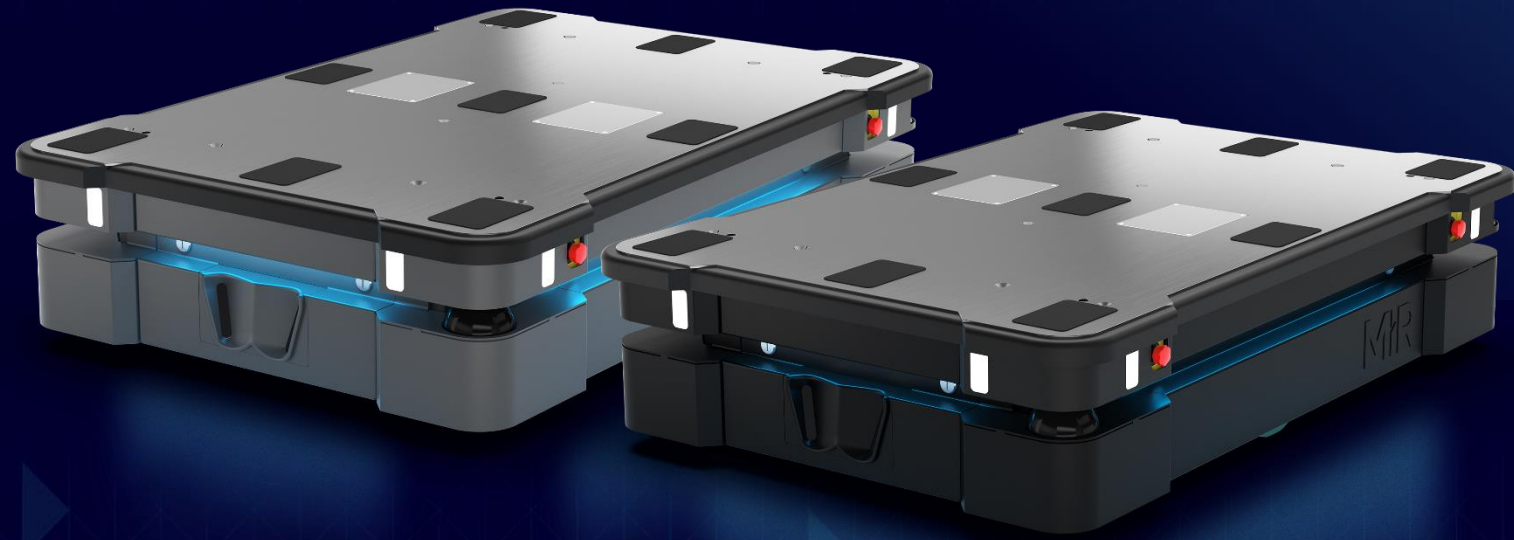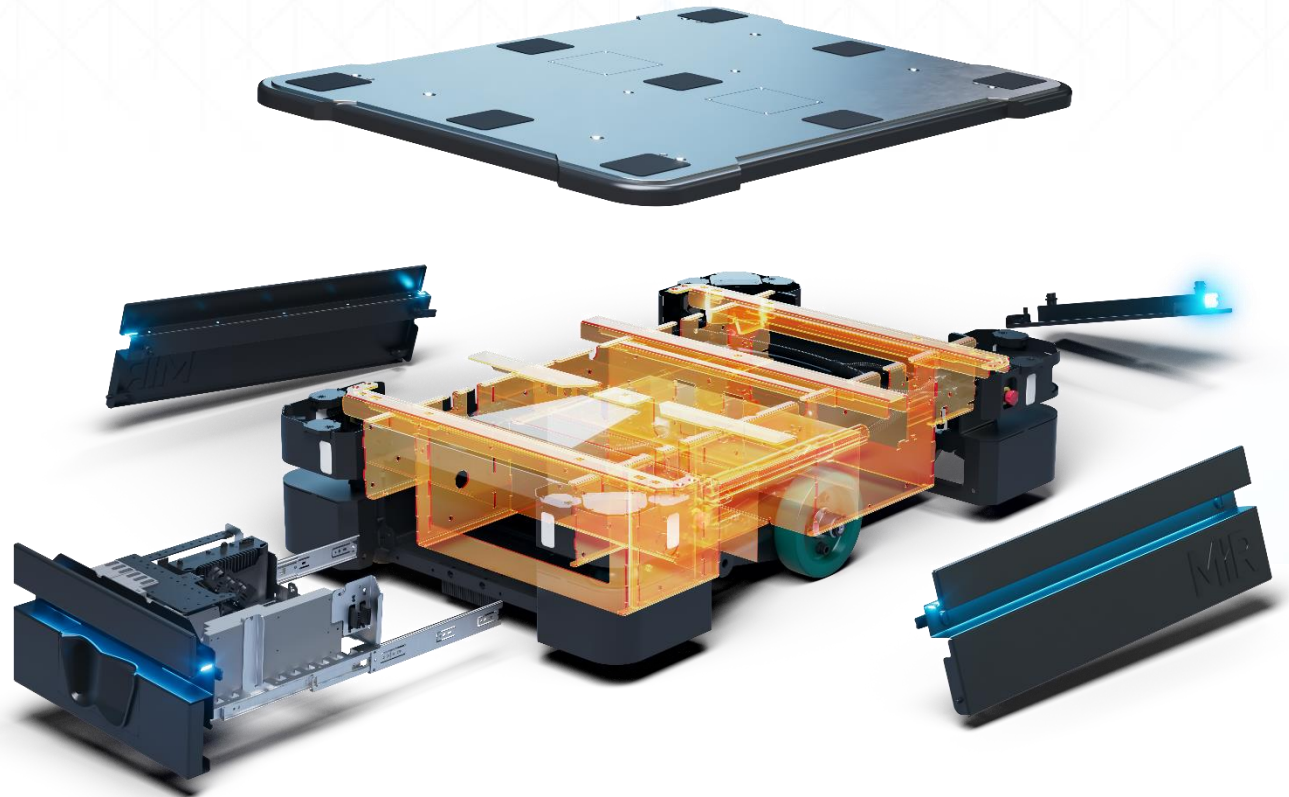# MiR
Heavy Duty
Robots

