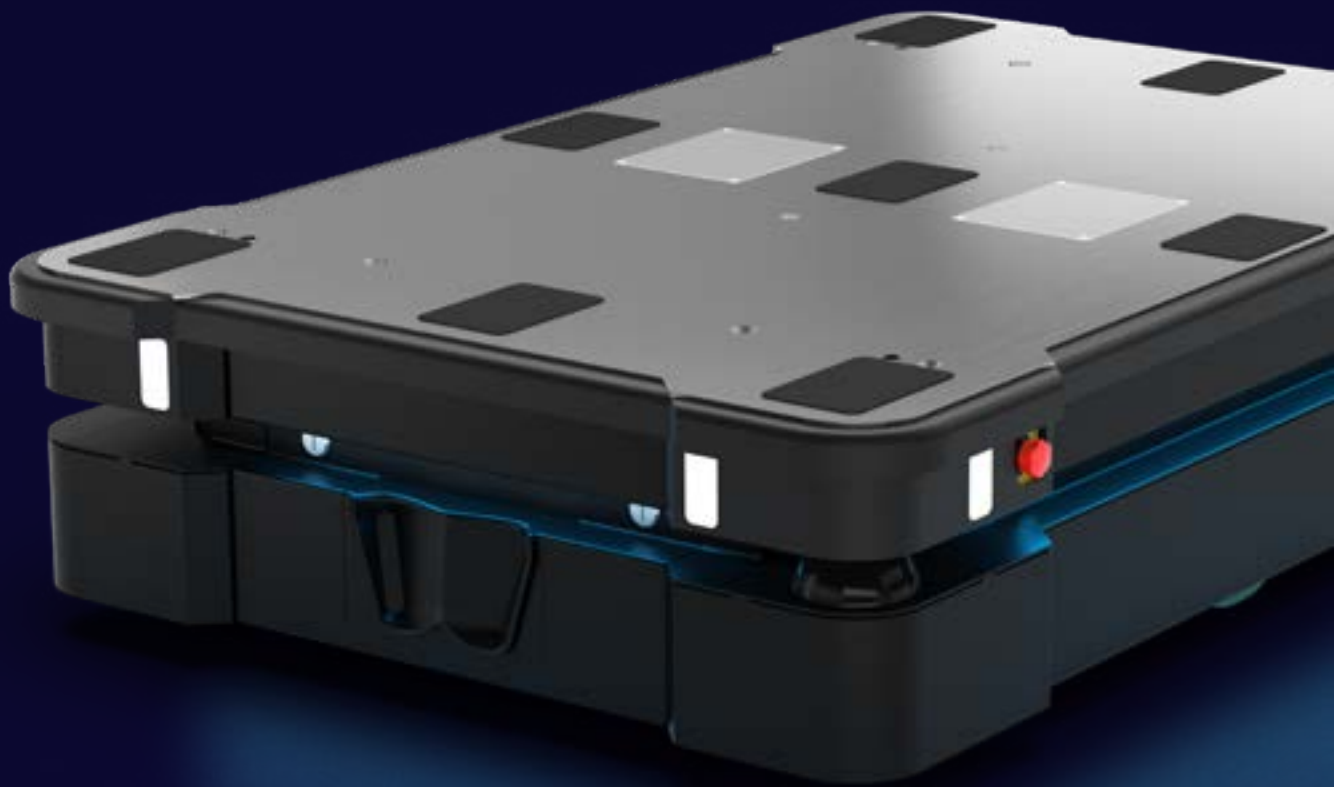


# MiR

MOBILE INDUSTRIAL ROBOTS



# Automation is on the move



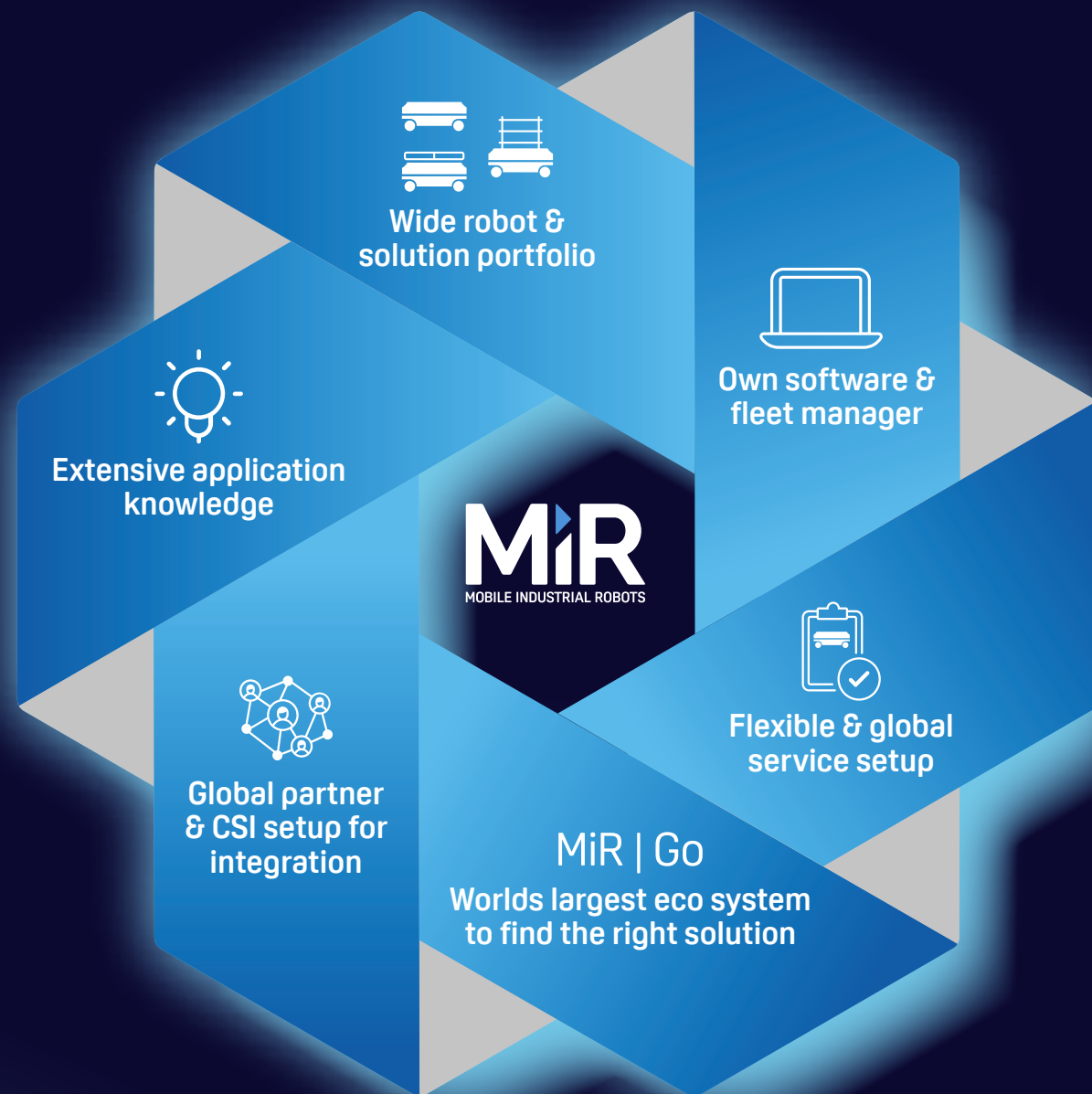
Want to optimize your productivity, internal workflows and increase your competitiveness? Bring your internal logistics up to speed with autonomous mobile robots that automate repetitive and injury-prone material transportation and work safely alongside your employees to boost productivity.

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.

# End-to-End Solution



As a MiR customer you get the benefits of reliable, flexible and high-performing AMRs controlled by the same, user-friendly software. But you get more than that. We use our size and strength to offer customers a full solution setup. We can cover you worldwide via our local MiR offices and the worlds' largest AMR partner network, consisting of distributors and integrators. Thanks to our extensive market experience and application knowledge, our team of application engineers can help ensure successful deployments. Get full coverage with our service house, that you can customize for your needs, while you have access to our Support Portal and MiR Academy to get technical knowledge yourself.

# Flexibility

Depending on your processes, which internal logistics workflows you want to automate, and what materials you are moving, you need an autonomous mobile robot that can adapt flexibly to your needs. With our open interface, MiR provides the platform for automation of your internal logistics.

