



The Mobile Robot Company

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J1600 Quick Start Guide

This guide takes you from a newly delivered J1600 to its first autonomous pallet delivery. [The J1600](https://info.mobilerobot.com/products/j1600/overview/) is ready to use on delivery: it needs no tracks, wires, reflectors, or building modifications, and [Wi-Fi is optional for basic use](https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/). Typical setup takes hours or one day, [depending on scope](https://info.mobilerobot.com/applications/planning/deployment-scope-examples/), and an operator who already drives an electric pallet jack needs about 30 minutes of training.

The basic workflow is: **map by driving, save destinations, pick manually, and deliver autonomously** (<https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/>).

Before you start

Check that your facility and loads [fit the J1600's operating envelope](https://info.mobilerobot.com/applications/planning/is-the-j1600-right-for-my-application/):

- Indoor, floor-to-floor transport on [level floors](https://info.mobilerobot.com/documentation/installation/floor-requirements/). Autonomous mode has 0% gradeability; slopes and dock plates are manual-mode work.
- [Operating temperature](https://info.mobilerobot.com/documentation/installation/operating-environment-requirements/) 5–40 °C (41–104 °F), relative humidity 20–80% non-condensing.
- Pallets and load carriers must have an open base with no bottom deck board, within 1,250 × 1,250 mm (49 × 49 in) including overhang and a maximum load height of 1,700 mm (67 in). See [Supported Pallets and Loads](https://info.mobilerobot.com/documentation/user-guides/supported-pallets-and-loads/).
- Maximum payload is 1,600 kg (about 3,500 lb).

For receiving and unboxing, see [Delivery and Unpacking](https://info.mobilerobot.com/documentation/getting-started/delivery-and-unpacking/).

Step 1 — Power on and follow the tutorial

Turn the key switch to power the robot on and follow the on-screen tutorial on the [15-inch touchscreen](https://info.mobilerobot.com/documentation/technical-reference/interface-specifications/) (<https://info.mobilerobot.com/documentation/technical-reference/interface-specifications/>). The tutorial is available on the device and online.

Step 2 — Map the facility by driving

Use the tiller to drive the J1600 manually through your facility, exactly as you would drive a conventional electric pallet jack. While you drive, the robot builds and continuously updates a three-dimensional map of the environment using [3D LiDAR SLAM](https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/) (<https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/>) (simultaneous localization and mapping). No infrastructure changes are needed. See [Creating the First Map](https://info.mobilerobot.com/documentation/getting-started/creating-the-first-map/) (<https://info.mobilerobot.com/documentation/getting-started/creating-the-first-map/>).

Step 3 — Save your destinations

Drive to each point where you want the robot to deliver pallets autonomously, tap **Save location** on the touchscreen, and name the point. Repeat for every destination you need — there is no software limit on the number of saved locations. See [Saving the First Location](https://info.mobilerobot.com/documentation/getting-started/saving-the-first-location/) (<https://info.mobilerobot.com/documentation/getting-started/saving-the-first-location/>).

Step 4 — Pick up a pallet manually

[Pallet pickup is always manual](https://info.mobilerobot.com/support/troubleshooting/task-and-location-problems/) (<https://info.mobilerobot.com/support/troubleshooting/task-and-location-problems/>). Use the tiller and lift controls to pick up a supported pallet or load carrier. [Manual mode](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) (<https://info.mobilerobot.com/documentation/user-guides/manual-operation/>) handles picks and drops at heights up to 1,600 mm (63 in).

Step 5 — Create and run the first task

1. Open task creation on the touchscreen.
2. Choose the task type and a saved drop destination.

3. Choose what happens after delivery: return to origin, go to another point or parking, or [stop and wait](https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/>).
4. Execute the task.
5. The robot asks to [enter automatic mode](https://info.mobilerobot.com/support/troubleshooting/robot-will-not-enter-autonomous-mode/) (<https://info.mobilerobot.com/support/troubleshooting/robot-will-not-enter-autonomous-mode/>). Confirm with the physical start/go button.
6. Step away when the interface tells you to.

The J1600 [drives autonomously](https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/) (<https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/>) at up to 5.4 km/h, avoids obstacles on the way, drops the pallet at floor level, and performs the post-delivery action you selected. See [Creating the First Task](https://info.mobilerobot.com/documentation/getting-started/creating-the-first-task/) (<https://info.mobilerobot.com/documentation/getting-started/creating-the-first-task/>).

Taking back control

You can regain manual control at any time by grabbing or moving the tiller, or by using the stop and override controls. [The operator always initiates tasks and decides when the machine may enter autonomous mode](https://info.mobilerobot.com/safety-compliance/safety-overview/human-responsibilities/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/human-responsibilities/>). See [Manual and Autonomous Modes](https://info.mobilerobot.com/documentation/getting-started/manual-and-autonomous-modes/) (<https://info.mobilerobot.com/documentation/getting-started/manual-and-autonomous-modes/>).

PRELIMINARY SPECIFICATIONS

The January 2026 J1600 specifications referenced in this guide are preliminary and subject to change. See the [technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>) for the current figures.

Where to go next

- [First-Time Setup](https://info.mobilerobot.com/documentation/getting-started/first-time-setup/) (<https://info.mobilerobot.com/documentation/getting-started/first-time-setup/>) — the setup process in more detail, including the optional commissioning package.
- [Operator Training](https://info.mobilerobot.com/documentation/getting-started/operator-training/) (<https://info.mobilerobot.com/documentation/getting-started/operator-training/>) — what operators need to learn and how long it takes.
- [Task Management](https://info.mobilerobot.com/documentation/user-guides/task-management/) (<https://info.mobilerobot.com/documentation/user-guides/task-management/>) — all task patterns beyond the first delivery.

- [Charging \(https://info.mobilerobot.com/documentation/user-guides/charging/\)](https://info.mobilerobot.com/documentation/user-guides/charging/) — manual and automatic charging options.

Delivery and Unpacking

This page covers what to expect when a J1600 arrives at your site and [what to have ready before it does](https://info.mobilerobot.com/documentation/installation/site-readiness-guide/) (<https://info.mobilerobot.com/documentation/installation/site-readiness-guide/>). The J1600 is designed to be ready to use on delivery: it works out of the box, requires no building modifications, and does not need [Wi-Fi or IT integration for basic use](https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/) (<https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/>).

Receiving data

Plan the receiving area and handling equipment around these figures:

Parameter	Value
Truck weight	980 kg
Vehicle length	1,893 mm (75 in)
Vehicle width	850 mm (33 in)
Vehicle height, forks lowered	2,060 mm (81 in)

The J1600 is manufactured in Denmark.

What is included

The base purchase is the J1600 robot itself. A charger is not included with the robot purchase — [order the charger you need](https://info.mobilerobot.com/documentation/installation/charger-installation/) (<https://info.mobilerobot.com/documentation/installation/charger-installation/>) alongside the robot:

- **Manual charger** (<https://info.mobilerobot.com/products/chargers-and-accessories/manual-charger/>) — €3,600 list. Plug-in charging, familiar from conventional electric pallet jacks.
- **Automatic charger** (<https://info.mobilerobot.com/products/chargers-and-accessories/automatic-charger/>) — €8,400 list. Enables self-docking opportunity charging; an advanced automation capability.

See [Charging](https://info.mobilerobot.com/documentation/user-guides/charging/) (https://info.mobilerobot.com/documentation/user-guides/charging/) for how both options work.

Where to place the robot

The J1600 is an indoor vehicle for level floors:

- Operating temperature 5–40 °C (41–104 °F); relative humidity 20–80%, non-condensing.
- Ingress protection IP21 — protected against objects over 12.5 mm and vertically dripping water. Keep it out of wet processes and outdoor exposure.
- [Floor flatness](https://info.mobilerobot.com/documentation/installation/floor-requirements/) (https://info.mobilerobot.com/documentation/installation/floor-requirements/) to TR34 FM3 (FF 25 / FL 20); it traverses bumps up to 25 mm (1 in) and gaps up to 20 mm (0.8 in).

See [Operating environment details](https://info.mobilerobot.com/documentation/user-guides/j1600-user-manual/#operating-limits) (https://info.mobilerobot.com/documentation/user-guides/j1600-user-manual/#operating-limits) in the user manual.

Unpacking and first power-on

After unpacking, the robot is operational without further installation work. Power it on with the key switch and follow the on-screen tutorial — [First-Time Setup](https://info.mobilerobot.com/documentation/getting-started/first-time-setup/) (https://info.mobilerobot.com/documentation/getting-started/first-time-setup/) walks through the process.

Optional installation and commissioning

If you prefer a structured go-live instead of self-setup, a five-day installation and commissioning package is available at €10,000 list. Day 1 covers unboxing, optional Wi-Fi connection, charger setup (including automatic charging if purchased), creation of up to 25 drop points, and task and safety validation. The remaining days cover [operator training](https://info.mobilerobot.com/documentation/getting-started/operator-training/) (https://info.mobilerobot.com/documentation/getting-started/operator-training/), monitoring, troubleshooting, acceptance testing, and handover. See [First-Time Setup](https://info.mobilerobot.com/documentation/getting-started/first-time-setup/#the-commissioning-package) (https://info.mobilerobot.com/documentation/getting-started/first-time-setup/#the-commissioning-package) for the full day-by-day scope.

Next step

Continue with [First-Time Setup](https://info.mobilerobot.com/documentation/getting-started/first-time-setup/) (<https://info.mobilerobot.com/documentation/getting-started/first-time-setup/>).

First-Time Setup

Setting up a J1600 is a no-code process an operator performs directly on the machine. Typical setup takes hours or one day, [depending on scope](https://info.mobilerobot.com/applications/planning/deployment-scope-examples/) (<https://info.mobilerobot.com/applications/planning/deployment-scope-examples/>). This page covers the self-setup path and the optional commissioning service.

What setup does not require

- No building modifications: no tracks, wires, reflectors, or markers.
- No mandatory Wi-Fi. [Connectivity is optional for basic use](https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/) (<https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/>).
- [No warehouse-management system \(WMS\), fleet manager, or IT integration](https://info.mobilerobot.com/applications/results/lower-integration-complexity/) (<https://info.mobilerobot.com/applications/results/lower-integration-complexity/>).
- No programming. [Task creation](https://info.mobilerobot.com/documentation/user-guides/task-management/) (<https://info.mobilerobot.com/documentation/user-guides/task-management/>) is [teach-and-repeat](https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/) (<https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/>) on the touchscreen.

Self-setup steps

1. **Power on** the J1600 with the key switch and follow the on-screen tutorial. The tutorial is also available online.
2. **Drive the facility manually** with the tiller. The robot continuously learns and updates its 3D understanding of the environment while you drive. See [Creating the First Map](https://info.mobilerobot.com/documentation/getting-started/creating-the-first-map/) (<https://info.mobilerobot.com/documentation/getting-started/creating-the-first-map/>).
3. **Drive to each desired autonomous drop point** (<https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/>). Autonomous delivery is at floor level, so choose floor-drop positions.
4. **Tap Save location**, name the point, and repeat for every destination. There is no software limit on the number of saved locations. See [Saving the First Location](https://info.mobilerobot.com/documentation/getting-started/saving-the-first-location/) (<https://info.mobilerobot.com/documentation/getting-started/saving-the-first-location/>).

After the locations exist, the robot is ready for its first task: pick a pallet manually, select a destination, and [confirm autonomous mode](https://info.mobilerobot.com/document) (<https://info.mobilerobot.com/document>

ation/user-guides/autonomous-operation/). See [Creating the First Task](https://info.mobilerobot.com/documentation/getting-started/creating-the-first-task/) (https://info.mobilerobot.com/documentation/getting-started/creating-the-first-task/).

