



The Mobile Robot Company

Knowledge Center — Implementazione sicura · 2026-08-04

<https://info.mobilerobot.com/it-it/category/safe-deployment>

Implementazione sicura

Come preparare un sito, convalidare le attività e utilizzare il J1600 in sicurezza dalla messa in servizio al funzionamento quotidiano.



Site Risk Assessment

Why a site risk assessment precedes J1600 deployment, what the commissioning package covers, and which site factors to evaluate before go-live.



Floor and Environment Requirements

The J1600's operating-environment limits: floor flatness, gradeability, bumps and gaps, temperature, humidity, and ingress protection.



Approved Loads and Pallets

Which pallets and load carriers the J1600 supports — open-base requirement, size and weight limits, EPAL and GMA types, and where operator judgment applies.



Charger Safety

Safe charging of the J1600 with the manual or automatic charger, the PL b charging-current relay, and what the LiFePO4 battery means for the site.



Operator Responsibilities

What the J1600 operator is responsible for — task initiation, manual pickup, confirming autonomous mode, takeover, and the judgment calls the robot leaves to people.



Commissioning and Validation

The J1600 installation and commissioning package: five days from feasibility check and risk assessment to task validation, training, acceptance test, and handover.



Residual Risks

The risks that remain after the J1600's safeguards — operating limits, manual-mode situations, and why deployment decisions need current product documentation.

Site Risk Assessment

Before the J1600 [goes live](https://info.mobilerobot.com/it-it/documentation/installation/deployment-checklist/) at a site, the site, the selected tasks, and the loads should be assessed for risk. This page describes what that assessment involves and which factors matter for a [dual-mode](https://info.mobilerobot.com/it-it/products/j1600/dual-mode/) pallet jack.

Where risk assessment fits

Risk assessment is the method at the heart of [ISO 12100](https://info.mobilerobot.com/it-it/safety-compliance/standards/iso-12100/), which appears in the J1600's [compliance list](https://info.mobilerobot.com/it-it/safety-compliance/certificates/compliance-statements/): identify hazards, evaluate risks, and reduce them in order of priority. The vehicle's built-in safeguards handle the machine side; the site assessment handles everything the machine cannot know about your facility.

When the [installation and commissioning package](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/commissioning-and-validation/) is purchased, its pre-installation phase covers this formally:

- a feasibility check for all selected tasks and loads;
- a risk assessment;
- a project plan.

Site factors to evaluate

The J1600's operating limits define what to check:

Factor	What to verify	Details
Floors	Level routes for autonomous travel (0% automatic gradeability), bumps up to 25 mm, gaps up to 20 mm, TR34 FM3 / FF 25 / FL 20 flatness	Floor and environment requirements (https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/floor-and-environment-requirements/)
Environment	Indoor use, 5–40°C, 20–80% relative humidity non-condensing, IP21 exposure limits	Floor and environment requirements (https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/floor-and-environment-requirements/)
Loads	Open-base carriers within 1,250 × 1,250 mm, up to 1,600 kg and 1,700 mm load height	Approved loads and pallets (https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/approved-loads-and-pallets/)
Manual-only areas	Slopes, dock plates, and ramps stay manual tasks; manual gradeability is 5% unloaded and 3% at full load	Operator responsibilities (https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/operator-responsibilities/)
Traffic	Routes shared with pedestrians and other vehicles, congestion points, and where the speed-dependent protective field needs room	How J1600 safety works (https://info.mobilerobot.com/it-it/safety-compliance/safety-overview/how-j1600-safety-works/)
Charging	Placement and setup of the manual or automatic charger	Charger safety (https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/charger-safety/)

Residual responsibility

A completed risk assessment does not remove the operator from the loop. Task initiation, pallet pickup, and judgment-heavy handling remain [human responsibilities](https://info.mobilerobot.com/it-it/safety-compliance/safety-overview/human-responsibilities/) (https://info.mobilerobot.com/it-it/safety-compliance/safety-overview/human-responsibilities/), by design, and some risks remain after safeguarding — see [Residual risks](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/residual-risks/) (https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/residual-risks/).

i USE CURRENT PRODUCT DOCUMENTATION

No safety-distance curves, stopping distances, or validation reports are published in the Knowledge Center. Base deployment decisions on the current product documentation supplied with the vehicle.