## MiR Go

The MiR robots are flexible platforms, ready for your application to be integrated. MiR Go is the world's largest eco system for third-party applications for AMRs. Via MiR Go you get access to +160 applications for your inspiration and contact details for the suppliers.

## MiR Go Certified

In MiR Go you also find certified products. A certification from MiR is not just a stamp on a paper, it is a procedure where we test important features such as functionality and safety.

Find the MiR Go Certified products here:

[mir-robots.com/mir-go-certified](https://mir-robots.com/mir-go-certified)





# MiR100



## MiR Charge 24V

A fully automatic charging solution.

The MiR100 moves and connects autonomously to the charging station.



## FORD

Ford implemented 3 **MiR100**. With a payload of 100 kg each, they deliver spare parts to Fords' manufacturing plant, often in a dynamic environment with a lot of traffic by forklifts and trucks, people and more. 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 300,000m<sup>2</sup> plant.



## Cost-effective mobile robots

The **MiR100**s 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 100 kg (220 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.

# MiR250



Load weight:  
250 kg / 551 lbs



Certifications:  
Clean Room Certified  
(Optional)



ESD version:  
Optional

## 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.

### Increased agility with MiR250 Dynamic

MiR250 Dynamic is another version of MiR250 with the possibility to modify settings that enables it to drive closer to objects. Subject to risk assessment, the MiR250 Dynamic can typically be used for driving in narrow corridors, doors and other spaces.



## DENSO

DENSO has deployed a fleet of MiR250 robots in its facility in Athens, Tennessee.

The robots deliver components from the warehouse directly to line-side production for just-in-time efficiencies, and within six months, the robots have freed six workers from pushing cart, allowing them to move to value-added roles.

## MiR250 Shelf Carrier

### Streamline your logistics

Together with the MiR250, we have developed a standard top module: The MiR Shelf Carrier 250.

The Shelf Carrier 250 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](https://mir-robots.com/solutions)





# MiR250 Hook



Towing capacity:  
500 kg / 1100 lbs



Highest gripping height above floor  
350 mm  
13.8 in

Lowest gripping height above floor:  
80 mm  
3.1 in



## 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.

Patented solution from MiR – only AMR in the market with towing functionality.



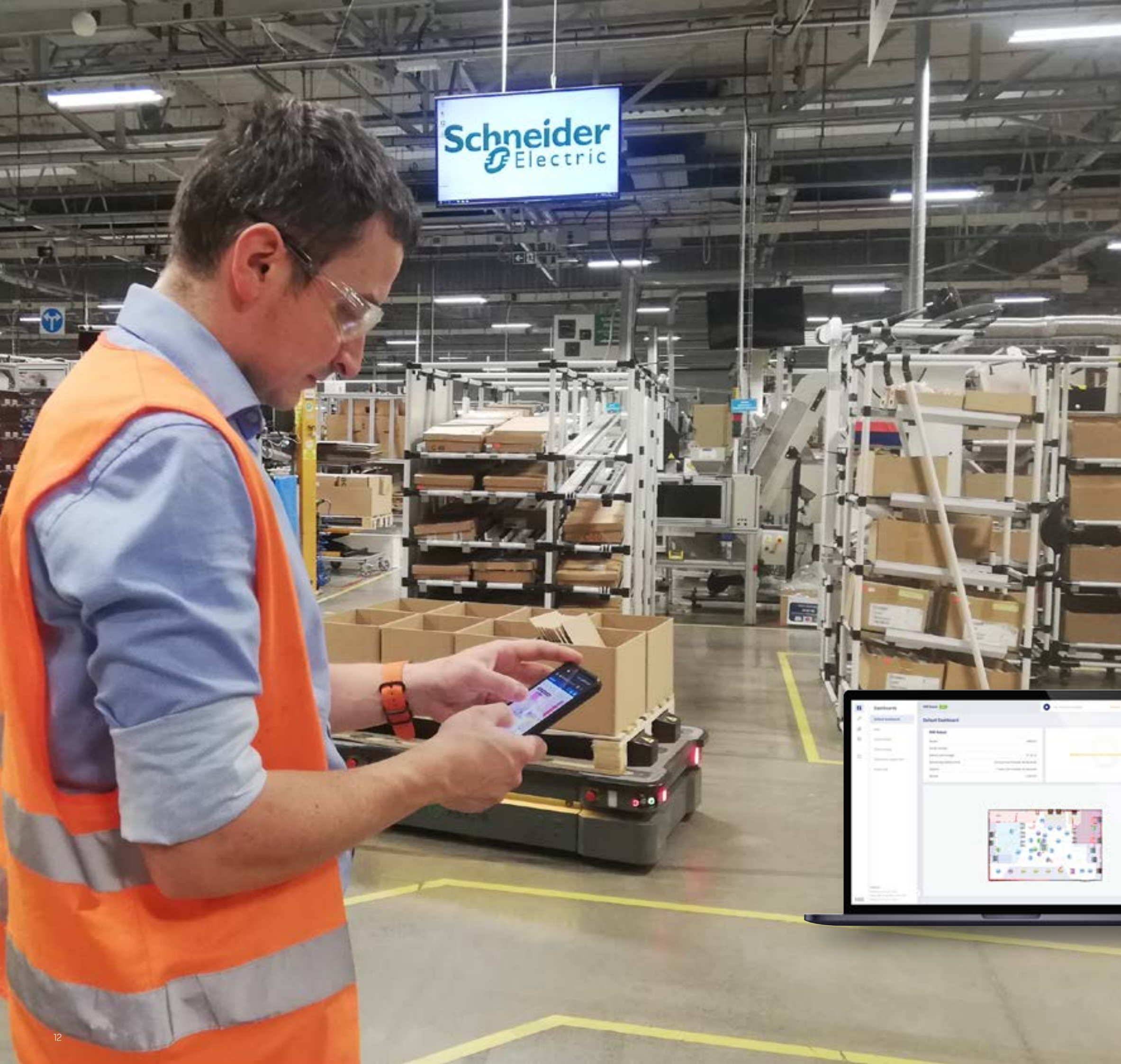
# MiR Charge 48V

A fully automatic charging solution

The MiR robots move and connect autonomously to the charging station.  
**MiR250**, **MiR600**, and **MiR1350** use the **MiR Charge 48V**, that is IP52 rated.



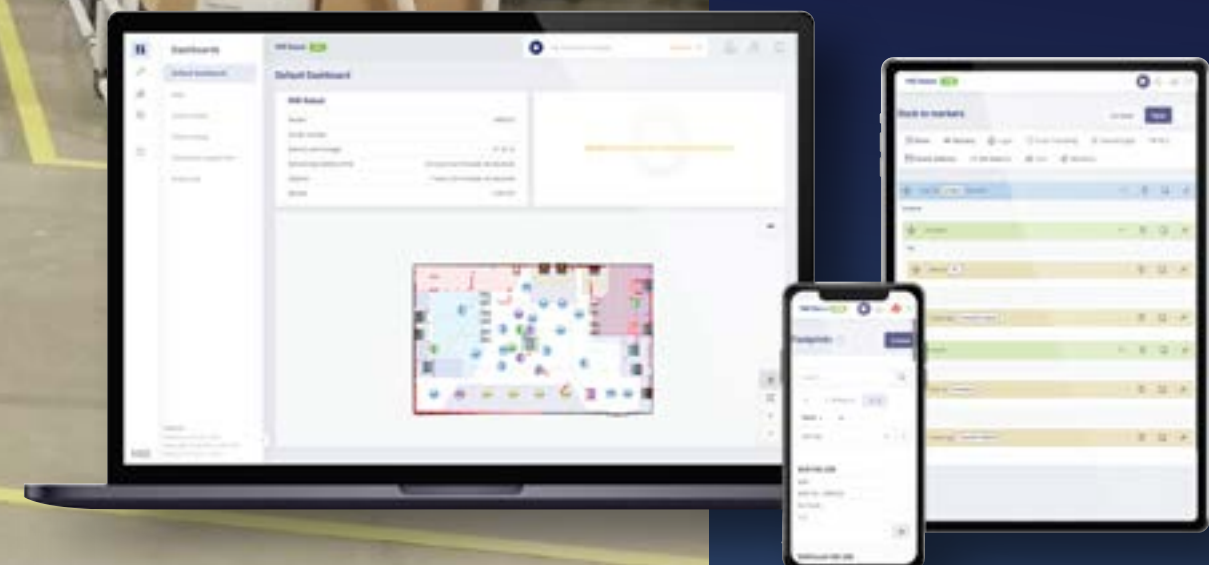




## Ease of use with intuitive interface

When you buy a MiR robot, it comes with the latest software already installed, free of charge.

