

# MiR1350 specifications

Date: 2025-09-01

The product specifications in English are the most recently updated on the Support Portal.

See the latest updates [here](#).

Specifications may vary based on local conditions and application setup.

## General information

Designated use	Autonomous mobile robot (AMR) for internal transportation of heavy loads and pallets
Type	Autonomous Mobile Robot (AMR)
Color	RAL 9005 / Jet Black
Product design life	5 years or 20 000 hours of active operation, whichever comes first
IP rating	IP 52
Drive wheel material	Polyurethane

## Dimensions

Length	1 350 mm
Width	910 mm
Height	322 mm
Weight	244 kg
Ground clearance	25–27 mm
Load surface	1 304 × 864 mm
Drive wheel diameter	200 mm
Caster wheel diameter	100 mm

**Payload**

Maximum payload	1 350 kg
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Maximum lifting capacity with a MiR EU-/US-lift installed	1 250 kg
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**Performance**

Maximum speed (with maximum payload on a flat surface)	1.2 m/s (4.3 km/h)
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Maximum acceleration	No payload: 0.43 m/s <sup>2</sup> Maximum payload: 0.40 m/s <sup>2</sup>
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Positioning precision when docking to VL-marker	X-axis: ± 2 mm Y-axis: ± 3 mm Orientation: ± 0.3°
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Positioning precision when docking to V-marker	X-axis: ± 20 mm Y-axis: ± 20 mm Orientation: 2°
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Positioning precision when docking to Bar-marker	X-axis: ± 10 mm Y-axis: ± 5 mm Orientation: ± 0.8°
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Positioning precision when docking to L-marker	X-axis: ± 3 mm Y-axis: ± 3 mm Orientation: ± 0.3°
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Positioning precision when moving to position	X-axis: ± 100 mm Y-axis: ± 83 mm Orientation: ± 3.4°
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Time used when docking to or undocking from a VL-marker	Docking time: up to 12 s Undocking time: up to 7 s (Offsets used: -0.75 m on X-axis, 0.2 m on Y-axis, 0° yaw)
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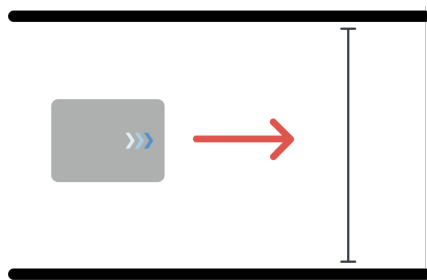
Time used when docking to or undocking from a V-marker	Docking time: up to 39 s Undocking time: up to 5 s (Offsets used: -0.75 m on X-axis, 0.4 m on Y-axis, 0°)
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	yaw)
Time used when docking to or undocking from an L-marker	Docking time: up to 16 s Undocking time: up to 12 s With default offsets
Time used when docking to or undocking from a Bar-marker	Docking time: up to 21 s Undocking time: up to 14 s With default offsets

### Space requirements

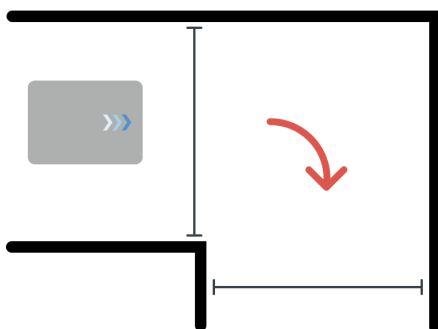
For an in-depth explanation of the space requirements and how to achieve the reduced safety settings for the absolute minimum operational space, see the space requirements guide for your robot model.

#### Operational corridor width



Standard settings: 1.80 m  
Reduced safety settings: 1.20 m

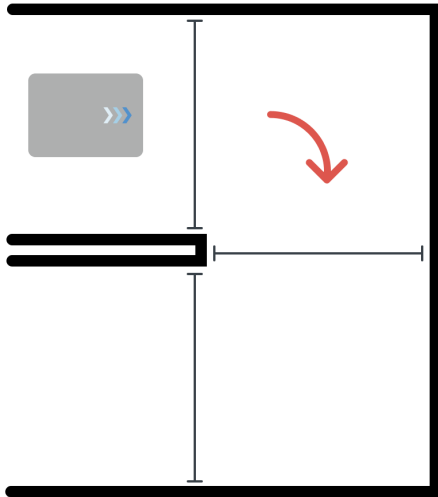
#### Operational corridor width for a 90° turn



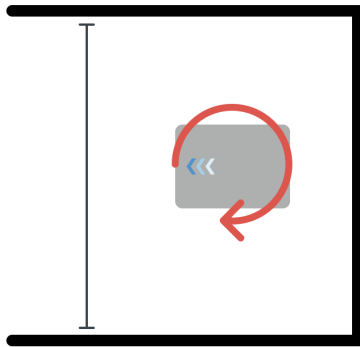
Standard settings: 1.85 m  
Reduced safety settings: 1.55 m