Adding and changing locations later

Locations are not fixed at setup time. Operators add a new point in minutes by driving to it once and saving it — no automation expert needed. This makes the J1600 suitable for changing layouts, [temporary storage points](https://info.mobilerobot.com/applications/use-cases/temporary-storage/) (https://info.mobilerobot.com/applications/use-cases/temporary-storage/), and [brownfield sites](https://info.mobilerobot.com/applications/use-cases/brownfield-automation/) (https://info.mobilerobot.com/applications/use-cases/brownfield-automation/). See [Location Management](https://info.mobilerobot.com/documentation/user-guides/location-management/) (https://info.mobilerobot.com/documentation/user-guides/location-management/).

The commissioning package

A separate five-day [installation and commissioning package](https://info.mobilerobot.com/products/buying-and-deployment/installation-and-commissioning/) (https://info.mobilerobot.com/products/buying-and-deployment/installation-and-commissioning/) (€10,000 end-user list price) is available for customers who want a structured, validated go-live. It should not be confused with the machine's basic out-of-box usability — it is an optional service intended to reduce go-live risk.

Phase	Scope
Pre-installation	Feasibility check for all selected tasks and loads; risk assessment; project plan
Day 1	Unboxing; Wi-Fi connection if desired; automatic-charging setup if purchased; creation of up to 25 drop points; task validation; safety validation
Day 2	Group training for all operators; individual hands-on practice for up to six operators
Days 3–4	Monitoring of robot performance; on-site troubleshooting and support; additional operator training as needed
Day 5	Acceptance test; handover

Add-ons include [integration with other software and equipment](https://info.mobilerobot.com/documentation/technical-integration/external-system-integration/) (https://info.mobilerobot.com/documentation/technical-integration/external-system-integration/), additional validated

drop points, and [Fleet Management System setup](https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/) (https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/).

Trying before deploying

A [two-week paid trial](https://info.mobilerobot.com/products/buying-and-deployment/two-week-trial/) (https://info.mobilerobot.com/products/buying-and-deployment/two-week-trial/) (€4,000 including setup and support) is available, and proofs of concept can be run at your own plant or in the company's [Copenhagen demo and test area](https://info.mobilerobot.com/company/locations/test-and-demonstration-facility/) (https://info.mobilerobot.com/company/locations/test-and-demonstration-facility/). Contact points are listed at [mobilerobot.com](https://www.mobilerobot.com) (https://www.mobilerobot.com).

Next steps

- [Operator Training](https://info.mobilerobot.com/documentation/getting-started/operator-training/) (https://info.mobilerobot.com/documentation/getting-started/operator-training/)
- [Creating the First Map](https://info.mobilerobot.com/documentation/getting-started/creating-the-first-map/) (https://info.mobilerobot.com/documentation/getting-started/creating-the-first-map/)
- [Manual and Autonomous Modes](https://info.mobilerobot.com/documentation/getting-started/manual-and-autonomous-modes/) (https://info.mobilerobot.com/documentation/getting-started/manual-and-autonomous-modes/)

Operator Training

The J1600 is designed so that an existing electric pallet-jack operator can learn it in about 30 minutes. Training is operator-centric and no-code: nothing in standard use requires programming skills or an automation specialist.

Why training is short

- **Manual mode is familiar.** The tiller and manual behavior are designed to feel like a conventional electric pallet jack. An operator who drives one already knows most of the machine.
- **Tasks are no-code.** Creating a task means choosing a saved destination and a post-delivery behavior on the [15-inch touchscreen](https://info.mobilerobot.com/documentation/technical-reference/interface-specifications/) — [teach-and-repeat](https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/), not configuration.
- **The interface guides the operator.** The robot asks for confirmation before [entering automatic mode](https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/) and instructs the operator to step clear before it starts.

A first-time user who had previously driven electric pallet jacks — but never the J1600 — has [publicly demonstrated](https://info.mobilerobot.com/applications/customer-stories/video-case-stories/) saving a location, creating a drop-and-return task, confirming automatic mode, and watching the robot navigate around people, within roughly 15 minutes of first contact.

What an operator learns

1. Driving and lifting in [manual mode](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) (picks and drops up to 1,600 mm).
2. Saving and naming locations — see [Saving the First Location](https://info.mobilerobot.com/documentation/getting-started/saving-the-first-location/).
3. Creating tasks and choosing post-delivery behavior — see [Creating the First Task](https://info.mobilerobot.com/documentation/getting-started/creating-the-first-task/).
4. The mode handover: confirming automatic mode with the physical start/go button and stepping away — see [Manual and Autonomous Modes](https://info.mobilerobot.com/documentation/getting-started/manual-and-autonomous-modes/).

5. Taking back control: grabbing or moving the tiller, stop and override controls, and the [emergency stops](https://info.mobilerobot.com/safety-compliance/safety-overview/emergency-stops-and-manual-takeover/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/emergency-stops-and-manual-takeover/>).
6. Charging routines — see [Charging](https://info.mobilerobot.com/documentation/user-guides/charging/) (<https://info.mobilerobot.com/documentation/user-guides/charging/>).

Training materials

An operator tutorial runs on the device itself and is also available online. [Short public tutorial videos](https://info.mobilerobot.com/newsroom/videos/how-to-videos/) (<https://info.mobilerobot.com/newsroom/videos/how-to-videos/>) cover adding drop locations, creating tasks, and charging.

Structured training in the commissioning package

The optional five-day [installation and commissioning package](https://info.mobilerobot.com/documentation/getting-started/first-time-setup/#the-commissioning-package) (<https://info.mobilerobot.com/documentation/getting-started/first-time-setup/#the-commissioning-package>) includes formal training:

- **Day 2:** group training for all operators, plus individual hands-on practice for up to six operators.
- **Days 3–4:** additional operator training as needed, alongside performance monitoring and troubleshooting.

The operator's ongoing role

Training is short, but the operator's role stays central: judging load stability and pallet condition, performing all pickups, [handling exceptions](https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/) (<https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/>), and deciding when the machine may run autonomously. See [Human-in-the-loop automation](https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/) (<https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/>) and the [Operator Manual](https://info.mobilerobot.com/documentation/user-guides/operator-manual/) (<https://info.mobilerobot.com/documentation/user-guides/operator-manual/>).

Creating the First Map

The J1600 learns your facility by being driven through it. There is no separate surveying step, no fixed infrastructure, and no map-editing software to master: you drive, the robot maps.

How mapping works

The J1600 navigates with **3D LiDAR SLAM** (<https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/>) (simultaneous localization and mapping) processed on an industrial NVIDIA Jetson AI computer. While an operator drives manually with the tiller, the robot builds a three-dimensional map of its surroundings and keeps updating it continuously during later manual driving. It scans environmental structures at heights reaching up to 70 m above the vehicle.

3D mapping is designed for greater precision and reliability than traditional 2D navigation in complex or changing environments, which makes it suited to [brownfield sites](https://info.mobilerobot.com/applications/use-cases/brownfield-automation/) (<https://info.mobilerobot.com/applications/use-cases/brownfield-automation/>) where layouts shift and obstacles move.

Mapping the facility

1. Power on the robot and complete the on-screen tutorial if you have not already.
2. Drive the J1600 manually through the areas where it will work. It handles like a conventional electric pallet jack.
3. Drive to each intended autonomous drop point and save it — see [Saving the First Location](https://info.mobilerobot.com/documentation/getting-started/saving-the-first-location/) (<https://info.mobilerobot.com/documentation/getting-started/saving-the-first-location/>).

The robot then localizes itself in the map and plans its own routes to saved destinations. You do not teach routes point-to-point: once locations exist, the robot navigates to any saved point without demonstrating every possible origin–destination combination.

No infrastructure changes

Mapping requires no tracks, wires, reflectors, markers, or building modifications, and [no Wi-Fi](https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/). This keeps deployment to hours or a day and allows the robot to move between facilities or areas by [remapping](https://info.mobilerobot.com/support/troubleshooting/mapping-problems/), rather than re-engineering.

Mapping versus safety sensing

The 3D LiDAR and RGB AI camera belong to the navigation stack. [Personnel protection is handled separately](https://info.mobilerobot.com/safety-compliance/safety-overview/navigation-sensors-vs-safety-sensors/) by two 2D safety LiDARs, certified components, and an independent safety controller — see [How J1600 safety works](https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/).

When the environment changes

The map is not frozen at setup. The robot continuously updates its environment model during manual driving, detects and avoids obstacles during autonomous travel, and lets operators add new locations at any time. Preferred travel zones can be defined for safer routing through production areas.

Next step

[Saving the First Location](https://info.mobilerobot.com/documentation/getting-started/saving-the-first-location/).

Saving the First Location

A location is a saved destination the J1600 can drive to autonomously. Creating one takes minutes and requires no code or expert help: drive there once and save it.

Creating a location

1. Use the tiller to drive the J1600 manually to the exact point where you want autonomous pallet drops. The robot delivers at floor level in automatic mode, so pick a clear floor position.
2. Tap **Save location** on the touchscreen.
3. Name the point something recognizable — for example `pallet1` or "Pallet Bay 1".
4. Repeat for every destination you need.

How locations behave

- **No software limit.** You can save as many locations as you want; the practical limit is your available warehouse space.
- **Freely combinable.** Any saved point can serve as a destination in any task. You do not need to demonstrate every A-to-B combination — the robot plans its own route between saved points on the map it built while you drove. See [Creating the First Map](https://info.mobilerobot.com/documentation/getting-started/creating-the-first-map/) (<https://info.mobilerobot.com/documentation/getting-started/creating-the-first-map/>).
- **Easy to change.** [Add a new point in minutes whenever demand changes](https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/) (<https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/>) — a [temporary storage area](https://info.mobilerobot.com/applications/use-cases/temporary-storage/) (<https://info.mobilerobot.com/applications/use-cases/temporary-storage/>), a new staging lane, a different production-line drop. This is one of the situations where a person beats a fixed automation project: you drive and save instead of calling IT to reprogram a map.
- **Parking included.** Locations can also serve as [parking points](https://info.mobilerobot.com/applications/scenarios/deliver-and-park/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-park/>) the robot proceeds to after a delivery.

Using the first location

With at least one location saved, you can create the first task: pick up a pallet manually, choose the location as the drop destination, and [confirm autonomous mode](https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/) (<https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/>). Continue with [Creating the First Task](https://info.mobilerobot.com/documentation/getting-started/creating-the-first-task/) (<https://info.mobilerobot.com/documentation/getting-started/creating-the-first-task/>).

For ongoing management of a growing set of locations, see [Location Management](https://info.mobilerobot.com/documentation/user-guides/location-management/) (<https://info.mobilerobot.com/documentation/user-guides/location-management/>).

Creating the First Task

A task tells the J1600 where to deliver a pallet and what to do afterwards. This page walks through the first delivery from manual pickup to autonomous drop. You need at least one saved location first — see [Saving the First Location](https://info.mobilerobot.com/documentation/getting-started/saving-the-first-location/) (<https://info.mobilerobot.com/documentation/getting-started/saving-the-first-location/>).

Running the first delivery

1. **Pick up a supported pallet manually.** Pickup is always a [manual operation](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) (<https://info.mobilerobot.com/documentation/user-guides/manual-operation/>); use the tiller and lift controls as you would on a conventional electric pallet jack.
2. **Open task creation** on the 15-inch touchscreen.
3. **Choose the task type and the saved drop destination** — for example "Drop Pallet at Location" and the point you saved.
4. **Choose what happens after delivery:**
 - return to the origin or operator;
 - go to another saved point or a parking location;
 - stop and wait at the destination.
5. **Execute the task.**
6. **Confirm automatic mode.** The robot asks to [enter automatic mode](https://info.mobilerobot.com/support/troubleshooting/robot-will-not-enter-autonomous-mode/) (<https://info.mobilerobot.com/support/troubleshooting/robot-will-not-enter-autonomous-mode/>); you confirm with the physical LED start/go button.
7. **Step away.** The interface instructs you to step clear before the robot moves.
8. The J1600 [travels autonomously](https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/) (<https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/>), avoids obstacles on the way, drops the pallet at floor level, and performs the post-delivery action you selected.

The most common task in practice is exactly this pattern: [manual pickup, autonomous delivery](https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/) (<https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/>), floor-level drop, and return to origin. The route can be a few meters or well over 100 meters — the concept is the same.