- Works on PC, tablet and smartphone.
- Customizable dashboard makes it easy to tailor the interface to the individual user's needs.
- Easy to deploy and redeploy the mobile robot for different missions, adding new routes etc.



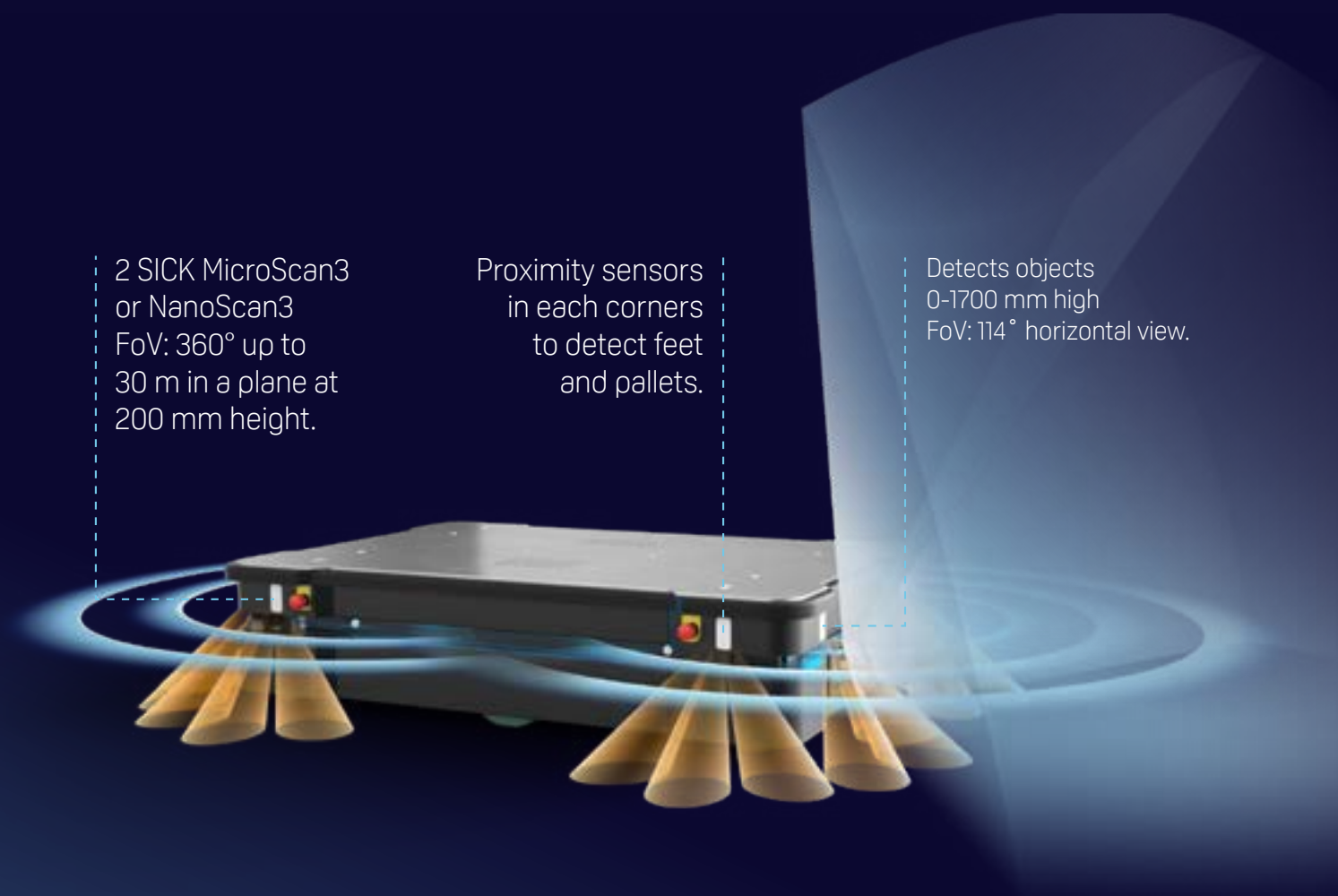


# Safe Mobile Robots

## Designed for driving safely in industrial environments

The MiR robots are designed to collaborate with people and to navigate in industrial environments alongside their human co-workers.

For daily operation a reliable and safe driving pattern of the MiR robots is ensured by a multi-sensor system that feeds data into an advanced 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 height.

Proximity sensors in each corners to detect feet and pallets.

Detects objects 0-1700 mm high  
FoV: 114° horizontal view.

## Next Generation AMRs raise the bar for AMR safety

A fundamental part in meeting safety standards is to include additional functions that address unanticipated risks to ensure that the robots react safely even if primary control systems fail for any reason. The MiR600 and MiR1350 are the first AMRs designed to comply with ISO 3691-4. Minor exceptions to ISO 3691-4 are identified and handled via MiR's Safety & Compliance documentation, which is always available per request.

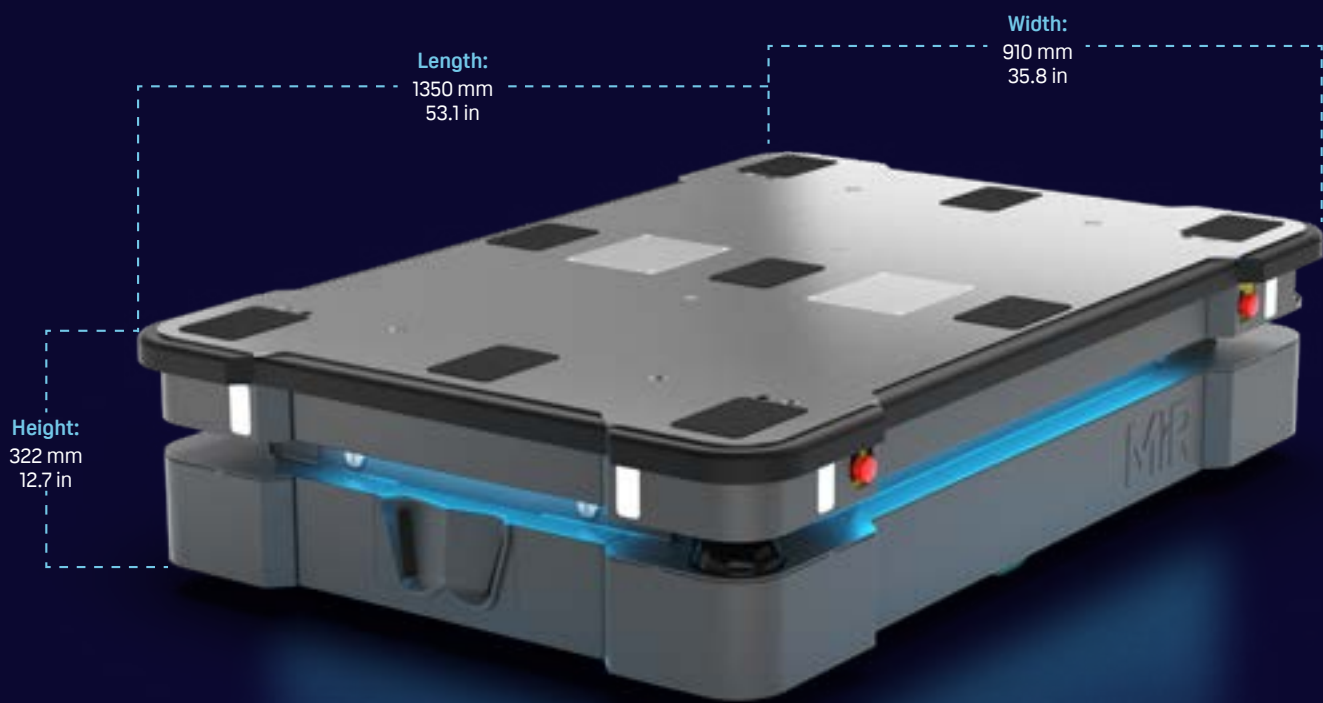
The safety functions of the MiR robots are documented with a Sistema report, which can be shared by MiR via our distributors.