Floor and Environment Requirements

The J1600 (<https://info.mobilerobot.com/it-it/products/j1600/overview/>) is designed for indoor, floor-to-floor pallet transport. This page lists the floor and environmental limits a site must meet.

Floor requirements

Parameter	Metric	Imperial/other
Gradeability, automatic mode	0°	0%
Gradeability, manual mode, no load	2.86°	5%
Gradeability, manual mode, full load	1.72°	3%
Maximum traversable bump height	25 mm	1 in
Maximum traversable gap width	20 mm	0.8 in
Floor flatness/levelness	TR34 FM3	FF 25 / FL 20
Ground clearance	30 mm	1.2 in

Autonomous travel is a level-floor application: automatic gradeability is 0%. Slopes, ramps, and dock plates remain manual tasks, within the manual-mode limits above. Plan autonomous routes accordingly during the [site risk assessment](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/site-risk-assessment/) (<https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/site-risk-assessment/>).

Environmental requirements

Parameter	Metric	Imperial/other
Minimum operating temperature	5°C	41°F
Maximum operating temperature	40°C	104°F
Relative humidity	20–80%	non-condensing
Ingress protection	IP21	protected against objects over 12.5 mm and vertically dripping water

IP21 means the vehicle is protected against solid objects larger than 12.5 mm and vertically dripping water — it is an indoor rating, not protection against wash-down, spray, or outdoor conditions.

Real-world floors

The company validates the J1600 under intentionally imperfect conditions at its [Copenhagen test and demo facility](https://info.mobilerobot.com/it-it/company/locations/test-and-demonstration-facility/) (<https://info.mobilerobot.com/it-it/company/locations/test-and-demonstration-facility/>), including uneven flooring and water-filled test loads. The limits on this page still apply to production deployments.

No infrastructure changes are required within these limits: the J1600 navigates by [3D LiDAR SLAM](https://info.mobilerobot.com/it-it/products/j1600/navigation-and-obstacle-avoidance/) (<https://info.mobilerobot.com/it-it/products/j1600/navigation-and-obstacle-avoidance/>) without tracks, wires, reflectors, or building modifications.

Related requirements

- Load and carrier limits: [Approved loads and pallets](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/approved-loads-and-pallets/) (<https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/approved-loads-and-pallets/>)
- Full specification table: [J1600 technical specifications](https://info.mobilerobot.com/it-it/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/it-it/products/j1600/technical-specifications/>)
- Validation at go-live: [Commissioning and validation](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/commissioning-and-validation/) (<https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/commissioning-and-validation/>)

ⓘ PRELIMINARY SPECIFICATIONS

These January 2026 specifications are preliminary and subject to change. Use current product documentation for deployment decisions.

Approved Loads and Pallets

The J1600 moves pallets and other forkable load carriers within a defined envelope. This page sets out the limits and the judgment calls that remain with the operator.

The open-base requirement

The J1600 requires an **open-base carrier with no bottom deck board** so its forks can enter. Fork geometry: 1,150 mm long, 180 mm wide, 60 mm thick, with 680 mm outer and 320 mm inner fork distance.

Load envelope

Parameter	Limit
Maximum rated payload	1,600 kg / about 3,500 lb
Maximum pallet/load length, including overhang	1,250 mm / 49 in
Maximum pallet/load width, including overhang	1,250 mm / 49 in
Maximum load height from floor	1,700 mm / 67 in

The exact maximum envelope is 1,250 mm; some shorter product summaries round it to 1.2 m.

Supported carrier types

Carrier	Support
EPAL Euro Pallet	Supported
EPAL 3	Supported
EPAL 6	Supported
GMA pallets	All GMA pallets with an open base
Custom carriers	Any forkable open-base carrier within the size limits

Beyond standard pallets, demonstrated examples include [open cages and barrels](https://info.mobilerobot.com/it-it/applications/use-cases/open-cages-and-alternative-load-carriers/) (<https://info.mobilerobot.com/it-it/applications/use-cases/open-cages-and-alternative-load-carriers/>). Compatibility depends on base geometry, size, stability — and operator judgment.

