MiR

MOBILE INDUSTRIAL ROBOTS

Do logistics in a better way

Want to optimize your productivity, internal workflows and increase your competitiveness? Bring your internal logistics up to speed with autonomous mobile robots that automate repetitive and injury-prone material transportation and work safely alongside your employees to boost productivity.

MiR's collaborative mobile robots are simple to integrate and easy to program, with no need for expensive and disruptive reconfiguration of your infrastructure. You'll see an immediate impact on your ability to process orders faster and reduce material handling costs to get fast ROI on your mobile robots – often, in less than 12 months.

Need flexibility? User-friendly MiR robots enable you to adapt to changing market demands, new products, and new production flows. Very easily, you can switch out top modules, change missions, and add new functionality, without the need for external integration services.

See how companies from different industries around the world – and from family-owned regional businesses to global companies with multiple locations – have found a better way to do logistics with MiR. With local sales offices around the world and a global distribution network, we are ready to support your business wherever you are located.

MiR | a better way

MiR250

Flexibility

An open interface supports different applications

Anchoring Devices | Robot arms | Disinfection
Communication | Safety units | Stations | Lifts | And more...
Frame/Shelves | Fleet | Conveyors

MiRGo

The MiR robots are flexible platforms, ready for your application to be integrated. With MiRGo, we present different available third party applications for your inspiration.

Check it out, maybe there's just the accessory you need in order to optimize your internal logistics.
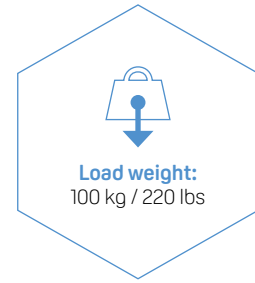
MiRGo - Recommended
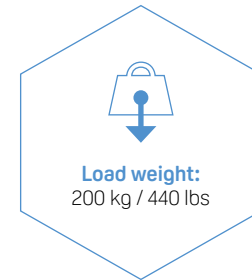Want top modules that have been tested by MiR and that can be delivered globally?

Look for the MiRGo Recommended-symbol when visiting
www.mobile-industrial-robots.com/mirgo

MiR100

Length:
890 mm
35 in

Width:
580 mm
22.8 in

Height:
352 mm
13.9 in

Ground Clearance
50 mm / 2 in

Load weight:
100 kg / 220 lbs

Certifications:
Clean Room Certified

Safe and cost-effective mobile robots

The **MiR100** and **MiR200** are safe, cost-effective mobile robots that quickly automate your internal transportation and logistics of smaller parts. The robots optimize workflows, freeing staff resources so you can increase productivity and reduce costs. The highly flexible mobile robots autonomously transport up to 200 kg (440 lbs). They can be mounted with customized top modules such as bins, racks, lifts, conveyors or even a collaborative robot arm – whatever your application demands. Top modules are easy to change so the robot can be redeployed for different tasks.

MiR200

Length:
890 mm
35 in

Width:
580 mm
22.8 in

Height:
352 mm
13.9 in

Ground Clearance
50 mm / 2 in

Load weight:
200 kg / 440 lbs

Certifications:
Clean Room certified
ESD approved

Extremely user-friendly interface

- Works on PC, tablet and smartphone
- Customizable dashboard makes it easy to tailor the interface to the individual user's needs.
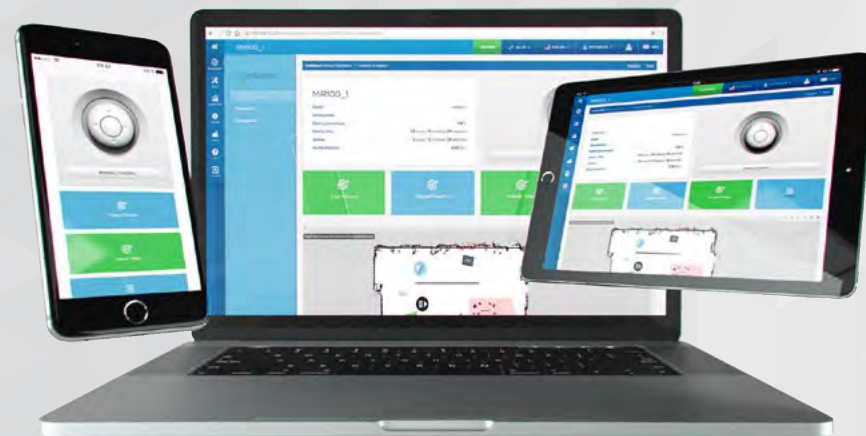
MiR Charge 24V

A fully automatic charging solution

The MiR100 and the MiR200 move and connect autonomously to the charging station.

Width:
580 mm / 23 in

Height:
300 mm
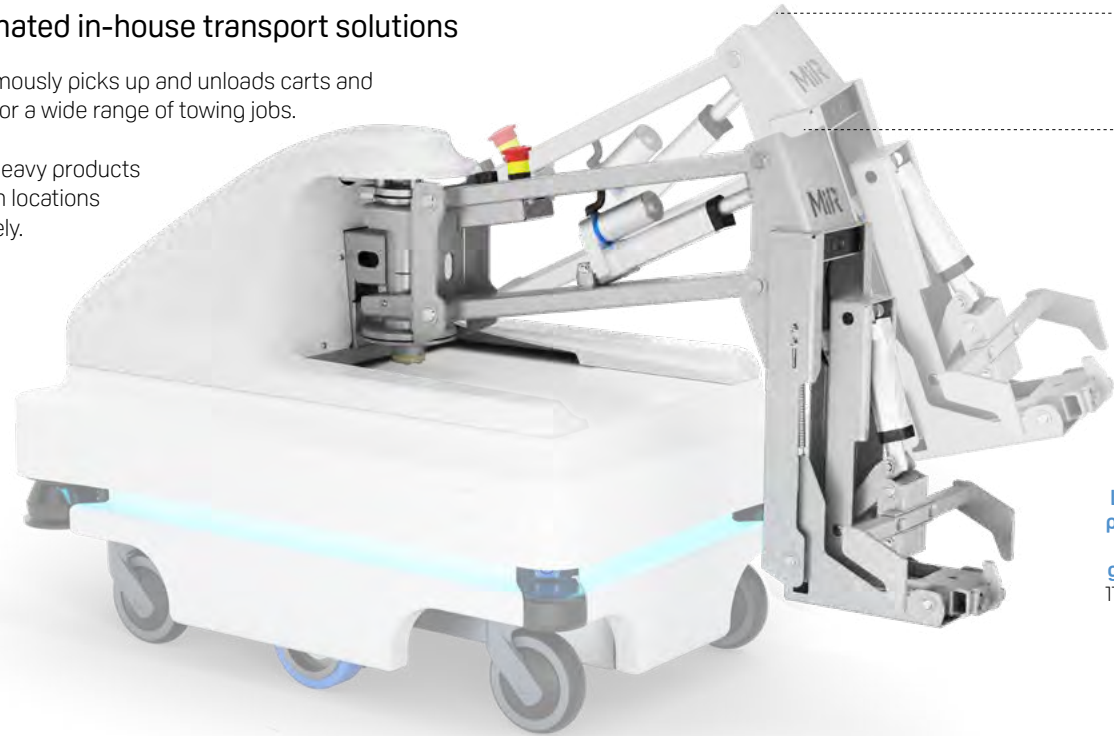11.8 in

Depth:
120 mm / 4.7 in

MiR Hook

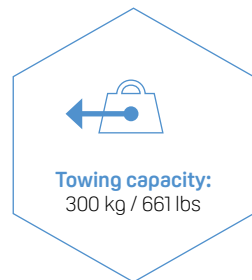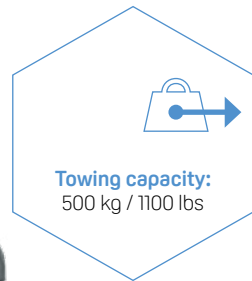## Automated in-house transport solutions

Autonomously picks up and unloads carts and is ideal for a wide range of towing jobs.