FUNCTION	MiR600	MiR1350
E-stop	PLd, cat 3	PLd, cat 3
Field switching	PLd, cat 3	PLd, cat 3
Personnel detection	PLd, cat 3	PLd, cat 3
Overspeed detection	PLd, cat 3	PLd, cat 3
Field muting/speed monitor	PLd, cat 3	PLd, cat 3
Safe guarded stop	PLd, cat 3	PLd, cat 3
Locomotion	PLd, cat 3	PLd, cat 3
System E-stop	PLd, cat 3	PLd, cat 3
Mode selection	PLc, cat 1	PLc, cat 1
Pallet lift position monitoring	PLb, cat 1	PLb, cat 1
Shelf lift position monitoring	PLb, cat 1	PLb, cat 1
Shelf detection	PLb, cat 1	PLb, cat 1





# MiR600



Load weight:  
600 kg / 1 320 lbs



Compliance:  
ISO-3691-4\*

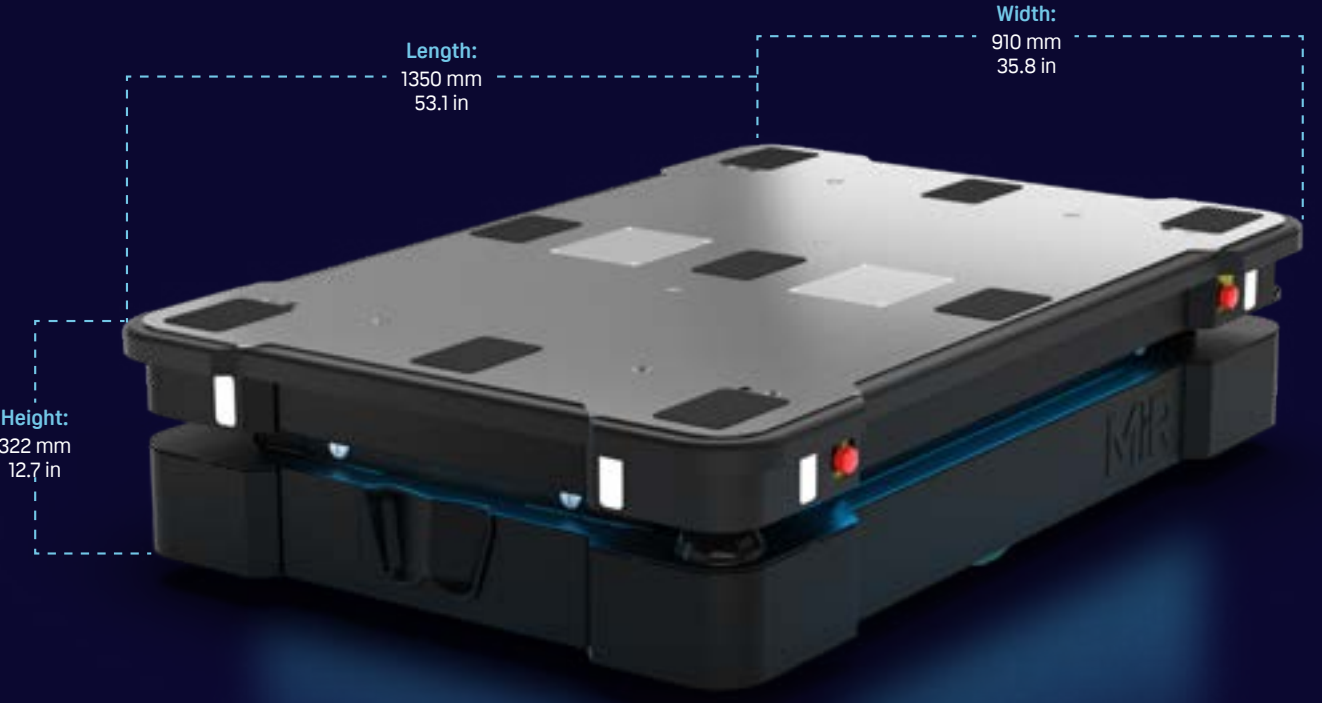


Rating:  
IP52

The MiR600 and MiR1350 are next generation AMRs that maximize the efficiency of your internal logistics.

The AMRs can pick-up, transport and deliver pallets or other heavy loads automatically even in highly dynamic environments and constitute a safe and efficient alternative to traditional AGVs, pallet lifts, and forklifts.

# MiR1350



Load weight:  
1350 kg / 2976 lbs



Compliance:  
ISO-3691-4\*



Rating:  
IP52

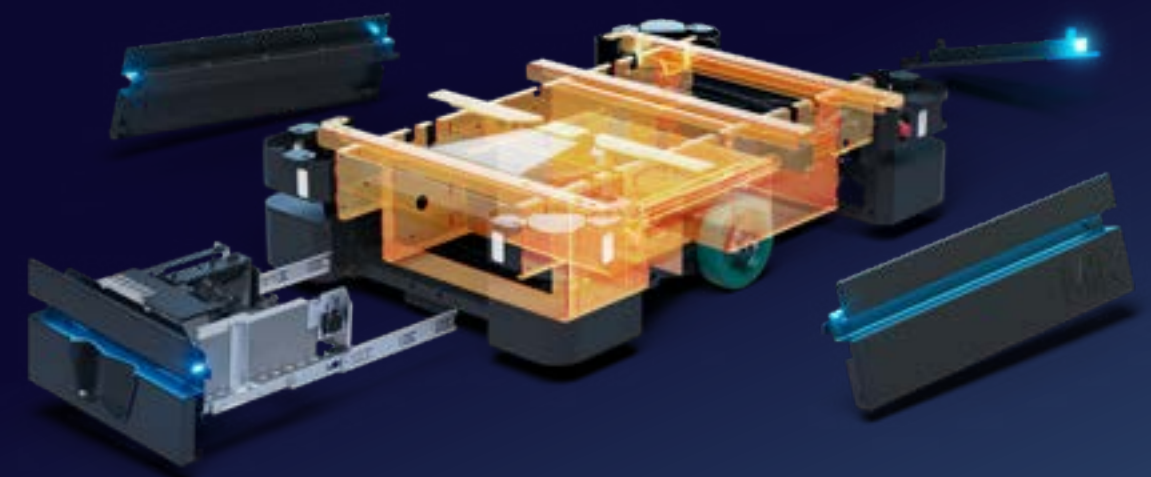
The MiR600 and MiR1350 are designed to comply with the highest available safety standards, making them superior to other AMRs\*. The two robots are the first IP52 rated AMRs in the market. This means that they have the ability to withstand dust particles and waterdrops and can be used in more challenging environments than other AMRs.

\*Minor exceptions to ISO 3691-4 are identified and handled via MiRs Safety & Compliance documentation.



## Industry grade AMRs

The MiR600 and MiR1350 are industry grade robots. The two AMRs have improved chassis and bogie to withstand the high payload. All components are industrial quality and protected, and easily accessible for service via pullout compartments, making the MiR600 and MiR1350 stronger and superior AMRs.





Optimize transportation of heavy loads and pallets with out-of-box solutions from MiR.

**MiR Shelf Lift**

Optimize transportation of heavy loads without changing facility layout.

With **MiR Shelf Lift**, the MiR600, and MiR1350 can autonomously pick up a cart or shelf, transport and deliver it. This ensures a flexible transportation of heavy loads of different sizes, without the need of a pallet rack.



**Novo Nordisk**

Five **MiR500s** improve the warehouse logistics within the Chinese plant of Novo Nordisk by transporting packaging materials from the depot area to the warehouse. The distance is 100 metres per trip with 3 to 4 twists and turns and driving in crowded areas. MiR robots were the obvious solution to take on this task with their autonomous technology, and the robots save Novo Nordisk 35 manhours per week.