Where judgment applies

[Pallet pickup is always manual](https://info.mobilerobot.com/it-it/applications/scenarios/manual-pickup-and-autonomous-delivery/) (<https://info.mobilerobot.com/it-it/applications/scenarios/manual-pickup-and-autonomous-delivery/>), which keeps a person's assessment in the loop for exactly the cases that need it: damaged pallets, top-heavy or leaning loads, loose shrink wrap, and [sensitive or unstable goods](https://info.mobilerobot.com/it-it/applications/use-cases/sensitive-or-unstable-loads/) (<https://info.mobilerobot.com/it-it/applications/use-cases/sensitive-or-unstable-loads/>). Manual mode also allows picks and drops at up to 1,600 mm, while autonomous delivery is at floor level. See [Operator responsibilities](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/operator-responsibilities/) (<https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/operator-responsibilities/>).

NO BLANKET APPROVAL

There is no blanket approval for every carrier or for hazardous materials. Assess non-standard carriers and critical loads case by case as part of the [site risk assessment](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/site-risk-assessment/) (<https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/site-risk-assessment/>).

Related pages

- Load detection is a monitored safety function: see [Load detection](https://info.mobilerobot.com/it-it/safety-compliance/safety-functions/load-detection/) (<https://info.mobilerobot.com/it-it/safety-compliance/safety-functions/load-detection/>).

- Full vehicle dimensions and specifications: [J1600 technical specifications](https://info.mobilerobot.com/it-it/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/it-it/products/j1600/technical-specifications/>).

Charger Safety

The J1600 charges either manually or through an [optional automatic charging station](https://info.mobilerobot.com/it-it/products/chargers-and-accessories/automatic-charger/) (<https://info.mobilerobot.com/it-it/products/chargers-and-accessories/automatic-charger/>). This page covers the safety-relevant aspects of both.

The battery

The J1600 uses a [24 V, 200 Ah lithium iron phosphate \(LiFePO4\) battery](https://info.mobilerobot.com/it-it/documentation/technical-reference/battery-specifications/) (<https://info.mobilerobot.com/it-it/documentation/technical-reference/battery-specifications/>). Charging is monitored by a dedicated safety function: the **charging-current relay**, assigned Performance Level PL b under [ISO 13849-1](https://info.mobilerobot.com/it-it/safety-compliance/standards/iso-13849-1/) (<https://info.mobilerobot.com/it-it/safety-compliance/standards/iso-13849-1/>). Details of the function are on the [Charging safety](https://info.mobilerobot.com/it-it/safety-compliance/safety-functions/charging-safety/) (<https://info.mobilerobot.com/it-it/safety-compliance/safety-functions/charging-safety/>) page.

Battery transport testing is covered by UN 38.3 — see [Battery UN 38.3 Documentation](https://info.mobilerobot.com/it-it/safety-compliance/certificates/battery-un-38-3-documentation/) (<https://info.mobilerobot.com/it-it/safety-compliance/certificates/battery-un-38-3-documentation/>).

Manual charging

Manual charging works the way operators of a conventional electric pallet jack expect: plug in the charger during a break or whenever the machine is idle. Charging restores approximately 47 percentage points of charge per hour.

Automatic charging

With the optional automatic charger, the robot drives to the station, positions itself at the charger, and a charging interface extends to the vehicle's charging plates. No person handles connectors, and the robot can [opportunity-charge](https://info.mobilerobot.com/it-it/applications/scenarios/automatic-charging/) (<https://info.mobilerobot.com/it-it/applications/scenarios/automatic-charging/>) whenever it is not busy.