What to expect while it runs

- White lights indicate manual mode; blue floor-light strips in automatic mode show the protected area around the robot.
- The [protective safety field adjusts with speed](https://info.mobilerobot.com/safety-compliance/safety-functions/safety-field-adjustment/) and expands as the robot travels faster.
- You can take over at any time by grabbing or moving the tiller or using the stop controls. See [Manual and Autonomous Modes](https://info.mobilerobot.com/documentation/getting-started/manual-and-autonomous-modes/).

Task rules to remember

- [Pallet pickup is always manual](https://info.mobilerobot.com/support/troubleshooting/task-and-location-problems/).
- Autonomous delivery is at floor level. Picks and drops above floor level, up to 1,600 mm, are manual capabilities.
- Autonomous driving requires [level floors](https://info.mobilerobot.com/documentation/installation/floor-requirements/) (0% gradeability in automatic mode).

Beyond the first task

The J1600 supports several named task patterns — [Boomerang](https://info.mobilerobot.com/applications/scenarios/deliver-and-return/), [Simple ABC](https://info.mobilerobot.com/applications/scenarios/a-to-b-to-c-transport/), [drop and wait](https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/), [deliver and park](https://info.mobilerobot.com/applications/scenarios/deliver-and-park/), [come to me](https://info.mobilerobot.com/applications/scenarios/come-to-me/), and [multi-point flows](https://info.mobilerobot.com/applications/use-cases/multi-point-pallet-transport/). See [Task Management](https://info.mobilerobot.com/documentation/user-guides/task-management/) for all of them.

Manual and Autonomous Modes

The J1600 is a dual-mode vehicle: one machine that works both as a conventional walk-behind electric pallet jack and as a self-driving robot. Understanding the two modes and the handover between them is the core of operating it. For the concept behind the design, see [Dual mode](https://info.mobilerobot.com/products/j1600/dual-mode/) and [Human-in-the-loop automation](https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/).

Manual mode

In manual mode a person controls the tiller and lift functions like a conventional electric pallet jack:

- pallet picks and drops at heights up to 1,600 mm (63 in);
- full payload of 1,600 kg;
- nuanced pickup, difficult approaches, [sensitive or unstable loads](https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/), congestion, and [exceptions](https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/);
- gradeability of 5% unloaded and 3% at full load — slopes and dock plates are manual work.

White lights indicate manual mode. See [Manual Operation](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) for the full guide.

Autonomous mode

In automatic mode the J1600 drives itself to a saved destination at up to 5.4 km/h, avoids obstacles, drops the pallet at floor level, and then returns, parks, continues, or waits according to the task:

- autonomous driving is indoor and [level-floor](https://info.mobilerobot.com/documentation/installation/floor-requirements/) only (0% gradeability);
- blue floor-light strips display the protected area, [which expands with speed](https://info.mobilerobot.com/safety-compliance/safety-functions/safety-field-adjustment/);

- a 360-degree safety field covers forward and reverse travel.

See [Autonomous Operation](https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/) (<https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/>) for the full guide.

The key switch

A [three-position key switch](https://info.mobilerobot.com/safety-compliance/safety-functions/mode-selection/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/mode-selection/>) selects the operating state:

Position	Meaning
Power off	Vehicle powered down
Manual	Manual-only operation
Automatic	Autonomous task execution permitted

Handover: entering autonomous mode

[The operator — never the robot — initiates autonomous work](https://info.mobilerobot.com/documentation/user-guides/operator-manual/) (<https://info.mobilerobot.com/documentation/user-guides/operator-manual/>):

1. Create or select a task on the touchscreen and execute it.
2. The robot asks for confirmation to [enter automatic mode](https://info.mobilerobot.com/safety-compliance/safety-overview/manual-and-autonomous-mode-safety/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/manual-and-autonomous-mode-safety/>).
3. Confirm with the physical LED start/resume button.
4. The interface instructs you to step clear; the robot starts only after confirmation.

Takeover: returning to manual control

Manual control is always immediately available:

- grabbing or moving the tiller returns the vehicle to manual control;
- [tiller-position switches](https://info.mobilerobot.com/safety-compliance/safety-functions/tiller-detection/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/tiller-detection/>) handle emergency stop and manual control;

- [three emergency-stop buttons](https://info.mobilerobot.com/safety-compliance/safety-overview/emergency-stops-and-manual-takeover/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/emergency-stops-and-manual-takeover/>) and a belly button (stop and reverse) provide hard stops.

Immediate human takeover is central to the product concept — human judgment is treated as part of the system, not as a failure mode.

Capability ladder

Level	Capabilities
Manual functions	Pallet pick and drop up to 1.6 m; full manual tiller control
Basic automation	Start automatic tasks on-screen; save locations; floor-level pallet drop; self-drive to saved locations; return-to-me; go-to-parking
Advanced automation	Come-to-me; automatic charging; VDA 5050 fleet manager; API integrations

The ladder describes machine capabilities; it is separate from the Standard and Advanced software packages described in the [J1600 User Manual](https://info.mobilerobot.com/documentation/user-guides/j1600-user-manual/#software-versions) (<https://info.mobilerobot.com/documentation/user-guides/j1600-user-manual/#software-versions>).

J1600 User Manual

This manual is the day-to-day reference for the J1600 self-driving pallet jack: its [controls](https://info.mobilerobot.com/documentation/technical-reference/interface-specifications/) (<https://info.mobilerobot.com/documentation/technical-reference/interface-specifications/>), capabilities, operating limits, and software. For the operator's role and working practices, see the [Operator Manual](https://info.mobilerobot.com/documentation/user-guides/operator-manual/) (<https://info.mobilerobot.com/documentation/user-guides/operator-manual/>); for step-by-step procedures, see the [How-To Guides](https://info.mobilerobot.com/documentation/user-guides/how-to-guides/) (<https://info.mobilerobot.com/documentation/user-guides/how-to-guides/>).

PRELIMINARY SPECIFICATIONS

The January 2026 specifications are preliminary and subject to change. Use current product documentation for deployment decisions, and see the [technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>) for the master list.

The machine at a glance

The J1600 is a compact, electric, [dual-mode](https://info.mobilerobot.com/products/j1600/dual-mode/) (<https://info.mobilerobot.com/products/j1600/dual-mode/>) self-driving pallet jack for indoor, floor-to-floor pallet transport. It is operated with a tiller like a conventional walk-behind electric pallet jack or sent autonomously to saved locations. It carries up to 1,600 kg (about 3,500 lb), picks and drops manually at up to 1,600 mm (63 in), delivers autonomously at floor level, and travels at up to 5.4 km/h (1.5 m/s). It is [CE marked](https://info.mobilerobot.com/safety-compliance/certificates/ce-declaration-of-conformity/) (<https://info.mobilerobot.com/safety-compliance/certificates/ce-declaration-of-conformity/>) and made in Denmark. See the [product overview](https://info.mobilerobot.com/products/j1600/overview/) (<https://info.mobilerobot.com/products/j1600/overview/>).

Controls and interface

Control	Function
15-inch multi-touch HMI	Task creation, location saving, tutorials, help and support menu
Tiller	Manual driving and lift control; grabbing or moving it returns the vehicle to manual control
Key switch	Three positions: power off, manual only, automatic mode
LED start/resume button	Physical confirmation and resumption of automatic task execution
Emergency-stop buttons	Three, for hard stops
Belly button	Stop and reverse
Floor-indicator lights	White in manual mode; blue strips display the protected area in automatic mode
Audio speaker	Audible signals

Sensing and compute: a 3D navigation LiDAR, an RGB AI camera, an industrial NVIDIA Jetson AI computer, two 2D safety LiDARs (front and rear), a lifting-height sensor, and a [load-detection sensor](https://info.mobilerobot.com/safety-compliance/safety-functions/load-detection/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/load-detection/>). HMI is short for human-machine interface; other terms are in the [glossary](https://info.mobilerobot.com/documentation/concepts/glossary/) (<https://info.mobilerobot.com/documentation/concepts/glossary/>).

Key specifications

Parameter	Value
Rated payload	1,600 kg / approximately 3,500 lb
Maximum manual pick/drop height	1,600 mm / 63 in
Autonomous delivery height	Floor level
Top speed	5.4 km/h / 1.5 m/s / 3.4 mph
Truck weight	980 kg
Vehicle size (forks lowered)	1,893 × 850 × 2,060 mm
Turning radius	1,501 mm
Fork dimensions	1,150 mm long, 180 mm wide, 60 mm thick; outer distance 680 mm, inner 320 mm
Fork height range	90 mm lowest to 1,600 mm highest
Battery	24 V, 200 Ah lithium iron phosphate (LiFePO4)
Drive motor	AC, 1.5 kW
Lift motor	2.2 kW
Wheels	Polyurethane; drive wheel 75 × 230 mm; load wheels 70 × 80 mm
Ground clearance	30 mm
Wheelbase	1,106 mm

[Lifting speeds](https://info.mobilerobot.com/documentation/technical-reference/electrical-specifications/) (<https://info.mobilerobot.com/documentation/technical-reference/electrical-specifications/>): 0.10 m/s unloaded and 0.08 m/s at full load; lowering 0.08 m/s unloaded and 0.12 m/s at full load.

Operating limits

Parameter	Limit
Gradeability, automatic mode	0° / 0% — level floors only
Gradeability, manual mode	2.86° / 5% unloaded; 1.72° / 3% at full load
Maximum traversable bump	25 mm / 1 in
Maximum traversable gap	20 mm / 0.8 in
Operating temperature	5–40 °C / 41–104 °F
Relative humidity	20–80%, non-condensing
Floor flatness	TR34 FM3 / FF 25, FL 20
Ingress protection	IP21

Loads must be open-base carriers within a 1,250 × 1,250 mm envelope and 1,700 mm load height — see [Supported Pallets and Loads](https://info.mobilerobot.com/documentation/user-guides/supported-pallets-and-loads/) (<https://info.mobilerobot.com/documentation/user-guides/supported-pallets-and-loads/>).

Safety behavior

The J1600 uses a [layered safety architecture](https://info.mobilerobot.com/safety-compliance/safety-overview/safety-architecture/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/safety-architecture/>): an independent safety controller, two 2D safety LiDARs, three emergency stops, a belly button, tiller-position switches, safety-certified encoders and motor controllers, and a [speed-dependent 360-degree protective field](https://info.mobilerobot.com/safety-compliance/safety-functions/safety-field-adjustment/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/safety-field-adjustment/>). The operator must [confirm entry into automatic mode](https://info.mobilerobot.com/safety-compliance/safety-overview/manual-and-autonomous-mode-safety/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/manual-and-autonomous-mode-safety/>), and the robot instructs the operator to step away before starting. Safety functions carry [Performance Levels from PL b to PL d](https://info.mobilerobot.com/safety-compliance/safety-functions/performance-levels/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/performance-levels/>). Full details: [How J1600 safety works](https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/>).

Software versions

One hardware platform supports [two software versions](https://info.mobilerobot.com/products/software/software-comparison/) (<https://info.mobilerobot.com/products/software/software-comparison/>):

- **Standard software** (<https://info.mobilerobot.com/products/software/standard-software/>) — reduced to essential functions for maximum ease of use; configuration-free [teach-and-repeat](https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/) (<https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/>); touchscreen task launch and saved locations; [Wi-Fi optional](https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/) (<https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/>). Intended for single-unit deployments [without systems integration](https://info.mobilerobot.com/documentation/technical-integration/integration-overview/) (<https://info.mobilerobot.com/documentation/technical-integration/integration-overview/>).
- **Advanced software** (<https://info.mobilerobot.com/products/software/advanced-software/>) — adds [VDA 5050](https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/) (<https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/>) interoperability, a [REST API](https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>), [Fleet Manager](https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/) (<https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/>), advanced mission planning, and advanced [integration with other software and equipment](https://info.mobilerobot.com/documentation/technical-integration/external-system-integration/) (<https://info.mobilerobot.com/documentation/technical-integration/external-system-integration/>). €14,500 list as an upgrade; Fleet Manager is €6,500 list per robot. The upgrade is easiest to install at the factory when ordering; a partner can perform it later, but the customer cannot.