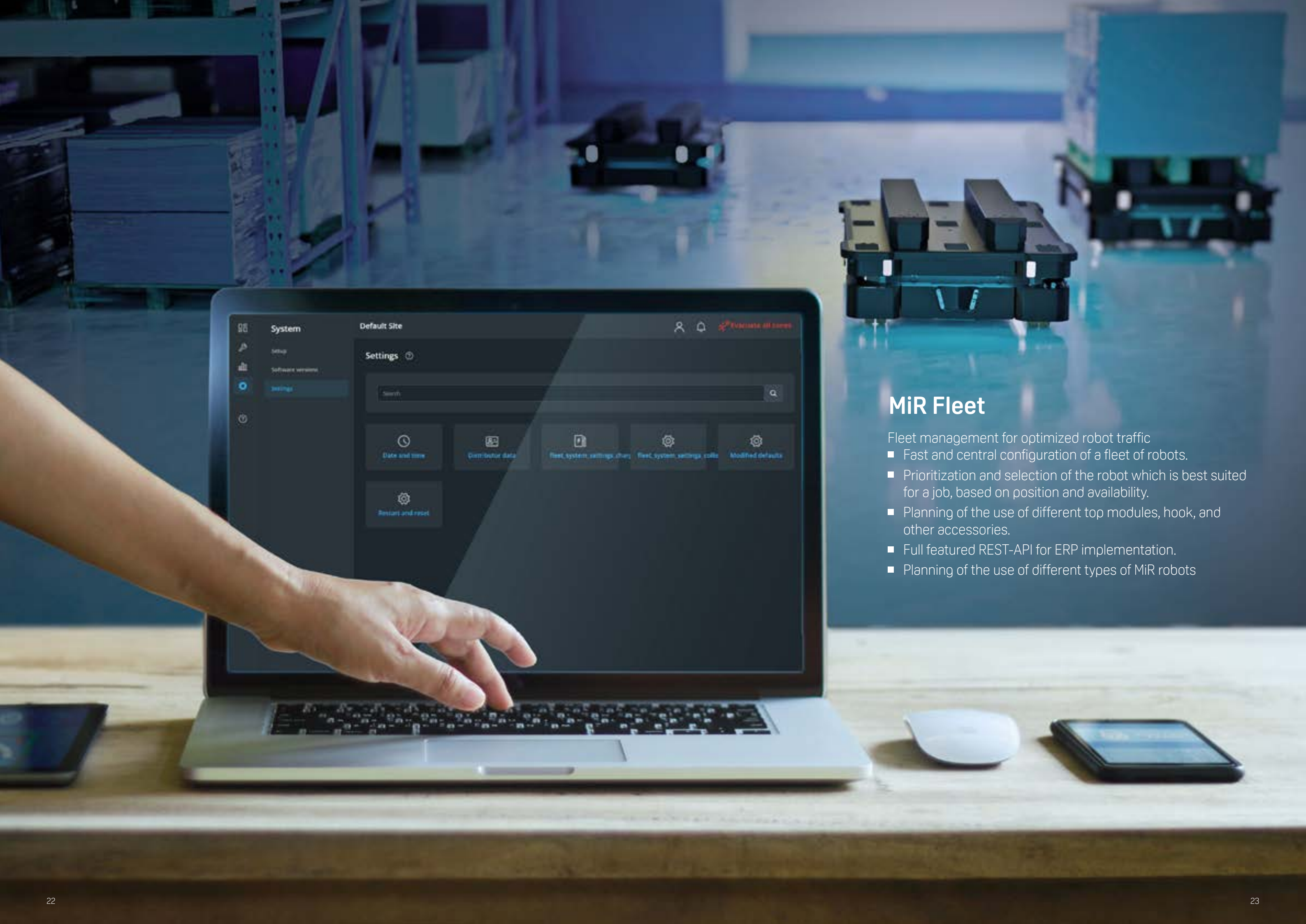
**MiR Pallet Lift**



**MiR EU Pallet Lift**







## 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.
- Planning of the use of different types of MiR robots



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.

MiR Academy makes the technology behind AMRs gettable with engaging, online training courses. Are you already working with the MiR robots, or do you just want to learn more? Then MiR Academy 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 [mobile-industrial-robots.com/mir-academy](https://mobile-industrial-robots.com/mir-academy)



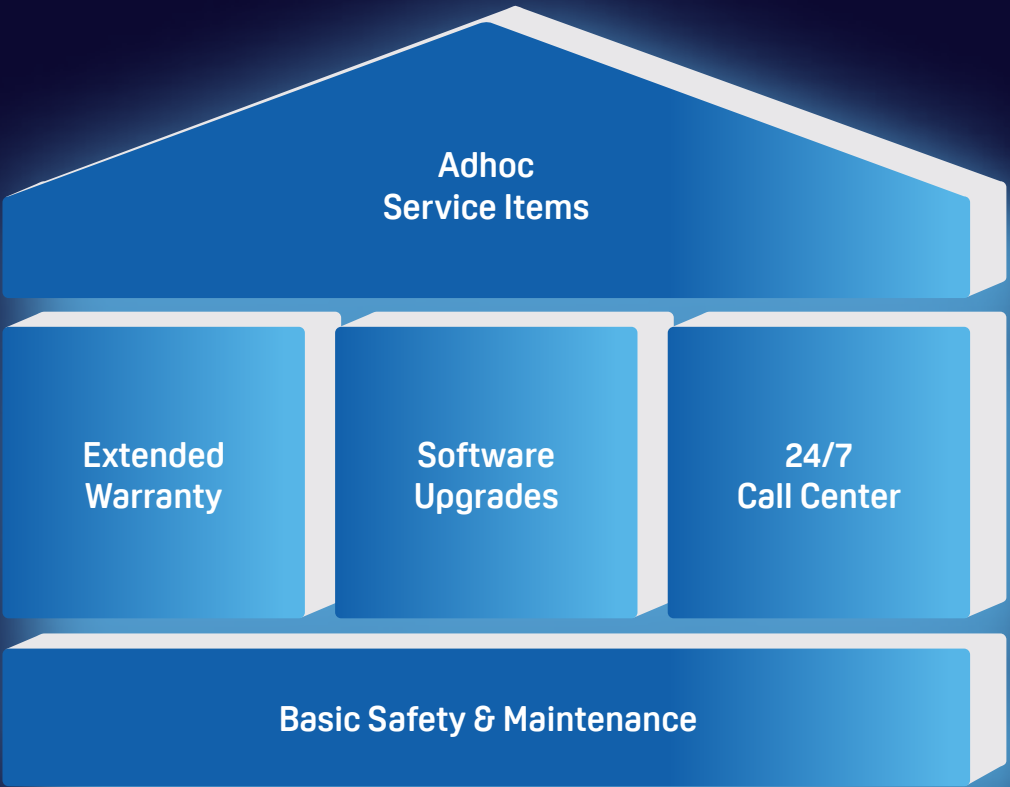
Florisa

Five **MiR1000**s have improved productivity, safety and eliminated storage problems within the Florisa plant, a company that operates in the textile segment. Previously, the plant used manned forklifts to transport 90 tons of fabric to the production floor every day. MiR's automated solutions have allowed up to 200 tons to be transported per day which represents a 122% increase on what was previously achieved.

Global service setup to ensure maximum uptime of your MiR robots

Worried about downtime in production and logistics processes? Do you rely on your AMRs in your operations? And would you like to have peace of mind when it comes to maintaining your AMR fleet while being ready for if the unluck strikes?

In worst case scenarios, your AMRs are not doing what they are supposed to, and you need them to work here and now. If this happens, MiR is there for your AMR fleet with our extensive range of tailored services.



Customize your MiR Service solution

MiR Service is a preventive service setup that you can customize for your specific need. Basic Safety & Maintenance is the foundation of the service offer and a prerequisite for our service pillars (Extended Warranty, SW Upgrade, Call center) and with this you get access to our End Customer Portal where you have an overview of your fleet of MiR robots, you can create support tickets, and be in contact with MiR and your MiR Partner.

Extended Warranty, SW Upgrade, Call center, and Ad hoc services can be added depending on your needs for service.





# MiR Insights

**Cloud-based tool to continuously optimize your deployments of MiR robots with data-driven decisions**

With MiR Insights you get a visualization of data, that enables you to monitor, track, and analyze your entire fleet of MiR robots to improve the fleet's performance, uptime and obtain even faster ROI for your MiR robots.

**Monitor fleet and robot data over long periods of time with Data Dashboards:**

- Track your sites' KPIs such as distance driven, completed missions, and robot utilization rate.
- Identify when specific events occurred, such as abrupt WiFi signal changes or unexpected battery discharges, to self-troubleshoot and maximize the uptime of your MiR robots.
- Correlate data across multiple robots to analyze areas where you can improve the performance of your fleet and increase the overall productivity.

**Get your robots' activities throughout your facility visualized with Heatmaps:**

- Detect areas with poor WiFi coverage or with overlapping access points to ensure that the robots operate efficiently and reliably.
- Optimize your usage of MiR robots and avoid potential bottlenecks by monitoring high-traffic areas during peak times of the day.
- Find precise locations in your map where robots intersect more frequently to improve your mission planning and increase throughput.



## Get your MiR robots at a low hourly cost

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 an 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

## Do you have a workflow that you are ready to automate with AMRs?

We help you make different basic calculations to get an overview of how many AMRs you need for your application and costs.