Moves heavy products between locations effectively.

Highest position above ground:
1275 mm
50.2 in

Lowest position above ground:
1180 mm
46.5 in

Towing capacity:
500 kg / 1100 lbs

Towing capacity:
300 kg / 661 lbs

Nidec

Three **MiR100** with **MiR Hooks** optimize the internal transportation of carts at German Nidec. Each robot drives 11 km a day, and they autonomously pick up, transport and deliver carts in two different production areas and move them to the warehouse.

Taking over the repetitive transportation tasks, the mobile robots free up employees for R&D while they are also keeping the stock low as they are able to move materials from the assembly lines immediately.

11
km pr. day

FORD

Ford implemented 3 **MiR100**. With a payload of 100 kg. each, they deliver spare parts to Ford's manufacturing plant, often in a hostile environment. The mobile robots avoid unforeseen obstacles, can modify their route or stop when necessary, and they work safely alongside people and other vehicles in the 300,000m² plant.

3
MiR100

MiR250

Length:
800 mm
31.4 in

Width:
580 mm
22.8 in

Height:
300 mm
11.8 in

Exceed expectations with MiR250

The **MiR250** sets new standards for internal logistics with a robot that is faster, safer and more agile than any other solution in the same category on the market.

The innovative **MiR250** is packed with the newest technology, designed for serviceability and it can navigate smoothly and efficiently in dynamic environments – and even drive through doors as narrow as 80 cm.

ESD version:
Optional

Payload:
250 kg / 550 lbs

Clean Room:
Optional
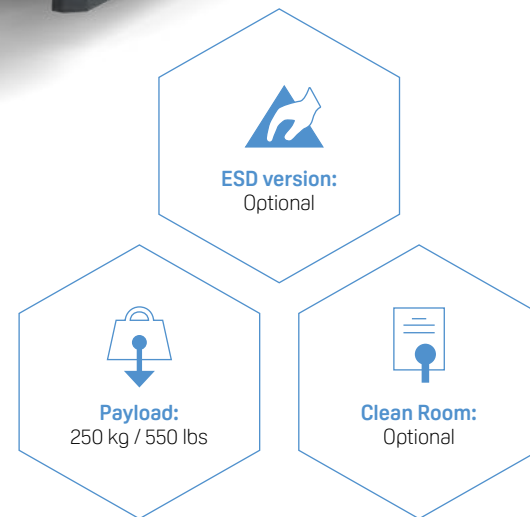
MiR Shelf Carrier

Streamline your logistics even better

Together with the **MiR250**, we have developed a standard top module: The Shelf Carrier.

The Shelf Carrier is an anchoring device, which enables the robot to collect and deliver carts, shelves or similar, and is available directly from MiR.

Visit our webpage to learn more about the MiR250 and Shelf Carrier at: mir-robots.com/solutions


Stera Technologies

A **MiR500** has automated the transportation of components from the warehouse to the production at Stera Technologies in Turku, Finland. The MiR500 transports 10 different types of pallets and ensures on time deliveries, so the company avoids downtime in the production.

10 Different pallet sizes

30 Deliveries per day

ICM

A fleet of 3 **MiR1000** robots collect pallets from their inbound area and transport them to the aisles inside the high-rise warehouse, in a steady stream. The robots drop off the pallets next to the narrow aisles, formed by racks that reach 12m high, where a narrow aisle forklift takes over.

The internal traffic consists of forklifts and robots in close collaboration. This automated pallet transport setup has saved 40 man-hours a week.

40 Man hour saved pr week

MiR500

Width:
920 mm
36.2 in

Length:
1350 mm
53.1 in

Height:
320 mm
12.6 in
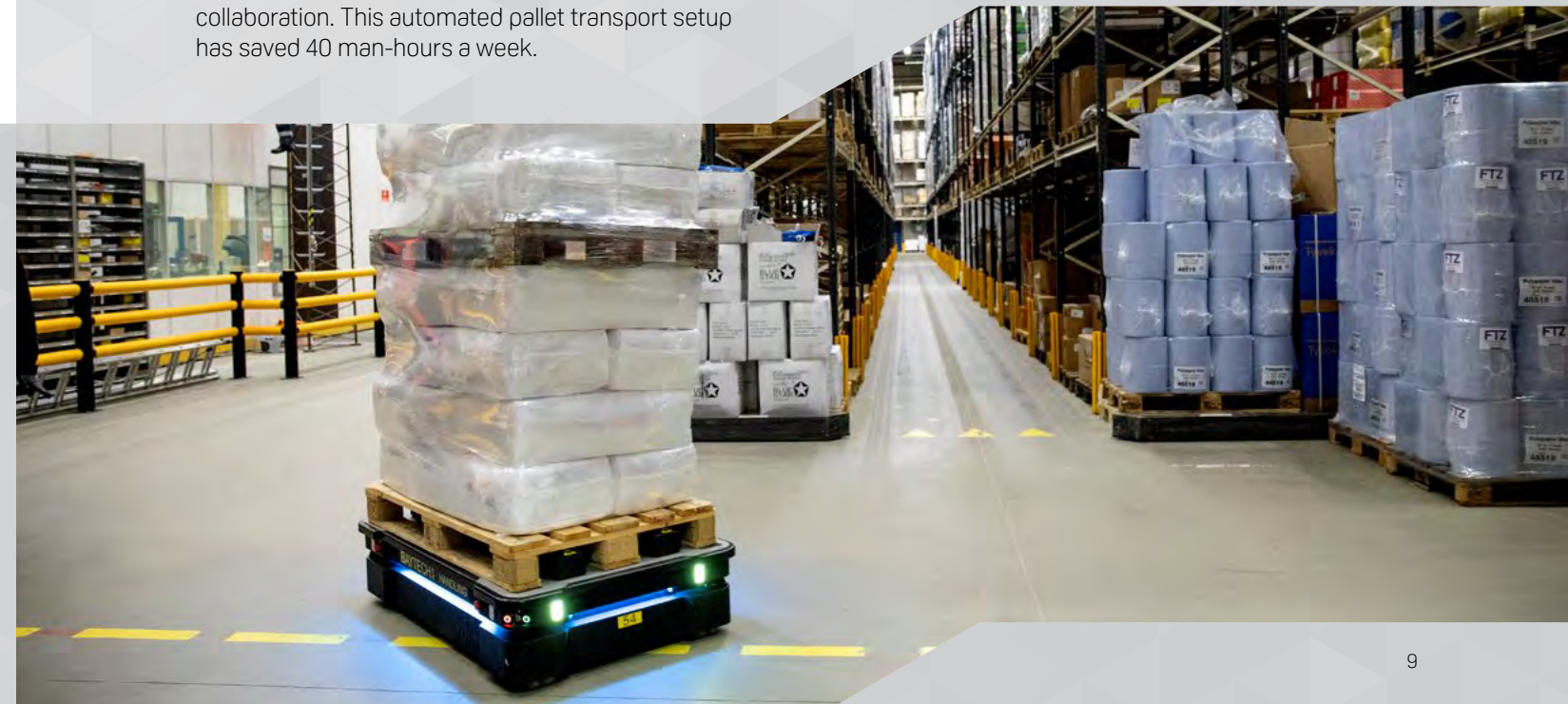
MiR500 is designed to automate the transportation of heavy loads and pallets across industries.