Advanced automation functions include [come-to-me](https://info.mobilerobot.com/applications/scenarios/come-to-me/) (<https://info.mobilerobot.com/applications/scenarios/come-to-me/>), automatic charging, VDA 5050 fleet management, and API integrations.

Getting help

The on-machine **Help/Support** menu provides a QR code through which technical requests can be sent directly. Three [after-sales plans](https://info.mobilerobot.com/support/fag/service-and-warranty/) (<https://info.mobilerobot.com/support/fag/service-and-warranty/>) exist — Free, Basic Care, and Full Care — with remote support, warranty, and parts terms varying by plan. Basic Care lists at €4,900 and Full Care at €13,000 per robot per year; Full Care includes a free loan robot when a repair lasts more than two business days.

Daily use guides

- [Manual Operation](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) (<https://info.mobilerobot.com/documentation/user-guides/manual-operation/>).
- [Autonomous Operation](https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/) (<https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/>)
- [Task Management](https://info.mobilerobot.com/documentation/user-guides/task-management/) (<https://info.mobilerobot.com/documentation/user-guides/task-management/>)
- [Location Management](https://info.mobilerobot.com/documentation/user-guides/location-management/) (<https://info.mobilerobot.com/documentation/user-guides/location-management/>).
- [Charging](https://info.mobilerobot.com/documentation/user-guides/charging/) (<https://info.mobilerobot.com/documentation/user-guides/charging/>)
- [Supported Pallets and Loads](https://info.mobilerobot.com/documentation/user-guides/supported-pallets-and-loads/) (<https://info.mobilerobot.com/documentation/user-guides/supported-pallets-and-loads/>)

Operator Manual

The J1600 (<https://info.mobilerobot.com/products/j1600/overview/>) is built around the operator. You initiate every task, perform every pickup, and decide when the machine may drive itself. This manual covers your role and working practices; machine reference data is in the [J1600 User Manual](https://info.mobilerobot.com/documentation/user-guides/j1600-user-manual/) (<https://info.mobilerobot.com/documentation/user-guides/j1600-user-manual/>).

Division of work

You	The J1600
Judge load stability, pallet condition, congestion, urgency, and exceptions	Build and update a 3D map and navigate to saved points
Pick pallets and perform difficult or high handling	Carry up to 1,600 kg along repetitive routes
Select the destination and what happens after delivery	Avoid obstacles and apply speed-dependent safety fields
Confirm entry into autonomous mode	Drop at floor level, then return, park, continue, or wait
Override or resume manual control at any time	Repeat stored tasks consistently

This split reflects the company's human-in-the-loop philosophy: the robot removes repetitive travel, and the person keeps the judgment-heavy work. See [Human-in-the-loop automation](https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/) (<https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/>).

Starting autonomous work

1. [Pick up the pallet manually](https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/) (<https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/>) and check the load.
2. Create or select the task on the touchscreen and execute it.

3. When the robot asks to [enter automatic mode](https://info.mobilerobot.com/safety-compliance/safety-overview/manual-and-autonomous-mode-safety/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/manual-and-autonomous-mode-safety/>), confirm with the physical start/resume button.
4. Step clear when the interface tells you to. The robot starts only after your confirmation.

Taking back control

- Grab or move the tiller to return to manual control immediately.
- [Tiller-position switches](https://info.mobilerobot.com/safety-compliance/safety-functions/tiller-detection/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/tiller-detection/>) provide emergency stop and manual control.
- [Three emergency-stop buttons](https://info.mobilerobot.com/safety-compliance/safety-overview/emergency-stops-and-manual-takeover/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/emergency-stops-and-manual-takeover/>) and a belly button (stop and reverse) are available for hard stops.
- The [key switch](https://info.mobilerobot.com/safety-compliance/safety-functions/mode-selection/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/mode-selection/>) lets you lock the vehicle to manual-only operation or power it off.

Situations that stay with you

Warehouses are messy, dynamic, and unpredictable. Keep these in manual hands:

1. **Damaged pallets** — spot a broken bottom board or protruding nail before it becomes a hazard or a jam.
2. **Unstable loads** (<https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/>) — recognize a top-heavy, leaning, or poorly stacked load before lifting it.
3. **Plastic-wrap tails** — tuck away loose shrink wrap before it catches a rack or doorframe.
4. **Misplaced pallets** — look around for a pallet that is not exactly where the system expects it.
5. **Damaged goods** — catch leaks or crushed corners before delivery to a customer or production line.
6. **Dock plates and slopes** — [autonomous gradeability is 0%](https://info.mobilerobot.com/documentation/installation/floor-requirements/) (<https://info.mobilerobot.com/documentation/installation/floor-requirements/>); bumps, slopes, and truck entry are manual work.
7. **Crowded floors** (<https://info.mobilerobot.com/applications/scenarios/operation-in-crowded-environments/>) — improvise a safe route through a cluttered receiving area.

8. **Urgency** — reprioritize immediately when a production line is starving.
9. **New routes** — drive to a new point and tap **Save location** instead of waiting for IT.

Mode awareness

- White lights: manual mode.
- Blue floor-light strips: automatic mode; they display the protected area, which expands as speed increases.
- The robot announces mode changes on the interface and asks for confirmation before driving itself.

Everyday tasks

- [Task Management](https://info.mobilerobot.com/documentation/user-guides/task-management/) (<https://info.mobilerobot.com/documentation/user-guides/task-management/>) — all task patterns and post-delivery options.
- [Location Management](https://info.mobilerobot.com/documentation/user-guides/location-management/) (<https://info.mobilerobot.com/documentation/user-guides/location-management/>) — adding and combining saved points.
- [Manual Operation](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) (<https://info.mobilerobot.com/documentation/user-guides/manual-operation/>), and [Autonomous Operation](https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/) (<https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/>).
- [Charging](https://info.mobilerobot.com/documentation/user-guides/charging/) (<https://info.mobilerobot.com/documentation/user-guides/charging/>) — plug-in and automatic charging routines.

New operators typically need about 30 minutes of training — see [Operator Training](https://info.mobilerobot.com/documentation/getting-started/operator-training/) (<https://info.mobilerobot.com/documentation/getting-started/operator-training/>).

How-To Guides

Quick instructions for the most common J1600 operations. Each entry links to the full guide for background and detail.

How to add a drop location and create a task

1. Drive the J1600 manually to the [drop point](https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/) — it handles like a regular electric pallet jack.
2. Tap **Save location** and name the point, for example `pallet1` or "Pallet Bay 1".
3. Tap **Create task** and choose **Drop Pallet at Location**.
4. Choose the post-delivery behavior — return to origin, go to another point or parking, or [stop and wait](https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/).
5. Execute the task, confirm automatic mode with the physical start/go button, and step back.

Full guides: [Location Management](https://info.mobilerobot.com/documentation/user-guides/location-management/), [Task Management](https://info.mobilerobot.com/documentation/user-guides/task-management/).

How to send the robot on a delivery

1. [Pick up a supported pallet manually](https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/).
2. Select or create a task on the touchscreen and execute it.
3. Confirm automatic mode with the start/resume button and step clear.

The robot drives itself, avoids obstacles, drops the pallet at floor level, and performs the selected post-delivery action. Full guide: [Autonomous Operation](https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/).

How to take back control

- Grab or move the tiller — the vehicle returns to manual control immediately.
- Use the [emergency-stop buttons](https://info.mobilerobot.com/safety-compliance/safety-overview/emergency-stops-and-manual-takeover/) (https://info.mobilerobot.com/safety-compliance/safety-overview/emergency-stops-and-manual-takeover/) or the belly button for a hard stop.
- Turn the key switch to manual to keep the vehicle in manual-only operation.

Full guide: [Manual Operation](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) (https://info.mobilerobot.com/documentation/user-guides/manual-operation/).

How to charge the robot

- [Manual charging](https://info.mobilerobot.com/products/chargers-and-accessories/manual-charger/) (https://info.mobilerobot.com/products/chargers-and-accessories/manual-charger/): plug in the charger during a break or whenever the machine is idle — for example before lunch.
- [Automatic charging](https://info.mobilerobot.com/applications/scenarios/automatic-charging/) (https://info.mobilerobot.com/applications/scenarios/automatic-charging/) (optional charger): the robot drives to the station, positions itself, and the charging interface extends to its charging plates, enabling opportunity charging while it is not busy.

Full guide: [Charging](https://info.mobilerobot.com/documentation/user-guides/charging/) (https://info.mobilerobot.com/documentation/user-guides/charging/).

How to check whether a load is supported

Confirm the carrier has an open base with no bottom deck board, fits within 1,250 × 1,250 mm including overhang, stays under 1,700 mm load height, and weighs no more than 1,600 kg. Full guide: [Supported Pallets and Loads](https://info.mobilerobot.com/documentation/user-guides/supported-pallets-and-loads/) (https://info.mobilerobot.com/documentation/user-guides/supported-pallets-and-loads/).

How to get help with a technical issue

Open the on-machine menu, go to **Help/Support**, and scan the QR code to send a technical request directly. Remote support terms depend on your after-sales plan — see the [J1600 User Manual](https://info.mobilerobot.com/documentation/user-guides/j1600-user-manual/#getting-help) (https://info.mobilerobot.com/documentation/user-guides/j1600-user-manual/#getting-help).

Setting up from scratch

New machine? Start with the [J1600 Quick Start Guide](https://info.mobilerobot.com/documentation/getting-started/j1600-quick-start-guide/) (<https://info.mobilerobot.com/documentation/getting-started/j1600-quick-start-guide/>) and the rest of the Getting Started section.

Task Management

A task defines where the J1600 delivers a pallet and what it does afterwards. Tasks are created on the touchscreen without code, and every task is initiated and confirmed by a person.

Named task patterns

- **Boomerang** (<https://info.mobilerobot.com/applications/scenarios/deliver-and-return/>): deliver to a destination and return to the origin or operator.
- **Simple ABC** (<https://info.mobilerobot.com/applications/scenarios/a-to-b-to-c-transport/>): deliver from A to B, then travel to C.
- **Drop and wait** (<https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/>): deliver, drop, and remain at the destination.
- **Deliver and park** (<https://info.mobilerobot.com/applications/scenarios/deliver-and-park/>): complete the drop and proceed to a defined parking location.
- **Come to me** (<https://info.mobilerobot.com/applications/scenarios/come-to-me/>): call the robot to a location using a mobile app or web interface. An advanced automation function.
- **Multi-point to multi-point** (<https://info.mobilerobot.com/applications/use-cases/multi-point-pallet-transport/>): combine saved points freely — useful for cross-docking and changing flows.

The most common task in practice is [manual pickup, autonomous delivery](https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/) (<https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/>), floor-level drop, and return to origin. The route can be a few meters or more than 100 meters; the concept is the same.

Creating a task

1. Pick up a supported pallet manually.
2. Open task creation on the touchscreen.
3. Choose the task type and a saved drop destination from the map or list.
4. Choose the post-delivery behavior: return to origin/operator, go to another point or parking, or stop and wait.

5. Execute the task, [confirm automatic mode](https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/) with the physical start/resume button, and step away when instructed.

Destinations come from saved locations — see [Location Management](https://info.mobilerobot.com/documentation/user-guides/location-management/). Because the robot plans its own routes on its 3D map, you can recombine points without demonstrating every possible A-to-B variation.

Task constraints

- Pallet pickup is always manual.
- Automatic pallet delivery is at floor level. [Handling above floor level, up to 1,600 mm, is manual](https://info.mobilerobot.com/support/troubleshooting/task-and-location-problems/).
- Autonomous mode requires [level floors](https://info.mobilerobot.com/documentation/installation/floor-requirements/) (0% automatic gradeability).
- Loads must meet the open-base envelope in [Supported Pallets and Loads](https://info.mobilerobot.com/documentation/user-guides/supported-pallets-and-loads/).