Check out how many mobile robots you need in our AMR calculator:

[mobile-industrial-robots.com/robot-calculator](https://mobile-industrial-robots.com/robot-calculator)

Calculate the expected ROI for your application:

[mobile-industrial-robots.com/roi-calculator](https://mobile-industrial-robots.com/roi-calculator)

Estimate your hourly and monthly leasing cost:

[mobile-industrial-robots.com/leasing-calculator](https://mobile-industrial-robots.com/leasing-calculator)



### FORVIA

A fleet of 14 MiR robots automates internal logistics workflows in a 24/7 operation at FORVIA Clean Mobility in Pisek, CZ.

MiR250 robots are used to transport parts from the warehouse to the production, while MiR600 robots transport finished goods from the production to the logistics area, and bring back empty pallets from the logistics area to the production to be re-used.

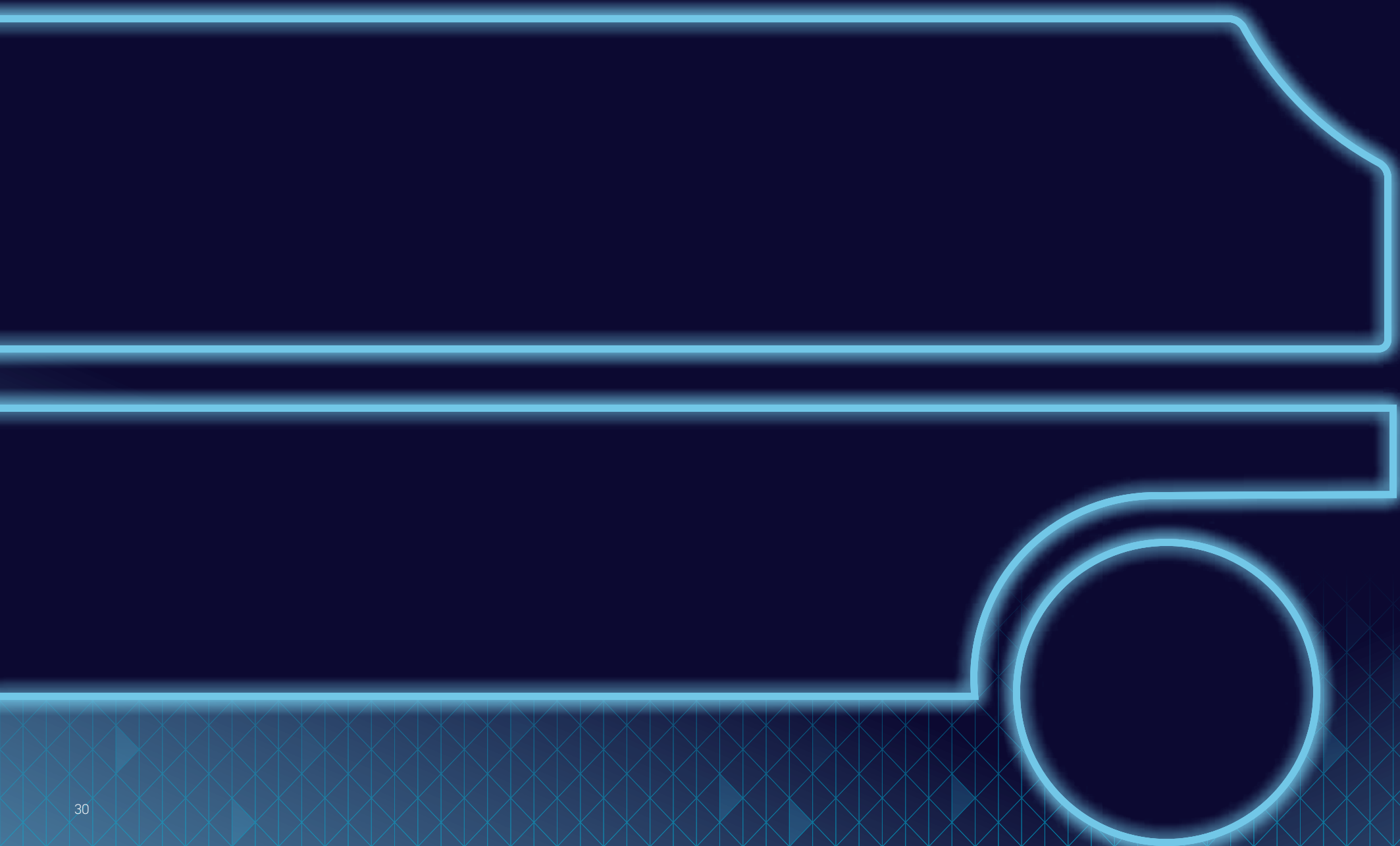
FORVIA has had a less than 2 year ROI for its MiR robots, while having increased productivity and shop floor safety.



### IKEA & FM Logistics

The global 3PL, FM Logistic, speeds up warehouse processes for IKEA with **MiR500** robot. The MiR500s cooperates with warehouse employees to transport pallets and other loads up to 500 kg. The main concept is to relieve employees of unproductive activities, improve work safety and optimize warehouse costs.

# TECHNICAL SPECIFICATIONS





MiR100		
GENERAL INFORMATION		
Designated use	Autonomous mobile robot (AMR) for internal transportation of smaller loads	
Color	ABS 542D / ATHLONE White (RAL9003)	
DIMENSIONS		
Length	890 mm	35 in
Width	580 mm	22.8 in
Height	352 mm	13.9 in
Weight	77 kg	70 lbs
Ground clearance	50 mm	2 in
PAYLOAD		
Maximum payload	100 kg	220 lbs
SPEED AND PERFORMANCE		
Maximum speed	1.5 m/s (5.4 km/h)   4.9 ft/s (3.6 mph)	
Operational corridor width	1 000 mm   39.4 in (default setup)	
Operational doorway width	With default setup: 1 300 mm   51.2 in With improved setup: 750 mm   29.5 in	
Accuracy, docking to VL-marker	± 11 mm   0.43 in on X-axis, ± 9 mm   0.35 in on Y-axis, ± 1° yaw	
Accuracy, moving to position	± 26 mm   1.02 in on X-axis, ± 8 mm   0.31 in on Y-axis, ± 3° yaw	
Traversable gap tolerance	Up to 20 mm   0.79 in	
Active operation time with max. payload	Up to 7 h 30 min (24V Standard battery)	
Active operation time with no payload	Up to 9 h (24V Standard battery), up to 13 h (24V Extended Capacity battery)	
Maximum incline/decline	± 5% at 0.5 m/s	
POWER		
Battery type	Lithium-ion, 24V, 33.6 or 56 Ah	
Charging ratio	Up to 1:6 charging to runtime ratio	
Number of full charging cycles	Minimum 1 000 cycles	
ENVIRONMENT		
Environment	For indoor use only	
Ambient temperature range, operation	5–40°C   41–104°F	
Humidity	10–95% non-condensing	
IP rating	IP 20	
Floor conditions	No water, no oil, no dirt	
COMPLIANCE		
EMC	EN61000-6-2 and EN61000-6-4	
Safety standards for industrial vehicles	CE, EN1525, ANSI B56.5, RIA15.08	
Cleanroom	Class 4 (ISO 14644-1)	
COMMUNICATION		
WiFi	2.4 GHz 802.11 g/n, 5 GHz 802.11 a/n/ac.	
I/O connections	USB and Ethernet	
SENSORS		
SICK safety laser scanners	2 pcs, S300 (front and rear), give 360° visual protection around the robot	
3D cameras	2 pcs, 3D camera Intel RealSense™ D435   2–70.9 in	
LIGHTS AND AUDIO		
Signal and status lights	Indicator lights on four sides	