With the MiR EU Pallet Lift 500 or the MiR Pallet Lift 500, the MiR500 picks up, transports and delivers pallets autonomously, freeing up employees for more valuable tasks. MiR500 is compliant with ISO/EN 13849 and fulfills the EMC requirement for industrial use. The rugged MiR500 is designed for industry use with robust exterior that can withstand dropped cargo and can easily navigate up and down ramps and even through shallow water puddles.
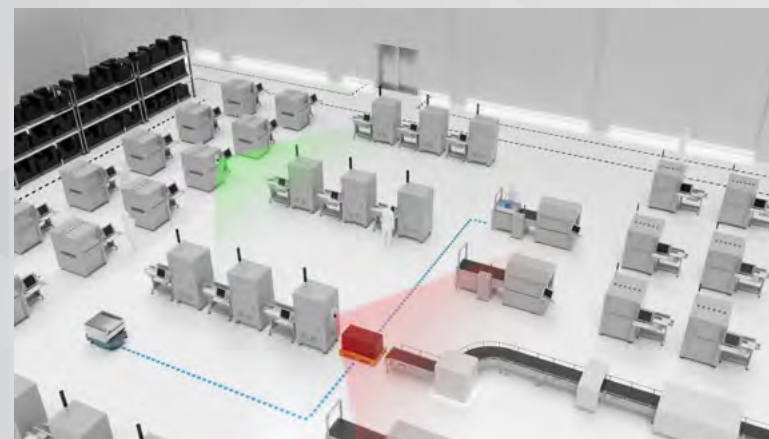
Load weight:
500 kg / 1100 lbs

Safety:
9 safety rated functions
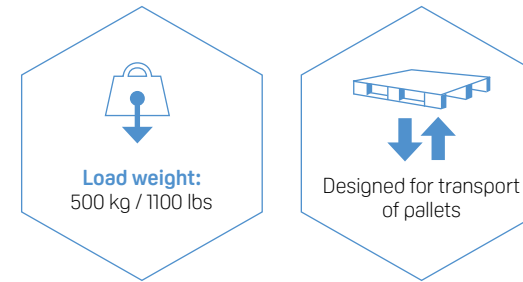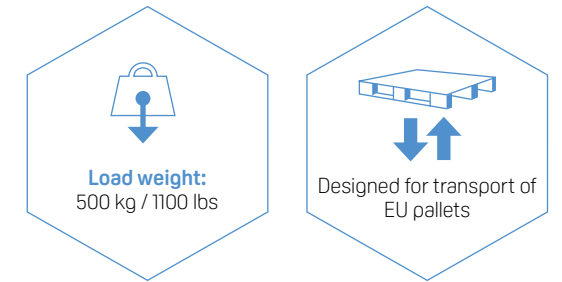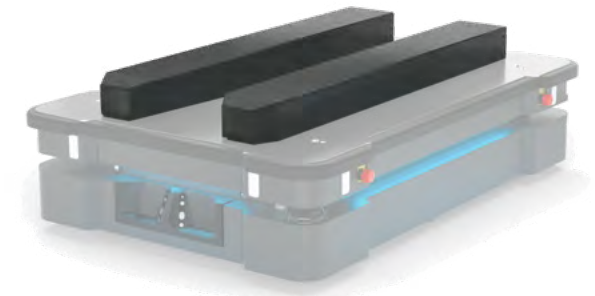
MiR AI Camera

Optimize the efficiency of your mobile robots with AI

The next step in the evolution of Autonomous Mobile Robots (AMRs) is the addition of artificial intelligence (AI) to increase the capabilities of the mobile robots. MiR AI Camera works as an extra set of sensors for the MiR robots and makes the robots even more efficient, and improves the overall traffic flow in dynamic environments.

MiR Pallet Lift 500

Load weight:
500 kg / 1100 lbs

Designed for transport of pallets

MiR EU Pallet Lift 500

Load weight:
500 kg / 1100 lbs

Designed for transport of EU pallets

MiR Charge 48V

A fully automatic charging solution

The MiRs move and connect autonomously to the charging station. **MiR250**, **MiR500** and **MiR1000** uses the **MiR Charge 48V** charging station.

Depth:
200 mm/ 7.87 in

Width:
620 mm/ 24.41

Height:
300 mm
11.8 in

Depth with charging plate:
480 mm/18.9 in
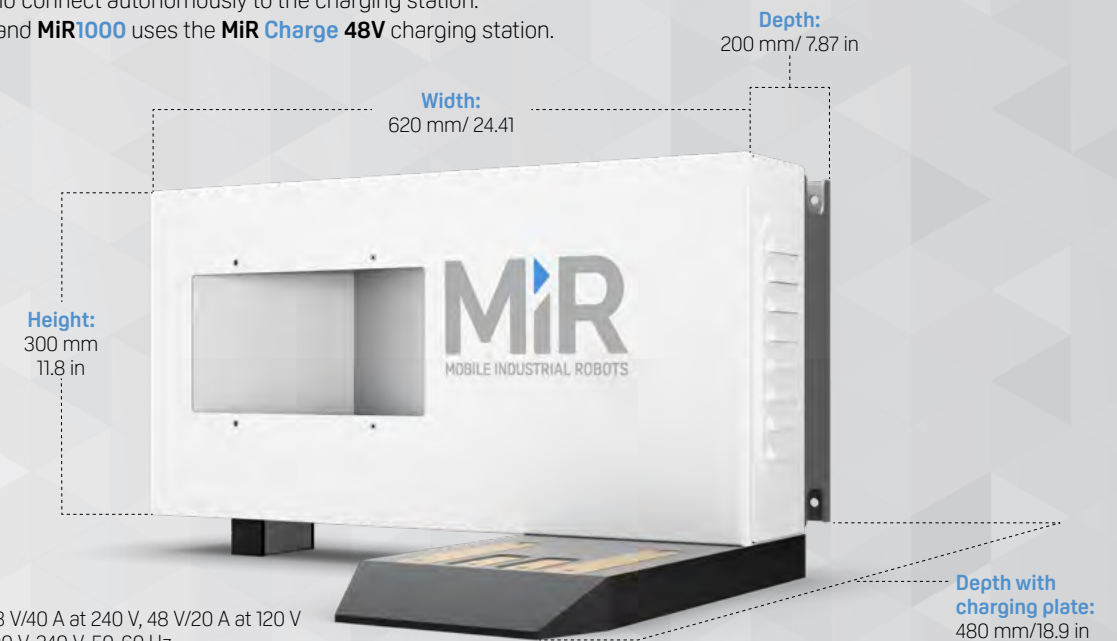
POWER:
Output: 48 V/40 A at 240 V, 48 V/20 A at 120 V
Input: 100 V-240 V, 50-60 Hz