Two points matter for safe setup:

- Automatic charging is an advanced automation capability, and its [station placement](https://info.mobilerobot.com/it-it/documentation/installation/charger-installation/) (<https://info.mobilerobot.com/it-it/documentation/installation/charger-installation/>)

n/) becomes part of the robot's autonomous routes — include it in the [site risk assessment](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/site-risk-assessment/) (<https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/site-risk-assessment/>).

- When purchased with the [installation and commissioning package](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/commissioning-and-validation/) (<https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/commissioning-and-validation/>), automatic-charging setup is performed on Day 1 by the commissioning team.

Charging and runtime figures

Parameter	Value
Charging rate	approximately 47 percentage points per hour
Drain, driving fully loaded	approximately 13% per hour
Drain, driving unloaded	approximately 12% per hour
Drain, standby	approximately 2% per hour

Runtime exceeds eight hours in a typical duty cycle. See [J1600 technical specifications](https://info.mobilerobot.com/it-it/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/it-it/products/j1600/technical-specifications/>) for the full battery data.

USE CURRENT PRODUCT DOCUMENTATION

Follow the charging instructions in the current product documentation supplied with the vehicle and charger. The Knowledge Center does not replace the product manual.

Operator Responsibilities

The J1600 is built around human-in-the-loop automation: the operator keeps authority over what the robot does and when. This page lists what that means in daily operation.

Core responsibilities

- **Initiate every task.** [Autonomous work](https://info.mobilerobot.com/it-it/documentation/user-guides/autonomous-operation/) (<https://info.mobilerobot.com/it-it/documentation/user-guides/autonomous-operation/>) starts only when a person selects or creates a task on the touchscreen.
- **Pick up pallets manually.** [Pallet pickup is always manual](https://info.mobilerobot.com/it-it/applications/scenarios/manual-pickup-and-autonomous-delivery/) (<https://info.mobilerobot.com/it-it/applications/scenarios/manual-pickup-and-autonomous-delivery/>). The operator judges pallet condition, load stability, and the approach before lifting.
- **Confirm entry into automatic mode** (<https://info.mobilerobot.com/it-it/safety-compliance/safety-overview/manual-and-autonomous-mode-safety/>). The robot asks for confirmation, and the operator confirms with the physical start/resume button.
- **Step clear before autonomous travel.** The interface instructs the operator to step away before the vehicle starts.
- **Take over when conditions require it.** Grabbing or moving the tiller returns the vehicle to manual control immediately; emergency stops are always available. See [Emergency stops and manual takeover](https://info.mobilerobot.com/it-it/safety-compliance/safety-overview/emergency-stops-and-manual-takeover/) (<https://info.mobilerobot.com/it-it/safety-compliance/safety-overview/emergency-stops-and-manual-takeover/>).
- **Select the operating mode deliberately.** A [three-position key switch](https://info.mobilerobot.com/it-it/safety-compliance/safety-functions/mode-selection/) (<https://info.mobilerobot.com/it-it/safety-compliance/safety-functions/mode-selection/>) selects power-off, manual-only, or automatic mode.

Judgment calls that stay with the operator

The division of work is deliberate: the robot automates repetitive travel, and [the operator handles everything that needs context](https://info.mobilerobot.com/it-it/documentation/user-guides/operator-manual/) (<https://info.mobilerobot.com/it-it/documentation/user-guides/operator-manual/>) —

- spotting damaged pallets, broken boards, or protruding nails before lifting;
- judging [top-heavy, leaning, or poorly stacked loads](https://info.mobilerobot.com/it-it/applications/use-cases/sensitive-or-unstable-loads/) (<https://info.mobilerobot.com/it-it/applications/use-cases/sensitive-or-unstable-loads/>);

- tucking away loose shrink-wrap tails before they snag;
- locating pallets that are not exactly where the system expects them;
- catching leaking or damaged goods before delivery;
- handling dock plates, ramps, and slopes manually — automatic gradeability is 0%;
- improvising a route through congested areas;
- reprioritizing urgent deliveries.