Task patterns in daily flows

- [Inbound receiving](https://info.mobilerobot.com/applications/use-cases/inbound-receiving/): unload the truck manually, then send each pallet to inspection or storage.
- [Production supply](https://info.mobilerobot.com/applications/use-cases/production-supply/): pick a pallet of materials and deliver it to the line on demand.
- [Cross-docking](https://info.mobilerobot.com/applications/use-cases/cross-docking/): shuffle pallets across multiple origins and destinations with multi-point tasks.
- [Buffer and staging](https://info.mobilerobot.com/applications/use-cases/buffer-and-staging-management/): move pallets between lines, staging areas, and storage zones while operators stay on value-added work.

Advanced task capabilities

With [Advanced software](https://info.mobilerobot.com/products/software/advanced-software/), task execution can scale up to fleet orchestration through [VDA 5050](https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/), a [REST API](https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/),

[m/documentation/technical-integration/rest-api-documentation/](https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/)), **Fleet Manager** (<https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/>), and advanced mission planning — see the **J1600 User Manual** (<https://info.mobilerobot.com/documentation/user-guides/j1600-user-manual/#software-versions>).

Location Management

Saved locations are the destinations the J1600 can drive to autonomously. They are created by driving, not by configuration, which keeps the location set as flexible as the facility itself.

The location model

- A location is created by [manually driving the robot](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) to the desired point and tapping **Save location** on the touchscreen.
- Each location gets a name chosen by the operator — for example `pallet1` or "Pallet Bay 1".
- There is **no software limit** on the number of saved locations. The practical limit is available warehouse space.
- Any location can be combined with any other in a task. The robot plans routes on its 3D map, so you never teach every A-to-B pair. See [Creating the First Map](https://info.mobilerobot.com/documentation/getting-started/creating-the-first-map/).

Adding a location

1. Drive manually to the exact drop point. Autonomous delivery is at floor level, so choose a clear floor position.
2. Tap **Save location**.
3. Name the point recognizably.

This takes minutes and needs no automation expert — adding locations is an operator job by design.

Location types in practice

- **Drop points** (<https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/>): destinations for autonomous floor-level pallet delivery.

- **Parking locations:** points the robot proceeds to after completing a delivery ("[deliver and park](https://info.mobilerobot.com/applications/scenarios/deliver-and-park/)").
- **Temporary storage points** (<https://info.mobilerobot.com/applications/use-cases/temporary-storage/>): short-lived locations created when demand changes (<https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/>) and removed from use when no longer needed.
- **Origin returns:** the pickup point the robot returns to in a [Boomerang task](https://info.mobilerobot.com/applications/scenarios/deliver-and-return/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-return/>).

Locations in changing facilities

Because locations are cheap to create, the J1600 fits changing layouts, temporary storage, shifting SKU mixes, and [brownfield sites](https://info.mobilerobot.com/applications/use-cases/brownfield-automation/) (<https://info.mobilerobot.com/applications/use-cases/brownfield-automation/>): when the flow changes, drive to the new point and save it. The robot's continuously updated 3D map handles the surrounding changes.

Validated drop points at commissioning

The optional five-day installation and commissioning package includes creation of up to 25 drop points with task and safety validation, and additional validated drop points are available as an add-on. See [First-Time Setup](https://info.mobilerobot.com/documentation/getting-started/first-time-setup/#the-commissioning-package) (<https://info.mobilerobot.com/documentation/getting-started/first-time-setup/#the-commissioning-package>).

Related pages

- [Saving the First Location](https://info.mobilerobot.com/documentation/getting-started/saving-the-first-location/) (<https://info.mobilerobot.com/documentation/getting-started/saving-the-first-location/>).
- [Task Management](https://info.mobilerobot.com/documentation/user-guides/task-management/) (<https://info.mobilerobot.com/documentation/user-guides/task-management/>).

Manual Operation

In manual mode the J1600 behaves like a conventional walk-behind electric pallet jack. The tiller and manual behavior are deliberately familiar, so an experienced pallet-jack operator can use the machine with about 30 minutes of [training](https://info.mobilerobot.com/documentation/getting-started/operator-training/) (<https://info.mobilerobot.com/documentation/getting-started/operator-training/>).

Manual capabilities

Capability	Value
Pallet pick and drop height	Up to 1,600 mm (63 in)
Payload	Up to 1,600 kg (about 3,500 lb)
Fork lifting speed	0.10 m/s unloaded; 0.08 m/s at full load
Fork lowering speed	0.08 m/s unloaded; 0.12 m/s at full load
Gradeability, unloaded	2.86° / 5%
Gradeability, full load	1.72° / 3%
Traversable bump height	25 mm (1 in)
Traversable gap width	20 mm (0.8 in)

Manual mode is the only mode for handling above floor level: autonomous delivery is always a floor-level drop.

Controls

- **Tiller:** drives and steers the vehicle and controls lifting. Grabbing or moving the tiller during autonomous travel [returns the vehicle to manual control immediately](https://info.mobilerobot.com/safety-compliance/safety-overview/emergency-stops-and-manual-takeover/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/emergency-stops-and-manual-takeover/>).
- **Key switch** (<https://info.mobilerobot.com/safety-compliance/safety-functions/mode-selection/>): set to the manual position for manual-only operation.

- **Tiller-position switches** (<https://info.mobilerobot.com/safety-compliance/safety-functions/tiller-detection/>): provide emergency stop and manual-control functions.
- **White lights** indicate the vehicle is in manual mode.

When to work manually

Manual mode carries the judgment-heavy share of pallet work:

- **Pallet pickup** — always manual, including fork placement and load checks.
- **Truck unloading and dock plates** — [automatic gradeability is 0%](https://info.mobilerobot.com/documentation/installation/floor-requirements/) (<https://info.mobilerobot.com/documentation/installation/floor-requirements/>), so slopes, ramps, and trailer entry are manual.
- **Sensitive or unstable loads** (<https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/>) — barrels, top-heavy stacks, leaning loads, and confined maneuvering benefit from manual judgment of pallet detection and height.
- **Congested areas** — improvise a route through [crowded receiving floors](https://info.mobilerobot.com/applications/scenarios/operation-in-crowded-environments/) (<https://info.mobilerobot.com/applications/scenarios/operation-in-crowded-environments/>).
- **Exceptions** (<https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/>) — misplaced pallets, damaged goods, loose shrink wrap, urgent reprioritization.

The [Operator Manual](https://info.mobilerobot.com/documentation/user-guides/operator-manual/) (<https://info.mobilerobot.com/documentation/user-guides/operator-manual/>) lists these situations in full.

Manual driving builds the map

Every manual drive does double duty: the robot continuously [learns and updates its 3D model of the environment](https://info.mobilerobot.com/documentation/getting-started/creating-the-first-map/) (<https://info.mobilerobot.com/documentation/getting-started/creating-the-first-map/>) while you steer it. Manual driving is also how you create new saved locations — see [Location Management](https://info.mobilerobot.com/documentation/user-guides/location-management/) (<https://info.mobilerobot.com/documentation/user-guides/location-management/>).

Switching to autonomous work

When the repetitive travel portion begins, hand the load over to the robot: create a task, confirm automatic mode, and step away. See [Autonomous Operation](https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/) (<https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/>) and [Manual and](#)

[Autonomous Modes \(https://info.mobilerobot.com/documentation/getting-started/manual-and-autonomous-modes/\)](https://info.mobilerobot.com/documentation/getting-started/manual-and-autonomous-modes/).

Autonomous Operation

In automatic mode the J1600 drives itself to [saved destinations](https://info.mobilerobot.com/documentation/user-guides/location-management/) (<https://info.mobilerobot.com/documentation/user-guides/location-management/>), avoids obstacles on the way, and delivers pallets at floor level. Autonomous work always starts with a person: [the operator creates the task, confirms the mode change, and can take over at any moment](https://info.mobilerobot.com/documentation/user-guides/operator-manual/) (<https://info.mobilerobot.com/documentation/user-guides/operator-manual/>).

Starting an autonomous run

1. [Pick up the pallet manually](https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/) (<https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/>) and select or create a task on the touchscreen — see [Task Management](https://info.mobilerobot.com/documentation/user-guides/task-management/) (<https://info.mobilerobot.com/documentation/user-guides/task-management/>).
2. Execute the task. The robot asks to [enter automatic mode](https://info.mobilerobot.com/support/troubleshooting/robot-will-not-enter-autonomous-mode/) (<https://info.mobilerobot.com/support/troubleshooting/robot-will-not-enter-autonomous-mode/>).
3. Confirm with the physical LED start/resume button. The [key switch](https://info.mobilerobot.com/safety-compliance/safety-functions/mode-selection/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/mode-selection/>) must be in the automatic position.
4. Step clear when the interface instructs you to. The robot moves only after confirmation.

While the robot drives

- [Top speed](https://info.mobilerobot.com/products/j1600/dimensions-and-performance/) (<https://info.mobilerobot.com/products/j1600/dimensions-and-performance/>) is 5.4 km/h (1.5 m/s / 3.4 mph).
- The robot localizes on the 3D map built during manual driving and plans its own route to the destination — no fixed paths, wires, or reflectors. See [Creating the First Map](https://info.mobilerobot.com/documentation/getting-started/creating-the-first-map/) (<https://info.mobilerobot.com/documentation/getting-started/creating-the-first-map/>).
- It [detects and avoids obstacles](https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/) (<https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/>) in dynamic environments, [routing around people and objects](https://info.mobilerobot.com/applications/scenarios/operation-in-crowded-environments/) (<https://info.mobilerobot.com/applications/scenarios/operation-in-crowded-environments/>).
- Preferred travel zones can be defined for safer routing through production areas.

- A 360-degree protective field, monitored by two 2D safety LiDARs and an independent safety controller, covers forward and reverse travel. The [field changes with speed](https://info.mobilerobot.com/safety-compliance/safety-functions/safety-field-adjustment/) and expands at higher speeds.
- Blue floor-light strips display the protected area and the vehicle's status.

[Person detection](https://info.mobilerobot.com/safety-compliance/safety-functions/person-detection/) and [braking](https://info.mobilerobot.com/safety-compliance/safety-functions/braking/) carry certified safety [Performance Levels](https://info.mobilerobot.com/safety-compliance/safety-functions/performance-levels/) — see [How J1600 safety works](https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/).

Delivery and after

The robot drops the pallet at floor level, then performs the post-delivery action from the task: [return to origin or operator](https://info.mobilerobot.com/applications/scenarios/deliver-and-return/), proceed to another point or parking, or [stop and wait](https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/). With [Advanced software](https://info.mobilerobot.com/products/software/advanced-software/) it can also be called to a location ("[come to me](https://info.mobilerobot.com/applications/scenarios/come-to-me/)") via a mobile app or web interface, and it can drive itself to an automatic charger — see [Charging](https://info.mobilerobot.com/documentation/user-guides/charging/).

Operating limits in automatic mode

- [Level floors](https://info.mobilerobot.com/documentation/installation/floor-requirements/): only: automatic gradeability is 0° / 0%. Slopes and dock plates are manual work.
- [Indoor operation](https://info.mobilerobot.com/documentation/installation/operating-environment-requirements/): within 5–40 °C and 20–80% non-condensing humidity.
- Automatic delivery is floor-level only; higher drops are a manual capability.

Taking over

Manual control is immediately available at all times:

- grab or move the tiller to regain manual control;

- use any of the [three emergency-stop buttons](https://info.mobilerobot.com/safety-compliance/safety-overview/emergency-stops-and-manual-takeover/) (https://info.mobilerobot.com/safety-compliance/safety-overview/emergency-stops-and-manual-takeover/) or the belly button (stop and reverse);
- the [tiller-position switches](https://info.mobilerobot.com/safety-compliance/safety-functions/tiller-detection/) (https://info.mobilerobot.com/safety-compliance/safety-functions/tiller-detection/), provide emergency stop and manual control.