MiR1000

Length:
1350 mm
53.1 in

Width:
920 mm
36.2 in

Height:
320 mm
12.6 in

Load weight:
1000 kg / 2200 lbs

Safety:
9 safety rated functions

MiR Pallet Lift 1000

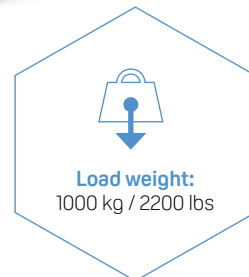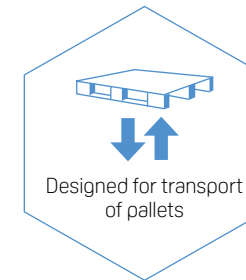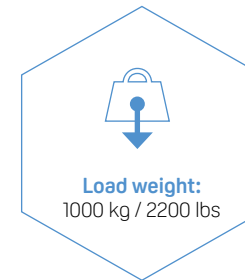Load weight:
1000 kg / 2200 lbs

Designed for transport of pallets

MiR EU Pallet Lift 1000

Load weight:
1000 kg / 2200 lbs

Designed for transport of EU pallets
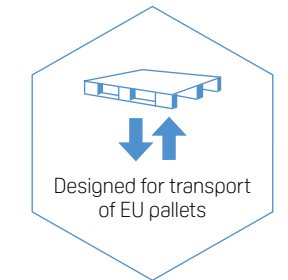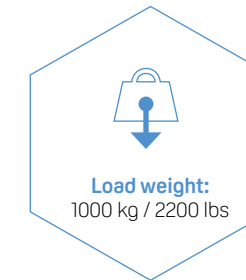
MiR1000 automates and optimizes the internal transportation of heavy duties and pallets. With a payload of 1000 kg, this is MiR's most powerful robot, and even in highly dynamic environments it can transport heavy loads without any exterior safety measures.

MiR1000 can be deployed with pallet lifts from MiR and can pick up, transport and deliver pallets automatically.

This means that the collaborative robot is a safe alternative to traditional forklifts and trucks, which many companies would like to remove from manufacturing halls, because they often cause a safety risk. At the same time, unlike more conventional pallet lifts, MiR1000 does not need to be manned, so it optimizes the transportation of pallets and frees up employees for more valuable tasks.

MiR Shelf Lift

Optimize transportation of heavy loads without changing facility layout

With **MiR Shelf Lift**, the MiR500 and MiR1000 can autonomously pick up a cart or shelf, transport and deliver it. This ensures a flexible transportation of heavy loads of different sizes up to 1000 kg., without the need of a pallet rack.

Load weight:
1000 kg / 2200 lbs

Designed for flexible transportation
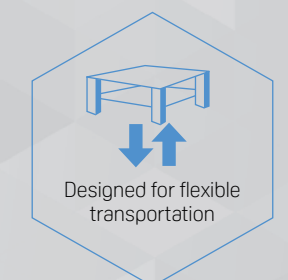
WORKFLOWS

Improve workflows in your facility with MiR robots.

Optimize your productivity by improving internal workflows with collaborative robots from MiR and increase safety among workers at your facility.

INBOUND LOGISTICS

Workflows optimized

1 Long hauls: Replace manual handling and forklifts in long hauls between inbound logistics and storage area

2 Odd size goods: Effective transport of odd size goods

3 Cross docking: Robots can navigate to different areas depending on load

Benefits

- Save labor-hours used on non-value adding transport
- Help overcome labor shortage by handling non-rewarding repeatable tasks
- Reduced number of forklifts needed
- Add flexibility be having on-demand transport availability

PRODUCTION AND ASSEMBLY LINES

Workflows optimized

6 Bus route: Continuously and autonomously move between cells, lines or departments on fixed routes

7 Pull calls: Deliver on-demand specific material from storage by call from production – manually or automatically

8 Work In Progress: Flexible movement of WIP-parts between production cells and lines

9 Waste material: Automate waste material disposal using robots

Benefits

- Infrastructure free robots adds flexibility for the dynamic factory layout and changing workstations
- Eliminating human prone errors and mishaps
- Increase safety among workers as forklifts are removed from the area and replaced by safe collaborative AMRs
- 24/7 reliable and automated production line feeding
- Space optimization by eliminated local storage at production
- Able to drive in forklift or human quarantined areas such as clean room environments

RAW MATERIAL STORAGE

Workflows optimized

4 Storing: Robots feed high reach trucks and other specialized storage units

5 Lineside delivery: Automatic pick and drop-off of raw materials to the production lines and cells

Benefits

- Optimized use of specialized forklifts
- Reduce forklift accidents
- Employees can focus on value-adding activities
- Same robot can deliver many different carts and totes
- Just-in-time delivery of raw material to production

FINISHED GOODS & OUTBOUND

Workflows optimized

10 Non-conveyable goods: Handling of goods that cannot be transported using existing fixed infra-structure

11 Order picking: Enable robot zone picking

12 Value-added services: Replace manual forklift transportation to and from the area

13 Empty pallets: Pick up and deliver empty pallets from pallet magazine dispenser

Benefits

- Safe around employees doing values added services like re-packing and gift wrapping
- Replace order picking trucks for mixed pallet stacking
- Optimized use of forklift
- Scalable and customizable internal logistic solution
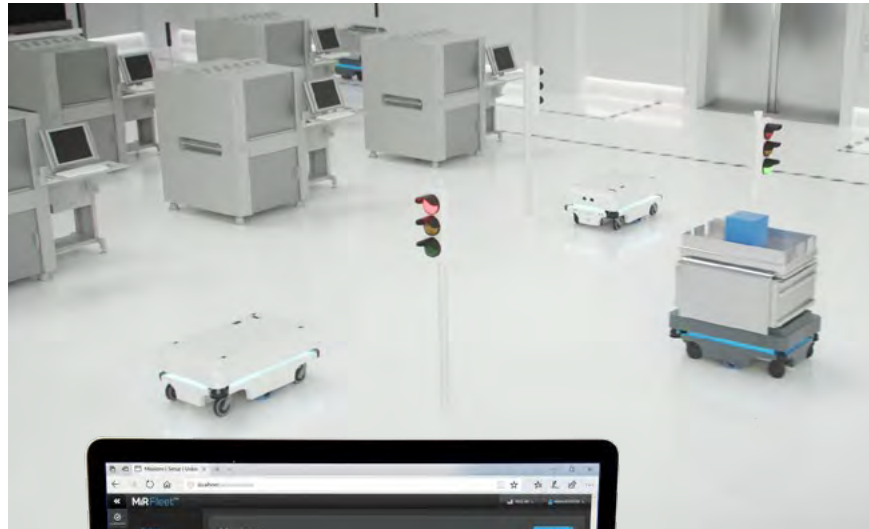
MiR Fleet

Fleet management for optimized robot traffic

- Fast and central configuration of a fleet of robots.
- Prioritization and selection of the robot which is best suited for a job, based on position and availability.
- Planning of the use of different top modules, hook, and other accessories.
- Full featured REST-API for ERP implementation.

MiRAcademy

Free online trainings for MiR robots

At MiR, we strive to help you to learn more about autonomous mobile robots (AMRs), how they work and how you can use them.

MiRAcademy makes the technology behind AMRs getable with engaging, online training courses. Are you already working with the MiR robots, or do you just want to learn more? Then MiRAcademy is the place to start!

Learn how a MiR robot navigates, the differences between AMRs and traditional AGVs, what a mobile robot sees and much more.

Visit
www.mobile-industrial-robots.com/miracademy

MiR Finance

Companies in all types of industries, large and small, are grappling with ways to become more efficient, while at the same time keeping their costs as low as possible.