Kevin March
Area Sales Manager – Canada

Industry grade AMRs

- MiR600 and MiR1350 are designed to drive in challenging, industrial environments

- The robots are IP 52 rated and has increased ability to withstand dust particles, waterdrops and dirt

- All components in MiR600 and MiR1350 are industrial quality and protected

- The MiR600 and MiR1350 have improved chassis and bogie to withstand the high payload

- You can easily access components via pullout compartments for fast service and increased uptime

MiR600

Optimize the internal transportation of heavy loads and pallets

▶ Large and powerful next generation AMR
▶ Robust industry-grade AMR designed to comply with latest safety standards
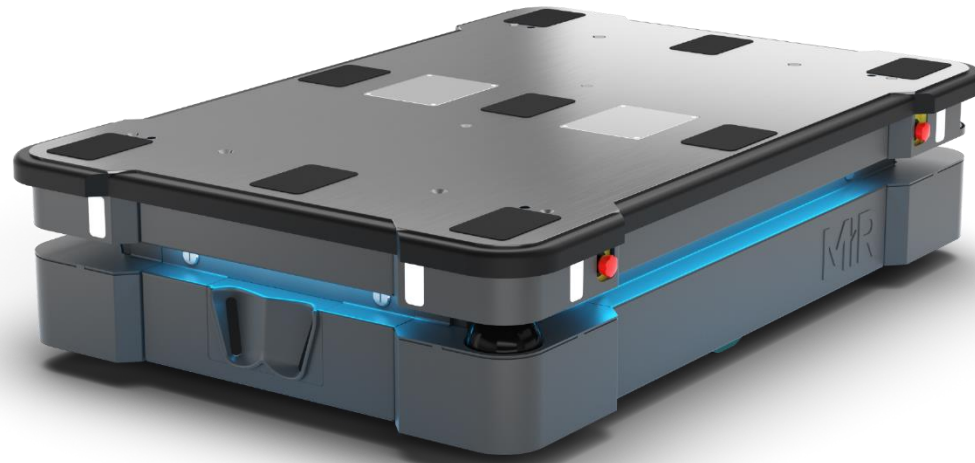▶ 360-degree laser scanning

