.

- ✓ Real-time key performance visibility
- ✓ Analyze data from multiple angles
- ✓ Intuitive dashboard visualization
- ✓ Insights for process optimization
- ✓ Monitoring of fleet utilization, speed and completed tasks

## Maximizing productivity: sWorkflow automation platform



sWorkflow is a dynamic workflow platform that smoothly **executes diverse AMR automated scenarios** using flexible business rules. It seamlessly integrates AMRs with IoT sensors and material handling equipment, interfacing with enterprise software for efficient work order management. Its middleware functionality connects with physical handling systems, optimizing performance through adaptable process flow reconfiguration.

- ✓ Easy configuration without programming
- ✓ Execution of AMR automated scenarios
- ✓ Adaptable rules for dynamic workflows
- ✓ Smooth interoperability
- ✓ Integration with IoT sensors and equipment

## Optimize utility: slnfra access platform



The AMR system reaches its full potential with slnfra, **seamlessly interfacing with building infrastructure** to expand your material handling capabilities autonomously. Access lifts, sliding doors, and other infrastructure with ease using slnfra software. Stay informed with real-time updates on infrastructure availability, including trolley parking lots and lift occupancy, ensuring smooth and efficient operations.

- ✓ Boost operations autonomously
- ✓ Interfacing with building infrastructure
- ✓ Easy access to lifts and sliding doors
- ✓ Expanding material handling capabilities
- ✓ Stay informed with real-time updates on infrastructure availability

## Centralize efficiency: Fleet Manager platform



With Fleet Manager by MiR, you can **control multiple AMR units**. This web-based software centralizes critical AMR conditions, including battery status and current location, ensuring seamless workflow management. Fleet Manager also acts as a traffic controller, resolving conflicts and preventing traffic deadlocks by coordinating the movement of AMRs on designated paths, ensuring smooth operation.

- ✓ Web-based tool for accessibility
- ✓ Monitor critical AMR conditions
- ✓ Updates via SMS or email
- ✓ Prevent traffic deadlocks
- ✓ Centrally coordinate AMR movement for smooth operation

## SUCCESS STORY

Our client, a major organic snack manufacturer, faced inefficiencies and safety concerns due to manual pallet handling. Leveraging AMR with top modules, sConnect analytics, and Fleet Manager, we provided a **comprehensive software-driven solution** to enhance operational efficiency and safety.

The result? Improved workflow efficiency, infrastructure compatibility, and a **projected ROI with a payback period of under 2 years, while freeing up to 6 full-time employees for higher-value tasks** through seamless integration.

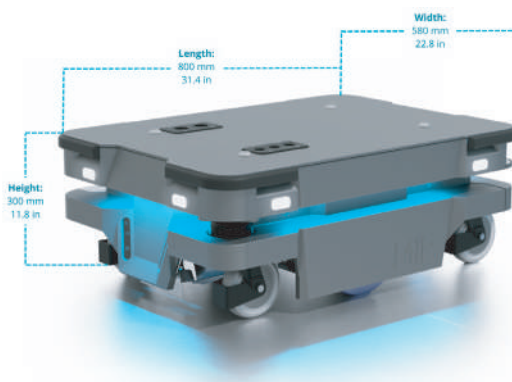
# INTEGRATION WITH ROBOTICS FOR YOUR AUTOMATION

Step into the forefront of material handling innovation with Autonomous Mobile Robots (AMRs). They navigate your workspace, executing material movement with precision. By harnessing state-of-the-art software, AMRs free your workforce from manual labour and empower them to focus on higher-value tasks. Partnering with Mobile Industrial Robots (MiR), a leader in robotics solutions, we bring you a comprehensive suite of AMR solutions designed to optimize efficiency and streamline workflows.

## MiR250

Its compact design seamlessly integrates without layout changes, while handling loads of up to 250 kg. With  $\pm 60$  mm positioning accuracy, it's a cutting-edge precision tool. Available with customizable modules, transforming internal material flow with 13 hours of continuous operation and a maximum speed of 2.0 m/s.

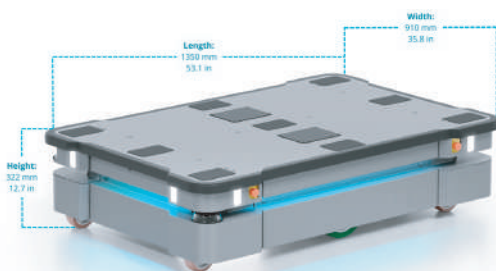
- ✓ **Load weight:** 250 kg
- ✓ **ESD version:** Optional
- ✓ **Certification:** Clean Room Certified



## MiR600

Engineered for efficiency and safety, MiR600 has a robust design meeting top-performance standards. Equipped with a 360-degree vision system, it ensures unmatched operational safety. Offering up to 8.5 hrs of operation at max payload, 2.0 m/s max speed, and  $\pm 100$  mm precision, it is ideal for diverse industrial needs.