		MiR250		MiR250 Dynamic	
GENERAL INFORMATION					
Designated use		Autonomous mobile robot (AMR) for internal transportation of small- and medium-sized loads		Autonomous mobile robot (AMR) for internal transportation of small- and medium-sized loads	
Color		RAL7011, Iron Grey		RAL7011, Iron Grey	
DIMENSIONS					
Length		800 mm	31.5 in	800 mm	31.5 in
Width		580 mm	22.8 in	580 mm	22.8 in
Height		300 mm	11.8 in	300 mm	11.8 in
Weight		97 kg	214 lbs	97 kg	214 lbs
Ground clearance		28 mm	1.1 in	28 mm	1.1 in
Load surface		800 x 580 mm	31.5 x 22.8 in	800 x 580 mm	31.5 x 22.8 in
PAYLOAD					
Maximum payload		250 kg	551 lbs	250 kg	551 lbs
SPEED AND PERFORMANCE					
Maximum speed		2.0 m/s (7.2 km/h)   6.6 ft/s (4.4 mph)		2.0 m/s (7.2 km/h)   6.6 ft/s (4.4 mph)	
Operational corridor width		With default setup: 1 450 mm   57 in With improved setup: 850 mm   33.5 in		With default setup: 1 300 mm   51.2 in With improved setup: 850 mm   33.5 in	
Operational corridor width for two robots passing		With default setup: 3 200   126 in With improved setup: 1 700 mm   67 in		With default setup: 2 450   96.5 in With improved setup: 1 700 mm   67 in	
Accuracy, docking to VL marker		± 3 mm   0.12 in on X-axis, ± 3 mm   0.12 in on Y-axis		± 3 mm   0.12 in on X-axis, ± 3 mm   0.12 in on Y-axis	
Accuracy, moving to position		± 60 mm   2.36 in on X-axis, ± 85 mm   3.35 in on Y-axis		± 60 mm   2.36 in on X-axis, ± 85 mm   3.35 in on Y-axis	
Traversable gap tolerance		Up to 20 mm   0.79 in		Up to 20 mm   0.79 in	
Operational doorway width		1 300 mm   51.2 in (default setup) 750 mm   29.5 in (improved setup)		1 000 mm   39.4 in (default setup) 750 mm   29.5 in (improved setup)	
Active operation time with max. payload		Up to 13 h		Up to 13 h	
Active operation time with no payload		Up to 17 h 30 min		Up to 17 h 30 min	
Maximum incline/decline		± 5% at 0.5 m/s		± 5% at 0.5 m/s	
POWER					
Battery type		Li-NMC, 47.7 V, 34.2 Ah		Li-NMC, 47.7 V, 34.2 Ah	
Charging ratio		Up to 1:16 (10 min charging gives 2 h 40 min runtime with maximum payload)		Up to 1:16 (10 min charging gives 2 h 40 min runtime with maximum payload)	
Number of full charging cycles		Minimum 3 000 cycles		Minimum 3 000 cycles	
ENVIRONMENT					
Environment		For indoor use only		For indoor use only	
Ambient temperature range, operation		5–40°C   41–104°F		5–40°C   41–104°F	
Humidity		10–95% non-condensing		10–95% non-condensing	
IP rating		IP 21		IP 21	
Floor conditions		No water, no oil, no dirt		No water, no oil, no dirt	
COMPLIANCE					
EMC		EN61000-6-2, EN61000-6-4, (EN12895)		EN61000-6-2, EN61000-6-4, (EN12895)	
Safety standards for industrial vehicles		CE, EN1525, ANSI B56.5, ANSI R15.08		EN1525, ANSI B56.5, ANSI R15.08	
SAFETY					
Safety functions		Eight safety functions according to ISO 13849-1. The robot stops if a safety function is triggered.		Eight safety functions according to ISO 13849-1. The robot stops if a safety function is triggered.	
COMMUNICATION					
WiFi		2.4 GHz 802.11 g/n, 5 GHz 802.11 a/n/ac.		2.4 GHz 802.11 g/n, 5 GHz 802.11 a/n/ac.	
I/O connections		4 digital inputs, 4 digital outputs (GPIO), 1 Ethernet port, 1 Auxiliary emergency stop		4 digital inputs, 4 digital outputs (GPIO), 1 Ethernet port, 1 Auxiliary emergency stop	
SENSORS					
SICK safety laser scanners		2 pcs, nanoScan3 (front and rear), give 360° visual protection around the robot		2 pcs, nanoScan3 (front and rear), give 360° visual protection around the robot	
3D cameras		2 pcs, 3D camera Intel RealSense™ D435		2 pcs, 3D camera Intel RealSense™ D435	
Proximity sensors		8 pcs		8 pcs	
LIGHTS AND AUDIO					
Audio		Speaker		Speaker	
Signal and status lights		Indicator lights on four sides, eight signal lights (two on each corner)		Indicator lights on four sides, eight signal lights (two on each corner)	

MiR250 Hook		
GENERAL INFORMATION		
Designated use	Autonomous mobile robot (AMR) for internal transportation of small- and medium-sized loads	
Color	RAL 7011 / Iron Grey	
DIMENSIONS		
Length	1 130–1 220 mm	44.5–48 in
Width	580 mm	22.8 in
Height	645–895 mm	25.4–35.2 in
Weight	202 kg	445 lbs
Ground clearance	28 mm	1.1 in
PAYLOAD		
Maximum tow weight	500 kg	1 102 lbs recommended
SPEED AND PERFORMANCE		
Maximum speed	2.0 m/s (7.2 km/h)	
Operational corridor width	3 600 mm   141.7 in (default setup) 3 000 mm   118.1 in (improved setup)	
Accuracy, docking to VL-marker	± 3 mm   0.12 in on X-axis, ± 3 mm   0.12 in on Y-axis	
Accuracy, moving to position:	± 60 mm   2.36 in on X-axis, ± 85 mm   3.35 in on Y-axis	
Traversable gap tolerance	Up to 20 mm   0.79 in	
Operational doorway width	With improved setup: 750 mm   29.5 in With default setup: 1 700 mm   66.9 in	
Active operation time with maximum payload	Up to 10 h	
Active operation time with no payload	Up to 14 h	
Maximum incline/decline	± 5% at decreased speed with 300 kg payload	
POWER		
Battery type	Li-NMC, 47.7 V, 34.2 Ah	
Charging ratio	Up to 1:16 (10 min charging gives 2 h 40 min runtime with maximum payload)	
Charging current	Up to 35 A	
Number of full charging cycles	Minimum 3 000 cycles	
ENVIRONMENT		
Environment	For indoor use only	
Ambient temperature range, operation	5–40°C   41–104°F	
Humidity	10–95% non-condensing	
IP rating	IP 21	
Floor conditions	No water, no oil, no dirt	
SAFETY		
Safety functions	Eight safety functions according to ISO 13849-1. The robot stops if a safety function is triggered.	
SENSORS		
SICK safety laser scanners	2 pcs, nanoScan3 (front and rear), give 360° visual protection around the robot	
3D cameras	2 pcs, 3D camera Intel RealSense™ D435	
Proximity sensors	8 pcs	
COMMUNICATION		
WiFi	2.4 GHz 802.11 g/n, 5 GHz 802.11 a/n/ac.	
I/O connections	4 digital inputs, 4 digital outputs (GPIO), 1 Ethernet port, 1 Auxiliary emergency stop	
LIGHTS AND AUDIO		
Signal and status lights	Indicator lights on four sides, eight signal lights (two on each corner)	