Compliance
ISO 3691-4
IP52 rated
CE certified
ISO/EN 13849

Load weight
600 kg / 1322 lbs

MiR100
MiR250
MiR600
MiR1350

MiR1350

The most powerful MiR robot to maximize your transport efficiency

▶ Transport very heavy loads
▶ Pick up, transport and deliver pallets automatically
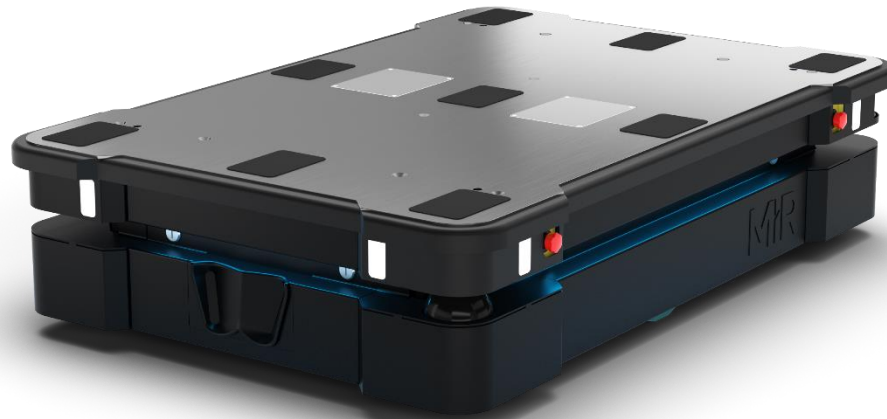▶ Can drive in many challenging environments thanks to IP52 rating

MiR100
MiR250
MiR600
MiR1350

Compliance
CE certified
ISO 3691-4
IP52 rated
EMC Directive
2014/30/EU

Load weight
1350 kg – 2976 lbs

Specifications

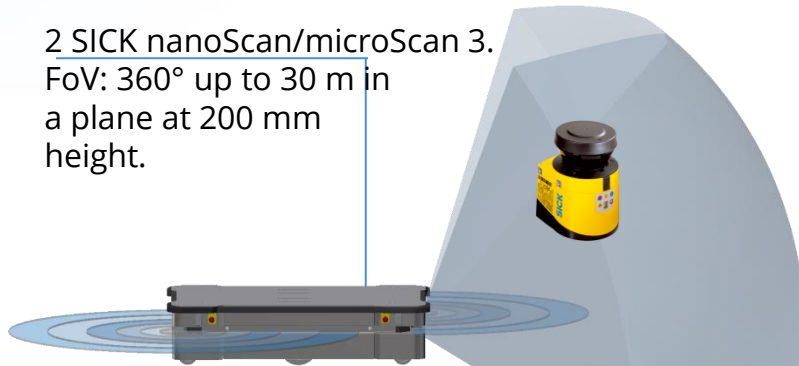| Dimensions	MiR600	MiR1350
Length	1350 mm I 53.1 in	1350 mm I 53.1 in
Width	910 mm I 35.8 in	910 mm I 35.8 in
Height	322 mm I 12.7 in	322 mm I 12.7 in
Ground Clearance	27 mm I 1.0 in	27 mm I 1.0 in
Weight without load	243 kg I 536 lbs	243 kg I 536 lbs
Performance		
Maximum speed	2.0 m/s I 6.6 ft/s	1.2 m/s I 3.9 ft/s
Payload	600 kg I 323 lbs	1350 kg I 2976 lbs
Operational corridor width	With default setup: 2,150 mm I 84.6 in With improved setup: 1,200 mm I 47,2 in	With default setup: 2,150 mm I 84.6 in With improved setup: 1,200 mm I 47,2 in
Accuracy, docking to VL marker	± 2 mm I 0.08 in on X-axis. ± 3 mm I 0.12 in on Y-axis	± 2 mm I 0.08 in on X-axis. ± 3 mm I 0.12 in on Y-axis
Traversable gap tolerance	Less than 30 mm I 1.18 in	Less than 30 mm I 1.18 in
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 max. payload	Up to 1:12 (10 min. Charging gives 2 h runtime with max. payload
Number of full charging cycles	Min. 3,000 cycles	Min. 3,000 cycles