See [Manual and Autonomous Modes](https://info.mobilerobot.com/documentation/getting-started/manual-and-autonomous-modes/) (https://info.mobilerobot.com/documentation/getting-started/manual-and-autonomous-modes/) for the full mode model and [Manual Operation](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) (https://info.mobilerobot.com/documentation/user-guides/manual-operation/), for manual work.

Charging

The J1600 supports two charging methods: manual plug-in charging and, with the optional [automatic charger](https://info.mobilerobot.com/products/chargers-and-accessories/automatic-charger/) (<https://info.mobilerobot.com/products/chargers-and-accessories/automatic-charger/>), self-docking opportunity charging.

Battery

Parameter	Value
Battery	24 V, 200 Ah
Chemistry	Lithium iron phosphate (LiFePO4)
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. The [drain rates](https://info.mobilerobot.com/documentation/technical-reference/battery-specifications/) (<https://info.mobilerobot.com/documentation/technical-reference/battery-specifications/>) imply approximately 7.7 hours of continuous fully loaded driving or 8.3 hours unloaded — these are calculated figures, not guaranteed runtimes, and do not account for standby, lifting, duty cycle, battery reserve, or operating conditions.

The [charging-current relay](https://info.mobilerobot.com/safety-compliance/safety-functions/charging-safety/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/charging-safety/>) is a safety function rated PL b.

Manual charging

Manual charging works like charging a conventional electric pallet jack: plug in the charger during a break or whenever the machine is idle — for example before lunch.

The [manual charger](https://info.mobilerobot.com/products/chargers-and-accessories/manual-charger/) (<https://info.mobilerobot.com/products/chargers-and-accessories/manual-charger/>) lists at €3,600.

Automatic charging

With the optional automatic charger, the robot drives to the charging station, positions itself in front of the charger, and a charging interface extends to the vehicle's charging plates. This enables [opportunity charging](https://info.mobilerobot.com/applications/scenarios/automatic-charging/) while the robot is not busy, without operator involvement.

- Automatic charging is an advanced automation capability.
- When purchased with the commissioning package, automatic-charging setup is part of installation Day 1 — see [First-Time Setup](https://info.mobilerobot.com/documentation/getting-started/first-time-setup/#the-commissioning-package).
- The automatic charger lists at €8,400.

Which charger to choose

- Single robot, single shift, predictable breaks: manual charging keeps cost lowest and mirrors the routine operators already know.
- Higher utilization or hands-off operation: automatic charging lets the robot top up on its own between tasks.

A charger is not included with the robot purchase, so [plan for one when ordering](https://info.mobilerobot.com/documentation/installation/charger-installation/) — see [Delivery and Unpacking](https://info.mobilerobot.com/documentation/getting-started/delivery-and-unpacking/).

PRELIMINARY SPECIFICATIONS

Battery and charging figures are preliminary January 2026 specifications and are subject to change. See the [technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/).

Supported Pallets and Loads

The J1600 handles any forkable carrier with an **open base and no bottom deck board**, within its size and weight envelope. This page defines that envelope and the fork geometry a carrier must accommodate.

Load envelope

Parameter	Limit
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
Maximum payload	1,600 kg / about 3,500 lb

The exact envelope is 1,250 mm; some summaries round it to 1.2 m, but 1,250 mm is the figure to plan with.

Supported carrier types

Category	Support
EPAL	EPAL Euro Pallet, EPAL 3, EPAL 6
GMA	All GMA (Grocery Manufacturers Association) pallets with an open base
Custom carriers	Any forkable open-base carrier within the size limits

Examples beyond standard pallets include [open cages, barrels](https://info.mobilerobot.com/applications/use-cases/open-cages-and-alternative-load-carriers/) (<https://info.mobilerobot.com/applications/use-cases/open-cages-and-alternative-load-carriers/>), and carriers for sensitive loads. The working rule from the product team: everything that is open underneath can be picked up, within the envelope.

Fork geometry

Carriers must accept the J1600's forks:

Parameter	Value
Fork length	1,150 mm / 45 in
Fork width	180 mm / 7 in
Fork thickness	60 mm / 2.4 in
Fork outer distance	680 mm / 27 in
Fork inner distance	320 mm / 13 in
Fork height, lowest	90 mm / 3.5 in
Fork height, highest	1,600 mm / 63 in

Judgment still applies

Compatibility depends on base geometry, size, stability, and operator judgment. No [blanket approval](https://info.mobilerobot.com/safety-compliance/safe-deployment/approved-loads-and-pallets/) (<https://info.mobilerobot.com/safety-compliance/safe-deployment/approved-loads-and-pallets/>) exists for every carrier or for hazardous materials. [Sensitive or unstable loads](https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/) (<https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/>) — top-heavy stacks, leaning pallets, barrels — should be picked and closely maneuvered manually, with autonomous mode reserved for the transport leg. See [Manual Operation](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) (<https://info.mobilerobot.com/documentation/user-guides/manual-operation/>) and the [Operator Manual](https://info.mobilerobot.com/documentation/user-guides/operator-manual/) (<https://info.mobilerobot.com/documentation/user-guides/operator-manual/>).

Handling heights

- Manual pick and drop: up to 1,600 mm (63 in).
- Autonomous delivery: floor level only.

ⓘ PRELIMINARY SPECIFICATIONS

These January 2026 figures are preliminary and subject to change. See the [technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>).

Site Readiness Guide

This page summarizes what a facility needs before a [J1600](https://info.mobilerobot.com/products/j1600/overview/) is [delivered](https://info.mobilerobot.com/documentation/getting-started/delivery-and-unpacking/). The J1600 needs no building modifications, tracks, wires, or reflectors, so site preparation is mostly a matter of confirming that the environment is within the robot's operating limits and deciding where drop points and the charger will go.

Confirm the operating environment

The J1600 is designed for indoor, floor-to-floor pallet transport. Check the basics first:

- Ambient temperature between 5°C and 40°C (41°F and 104°F).
- Relative humidity between 20% and 80%, non-condensing.
- The robot's ingress protection is IP21 — it is protected against objects over 12.5 mm and vertically dripping water, not against washdown or outdoor conditions.
- Autonomous routes must run on level floors: automatic-mode gradeability is 0%. Slopes and dock plates remain manual-mode tasks.

Full figures are on [Operating Environment Requirements](https://info.mobilerobot.com/documentation/installation/operating-environment-requirements/).

Check the floors

Autonomous operation expects floor flatness to TR34 FM3 (FF 25 / FL 20). The robot traverses bumps up to 25 mm (1 in) and gaps up to 20 mm (0.8 in). See [Floor Requirements](https://info.mobilerobot.com/documentation/installation/floor-requirements/) for the complete list, including manual-mode gradeability.

Verify space along the routes

Key dimensions for planning aisles, doorways, and turning areas:

Dimension	Value
Vehicle length	1,893 mm (75 in)
Vehicle width	850 mm (33 in)
Vehicle height, forks lowered	2,060 mm (81 in)
Vehicle height, forks at maximum height	2,350 mm (93 in)
Turning radius	1,501 mm (59 in)

The complete dimension set is on the [J1600 technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (https://info.mobilerobot.com/products/j1600/technical-specifications/), page.

Check your pallets and load carriers

The J1600 requires an [open-base carrier with no bottom deck board](https://info.mobilerobot.com/products/j1600/pallet-and-load-compatibility/) (https://info.mobilerobot.com/products/j1600/pallet-and-load-compatibility/) so its forks can enter. Confirm your carriers fit the envelope:

- Maximum pallet or load length, including overhang: 1,250 mm (49 in).
- Maximum pallet or load width, including overhang: 1,250 mm (49 in).
- Maximum load height from floor: 1,700 mm (67 in).
- Maximum payload: 1,600 kg (about 3,500 lb).

Supported formats include the EPAL Euro Pallet, EPAL 3, EPAL 6, GMA pallets with an open base, and any other forkable open-base carrier within the size limits, such as [open cages and barrels](https://info.mobilerobot.com/applications/use-cases/open-cages-and-alternative-load-carriers/) (https://info.mobilerobot.com/applications/use-cases/open-cages-and-alternative-load-carriers/).

Plan the charging location

Choose where the [manual charger](https://info.mobilerobot.com/products/chargers-and-accessories/manual-charger/) (https://info.mobilerobot.com/products/chargers-and-accessories/manual-charger/) — or the optional automatic charging station — will be installed before delivery. With [automatic charging](https://info.mobilerobot.com/applications/scenarios/automatic-charging/) (https://info.mobilerobot.com/applications/scenarios/automatic-charging/), the robot drives itself to the station between tasks. See [Charger Installation](https://info.mobilerobot.com/documentation/installation/charger-installation/) (https://info.mobilerobot.com/documentation/installation/charger-installation/).

Decide on connectivity

Basic operation needs no Wi-Fi and [no IT integration](https://info.mobilerobot.com/applications/results/lower-integration-complexity/) (<https://info.mobilerobot.com/applications/results/lower-integration-complexity/>). Wi-Fi and network planning only matter if you want advanced functions such as [come-to-me](https://info.mobilerobot.com/applications/scenarios/come-to-me/) (<https://info.mobilerobot.com/applications/scenarios/come-to-me/>), [VDA 5050](https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/) (<https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/>), fleet integration, or the [REST API](https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>). See [Network and Wi-Fi Requirements](https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/) (<https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/>).

Plan drop points and tasks

Walk the intended routes and note where pallets should be dropped. Locations are created after delivery by driving the robot to each point and saving it — there is no software limit on the number of saved locations. See [Mapping and Drop-Point Setup](https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/) (<https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/>).

Consider the commissioning package

For a structured go-live, a five-day [installation and commissioning package](https://info.mobilerobot.com/products/buying-and-deployment/installation-and-commissioning/) (<https://info.mobilerobot.com/products/buying-and-deployment/installation-and-commissioning/>) (€10,000 end-user list price) adds a pre-installation feasibility check for all selected tasks and loads, a [risk assessment](https://info.mobilerobot.com/safety-compliance/safe-deployment/site-risk-assessment/) (<https://info.mobilerobot.com/safety-compliance/safe-deployment/site-risk-assessment/>), and a project plan before the on-site work starts. The [Deployment Checklist](https://info.mobilerobot.com/documentation/installation/deployment-checklist/) (<https://info.mobilerobot.com/documentation/installation/deployment-checklist/>) shows both the basic and the packaged path.

TIP

Operators who already drive electric pallet jacks need about 30 minutes of [training](https://info.mobilerobot.com/documentation/getting-started/operator-training/) (<https://info.mobilerobot.com/documentation/getting-started/operator-training/>). Plan a short session for each operator on delivery day rather than a separate training project.

Operating Environment Requirements

The J1600 is designed for indoor, floor-to-floor pallet transport. This page lists the environmental limits a site must stay within for reliable operation, in both [autonomous and manual mode](https://info.mobilerobot.com/documentation/getting-started/manual-and-autonomous-modes/) (<https://info.mobilerobot.com/documentation/getting-started/manual-and-autonomous-modes/>).

PRELIMINARY SPECIFICATIONS

The January 2026 [specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>) are preliminary and subject to change. Confirm figures against the current product documentation before committing to a deployment.

Environmental limits

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
Minimum operating temperature	5°C	41°F
Maximum operating temperature	40°C	104°F
Relative humidity	20–80%	non-condensing
Floor flatness/levelness	TR34 FM3	FF 25 / FL 20
Ingress protection	IP21	protected against objects over 12.5 mm and vertically dripping water

What the limits mean in practice

Autonomous mode is a level-floor application

Automatic gradeability is 0%. Ramps, slopes, and dock plates are handled in [manual mode](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) (<https://info.mobilerobot.com/documentation/user-guides/manual-operation/>), where the operator can adapt to bumps, misalignment, and truck-bed conditions. This division of work is deliberate — see [human-in-the-loop automation](https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/) (<https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/>).

Indoor use only

IP21 protection and the 5–40°C temperature range make the J1600 an indoor vehicle. It is not rated for rain, washdown areas, or freezer environments.