MiR600			MiR1350		
GENERAL INFORMATION					
Designated use		Autonomous mobile robot (AMR) for internal transportation of heavy loads and pallets		Autonomous mobile robot (AMR) for internal transportation of heavy loads and pallets	
Color		RAL 7011 / Iron Grey		RAL 9005 / Jet Black	
DIMENSIONS					
Length	1 350 mm	53.1 in	1 350 mm	53.1 in	
Width	910 mm	35.8 in	910 mm	35.8 in	
Height	322 mm	12.7 in	322 mm	12.7 in	
Weight	243 kg	536 lbs	243 kg	536 lbs	
Ground clearance	27 mm	1.0 in	27 mm	1.0 in	
Load surface	1 304 x 864 mm	51.3 x 34 in	1 304 x 864 mm	51.3 x 34 in	
PAYLOAD					
Maximum payload	600 kg	322.8 lbs	1 350 kg	2 976 lbs	
SPEED AND PERFORMANCE					
Maximum speed	2.0 m/s (7.2 km/h)   6.6 ft/s (4.4 mph)		1.2 m/s (4.3 km/h)   3.9 ft/s (2.7 mph)		
Operational corridor width	-		With default setup: 2 150 mm   84.6 in With improved setup: 1 200 mm   47.2 in		
Accuracy, docking to L-marker	-		± 3 mm		
Accuracy, docking to VL-marker	± 2 mm   0.08 in on X-axis, ± 3 mm   0.12 in on Y-axis, ± 0.25° yaw		± 2 mm   0.08 in on X-axis, ± 3 mm   0.12 in on Y-axis, ± 0.25° yaw		
Accuracy, moving to position	± 100 mm   3.94 in on X-axis, ± 83 mm   3.27 in on Y-axis, ± 3.4° yaw		-		
Traversable gap tolerance	Less than 30 mm   1.18 in		Less than 30 mm   1.18 in		
Operational doorway width	-		2 050 mm   80.7 in (default setup) 1 200 mm   47.2 in (improved setup)		
Active operation time with max. payload	Up to 8 h 30 min		Up to 7 h		
Active operation time with no payload	Up to 11 h		Up to 10 h		
Maximum incline/decline	± 3% at 0.5 m/s, ± 1% at 2.0 m/s		± 1% at 1.2 m/s		
POWER					
Battery type	Li-NMC, 47.7 V, 34.2 Ah		Li-NMC, 47.7 V, 34.2 Ah		
Charging ratio	Up to 1:12 (10 min charging gives 2 h runtime with maximum payload)		Up to 1:12 (10 min charging gives 2 h runtime with maximum payload)		
Number of full charging cycles	Minimum 3 000 cycles		Minimum 3 000 cycles		
ENVIRONMENT					
Environment	For indoor use only		For indoor use only		
Ambient temperature range, operation	5–40°C   41–104°F		5–40°C   41–104°F		
Humidity	10–95% non-condensing		10–95% non-condensing		
IP rating	IP 52		IP 52		
Floor conditions	No water, no oil, no dirt		No water, no oil, no dirt		
COMPLIANCE					
EMC	EN61000-6-2, EN61000-6-4, (EN12895)		EN61000-6-2, EN61000-6-4, (EN12895)		
Safety standards for industrial vehicles	CE, EN1525, ANSI B56.5, ISO3691-4, RIA15.08, ISO13849-1		CE, EN1525, ANSI B56.5, ISO3691-4, RIA15.08, ISO13849-1		
SAFETY					
Safety functions	12 safety functions according to ISO 13849-1. The robot stops if a safety function is triggered.		12 safety functions according to ISO 13849-1. The robot stops if a safety function is triggered.		
COMMUNICATION					
WiFi	2.4 GHz 802.11 g/n, 5 GHz 802.11 a/n/ac.		2.4 GHz 802.11 g/n, 5 GHz 802.11 a/n/ac.		
I/O connections	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 safety laser scanners	2 pcs, microScan3 (front and rear), give 360° visual protection around the robot		2 pcs, microScan3 (front and rear), give 360° visual protection around the robot		
3D cameras	2 pcs, 3D camera Intel RealSense™ D435		2 pcs, 3D camera Intel RealSense™ D435		
Proximity sensors	8 pcs		8 pcs		
LIGHTS AND AUDIO					
Audio	Speaker		Speaker		
Signal and status lights	Indicator lights on four sides, eight signal lights (two on each corner)		Indicator lights on four sides, eight signal lights (two on each corner)		



MiR Pallet Lift

GENERAL INFORMATION		
Designated use	For autonomous pickup and unloading of pallets and for lift applications	
Color	RAL 9005 / Signal Black	
DIMENSIONS		
Frame length	1 304 mm	51.3 in
Frame width	910 mm	35.8 in
Total height in lowered position	94 mm	3.7 in
Total height in lifted position	156 mm	6.1 in
Lifting height	60 mm	2.4 in
Lift Length	1 174 mm	46.2 in
Lift width	710 mm	28 in
PAYLOAD		
Maximum lift payload for MiR600	500 kg	1 100 lbs
Maximum lift payload for MiR1350	1 250 kg	2 756 lbs
PERFORMANCE		
Number of lift cycles (with maximum payload)	Minimum 90 000	
Lifting speed	Up: 4.0 s Down: 3.2 s	
PALLETES		
Pallets dimensions	Supported with Lift Pallet Rack: 1 016 x 1 219 mm   40 x 48 in. Can be used for different pallet dimensions.	

MiR Pallet Rack

GENERAL INFORMATION		
Designated use for MiR600 & MiR1350	For autonomous pickup and unloading of 40" x 48" pallets	
DIMENSIONS		
Length	1 300 mm	51.2 in
Width	1 182 mm	46.5 in
Height	442 mm	17.4 in
COLOR		
RAL color	RAL 7011 / Iron Grey	
PAYLOAD		
Pallet Rack payload	1 350 kg	2 976 lbs



MiR Shelf Lift

GENERAL INFORMATION		
Designated use	For autonomous pick up and delivery of carts, shelves and other lift applications	
Color	RAL 9005 / Signal Black	
DIMENSIONS		
Frame length	1 304 mm	51.3 in
Frame width	910 mm	35.8 in
Total height in lowered position	94 mm	3.7 in
Total height in lifted position	156 mm	6.1 in
Lifting height	60 mm	2.4 in
Lift Length	1 174 mm	46.2 in
Lift width	710 mm	28 in
PAYLOAD		
Maximum lift payload for MiR600	500 kg	1 320 lbs
Maximum lift payload for MiR1350	1 000 kg	2 200 lbs
PERFORMANCE		
Number of lift cycles (with maximum payload)	Minimum 50 000	
Operational corridor width	With minimized footprint: 2 400 mm   94.9 in	

Specifications may vary based on local conditions and application setup.

MiR EU Pallet Lift

GENERAL INFORMATION		
Designated use	For autonomous pickup and unload of EUR-pallets	
Color	RAL 9005 / Signal Black	
DIMENSIONS		
Length	1 200 mm	47.2 in
Height	87 mm	3.4 in
Total height in lifted position for MiR600	150 mm	5.9 in
Total height in lifted position for MiR1350	162 mm	6.4 in
Lifting height	60 mm	2.4 in
PAYLOAD		
Maximum lift payload for MiR600	500 kg	1 100 lbs
Maximum lift payload for MiR1350	1 250 kg	2 756 lbs
PERFORMANCE		
Number of lift cycles (with maximum payload)	Minimum 90 000	
Lifting speed	Up: 4.0 s Down: 3.2 s	
PALLETES		
EUR-pallets dimensions	1 200 x 800 mm   47.2 x 31.5 in	
Pallet production specifications	EN 13698-1	

MiR EU Pallet Rack

GENERAL INFORMATION	
Designated use for MiR600 & MiR1350	For autonomous pickup and unloading of EUR-pallets
DIMENSIONS	
Length	1 300 mm / 51.2 in
Width	1 182 mm / 46.5 in
Height	352 mm / 13.9 in
COLOR	
RAL color	RAL 7011 / Iron Grey
PAYLOAD	
Pallet Rack payload	1 350 kg / 2 976 lbs



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.



MiR Charge 24V		MiR Charge 48V
GENERAL INFORMATION		
Designated use	Automatic charger for MiR100 and MiR200 robots. The robot moves and connects to the charging station	Automatic charger for MiR250, MiR500, MiR600, MiR1000, and MiR1350 robots. The robot moves and connects to the charging station
Color	RAL 7035 / Light Grey	RAL 7035 / Light Grey
DIMENSIONS		
Depth	120 mm   4.7 in	237 mm   9.3 in (with charging plate: 487 mm   19.2 in)
Width	620 mm   24.4 in	622 mm   24.5 in
Height	350 mm   13.8 in	287 mm   11.3 in
Weight	10.5 kg   22 lbs	20 kg   44.1 lbs
Minimum distance between chargers	100 mm   3.9 in if the robot can approach the charger in an angle of 80-100° to the wall	
ENVIRONMENT		
Humidity	10–95% non-condensing	10–95% non-condensing
Ambient temperature range, operation	5–40°C   41–104°F	5–40°C   41–104°F
Maximum altitude	2 000 m   6 562 ft	2 000 m   6 562 ft
POWER		
Battery type	Li-NMC, 47.7 V, 34.2 Ah	
Charging ratio	Up to 1:16 (10 min charging gives 2 h 40 min runtime with maximum payload)	
Charging current	Up to 35 A	
Output		48 V, maximum 40 A
Input		100–240 V AC, 50–60 Hz
COMPLIANCE		
Electrical standards	EN60335-2-29	EN60335-2-29
TüV safety approval		Canada: CSA C22.1-18, SPE-1000-13, CSA C22.2 No. 107.2 -2001 US: NFPA 70: 2017, UL 1564: 2015, NFPA 791: 2021



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
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

Specifications may vary based on local conditions and application setup.

### 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.





# Born Global

Mobile Industrial Robots is rapidly expanding. We have established offices in Denmark (HQ), United States, Spain, Germany, China, Singapore, Korea and Japan and with **+220 distributors** in more than **60 countries** and still more to come, we are able to offer our robots to customers worldwide.



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