Specifications

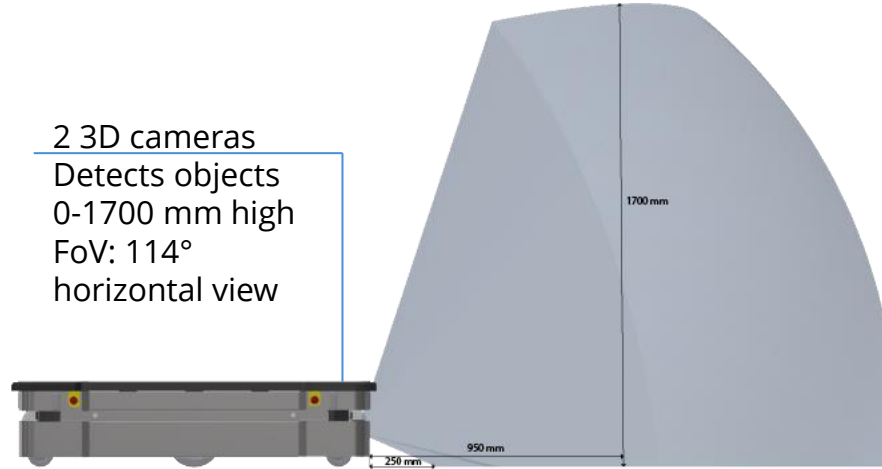| Environment	MiR600	MiR1350
Ambient temperature range, operation	5-40°C I 41-104° F	5-40°C I 41-104° F
Humidity	10-95% mpm-condensing	10-95% mpm-condensing
IP rating	IP 52	IP 52
Compliance		
EMC	EN61000-6-2, EN61000-6-4 (EN12895)	EN61000-6-2, EN61000-6-4 (EN12895)
Safety standards for industrial vehicles	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
Sensors		
SICK safety laser scanners	2 pcs, microScan 3 (front and rear) give 360° visual protection around the robot	2 pcs, microScan 3 (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

Safe Operations

Sensory input – MiR600, MiR1350

2 SICK nanoScan/microScan 3.
FoV: 360° up to 30 m in
a plane at 200 mm
height.

2 3D cameras
Detects objects
0-1700 mm high
FoV: 114°
horizontal view

1700 mm

950 mm

250 mm

4 proximity sensors in each corner
Pallet and feet detection

AMRs that raise the bar for AMR safety

- The safety functions of MiR600 and MiR1350 are tested and verified in accordance with ISO 3691-4

- Minor exceptions to ISO 3691-4 are identified and handled by MiR's Safety & Compliance documentation, which is always available per request

- [TüV Rheinland](#) has certified 13 different safety functions on MiR's MiR600 and MiR1350 in accordance with ISO 13849-1 industry standards.

- The safety functions of the MiR600 & MiR1350 are documented with a Sistema report, which can be shared by MiR

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

Standard top module: MiR Pallet Lift

Automate internal transportation of 40" x 48" pallets and other pallets easily and cost-effectively with MiR Pallet Lift 600 and MiR Pallet Lift 1350
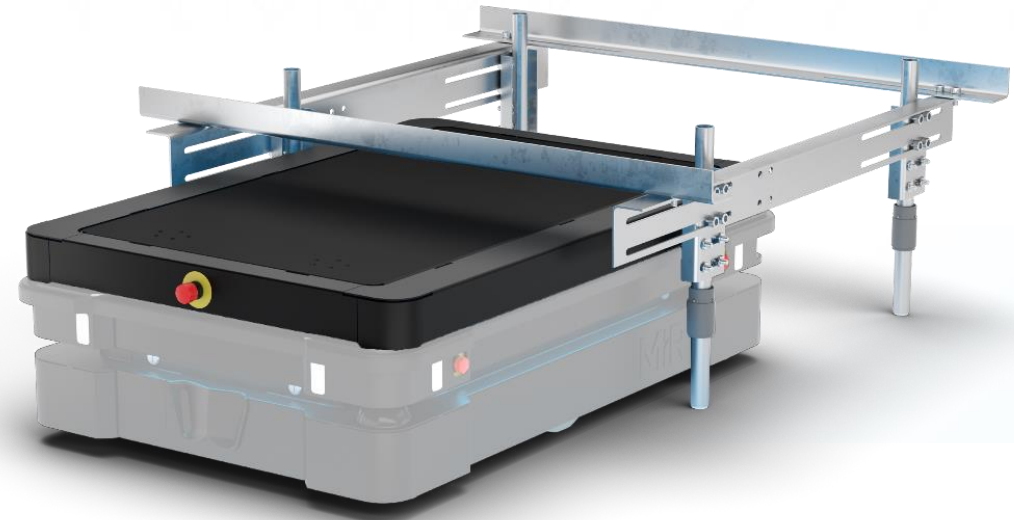
- Enables the MiR600/1350 to autonomously pick up and drop off 40" x 48" pallets and other types of pallets