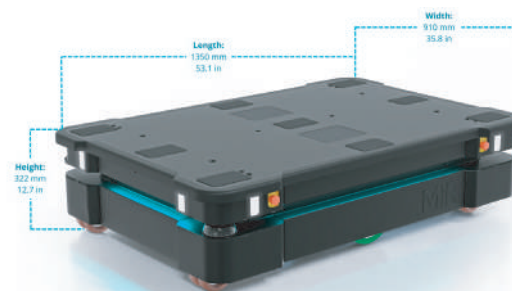
- ✓ **Load weight:** 600 kg
- ✓ **Rating:** IP52
- ✓ **Compliance:** ISO-3691-4\*
- ✓ **Safety:** 13 safety functions



## MiR1350

MiR's most powerful AMR redefines industrial automation with its robust design and advanced features. It transports up to 1350 kg and operates for up to 7 hrs with max payload, reaching max speed of 1.2 m/s. Maintaining precise positioning of  $\pm 100$  mm, MiR1350 ensures smooth operations, supported by 360-degree vision.

- ✓ **Load weight:** 1350 kg
- ✓ **Rating:** IP52
- ✓ **Compliance:** ISO-3691-4\*
- ✓ **Safety:** 13 safety functions





# ELEVATING STANDARDS WITH AMR ADVANCEMENTS

Operating an AMR has never been easier. Equipped with advanced mapping capabilities, our AMRs seamlessly adapt to various shelf types, ensuring easy access and smooth navigation. Simply log in using a web browser, connect via WiFi, and access real-time status updates through our intuitive dashboard interface. With safety features like 360° laser scanner views, 3D cameras detecting objects up to 1800 mm above floor height, and proximity sensors for added security, you can fully count on the safety and reliability of our AMRs.



## User-friendly AMR operations

AMRs offer easy setup and autonomous mission capabilities, making operations a breeze.



## Mapping to site/routes

Versatile and adaptable, AMRs effortlessly adapt to different site layouts and routes, ensuring efficient navigation and easy access.



## WiFi connectivity

Connect to your mobile robot via WiFi to enable fluid, real-time communication and control.



## Safety & hardware health check

With advanced safety features including 360° laser scanner views and proximity sensors, AMRs prioritize safety and hardware health.

## MODULAR CONNECTIVITY: Maximizing AMR potential

Explore our top modules and connectors designed for diverse job requirements. From latching and docking to pick & drop and heavy pallet transfer, our offerings ensure smooth operations. With integration options for doors, lifts, and mobile conveyors, you can enhance your workflows effortlessly.

### Towing / Hook



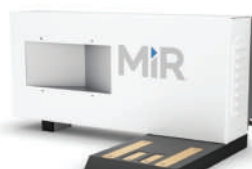
### Pick & Drop



### Shelf Carrier



### Automatic Charger



## sLatch

Specifically tailored for AMRs, the sLatch from Konica Minolta integrates with MiR250. Designed to efficiently shuttle trolleys between logistic points, it supports payloads of various sizes with its plug-and-play functionality, facilitating swift installation and minimal setup. With its ingenious dockless design, the sLatch optimizes floor space utilization, providing a space-saving solution for streamlined operations.

- ✓ Increased productivity
- ✓ Facilitates workflow
- ✓ Integration with automatic doors
- ✓ Navigate space constraints

# TAILORED SOLUTIONS FOR YOUR UNIQUE NEEDS

We understand that every business has its own set of challenges and requirements. That is why our Autonomous Material Handling (AMH) solutions are designed to be highly adaptable to different processes and automation needs. From software configurations to hardware adaptations, we work closely with our customers to ensure that our solutions will smoothly integrate into their operations.

## APPLICATIONS: Enhancing material flow across industries



### Smart intralogistics

Revolutionize your material flow management - from incoming goods to outbound deliveries! Create a fully automated material flow system by implementing our AMH solutions **compatible** with existing Manufacturing Execution Systems (MES), Enterprise Resource Planning (ERP), Warehouse Management Systems (WMS), and Automated Storage & Retrieval Systems (AS/RS) via standard APIs.