Floors do not need to be perfect

The robot tolerates bumps up to 25 mm and gaps up to 20 mm, and its 3D navigation is designed for real-world [brownfield conditions](https://info.mobilerobot.com/applications/use-cases/brownfield-automation/) (<https://info.mobilerobot.com/applications/use-cases/brownfield-automation/>). The flatness class and traversal limits on [Floor Requirements](https://info.mobilerobot.com/documentation/installation/floor-requirements/) (<https://info.mobilerobot.com/documentation/installation/floor-requirements/>) still apply on every autonomous route.

Checking your site

Walk each planned autonomous route and confirm it is level, indoors, and within the bump and gap limits, then verify temperature and humidity in every zone the robot will cross — a chilled buffer or an open dock door can put part of a route outside the limits. The [Site Readiness Guide](https://info.mobilerobot.com/documentation/installation/site-readiness-guide/) (<https://info.mobilerobot.com/documentation/installation/site-readiness-guide/>) covers the full pre-delivery check, and the pre-installation feasibility check in the [commissioning package](https://info.mobilerobot.com/documentation/installation/deployment-checklist/) (<https://info.mobilerobot.com/documentation/installation/deployment-checklist/>) validates all selected tasks and loads against these limits.

Floor Requirements

Floors decide where the J1600 can drive autonomously. This page collects every floor-related limit so you can assess a facility route by route.

PRELIMINARY SPECIFICATIONS

The January 2026 [specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>) are preliminary and subject to change.

Flatness and levelness

Autonomous routes require floor flatness and levelness to **TR34 FM3**, equivalent to **FF 25 / FL 20**. This is a standard industrial concrete-floor classification; most existing warehouse and production floors in reasonable condition meet it.

Slopes

Mode	Gradeability
Automatic mode	0° / 0%
Manual mode, no load	2.86° / 5%
Manual mode, full load	1.72° / 3%

Autonomous driving is a level-floor application. Any slope — including dock plates and ramps — is [driven manually](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) (<https://info.mobilerobot.com/documentation/user-guides/manual-operation/>), where the operator judges alignment and surface condition. Plan autonomous [drop points](https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/) (<https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/>) on level floor only.

Bumps, gaps, and clearance

Parameter	Metric	Imperial
Maximum traversable bump height	25 mm	1 in
Maximum traversable gap width	20 mm	0.8 in
Ground clearance	30 mm	1.2 in

Expansion joints, thresholds, and drain covers along autonomous routes must stay within the bump and gap limits.

Wheels

The J1600 runs on polyurethane wheels:

- Drive wheel: 75 mm wide × 230 mm diameter (3 × 9 in).
- Load wheels: 70 mm wide × 80 mm diameter (2.8 × 3.1 in).

Polyurethane wheels suit smooth, dry indoor concrete. The IP21 rating and indoor design mean wet or contaminated floors are outside the intended envelope — see [Operating Environment Requirements](https://info.mobilerobot.com/documentation/installation/operating-environment-requirements/) (<https://info.mobilerobot.com/documentation/installation/operating-environment-requirements/>).

Real-world floors are the design target

The J1600 is validated under intentionally imperfect conditions, including uneven flooring and water-filled test loads at the company's [Copenhagen test area](https://info.mobilerobot.com/company/locations/test-and-demonstration-facility/) (<https://info.mobilerobot.com/company/locations/test-and-demonstration-facility/>), and its 3D navigation is built for [brownfield sites](https://info.mobilerobot.com/applications/use-cases/brownfield-automation/) (<https://info.mobilerobot.com/applications/use-cases/brownfield-automation/>) with changing layouts. That robustness does not extend the limits above: a route that exceeds the bump, gap, slope, or flatness figures needs manual driving or a different path.

Before delivery, walk each planned route with the [Site Readiness Guide](https://info.mobilerobot.com/documentation/installation/site-readiness-guide/) (<https://info.mobilerobot.com/documentation/installation/site-readiness-guide/>). If you buy the commissioning package, the pre-installation feasibility check validates the selected routes — see the

[Deployment Checklist](https://info.mobilerobot.com/documentation/installation/deployment-checklist/) (<https://info.mobilerobot.com/documentation/installation/deployment-checklist/>).

Network and Wi-Fi Requirements

The J1600 does not require a network to do its core job. This page explains which functions run without any connectivity, which ones use it, and what to prepare if you want them.

Basic operation: no network required

The [standard out-of-box workflow](https://info.mobilerobot.com/products/j1600/how-it-works/) (<https://info.mobilerobot.com/products/j1600/how-it-works/>) — manual driving, [saving locations](https://info.mobilerobot.com/documentation/getting-started/saving-the-first-location/) (<https://info.mobilerobot.com/documentation/getting-started/saving-the-first-location/>), creating tasks on the touchscreen, and autonomous delivery — works without Wi-Fi and without any IT integration:

- No mandatory Wi-Fi for basic use.
- No mandatory warehouse-management system (WMS), fleet manager, or other systems integration.
- Mapping and navigation run onboard using [3D LiDAR SLAM](https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/) (<https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/>); no infrastructure or network dependency.

A single robot doing [teach-and-repeat](https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/) (<https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/>) transport can be deployed in a facility with no usable Wi-Fi at all.

Functions that use connectivity

Connectivity becomes relevant when you scale beyond the basic workflow:

Function	Why it needs a network
Come-to-me	The robot is called to a location from a mobile app or web interface.
VDA 5050	Fleet-level interoperability with a compatible fleet-management layer.
REST API	Integration with other software and equipment.
Fleet Manager	Orchestration of multiple robots.
Remote support	The support portal accepts tickets and device-log uploads.

[Come-to-me](https://info.mobilerobot.com/applications/scenarios/come-to-me/) (<https://info.mobilerobot.com/applications/scenarios/come-to-me/>), automatic charging coordination, [VDA 5050](https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/) (<https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/>) fleet management, and API integrations are advanced automation functions; VDA 5050, the [REST API](https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>), [Fleet Manager](https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/) (<https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/>), and advanced mission planning require the [Advanced software package](https://info.mobilerobot.com/products/software/advanced-software/) (<https://info.mobilerobot.com/products/software/advanced-software/>) — see [Software Updates](https://info.mobilerobot.com/documentation/service-maintenance/software-updates/) (<https://info.mobilerobot.com/documentation/service-maintenance/software-updates/>), and [dual mode](https://info.mobilerobot.com/products/j1600/dual-mode/) (<https://info.mobilerobot.com/products/j1600/dual-mode/>), for how the capability levels stack.

When Wi-Fi gets connected

If you want the robot online, Wi-Fi connection is part of Day 1 of the [commissioning package](https://info.mobilerobot.com/documentation/installation/deployment-checklist/) (<https://info.mobilerobot.com/documentation/installation/deployment-checklist/>) — and it is genuinely optional. You can also start network-free and add connectivity later when an application grows into [fleet or integration needs](https://info.mobilerobot.com/documentation/technical-integration/integration-overview/) (<https://info.mobilerobot.com/documentation/technical-integration/integration-overview/>).

Planning notes

- Decide before delivery whether any advanced function is in scope, so Wi-Fi coverage along the robot's routes can be checked in time.
- Getting help does not depend on the robot being online: the on-machine Help/Support menu shows a QR code through which technical requests can be sent directly. See [Diagnostics and Log Collection](https://info.mobilerobot.com/documentation/service-maintenance/diagnostics-and-log-collection/) (<https://info.mobilerobot.com/documentation/service-maintenance/diagnostics-and-log-collection/>).

- For detailed network specifications, ask your partner or hello@mobilerobot.com when [planning a fleet or integration project](https://info.mobilerobot.com/documentation/technical-integration/system-integrator-technical-guide/) (<https://info.mobilerobot.com/documentation/technical-integration/system-integrator-technical-guide/>).

Charger Installation

The J1600 charges from either a manual charger or an [optional automatic charging station](https://info.mobilerobot.com/products/chargers-and-accessories/automatic-charger/) (<https://info.mobilerobot.com/products/chargers-and-accessories/automatic-charger/>). This page covers how each option works, what to plan for at the site, and the battery figures that drive charger placement decisions.

PRELIMINARY SPECIFICATIONS

The January 2026 [specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>) are preliminary and subject to change.

Choose a charging option

Option	End-user list price (2026)	How it works
Manual charger	€3,600	Plug in the charger during a break or whenever the machine is idle — the same routine as a conventional electric pallet jack.
Automatic charger	€8,400	The robot drives to the station, positions itself at the charger, and a charging interface extends to the vehicle's charging plates.

INFO

A charger is not included in the J1600's €65,000 base price. Plan the charger as a separate line item.

Manual charging

[Manual charging](https://info.mobilerobot.com/products/chargers-and-accessories/manual-charger/) (<https://info.mobilerobot.com/products/chargers-and-accessories/manual-charger/>) needs no robot configuration: pick a spot with a power outlet near where the

machine idles, and plug in during natural pauses — before lunch, between shifts, or overnight. It fits single-robot deployments where an operator is always nearby.

Automatic charging

[Automatic charging](https://info.mobilerobot.com/applications/scenarios/automatic-charging/) (<https://info.mobilerobot.com/applications/scenarios/automatic-charging/>) is an advanced automation capability that enables **opportunity charging**: the robot tops up on its own whenever it is not busy, without an operator remembering to plug it in.

Placement notes:

- The station needs [level floor](https://info.mobilerobot.com/documentation/installation/floor-requirements/) (<https://info.mobilerobot.com/documentation/installation/floor-requirements/>) and enough approach space for the robot to position itself in front of the charger.
- If you purchase the automatic charger with the [commissioning package](https://info.mobilerobot.com/documentation/installation/deployment-checklist/) (<https://info.mobilerobot.com/documentation/installation/deployment-checklist/>), its setup is part of on-site Day 1.

Battery figures for planning

The J1600 uses a [24 V, 200 Ah lithium iron phosphate \(LiFePO4\) battery](https://info.mobilerobot.com/documentation/technical-reference/battery-specifications/) (<https://info.mobilerobot.com/documentation/technical-reference/battery-specifications/>).

Parameter	Value
Charging rate	approximately 47 percentage points per hour
Drain, driving fully loaded	approximately 13% per hour
Drain, driving without load	approximately 12% per hour
Drain, standby	approximately 2% per hour

Runtime exceeds eight hours in a typical duty cycle. The drain rates imply roughly 7.7 hours of continuous fully loaded driving or 8.3 hours unloaded, but these are calculated figures — not guaranteed runtimes — before allowing for standby, lifting, duty cycle, battery reserve, and operating conditions. For a single-shift operation, a manual charge during breaks or an automatic station for opportunity charging comfortably covers the day.

The [charging-current relay](https://info.mobilerobot.com/safety-compliance/safety-functions/charging-safety/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/charging-safety/>) is a certified safety function rated PL b — part of the layered safety architecture described in [how J1600 safety works](https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/>).

Before delivery

- Decide manual or automatic and order accordingly — automatic-charging setup on Day 1 only happens when the charger is purchased.
- Reserve the floor location and power supply as part of your [site readiness check](https://info.mobilerobot.com/documentation/installation/site-readiness-guide/) (<https://info.mobilerobot.com/documentation/installation/site-readiness-guide/>).

Mapping and Drop-Point Setup

The J1600 maps a facility by being driven through it. There is no survey, no CAD import, and no infrastructure to install — the robot builds and updates a 3D map while an operator drives, then delivers autonomously to the points you save. This page walks through first-time mapping, drop-point creation, and the first task.

How mapping works

The robot uses [3D LiDAR SLAM](https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/) (simultaneous localization and mapping) processed on an industrial NVIDIA Jetson AI computer. While you drive manually, it continuously learns and updates its understanding of the environment, scanning structures at heights reaching up to 70 m above the vehicle. It needs no fixed tracks, wires, reflectors, or building modifications, and the map keeps updating as the facility changes — which is what makes the J1600 practical in [brownfield sites](https://info.mobilerobot.com/applications/use-cases/brownfield-automation/) with shifting layouts.