Automation is a way to optimize productivity and provide a competitive edge. Concerns surrounding ROI speed should not slow automation down. The cost-efficient mobile robots from MiR offer a fast ROI, with a payback period in often less than a year. If you want to see immediate return on investment and have low or no upfront costs for your AMRs, you can lease your MiR robots with MiR Finance.

Benefits

- No cash-out and low monthly costs
- The entire solution, including robot, top module and installation service can be financed
- No CAPEX needed
- Easier internal approval process for OPEX
- Match costs with income stream

Scan this QR Code and get direct access to MiR's **ROI Calculator**

Scan this QR Code, and calculate the hourly and monthly **leasing** cost for robots
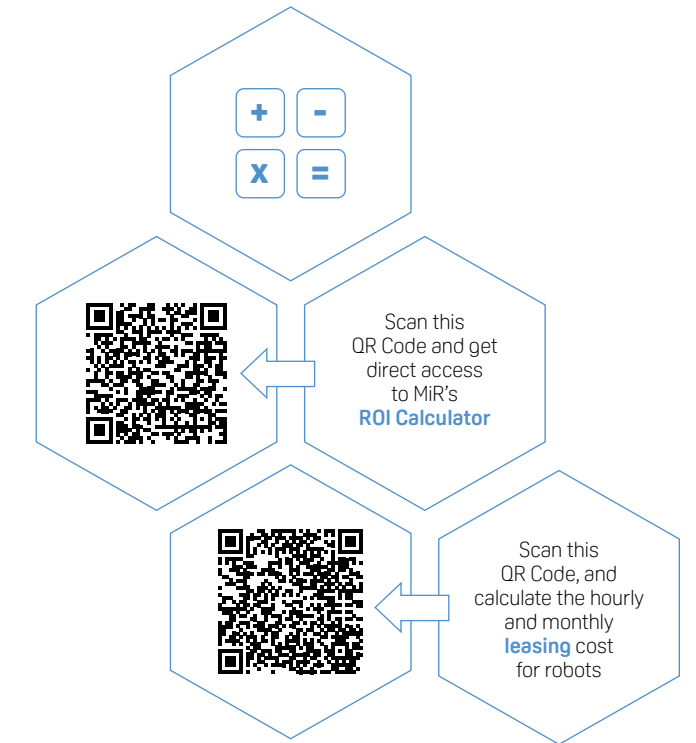
MiR PROservice

Protect your core production with a MiR PROservice agreement which proactively helps you increase efficiency through a proportionate service set up.

MiR PROservice is the best way for you to be prepared even for the unexpected. With our service agreements we help you prevent costly downtime. You are ensured full safety and flexibility in changes of your layout through access to our latest software releases.

Besides proactive preventive maintenance, you are given priority in our high readiness help desk with the possibility of help 24/7 and you can opt extended warranty until the fifth year.

Choose your MiR PROservice Package:

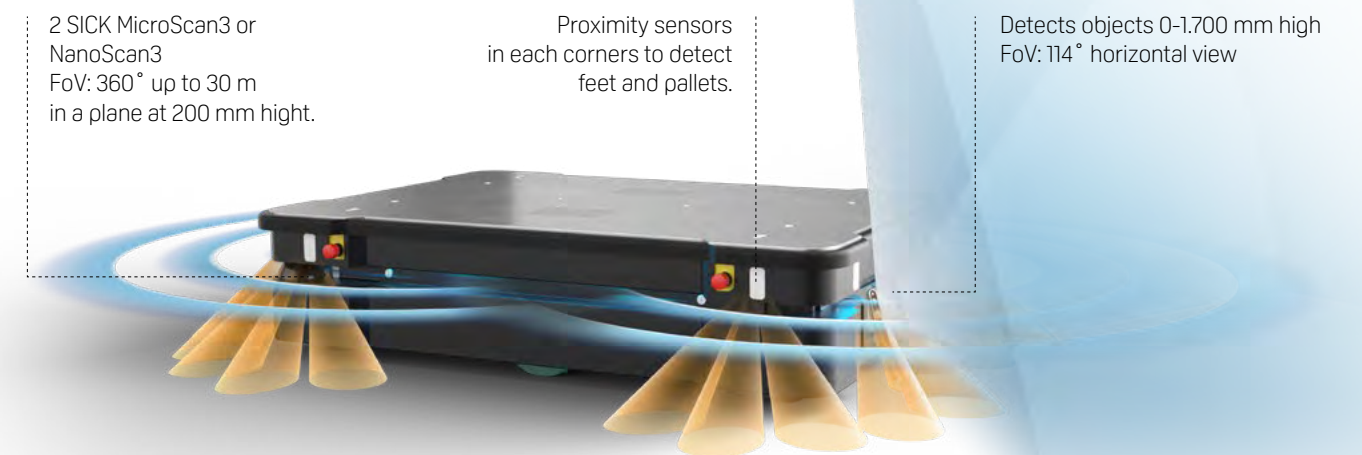| Service Package/ Service included	Basic	Extended	Full
Access to special cources in MiRAcademy e-learning	■	■	■
Wear&tear parts for maintenance	■	■	■
Hotline support, normal working hours	■	■	■
Software updates	■	■	■
Remote trouble shooting	■	■	■
Training of Super User		■	■
Extended warranty		■	■
Hotline support 24/7/365			■
Reaction in accordance with standard SLA			■

Safe Mobile Robots

MiR robots' sensory inputs ensure safe navigation

Our robots are designed to collaborate with people and to drive alongside their human co-workers without any external safety measures. Therefore, safety is our highest priority.

For daily operation the safe driving pattern of the MiR robots are ensured by a multi-sensor safety system that feeds data into a sophisticated planning algorithm, which lets the robot know where it drives and that decides if the robot should adjust its path or make a safe and immediate stop to avoid collisions.

2 SICK MicroScan3 or NanoScan3
FoV: 360° up to 30 m
in a plane at 200 mm hight.

Proximity sensors in each corners to detect feet and pallets.

Detects objects 0-1.700 mm high
FoV: 114° horizontal view

Our mobile robots have all relevant functional safety incorporated. This is based on present safety standards to address potential risks that can occur if the primary safety system for some reason fails.

Safety functions in the MiR Robots

FUNCTION	MiR100	MiR200	MiR250	MiR500	MiR1000
E-stop	PLd, cat 3	PLd, cat 3	PLd, cat 3	PLd, cat 3	PLd, cat 3
Field switching	Fail-safe*	PLd, cat 3	PLd, cat 3	PLd, cat 3	PLd, cat 3
Personnel detection	PLd, cat 2	PLd, cat 2	PLd, cat 3	PLd, cat 3	PLd, cat 3
Overspeed detection	Fail-safe*	PLd, cat 3	PLd, cat 3	PLd, cat 3	PLd, cat 3
Field muting			PLd, cat 3	PLd, cat 3	PLd, cat 3
Safety limited speed			PLd, cat 3	PLd, cat 3	PLd, cat 3
Safe guarded stop			PLd, cat 3	PLd, cat 3	PLd, cat 3
Locomotion			PLd, cat 3	PLd, cat 3	PLd, cat 3
System E-stop			PLd, cat 3	PLd, cat 3	PLd, cat 3

*Fail-safe means it is designed to fail to a safe state and are
 single failure tolerant but not designed according to ISO 13849

Johnson Controls Hitachi

A **MiR200** improves the productivity and safety at Johnson Controls Hitachi in Barcelona. The mobile robot picks up shelving units in the storeroom and carries materials to the production line where it picks up waste packaging.

