

MiR500



MiR500 is designed to automate the transportation of pallets and heavy loads across industries. With a total payload of 500 kg, and a footprint of 1350x920 mm, MiR500 is a large, powerful and robust collaborative, autonomous mobile robot.

Designated use

Autonomous Mobile Robot (AMR)

For internal transportation of heavy loads and pallets within the industry and logistics

Dimensions

Length	1350 mm / 53.1 in
Width	909 mm / 35.8 in
Height	320 mm / 12.6 in
Height with MiR500 EU Pallet Lift	407 mm / 16.1 in (lowered), 476 mm / 18.7 in (raised)
Height with MiR500 Lift	410 mm / 16.1 in
Weight (without load)	226 kg / 498 lbs
Weight with MiR500 EU Pallet Lift	290 kg / 639 lbs
Weight with MiR500 Lift	341 kg / 752 lbs
Ground clearance	40 mm / 1.6 in
Load surface	1249 x 789 mm / 49.2 in x 31 in
Dimensions for mounting top modules	Robot footprint. Contact MiR if a bigger top module is required.

Color

RAL color	RAL 7011 / Iron Gray
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Payload

Total payload	500 kg / 1100 lbs
Footprint of payload	Robot footprint. Contact MiR if a bigger payload footprint is required.
Total lifting capacity with a MiR EU-/US-/Shelf-lift installed:	500 kg / 1100 lbs

Speed and performance

Maximum speed (full payload, flat surface)	2.0 m/s (7.2 km/h)
Minimum width: Pivoting	2600 mm / 102.4 in
Minimum width: door	Normal operation: 1500 mm Muted personnel detection means: 1000 mm
Minimum width: corridor: 90 degree turn	2200 mm (default footprint), 2100 mm (minimized footprint)
Minimum width: two robots passing	4000 mm (normal setup), 3600 mm (improved setup)

Minimum corridor width	2200 mm (default footprint), 2000 mm (min. footprint), 2400 mm (narrow shelf footprint)
Minimum distance between chargers	750 mm
Docking types	Forward docking. Reverse docking.
Turning diameter around an obstacle/wall with no load	2200 mm (normal) 2100 mm (with minimized footprint)
Traversable gap and sill tolerance	20 mm / 0.8 in
Product design life	5 years or 20.000 hours, whichever comes first

Battery and charging

Charging options	MiR Charge 48V, Battery Charger 48V 12A , Cable Charger Lite 48V 3A
MiR Charge 48V	The robot communicates with MiR Charge 48V through CAN interface. Charging starts only when the robot connection is present.
Charging current, MiR Charge 48V	40 A
Charging time, MiR Charge 48V, 10% to 90%	1 hour
Charging current, cable charger	12 A
Charging time, cable charger, 10% to 90%	3.5 hours (12 A charger)
Active operation time between charging (approximate)	8 hours
Full charging cycles, minimum	1000
Battery voltage	48 V
Battery capacity	2 kWh (41.6 Ah at 48 V)
Battery type	Li-NMC, 48 V, 40 Ah
Battery weight	14.3 kg
Standby time	10 hours

Environment

Ambient temperature, operation	+5°C to 40°C
Ambient temperature, storage	-10°C to 60°C
Humidity	10-95% non-condensing
Environment	For indoor use only
IP Class	IP21

Water on floor	Can withstand driving through small puddles of water on floor, max. 4 mm deep
Maximum altitude	2000 m
Compliance	CE, EN1525, ANSI B56.5 & ISO 3691-4* (*under preparation), EN12895, EN61000-6-2 & EN61000-6-4, TÜV safety approval pending

Safety

Safety functions	Five safety functions according to ISO 13849-1. MiR500 stops if a safety function is triggered
Manual control in robot interface	Token-based system for accessing the manual control. The robot issues only one token at a time.

Communication

I/O connections	4 digital inputs, 4 digital outputs, 1 Ethernet port
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.
WiFi connection	Router: 2.4 GHz and 5 GHz. WiFi adapter: 2.4 GHz and 5 GHz, 2 internal antennas.
Power for top modules	M23 plug, 6p. 2 x 48 V / 20 A safe pwr, 1 x 24 V / 2 A always on
Communication protocol	REST, Modbus

Sensors

SICK microScan3 safety system(2 pcs.)	360° visual protection around robot
3D camera (2 pcs.)	2 pcs.: 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.

Lights and audio

Audio	Buzzer, speaker
Signal lights	Indicator lights on four sides, eight signal lights (two at each corner).