#### Operational corridor width for a U-turn

Standard settings: 1.85 m  
Reduced safety settings: 1.55 m

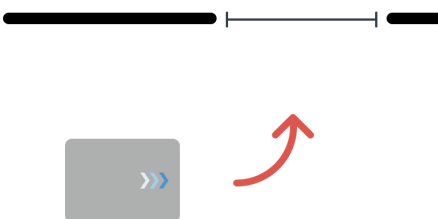


Operational width for pivoting



Standard settings: 2.30 m  
Reduced safety settings: 1.85 m

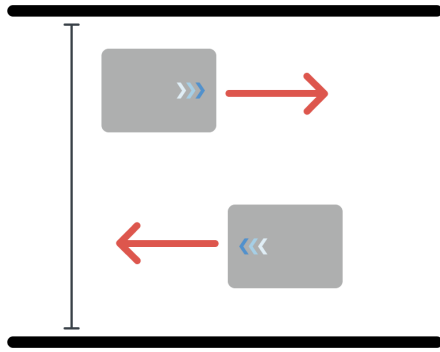
Operational doorway width



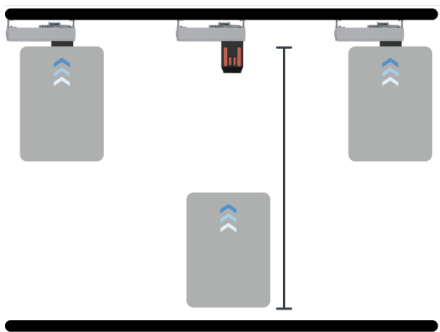
Standard settings: 1.65 m  
Reduced safety settings: 1.20 m

Operational corridor width for two robots passing

Standard settings: 3.50 m  
Reduced safety settings: 2.70 m



Minimum space in front of line of charging stations



Standard settings: 2.80 m  
Reduced safety settings: 2.60 m

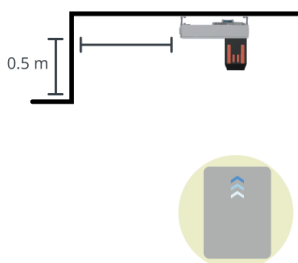
Minimum distance between charging stations



1.10 m

Minimum space to the sides of charging stations

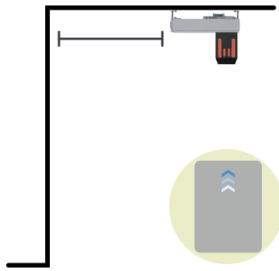
0.5 m from marker



Standard settings - Left: 0.50 m  
Standard settings - Right: 0.90 m

Reduced safety settings - Left: 0.40 m  
Reduced safety settings - Right: 0.80 m

Minimum space to the sides of charging stations  
to Entry position



Standard settings - Left: 0.40 m

Standard settings - Right: 0.90 m

Reduced safety settings - Left: 0.15 m

Reduced safety settings - Right: 0.60 m

Minimum space to sides of a MiR pallet rack

Standard settings: 0.70 m

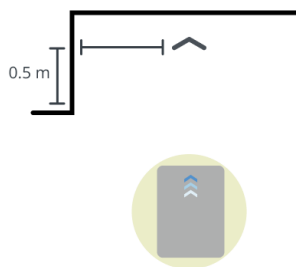
Reduced safety settings: 0.30 m

Minimum space in front of MiR pallet rack

Standard settings: 2.70 m

Reduced safety settings: 2.40 m

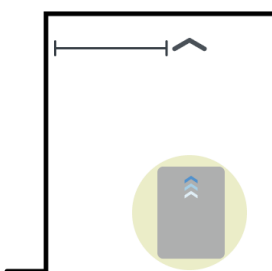
Minimum space to the sides of V-markers 0.5 m  
from marker



Standard settings: 0.75 m

Reduced safety settings: 0.75 m

Minimum space to the sides of V-markers to  
Entry position



Standard settings: 1.10 m

Reduced safety settings: 0.6 m

Minimum space in front of V-markers

Standard settings: 3.00 m

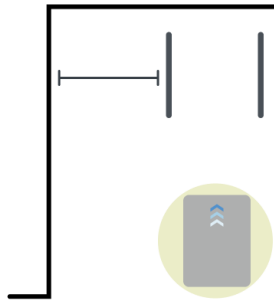
Reduced safety settings: 2.75 m

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Minimum distance between V-markers	0.22–0.28 m
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Minimum space to sides of a Bar-marker



Standard settings: 0.50 m  
Reduced safety settings: 0.25 m

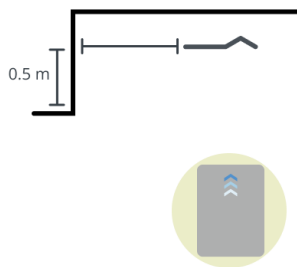
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Minimum space in front of Bar-markers