- Can be deployed in different lift tasks

- Extremely stable and safe transportation of 40" x 48" pallets and other objects in even highly dynamic environments

- Optimizes your internal transportation of heavy loads and pallets and allows employees to focus on higher value activities
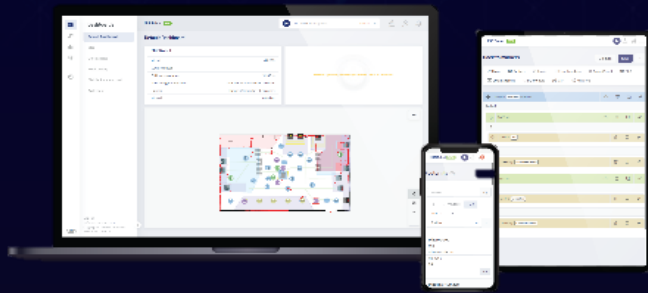
Standard top module: MiR Shelf Lift

With MiR Shelf Lift, the MiR600 and MiR1350 can autonomously connect to a cart, transport and deliver it wherever needed

- Ensures a flexible transportation of heavy loads of different sizes and pallets, without the need of a pallet rack

- Can be deployed in different lift tasks

- One robot can now pick up og deliver multiple carts

- Extremely stable and safe transportation of carts and heavy loads in highly dynamic environments

- Saves space as carts can be placed where ever needed in the facility without the need for pallet racks or docking stations
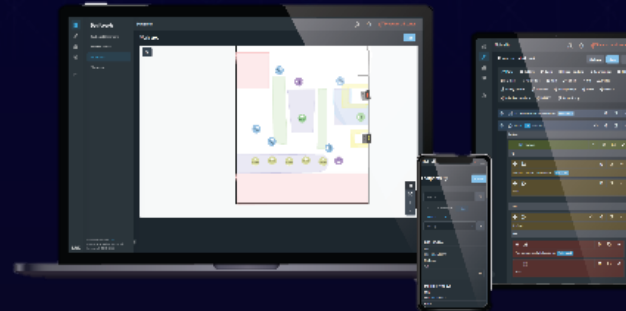
Own Software and Fleet Manager

With MiR's user-friendly software, we enable customers to take ownership of their MiR solution depending on need and size of fleet.

Robot Software

MiR robots come with the latest SW already installed and allows you to easily get started with your robots.

MiR Fleet

Fast and central configuration of your entire fleet of MiR robots

MiR Insights

Visualization of data that enables you to monitor, track, and analyze your entire fleet of MiR robots to maximize uptime

MiR Heavy Duty robots case stories

Novo Nordisk

Florisa

Forvia

Navigating in dynamic setup

Novo Nordisk uses a fleet of MiR heavy duty robots to transport incoming packaging materials to its warehouse. The environment is complex, and the robots interact with people, pallets and other robots in their paths, and navigate autonomously to their destination.

Transporting goods across floors

Five MiR heavy duty robots have improved productivity, safety and eliminated storage problems within the Florisa plant. The robots are part of a fully automated workflow thanks to MiR Fleet, and they travel long distances and across floors with elevators to optimize logistics throughout the entire plant.

Fully automated workflows in dynamic environments

Forvia uses a fleet of MiR250 and MiR600 robots to automate several processes between warehouse and production, and production and end of line. The robots drive in 24/7 operation, 7 days a week.

Summary:
Why MiR600 & MiR1350

Next generation AMRs that are setting new standards for AMR safety

- Increased productivity with autonomous transportation of heavy loads and pallets

- Improved workplace safety with AMRs that are designed to comply with ISO 3691-4

- Industry-quality and easy serviceability ensures minimum downtime of your AMRs

- Can be used in challenging environments with dust particles, dirt and waterdrop thanks to IP 52 rating

- Highly skilled workers can attend more valuable activities