The robot operates during a full 8-hour shift and has eliminated electric trolleys from the factory floor, making it a safer place for all.

8
Hours pr. day

Cabka USA

A **MiR500** equipped with a MiR500 Lift is a key component in a fully automated production line at pallet manufacturer, Cabka in Missouri. The mobile robot for heavy loads and pallets is loaded with finished pallets by a six-axis robot and transports them from production to a separate staging area as soon as the job is complete, keeping the production floor clear.

The MiR500 takes over the internal transportation task from a traditional forklift and helps Cabka minimize dependency on temporary workers while also improving product quality and worker safety.

	MiR100	MiR200
DESIGNATED USE		
Collaborative mobile robot	For smaller transport tasks within the industry, logistics and healthcare	For smaller transport tasks within the industry, logistics and healthcare
DIMENSIONS		
Length	890 mm / 35 in	890 mm / 35 in
Width	580 mm / 22.8 in	580 mm / 22.8 in
Height	352 mm / 13.9 in	352 mm / 13.9 in
Height above floor	50 mm / 2 in	50 mm / 2 in
Weight (without load)	70 kg / 143 lbs	70 kg / 143 lbs
Load surface	760 x 445 mm	760 x 445 mm
COLOR		
RAL color	RAL 9010 / Pure White	RAL 7011 / Iron Grey
PAYLOAD		
Robot payload	100 kg / 220 lbs (maximum 5% incline)	200 kg / 440 lbs (maximum 5% incline)
Towing capacity	300 kg / 660 lbs (see MiR100 Hook specifications)	500 kg / 1100 lbs (see MiR200 Hook specifications)
SPEED AND PERFORMANCE		
Battery running time	10 hours or 20 km / 12 mi	10 hours or 15 km / 9 mi
Maximum speed	Forwards: 1.5 m/s (5.4 km/h) / 4.9 ft/s (3.6 mph) Backwards: 0.3 m/s (1 km/h) / 1.0 ft/s (0.7 mph)	Forwards: 1.1 m/s (4km/h) / 3.6 ft/s (2.5 mph) Backwards: 0.3 m/s (1 km/h) / 1.0 ft/s (0.7 mph)
Turning radius	520 mm / 20 in (around center of robot)	520 mm / 20 in (around center of robot)
Positioning accuracy	+/- 50 mm / 2 in of position, +/- 10 mm / 0.4 to docking marker	+/- 50 mm / 2 in of position, +/- 10 mm / 0.4 to docking marker
Traversable gap and sill tolerance	20 mm / 0.8 in	20 mm / 0.8 in
POWER		
Battery	Li-NMC, 24 V, 40 Ah	Li-NMC, 24 V, 40 Ah
Charging time	With cable: up to 4.5 hours (0-80%: 3 hours) With charging station: up to 3 hours (0-80%: 2 hours)	With cable: up to 4.5 hours (0-80%: 3 hours) With charging station: up to 3 hours (0-80%: 2 hours)
External charger	Input: 100-230 V ac, 50-60 Hz Output: 24 V, max 15 A	Input: 100-230 V ac, 50-60 Hz Output: 24 V, max 15 A
ENVIRONMENT		
Ambient temperature range	+5°C to 40°C (humidity 10-95% non-condensing)	+5°C to 40°C (humidity 10-95% non-condensing)
IP Class	IP 20	IP20
Compliance and approvals	CE, EN1525 & ANSI B56.5 Clean Room Certified (ISO Class 4)	CE, EN1525 & ANSI B56.5 Clean Room Certified (ISO Class 4) ESD Approved
COMMUNICATION		
WiFi	Dual-band wireless AC/G/N/B	Dual-band wireless AC/G/N/B
Bluetooth	4.0 LE, range: 10-20 m / 33-66 ft	4.0 LE, range: 10-20 m / 33-66 ft
I/Os	USB and Ethernet	USB and Ethernet
SENSORS		
SICK microScan3 safety system (2 pcs.)	SICK safety laser scanners S300 (front and back) 360° visual protection around robot	SICK safety laser scanners S300 (front and back) 360° visual protection around robot
3D camera (2 pcs.)	3D camera Intel RealSense™ Detection of objects ahead 50-1800 mm above floor	3D camera Intel RealSense™ Detection of objects ahead 50-1800 mm above floor
TOP MODULE		
Max. height from floor to top	1800 mm / 70.9 in	1800 mm / 70.9 in
Center of gravity	< 900 mm / 35 in above the floor	< 900 mm / 35 in above the floor

	MiR100 Hook	**MiR200 Hook**
DESIGNATED USE		
Autonomous mobile robot with hook	For fully-automated pick-up and delivery of carts	For fully-automated pick-up and delivery of carts
DIMENSIONS		
Length (highest to lowest positions of hook arm)	1180 to 1275 mm / 46.5 to 50.2 in	1180 to 1275 mm / 46.5 to 50.2 in
Width	580 mm / 22.8 in	580 mm / 22.8 in
Height (lowest to highest positions of hook arm)	550 to 900 mm / 21.7 to 35.4 in	550 to 900 mm / 21.7 to 35.4 in
Height above floor	Robot: 50 mm / 2 in Gripping height: 80-350 mm / 3.1-13.8 in	Robot: 50 mm / 2 in Gripping height: 80-350 mm / 3.1-13.8 in
Weight (without load)	98 kg / 216 lbs	98 kg / 216 lbs
COLOR		
RAL color	RAL 9010 / Pure White	RAL 7011 / Iron Grey
TOWING CAPACITY		
Load incl. cart	Up to 300 kg / 661 lbs at <1 % incline 200 kg / 441 lbs at 5% incline	Up to 500 kg / 1100 lbs at <1 % incline 300 kg / 661 lbs at 5% incline
SPEED AND PERFORMANCE		
Running time (depending on load)	8-10 hours or 15-20 km / 9.3-12.4 mi	6-8 hours or 10-15 km / 6.2-9.3 mi
Maximum speed	1.5 m/s (5.4 km/h) / 4.9 ft/s (3.6 mph)	1.1 m/s (4 km/h) / 3.6 ft/s (2.5 mph)
Turning radius (without cart)	520 mm / 20.5 in (around center of robot)	520 mm / 20.5 in (around center of robot)
Swinging radius (with cart)	Total length of robot and cart plus 550 mm / 21.7 in	Total length of robot and cart plus 550 mm / 21.7 in
Positioning accuracy (placing cart)	+/- 200 mm / 7.9 in from center of position, 10° accuracy	+/- 200 mm / 7.9 in from center of position, 10° accuracy
POWER		
Battery	Li-NMC, 24 V, 40 Ah	Li-NMC, 24 V, 40 Ah
Charging time	Up to 3 hours (0-80%: 2 hours)	Up to 3 hours (0-80%: 2 hours)
External charger	Input: 100-230 V ac, 50-60 Hz Output: 24 V, max 15 A	Input: 100-230 V ac, 50-60 Hz Output: 24 V, max 15 A
ENVIRONMENT		
Ambient temperature range (humidity 10-95% non-condensing)	+5°C to 40°C	+5°C to 40°C
IP class	IP20	IP20
COMMUNICATION		
WiFi	Dual-band wireless AC/G/N/B	Dual-band wireless AC/G/N/B
Bluetooth	4.0 LE, range: 10-20 m / 32.8-65.6 ft	4.0 LE, range: 10-20 m / 32.8-65.6 ft
I/Os	USB and Ethernet	USB and Ethernet
SENSORS		
SICK safety laser scanners S300 (front and back)	360° visual protection around robot	360° visual protection around robot
3D camera (2 pcs.)	3D camera Intel RealSense™ Detection of objects ahead 50-1800 mm above floor	3D camera Intel RealSense™ Detection of objects ahead 50-1800 mm above floor
CART		
Length	500 to 2400 mm / 20 to 94.5	500 to 2400 mm / 20 to 94.5
Width	400 to 1500 mm / 15.7 to 59	400 to 1500 mm / 15.7 to 59
Height	200 to 2000 mm / 7.9 to 78.7	200 to 2000 mm / 7.9 to 78.7