Standard settings: 2.45 m  
Reduced safety settings: 2.20 m

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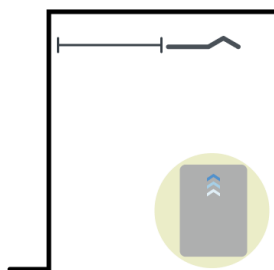
Minimum space to the sides of VL-markers 0.5 m from marker



Standard settings: 0.50 m  
Reduced safety settings: 0.30 m

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Minimum space to the sides of VL-markers to Entry position



Standard settings: 0.75 m  
Reduced safety settings: 0.45 m

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Minimum distance between VL-markers	0.02–0.03 m
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**Power**

Battery type	Lithium-ion
Charging options	<ul style="list-style-type: none"> <li>• Charge 48V 35A</li> <li>• MiR Charge 48V</li> <li>• Battery Charger 48V 12A</li> <li>• Battery Charger, 48V 650W 13.5A</li> <li>• Battery Charger, 48V 1200W 13.5A</li> <li>• Cable Charger Lite 48V 3A</li> </ul>
Charging time from 10%–90% with MiR Charge 48V	45 min
Charging time from 10%–90% with cable charger	1 h 10 min
Maximum charging current	35 A
Battery weight	11 kg
Battery dimensions	545 × 201 × 75 mm
The minimum number of full charging cycles before the battery capacity drops below 80%	3 000 cycles
Battery voltage	47.7 V nominal, minimum 42 V, maximum 54 V
Battery capacity	34.2 Ah
Charging ratio and runtime	<p>With no payload:</p> <p>15 min charging: 3 h runtime (1:12 charging to runtime ratio)</p> <p>30 min charging: 6 h 15 min runtime (1:12.5 charging to runtime ratio)</p> <p>With maximum payload:</p> <p>15 min charging: 2 h 15 min runtime (1:9 charging to runtime ratio)</p> <p>30 min charging: 4 h 50 min runtime (1:9.6 charging to runtime ratio)</p>



Active operation time with no payload (100–0%)	9 h 50 min
Active operation time with maximum payload (100–0%)	6 h 45 m
Active standby time where robot is idle (100–0%)	12 h 30 min

## Environment

Environment	For indoor use only
Ambient temperature range, operation	5–25°C for continuous use, maximum 40°C for 1 hour
Ambient temperature range, storage	0–50°C
Humidity	20–95% non-condensing
Floor conditions	Clean and dry
Maximum slope at rated load	1%
Maximum gap at rated load at 0.5 m/s	70°–90°: 29 mm
Maximum step at rated load at 0.5 m/s	70°–90°: 10 mm
Floor to wheel frictional coefficient	0.60–0.80
Material the robots cannot detect reliably	Transparent, translucent, glossy, reflective, and light emitting
Optimal light conditions	Even and steady lighting (strong directional light can cause the robot to detect non-existent obstacles)
Maximum altitude	2 000 m

## Compliance

EMC	EN61000-6-4
Compliant with	ISO 13849-1

	ISO 12100
	ISO 13850
	ISO 3691-4 (except Clause 4.4, 4.9.4, 5.1, 5.2, 6, and Annex A)
Design based on principles in safety standards for industrial vehicles	ITSDF B56-5 and RIA R15.08-1
TÜV safety evaluation	ISO 13849-1— <a href="#">see the certificate here</a>

## Safety

Safety functions	13 safety functions according to ISO 13849-1, certified by TÜV Rheinland. The robot stops if a safety function is triggered.
Personnel detection safety function	Triggered when obstacles or people are detected too close to the robot
Emergency stop	Four emergency stop buttons, one in each corner. Emergency stop connector in electrical interface and joystick interface.
Overspeed avoidance	Prevents the robot from driving faster than the predefined safety limit
Collision avoidance	Triggered by a human or other obstacle in the path of travel.
Manual control in robot interface	Token-based system for accessing the manual control. The robot issues only one token at a time.
Safe guarded stop	Yes
Safe load position	Triggered if the speed exceeds 0.3 m/s while the lift/carrier is being lowered or raised

**Communication**

Wi-Fi	2.4 GHz and 5 GHz, 2 external antennas
Power interface	24 V and 48 V power outputs for top modules (M23 6p connector)
GPIO interface	4 digital inputs, 4 digital outputs for custom use (M17 17p connector)
Ethernet interface	10/100 Mbit Ethernet with Modbus protocol (M12 4p connector)
Auxiliary emergency stop interface	Support for Emergency stop buttons on top modules (M17 8p connector)
Auxiliary safety function interface	Support for safety-related functions for top modules (M17 17p connector)
Antenna interface	Antenna connection for top module (RP-SMA connector)
Communication protocols	REST, Modbus

**Top module**

Power for top modules	Yes
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**Sensors**

Safety laser scanners	2 pcs, (front and rear), give 360° personnel detection around the robot 200 mm from ground
3D cameras	2 pcs, for detecting obstacles in front of robot outside of safety laser scanner plane
Proximity sensors	8 pcs

**Lights and audio**

Audio	Speaker
Status light	4 LED bands, indicates the robot status
Signal lights	8 pcs, indicates robot driving behavior and direction