### Industrial IoT integration

Our AMH systems offer flexible interfaces with various transportation methods and palletized operations, ensuring adaptability to diverse application needs. **Interact with building infrastructure** like automated doors and lifts, as well as status sensors, enabling autonomous operation and providing real-time job order status.



### Connected factory insights

Automatically archiving status data during Automated Material Handling operations not only streamlines record-keeping but also offers **real-time insights**. They enable the swift identification of operational strengths and areas requiring improvement. By utilizing performance data, you can gauge their progress and efficiency over time, facilitating informed decision-making.

## Scalability for future growth

As your business advances and grows, it's essential to enhance your automation capabilities accordingly. **Our AMH solutions are built with scalability in mind**, allowing you to easily scale up or down to meet changing demands. Whether you need to add new AMRs, or expand into new areas, our solutions can grow with your business, ensuring that you always have the resources you need to stay competitive.



# SUCCESS STORY

Discover how the Royal Australian Air Force's 36 Squadron (RAAF 36 SQN) took their logistics to new heights with Automated Material Handling. Seeking efficiency, safety, and cost savings, they partnered with Konica Minolta for cutting-edge automation solutions.



## CHALLENGE

The Royal Australian Air Force's 36 Squadron (RAAF 36 SQN) faced challenges in the manual handling and transportation of aircraft parts, affecting operational efficiency and staff productivity.



## SOLUTION

**MiR robot:** automating pushing and delivery tasks with laser-based technology.

**Built-in sensors and cameras:** enabling the identification of surroundings, obstacles and people.

**Latching mechanism:** enhancing the automated movements and maneuverability of trolleys, minimizing human intervention during un/loading.

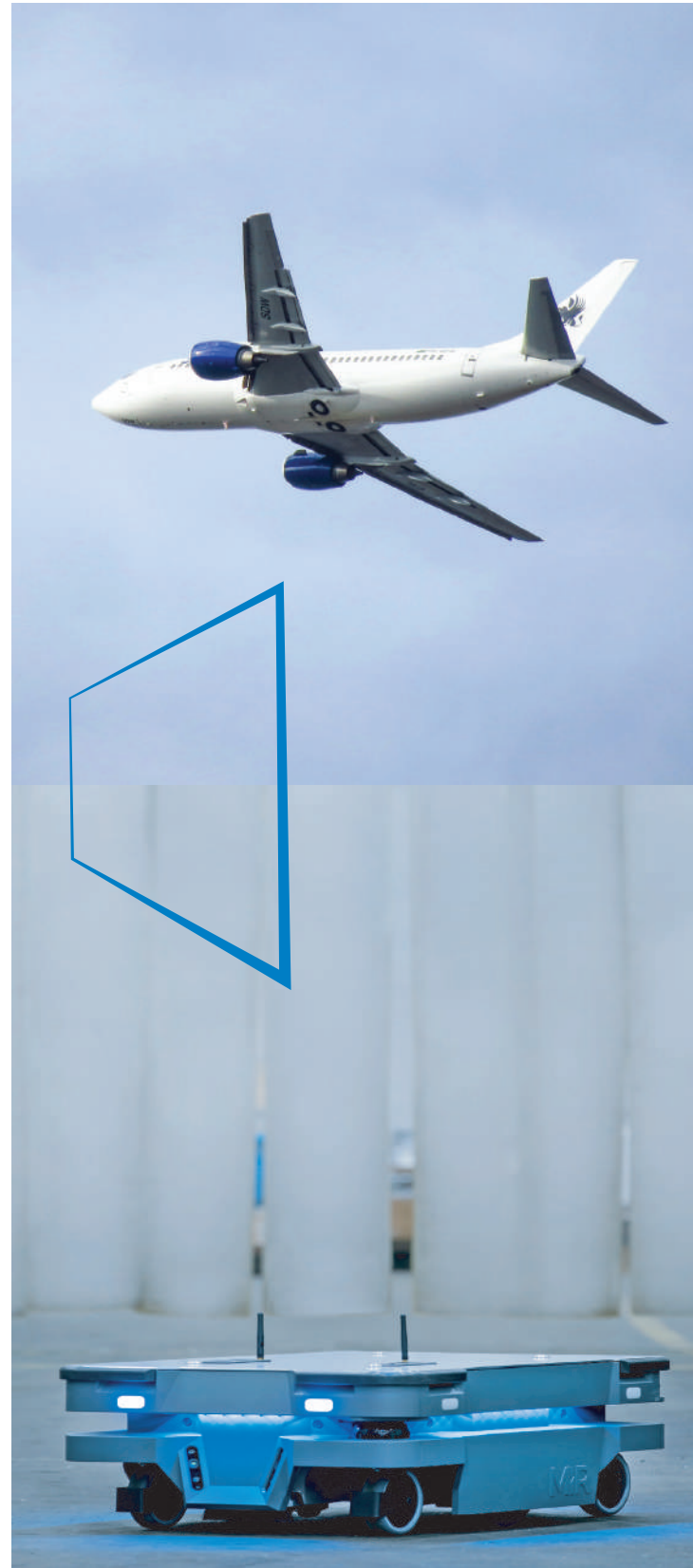


## KEY BENEFITS

**Operational efficiency:** Automation of tasks allowed staff to focus on higher-value activities, enhancing overall productivity.