	MiR250
DESIGNATED USE	
Autonomous mobile robot	For internal transportation of goods and automation of internal logistics
DIMENSIONS	
Length	800 mm / 31.5 in
Width	580 mm / 22.8 in
Height	300 mm / 11.8 in
Clearance from ground	25 mm / 1.0 in
Weight (without load)	83 kg / 183 lbs
Load surface	800 x 580 mm / 31.5 x 22.8 in
COLOR	
RAL color	RAL 7011 / Iron Grey
RAL color - ESD version	RAL 9005 / Signal Black
PAYLOAD	
Robot payload	250 kg / 551 lbs
SPEED AND PERFORMANCE	
Run time	13 hours (full load) - 17 hours (no load)
Maximum speed	2.0 m/s (7.2 km/h) / 6.6 ft/s (4.5 mph)
Accuracy, docking	+/- 5 mm / 0.2 in
Traversable gap and sill tolerance	20 mm / 0.8 in
POWER	
Battery	Li-NMC, 48 V, 36 Ah
Charging ratio	1:17 (e.g. 30 min charge = 8.3 hours run time with full load)
ENVIRONMENT	
Ambient temperature range	+5°C to 40°C (humidity 10-95% non-condensing)
IP Class	IP 21
Compliance	CE, EN1525 & ANSI B56.5 Clean Room Certified - optional ESD Certified - optional
COMMUNICATION	
WiFi	Router: 2.4 GHz 802.11 g/n, 5 GHz 802.11 a/n/ac. Internal computer: 802.11 a/b/g/n/ac
I/Os	4 digital inputs, 4 digital outputs (GPIO), 1 Ethernet port, 1 Auxiliary emergency stop
SENSORS	
SICK NanoScan3 safety system (2 pcs.)	SICK safety laser scanners (front and back) 360° visual protection around robot
3D camera (2 pcs.)	2 pcs: Intel RealSense D435. FoV: Detects objects 1800 mm high at a distance of 1200 mm in front of the robot. 114° total horizontal view. Ground view, minimum distance from robot: 250 mm

	MiR Shelf Carrier 250
DESIGNATED USE	
Top module	The MiR Shelf Carrier is an anchoring device, that makes it possible to lock to shelves and move them
DIMENSIONS	
Length	800 mm/ 31.5 in
Width	580 mm / 22.8 in
Height with lowered pins	82.7 mm / 3.3 in
Height with raised pins	112.5 mm / 4.4 in
Weight (without load)	30 kg / 66.1 lbs
Load surface	800 x 580 mm / 31.5 x 22.8 in
COLOR	
RAL color	RAL 9005 / Signal Black
CAPACITY	
Towing capacity	Up to 300 kg / 661 lbs at <1 % incline
Number of lift cycles	150,000 cycles

	MiR500	MiR1000
DESIGNATED USE		
Autonomous mobile robot	For internal transportation of heavy loads and pallets within the industry and logistics	For internal transportation of heavy loads and pallets within the industry and logistics
DIMENSIONS		
Length	1350 mm / 53.1 in	1350 mm / 53.1 in
Width	920 mm / 36.2 in	920 mm / 36.2 in
Height	320 mm / 12.6 in	320 mm / 12.6 in
Clearance from ground	30 mm / 1.2 in	30 mm / 1.2 in
Weight (without load)	226 kg / 498 lbs	231 kg / 508 lbs
Load surface	1300 x 900 mm / 51.2 x 35.4 in	1300 x 900 mm / 51.2 x 35.4 in
COLOR		
RAL color	RAL 7011 / Iron Grey	RAL 9005 / Signal Black
PAYLOAD		
Robot payload	500 kg / 1100 lbs	1000 kg / 2200 lbs
SPEED AND PERFORMANCE		
Battery running time	8 hours	8 hours
Maximum speed	2.0 m/s (7.2 km/h)	1.2 m/s (4.3km/h)
Minimum width: Pivoting	2600 mm / 102.4 in	2600 mm / 102.4 in
Accuracy, docking	+/-5 mm/ 0.2 in	+/-5 mm/ 0.2 in
Traversable gap and sill tolerance	20 mm / 0.8 in	20 mm / 0.8 in
POWER		
Battery	Li-NMC, 48 V, 40 Ah	Li-NMC, 48 V, 40 Ah
Charging time	1 hour (10% to 90%) MiR Charge 48V 2 hours (10% to 90%) cable charger	1 hour (10% to 90%) MiR Charge 48V 2 hours (10% to 90%) cable charger
External charger	Input: 100-230 V ac, 50-60 Hz Output: 48 V, max 40 A	Input: 100-230 V ac, 50-60 Hz Output: 48 V, max 40 A
Battery charging cycle	Minimum 1000 cycles	Minimum 1000 cycles
ENVIRONMENT		
Ambient temperature range	+5°C to 40°C (humidity 10-95% non-condensing)	+5°C to 40°C (humidity 10-95% non-condensing)
IP Class	IP21	IP21
Compliance	5 safety functions according to ISO 13849-1 Standards: ISO 3691-4, EN1525, ANSI B56.5 EMC: EN12895, EN61000-6-2, EN61000-6-4.	5 safety functions according to ISO 13849-1 Standards: ISO 3691-4, EN1525, ANSI B56.5 EMC: EN12895, EN61000-6-2, EN61000-6-4.
COMMUNICATION		
WiFi	Dual-band wireless AC/G/N/B	Dual-band wireless AC/G/N/B
I/Os	4 digital inputs, 4 digital outputs, 1 Ethernet port with Modbus protocol	4 digital inputs, 4 digital outputs, 1 Ethernet port with Modbus protocol
SENSORS		
SICK microScan3 safety system (2 pcs.)	360° visual protection around robot	360° visual protection around robot
3D camera (2 pcs.)	2 psc.: Intel RealSense D435. FoV: Detects objects 1700 mm high at a distance of 950 mm in front of the robot. 114° total horizontal view. Ground view, minimum distance from robot: 250 mm	2 psc.: Intel RealSense D435. FoV: Detects objects 1700 mm high at a distance of 950 mm in front of the robot. 114° total horizontal view. Ground view, minimum distance from robot: 250 mm
Proximity sensors	8 pcs	8 pcs