The reasoning behind this split is described under [Human-in-the-loop automation](https://info.mobilerobot.com/it-it/documentation/concepts/human-in-the-loop-automation/) (<https://info.mobilerobot.com/it-it/documentation/concepts/human-in-the-loop-automation/>), and the safety dimension under [Human responsibilities](https://info.mobilerobot.com/it-it/safety-compliance/safety-overview/human-responsibilities/) (<https://info.mobilerobot.com/it-it/safety-compliance/safety-overview/human-responsibilities/>).

Training

About 30 minutes of [training](https://info.mobilerobot.com/it-it/documentation/getting-started/operator-training/) (<https://info.mobilerobot.com/it-it/documentation/getting-started/operator-training/>) is sufficient for an existing electric-pallet-jack operator. The vehicle carries an on-screen tutorial, and the [commissioning package](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/commissioning-and-validation/) (<https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/commissioning-and-validation/>) adds group training plus individual hands-on practice for up to six operators.

Boundaries to respect

Operators should keep tasks within the vehicle's approved envelope: [approved loads and pallets](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/approved-load-s-and-pallets/) (<https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/approved-load-s-and-pallets/>), [floor and environment requirements](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/floor-and-environment-requirements/) (<https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/floor-and-environment-requirements/>), and the site rules established by the [site risk assessment](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/site-risk-assessment/) (<https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/site-risk-assessment/>).

OPERATOR AUTHORITY IS A DESIGN PRINCIPLE, NOT A FALLBACK

Human control complements the safety system and its certified components — independent safety controller, two 2D safety LiDARs, emergency stops, and the 360-degree protective field. It never replaces them. See [How J1600 safety works](https://info.mobilerobot.com/it-it/safety-compliance/safety-overview/how-j1600-safety-works/) (<https://info.mobilerobot.com/it-it/safety-compliance/safety-overview/how-j1600-safety-works/>).

Commissioning and Validation

The J1600 works out of the box, but sites that want a structured, validated go-live can purchase a fixed-price [installation and commissioning package](https://info.mobilerobot.com/it-it/products/buying-and-deployment/installation-and-commissioning/) (<https://info.mobilerobot.com/it-it/products/buying-and-deployment/installation-and-commissioning/>). This page describes what it contains.

Package at a glance

Item	Detail
End-user list price	€10,000
Duration	Five on-site days plus pre-installation work
Purpose	Reduce go-live risk through structured setup, validation, training, and handover

Pre-installation

Before anyone is on site:

- feasibility check for all selected tasks and loads;
- risk assessment — see [Site risk assessment](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/site-risk-assessment/) (<https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/site-risk-assessment/>);
- project plan.

The five on-site days

Day 1 — setup and validation

Unboxing; Wi-Fi connection if desired; automatic-charging setup if purchased (see [Charger safety](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/charger-sa) (<https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/charger-sa>

fety/)); creation of up to 25 [drop points](https://info.mobilerobot.com/it-it/documentation/installation/mapping-and-drop-point-setup/) (<https://info.mobilerobot.com/it-it/documentation/installation/mapping-and-drop-point-setup/>); task validation; safety validation.

Day 2 — training

[Group training](https://info.mobilerobot.com/it-it/documentation/getting-started/operator-training/) (<https://info.mobilerobot.com/it-it/documentation/getting-started/operator-training/>) for all operators, plus individual hands-on practice for up to six operators. See [Operator responsibilities](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/operator-responsibilities/) (<https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/operator-responsibilities/>) for what operators take over from here.

Days 3–4 — supervised operation

Monitoring of robot performance; on-site troubleshooting and support; additional operator training as needed.

Day 5 — acceptance and handover

Acceptance test; handover.

Add-ons

- integration with other software or equipment;
- additional validated drop points beyond the included 25;
- [Fleet Management System setup](https://info.mobilerobot.com/it-it/documentation/technical-integration/fleet-manager-guide/) (<https://info.mobilerobot.com/it-it/documentation/technical-integration/fleet-manager-guide/>).