**Cost savings:** The implementation resulted in significant cost savings, estimated at over \$27,000 per year.

**Upskilling:** Staff gained valuable skills and experience in working with AI-based automation, fostering continuous learning and development within the organization.





# CUSTOMER TESTIMONIALS



The MiR solution introduces efficiency by **automating simple parts of the supply chain** to free up our people to do things that only people can do.”

**Evan Smith, Senior Engineering Officer,  
Royal Australian Air Force's 36 Squadron**



I do not need to manually push the trolley from one processing station to another anymore. I can easily ask the robot to do that job for me, while **I can have more time** to plan for warehouse goods movement!”

**Warehouse Store Planner**



Konica Minolta gives me more **confidence in their AMR**, and I would like to explore more automation which does not require operator intervention in AMR.”

**Warehouse Director**



The **AMR is easy to use**, the deployment by Konica Minolta is done, I learned how to configure a morning routine for the robot to check for battery level and go to charge when there is no task for the robot.”

**Warehouse Store Executive**



With a rapid increase in online shopping, NPFulfilment needed to look at ways to further speed up picking at the Sydney warehouse while giving our employees peace of mind that they are safe and can focus on the task at hand. **Turning to technology was a no-brainer.** It was also important for NPFulfilment to work with organisations that have an innovation mindset.”

**Jey Kanagaratnam,  
CIO, NPFulfilment**



In addition to speeding up the process, the MiR200s enhance NPFulfilment's **ability to capture the movement of the product** at each stage in the logistics life cycle, including how long it's at each stage and how long it takes to get from one stage to another.”

**Jey Kanagaratnam,  
CIO, NPFulfilment**

# HOW TO SUCCESSFULLY IMPLEMENT AMH SOLUTIONS

**1**

## CONSULTATION

Our process begins with a thorough consultation to understand your business needs, goals, and pain points. Through open communication and collaboration, we gather insights that shape our approach to crafting a customized solution.

**2**

## COMPREHENSIVE ASSESSMENT

Building upon the insights from the consultation, we conduct an assessment of your existing workflows and infrastructure. This step allows us to identify opportunities for improvement and design a solution that aligns seamlessly with your operations.

**3**

## CUSTOMIZATION

We believe in customization to fit your unique requirements. Whether it is configuring workflows, adapting interfaces, or integrating with existing systems, our team ensures that the solution is tailored to your specific business goals.

**4**

## THOROUGH TESTING & VALIDATION

Prior to deployment, we conduct in-depth testing and validation to ensure the seamless integration of the AMH solution. This includes simulation testing and real-world scenario testing to guarantee optimal performance.

**5**

## TRAINING & SUPPORT

We provide comprehensive training and ongoing support for your team to maximize the benefits of the automated solution. From operation to maintenance best practices, we empower your workforce to leverage the full potential of our AMH solutions.

**6**

## CONTINUOUS OPTIMIZATION

Our commitment extends beyond deployment. We continuously monitor and optimize our AMH solutions to ensure they evolve along with your business needs. This proactive approach aims to support your sustainable growth.



# LEARN MORE

## Schedule a consultation

Ready to take the next step towards revolutionizing your material handling processes? Schedule a consultation with our experts at **AMH@konicaminolta.eu**.

## Visit our website

Explore our AMH solutions and learn how Konica Minolta can drive efficiency and productivity in your business.



Click here



## ABOUT KONICA MINOLTA

We are Konica Minolta, a global leader in digital transformation, providing innovative solutions and services to empower businesses and organizations worldwide. With a rich history of over 150 years, we continue to drive innovation and shape the future of technology.

Our commitment to excellence, sustainability, and customer satisfaction drives us to deliver cutting-edge solutions that meet the evolving needs of our customers across various industries. Partner with us and unlock new possibilities for your business.



**Want to improve intralogistics  
efficiency? Learn more about  
our AMH solutions:**

Click here



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