	MiR Pallet Lift	MiR EU Pallet Lift	MiR Shelf Lift
DESIGNATED USE			
Lifts for MiR500 and MiR1000	For autonomous pickup and unloading of pallets of different dimensions	For autonomous pickup and unloading of EUR-pallets	For autonomous pick up and delivery of carts, shelves and other lift applications
DIMENSIONS			
Length	Frame Length: 1304 mm / 51.3 in Lift Length: 1174 mm / 46.2 in	1200 mm / 47.2 in	Frame Length: 1304 mm / 51.3 in Lift Length: 1174 mm / 46.2 in
Width	Frame Width: 910 mm / 35.8 in Lift Width: 710 mm / 28 in	162 mm / 6.4 in	Frame Width: 910 mm / 35.8 in Lift Width: 710 mm / 28 in
Total height in lowered position	94 mm / 3.7 in	87 mm / 3.4 in	94 mm / 3.7 in
Total height in lifted position	156 mm / 6.1 in	150 mm / 5.9 in	156 mm / 6.1 in
COLOR			
RAL color for MiR500 lifts	RAL 7011 / Iron Grey	RAL 9005 / Signal Black	RAL 9005 / Signal Black
RAL color for MiR1000 lifts	RAL 9005 / Signal Black	RAL 9005 / Signal Black	RAL 9005 / Signal Black
PAYLOAD			
Lift payload for MiR500	500 kg / 1100 lbs	500 kg / 1100 lbs	1000 kg / 2200 lbs* *The limitations of the robot's payload should be considered
Lift payload for MiR1000	1000 kg/ 2200 lbs	1000 kg/ 2200 lbs	1000 kg / 2200 lbs
PERFORMANCE			
Lift height	60 mm / 2.4 in	60 mm / 2.4 in	60 mm / 2.4 in
Lifting cycle	Minimum 50,000 cycles	Minimum 60,000 cycles	Minimum 50,000 cycles
PALLETS			
Length x width	Supported with Lift Pallet Rack: 1016 mm x 1219 mm / 40 in x 48 in Can be used for different pallet dimensions	1200 mm x 800 mm / 47.2 x 31.5 in	

MiR Pallet Rack   MiR EU Pallet Rack

|	MiR Pallet Rack	MiR EU Pallet Rack
DESIGNATED USE		
Pallet Rack for MiR500 & MiR1000	For autonomous pickup and unloading of 40" x 48" pallets	For autonomous pickup and unloading of EUR-pallets
DIMENSIONS		
Length	1300 mm / 51.2 in	1300 mm / 51.2 in
Width	1182 mm / 46.5 in	1182 mm / 46.5 in
Height	442 mm / 17.4 in	352 mm / 13.9 in
COLOR		
RAL color	RAL 7011 / Iron Grey	RAL 7011 / Iron Grey
PAYLOAD		
Pallet Rack payload	1000 kg / 2200 lbs	1000 kg / 2200 lbs
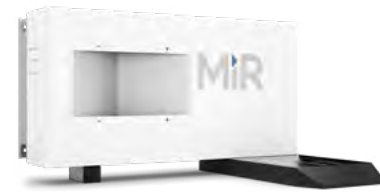
MiR Charge 24V   MiR Charge 48V

DESIGNATED USE

Automatic charger for MiR robots	The robot moves and connects to the docking station	The robot moves and connects to the docking station

DIMENSIONS

Width	580 mm / 22.8 in	620 mm / 24.4 in
Height	300 mm / 11.8 in	340 mm / 13.4 in
Depth	120 mm / 4.7 in	200 mm (with charging plate: 480 mm) / 7.9 in (with charging plate: 18.9 in)
Weight	10.5 kg / 22 lbs	21 kg / 46.3 lbs

RATED OPERATING CONDITIONS

Ambient temperature range	+5°C to 40°C	+5°C to 40°C
Humidity	10-95% non-condensing	10-95% non-condensing
Power	Output: 24 V, max. 25 A Input: 100/230 V ac, 50-60 Hz	Output: 48 V/40 A at 240 V, 48 V/20 A at 120 V Input: 100 V-240 V, 50-60 Hz

COMPLIANCE

Standard	EN-60335-2-29	EN60335-2-29

MiR Fleet

DESIGNATED USE

Centralized control of a fleet of robots	Up to 100 robots
Order handling	Prioritization and handling of orders among multiple robots
Battery level control	Monitoring of robot battery levels and automatic handling of recharging
Traffic control	Coordination of critical zones with multiple robot intersections

TWO SOLUTIONS AVAILABLE

MiR Fleet PC	Comes as a physical PC box
MiR Fleet Server Solution	For installation in existing server infrastructure

MIR FLEET PC

Model	NUC7i3DNB
PC	Intel® Maple Canyon NUC
CPU	Intel® Core™ i3-7100U Processor (3M Cache, 2.40 GHz)
RAM	8GB DDR4-2400
SSD	128GB 2.5"
Operating system	Linux Ubuntu 16.04
Network capabilities	1 Gbit Ethernet, no wireless option
Required connections	110V or 230V power socket and Ethernet network cable
Installation requirements	Must run on the same physical network as the robots in general

MIR FLEET SERVER

Installation file size	3GB
MiR Fleet update file size	~300 MB
Server requirements	Dual core processor with min. 2.1 GHz clock
RAM	Min. 8 GB
HDD	80 GB
Supported operating systems	Ubuntu 18.04 LTS, Ubuntu Server 18.04 LTS, Debian 9, CentOS 7, Redhat Enterprise Linux 7.4

Zealand University Hospital

Five hospital departments at Zealand University Hospital in Denmark receive daily autonomous deliveries from the hospital's sterilization center with a **MiR100**. Before the mobile robot arrived, service assistants were providing weekly deliveries of disposable equipment to hospital departments. A manual procedure that involved heavy lifting.

Now the MiR100 improves the ergonomics, make sure that deliveries are made on time, and frees up time for the service assistants to do warmer tasks like patient care.

5
Departments
serviced pr. day

Whirlpool

Whirlpool implemented three **MiR200** autonomous mobile robots to transport dryer doors without human involvement. Each MiR200 autonomously picks up 12 doors from the preassembly line, then travel to the assembly line for unloading via an automated cart system. The full loop of 130 meters takes only 3 minutes 50 seconds, and the robot uses its sensors and scanners for obstacle avoidance in the dynamic environment.

Fast ROI

Born Global

Mobile Industrial Robots is rapidly expanding. We have established offices in Denmark (HQ), United States, Spain, Germany, China, Singapore and Japan and with **+180 distributors** in more than **55 countries** and still more to come, we are able to offer our robots to customers worldwide.

HEADQUARTER

Mobile Industrial Robots AS
Emil Neckelmanns Vej 15F
5220 Odense SØ
Denmark

+45 20 377 577
mail@mir-robots.com

SALES OFFICE

Mobile Industrial Robots Inc. - East
90-9B Colin Drive
Holbrook, NY 11741
USA

+1 (631) 675-1838
east-us@mir-robots.com

SALES OFFICE

Mobile Industrial Robots Inc - West
2150 W Washington Street, Suite 401
San Diego, CA 92110
USA

+1 (631) 553 5328
west-us@mir-robots.com

HTE AUTOMATION
a business unit of HTE Technologies

ST. LOUIS, MO
2021 Congressional Dr.
St. Louis, MO 63146
314.731.4444

BLOOMINGTON, IL
1701 Empire St.
Bloomington, IL 61704
217.615.4440

KANSAS CITY, MO
1566 N. Topping Ave.
Kansas City, MO 64120
913.440.4477

SPRINGFIELD, MO
4319 S. National Ave.
Springfield, MO 65810
417.724.2231

Follow us:

US 08/2020

mir-robots.com