Commissioning versus out-of-box deployment

The package is an optional commercial service, not a prerequisite. [Basic deployment](https://info.mobilerobot.com/it-it/documentation/getting-started/first-time-setup/) (<https://info.mobilerobot.com/it-it/documentation/getting-started/first-time-setup/>) needs no building modifications, tracks, wires, or reflectors; Wi-Fi is optional; and [typical setup takes hours to one day](https://info.mobilerobot.com/it-it/applications/results/faster-deployment/) (<https://info.mobilerobot.com/it-it/applications/results/faster-deployment/>). Operators add new locations themselves by driving to a point and saving it. The commissioning package matters most when go-live risk, task complexity, or the number of operators justifies a validated, documented process.

Partners may deliver the commissioning service themselves; current partner terms are available from the [partner team](https://info.mobilerobot.com/it-it/partners/become-a-partner/) (<https://info.mobilerobot.com/it-it/partners/become-a-partner/>).

[r/contact-the-partner-team/](#)). See the [partner section \(https://info.mobilerobot.com/it-it/category/partners/\)](#) for the partner model.

i VALIDATION IS SITE-SPECIFIC

Task and safety validation confirm behaviour for your tasks, loads, and routes — within the limits in [Floor and environment requirements \(https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/floor-and-environment-requirements/\)](#) and [Approved loads and pallets \(https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/approved-loads-and-pallets/\)](#).

Residual Risks

No safeguarding removes risk entirely. This page describes the risks that remain after the J1600's built-in protective measures, and where operator vigilance and site discipline stay essential.

Why residual risks are documented

The risk-reduction method of [ISO 12100](https://info.mobilerobot.com/it-it/safety-compliance/standards/iso-12100/) ends with *information for use*: after design measures and safeguarding, the remaining risks must be communicated so users can manage them. The J1600's [layered protection](https://info.mobilerobot.com/it-it/safety-compliance/safety-overview/how-j1600-safety-works/) — independent safety controller, two 2D safety LiDARs, a speed-dependent 360-degree protective field, emergency stops, and safety functions [rated up to PL d](https://info.mobilerobot.com/it-it/safety-compliance/safety-functions/performance-levels/) — reduces risk substantially, and the built-in safety functions improve predictability compared with manual pallet handling. It does not make the vehicle risk-free.

Where risk remains

- **Manual mode** (<https://info.mobilerobot.com/it-it/safety-compliance/safety-overview/manual-and-autonomous-mode-safety/>) **relies on the operator**. Pallet pickup, high-level handling up to 1,600 mm, dock plates, slopes, and congested areas are deliberately manual. In these situations the operator's judgment is the protective measure. See [Operator responsibilities](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/operator-responsibilities/).
- **Operating limits are boundaries, not suggestions**. Autonomous travel assumes level floors (0% automatic gradeability), indoor conditions, 5–40°C, and IP21-compatible exposure. Outside these limits, behaviour is not specified. See [Floor and environment requirements](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/floor-and-environment-requirements/).
- **Loads are not universally approved**. There is no blanket approval for every carrier or for hazardous materials; stability and base geometry must be judged case by case. See [Approved loads and pallets](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/approved-loads-and-pallets/).

- **The protective field needs room.** The [safety field grows with speed](https://info.mobilerobot.com/it-it/safety-compliance/safety-functions/safety-field-adjustment/) (<https://info.mobilerobot.com/it-it/safety-compliance/safety-functions/safety-field-adjustment/>). Route planning should account for pinch points and shared traffic identified in the [site risk assessment](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/site-risk-assessment/) (<https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/site-risk-assessment/>).

Data that is not available

Accident-rate test data, safety-distance curves, stopping distances, and validation reports are not available. The [reduction in workplace accidents](https://info.mobilerobot.com/it-it/applications/results/safety-improvements/) (<https://info.mobilerobot.com/it-it/applications/results/safety-improvements/>) compared with manual pallet handling is a design intent, not a measured result.



BASE DEPLOYMENT DECISIONS ON CURRENT DOCUMENTATION

Use the current product documentation supplied with the vehicle — not this Knowledge Center alone — for site-specific safety decisions, and complete a [site risk assessment](https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/site-risk-assessment/) (<https://info.mobilerobot.com/it-it/safety-compliance/safe-deployment/site-risk-assessment/>) before go-live.