Terms are defined in the [glossary](https://info.mobilerobot.com/documentation/concepts/glossary/).

First-time setup

1. Power on the J1600 and follow the on-screen tutorial.
2. Use the tiller to drive manually through the facility. The robot learns the environment as you go.
3. Drive to each point where the robot should drop pallets autonomously.
4. Tap **Save location**, name the point, and repeat for every destination you need.

There is no software limit on the number of saved locations — practical limits come from available warehouse space.

TIP

Name locations the way your team talks about them ("Pallet Bay 1", "Line 3 infeed"). Operators pick destinations from the map or list, so recognizable names keep [task creation](https://info.mobilerobot.com/documentation/user-guides/task-management/) fast.

Adding and changing drop points later

New locations are added the same way: drive there once, tap **Save location**, done. Operators change the setup themselves — adding a point takes minutes and needs no automation expert or IT ticket. [Saved points](https://info.mobilerobot.com/documentation/user-guides/location-management/) can be recombined freely into tasks; you do not need to demonstrate every possible A-to-B variation.

Creating the first task

1. Manually pick up a [supported pallet or load carrier](https://info.mobilerobot.com/products/j1600/pallet-and-load-compatibility/).
2. Open task creation on the touchscreen.
3. Choose the task type and the saved drop destination.
4. Choose what happens after delivery: return to origin, go to another point or parking, or [stop and wait](https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/).
5. Execute the task. The robot asks to enter automatic mode; confirm with the physical start/go button.
6. Step away when the interface tells you to. The robot drives, avoids obstacles, drops the pallet at floor level, and follows the selected post-delivery action.

[Pallet pickup is always manual, and autonomous delivery is at floor level](https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/) — the manual lift capability up to 1,600 mm does not apply in automatic mode. See [dual mode](https://info.mobilerobot.com/products/j1600/dual-mode/) for the handover model.

Constraints to respect while placing points

- Drop points must be on level floor: automatic-mode gradeability is 0%. See [Floor Requirements](https://info.mobilerobot.com/documentation/installation/floor-requirements/) (<https://info.mobilerobot.com/documentation/installation/floor-requirements/>).
- Routes between points must stay within the [operating environment limits](https://info.mobilerobot.com/documentation/installation/operating-environment-requirements/) (<https://info.mobilerobot.com/documentation/installation/operating-environment-requirements/>).
- Preferred travel zones can be defined for safer routing through production areas.

Drop points in the commissioning package

If you purchase the five-day commissioning package, on-site Day 1 includes creation of up to 25 drop points plus task validation — see the [Deployment Checklist](https://info.mobilerobot.com/documentation/installation/deployment-checklist/) (<https://info.mobilerobot.com/documentation/installation/deployment-checklist/>). Additional validated drop points are available as an add-on.

Deployment Checklist

This checklist takes a J1600 deployment from site check to daily operation. There are two paths: the [basic out-of-box deployment](https://info.mobilerobot.com/documentation/getting-started/first-time-setup/) (<https://info.mobilerobot.com/documentation/getting-started/first-time-setup/>), which typically takes hours to one day [depending on scope](https://info.mobilerobot.com/applications/planning/deployment-scope-examples/) (<https://info.mobilerobot.com/applications/planning/deployment-scope-examples/>), and the structured five-day commissioning package.

Before delivery

- ☐ Environment within limits: indoor, 5–40°C, 20–80% relative humidity non-condensing — see [Operating Environment Requirements](https://info.mobilerobot.com/documentation/installation/operating-environment-requirements/) (<https://info.mobilerobot.com/documentation/installation/operating-environment-requirements/>).
- ☐ Floors checked on every planned autonomous route: level (0% automatic gradeability), TR34 FM3 flatness, bumps ≤ 25 mm, gaps ≤ 20 mm — see [Floor Requirements](https://info.mobilerobot.com/documentation/installation/floor-requirements/) (<https://info.mobilerobot.com/documentation/installation/floor-requirements/>).
- ☐ Aisles, doorways, and turning areas checked against the vehicle dimensions and the 1,501 mm turning radius — see the [technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>).
- ☐ [Pallets and load carriers](https://info.mobilerobot.com/products/j1600/pallet-and-load-compatibility/) (<https://info.mobilerobot.com/products/j1600/pallet-and-load-compatibility/>) confirmed open-base and within the 1,250 × 1,250 mm envelope, load height $\leq 1,700$ mm, payload $\leq 1,600$ kg.
- ☐ Charger ordered (manual €3,600 or automatic €8,400 list) and its location reserved — see [Charger Installation](https://info.mobilerobot.com/documentation/installation/charger-installation/) (<https://info.mobilerobot.com/documentation/installation/charger-installation/>).
- ☐ Connectivity decided: none for basic use, Wi-Fi if advanced functions are in scope — see [Network and Wi-Fi Requirements](https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/) (<https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/>).
- ☐ Intended drop points and [task patterns](https://info.mobilerobot.com/documentation/user-guides/task-management/) (<https://info.mobilerobot.com/documentation/user-guides/task-management/>) sketched with the operators who will use them.

The [Site Readiness Guide](https://info.mobilerobot.com/documentation/installation/site-readiness-guide/) (<https://info.mobilerobot.com/documentation/installation/site-readiness-guide/>) covers these checks in detail.

Path 1: basic out-of-box deployment

The standard J1600 is [ready to use on delivery](https://info.mobilerobot.com/documentation/getting-started/delivery-and-unpacking/) — no building modifications, tracks, wires, or reflectors, and [no mandatory WMS, fleet-manager, or IT integration](https://info.mobilerobot.com/applications/results/lower-integration-complexity/).

- ☐ [Power on and follow the on-screen tutorial](https://info.mobilerobot.com/documentation/getting-started/j1600-quick-start-guide/).
- ☐ Drive the facility manually so the robot maps it; save each drop point — see [Mapping and Drop-Point Setup](https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/).
- ☐ [Create and run the first task](https://info.mobilerobot.com/documentation/getting-started/creating-the-first-task/); confirm automatic mode with the physical start button.
- ☐ [Train the operators](https://info.mobilerobot.com/documentation/getting-started/operator-training/) — about 30 minutes each for anyone who already drives an electric pallet jack, using the tutorial on the device or online.
- ☐ Set the [charging routine](https://info.mobilerobot.com/documentation/user-guides/charging/) (plug-in during breaks, or automatic opportunity charging).

Typical setup time is hours or one day, depending on scope.

Path 2: five-day commissioning package

The [installation and commissioning package](https://info.mobilerobot.com/products/buying-and-deployment/installation-and-commissioning/) (€10,000 end-user list price) is an optional service that reduces go-live risk through structured preparation, validation, training, and handover. It should not be confused with the machine's basic out-of-box usability.

Pre-installation

- ☐ Feasibility check for all selected tasks and loads.
- ☐ [Risk assessment](https://info.mobilerobot.com/safety-compliance/safe-deployment/site-risk-assessment/).
- ☐ Project plan.

On-site Day 1

- ☐ Unboxing.
- ☐ Wi-Fi connection, if desired.
- ☐ Automatic-charging setup, if purchased.
- ☐ Creation of up to 25 drop points.
- ☐ Task validation.
- ☐ Safety validation.

On-site Day 2

- ☐ Group training for all operators.
- ☐ Individual hands-on practice for up to six operators.

On-site Days 3–4

- ☐ Monitor robot performance in real operation.
- ☐ On-site troubleshooting and support.
- ☐ Additional operator training as needed.

On-site Day 5

- ☐ Acceptance test.
- ☐ Handover.

Available add-ons

- Integration with other software or equipment.
- Additional validated drop points.
- [Fleet Management System setup](https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/) (<https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/>).

After go-live

- ☐ Choose an after-sales support plan — Free, Basic Care, or Full Care — at purchase; see the [support section](https://info.mobilerobot.com/category/support/) (<https://info.mobilerobot.com/category/support/>).

- ☐ Know the help path: the on-machine Help/Support menu provides a QR code for sending technical requests directly — see [Diagnostics and Log Collection](https://info.mobilerobot.com/documentation/service-maintenance/diagnostics-and-log-collection/) (<https://info.mobilerobot.com/documentation/service-maintenance/diagnostics-and-log-collection/>).
- ☐ Keep software current through your support plan — see [Software Updates](https://info.mobilerobot.com/documentation/service-maintenance/software-updates/) (<https://info.mobilerobot.com/documentation/service-maintenance/software-updates/>).
- ☐ Add new drop points as flows change: drive there, tap **Save location**, done.

System Integrator Technical Guide

This guide orients system integrators who plan to deploy the [J1600 self-driving pallet jack](https://info.mobilerobot.com/products/j1600/overview/) (<https://info.mobilerobot.com/products/j1600/overview/>), either as a standalone unit or as part of a larger automation system. It summarizes the platform, the two software levels, the available integration interfaces, and the site conditions to verify before a project starts.

The platform at a glance

Area	What the J1600 provides
Navigation	3D LiDAR SLAM (simultaneous localization and mapping) on an industrial NVIDIA Jetson AI computer
Mapping	Continuous environmental learning while an operator drives; no tracks, wires, reflectors, or building modifications
Safety	Independent safety controller, two 2D safety LiDARs, 360-degree speed-dependent protective field, certified components
Operator interface	15-inch multi-touch HMI, LED start/resume button, three-position key switch, tiller
Connectivity	Wi-Fi optional for basic use; no mandatory IT integration
Integration interfaces	VDA 5050 and REST API (Advanced software), Fleet Manager

[The navigation stack and the safety stack are separate](https://info.mobilerobot.com/safety-compliance/safety-overview/navigation-sensors-vs-safety-sensors/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/navigation-sensors-vs-safety-sensors/>): the 3D LiDAR and RGB AI camera serve [navigation and obstacle avoidance](https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/) (<https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/>), while personnel protection uses two dedicated 2D safety LiDARs and certified components. See [how J1600 safety works](https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/>).

Decide whether integration is needed at all

The J1600 is designed to work out of the box. A single robot running [teach-and-repeat](https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/) (<https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/>) tasks needs no warehouse management system (WMS), no fleet manager, and [no network connection](https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/) (<https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/>). Treat [systems integration as an option for scaling](https://info.mobilerobot.com/applications/results/lower-integration-complexity/) (<https://info.mobilerobot.com/applications/results/lower-integration-complexity/>), not a prerequisite — many deployments never need it. The [integration overview](https://info.mobilerobot.com/documentation/technical-integration/integration-overview/) (<https://info.mobilerobot.com/documentation/technical-integration/integration-overview/>), maps the options.

Software levels

One J1600 hardware platform supports [two software versions](https://info.mobilerobot.com/products/software/software-comparison/) (<https://info.mobilerobot.com/products/software/software-comparison/>):

	Standard software	Advanced software
Focus	Essential functions, maximum ease of use	Systems integration and fleet scale-up
Task creation	Configuration-free teach and repeat	Teach and repeat plus advanced mission planning
Interfaces	Touchscreen only	VDA 5050, REST API
Fleet	Single unit	Fleet Manager, multi-robot orchestration
Connectivity	Wi-Fi optional	Required for connected functions

The [Advanced software upgrade](https://info.mobilerobot.com/products/software/advanced-software/) (<https://info.mobilerobot.com/products/software/advanced-software/>) costs €14,500. It is easiest to install at the factory when the robot is ordered; a partner can perform it later, but the customer cannot perform the upgrade themselves. Plan the software level during specification, not after delivery.

Integration interfaces

- [VDA 5050](https://info.mobilerobot.com/documentation/technical-integration/vda-5050-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/vda-5050-documentation/>) — full support for the interoperability interface that lets robots

from different vendors run under one compatible fleet layer.

- **REST API** (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>) — software interface for integrating the J1600 with other software and equipment.
- **Fleet Manager** (<https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/>) — per-robot software for orchestrated multi-robot deployments, €6,500 per robot.
- **External system integration** (<https://info.mobilerobot.com/documentation/technical-integration/external-system-integration/>) — approaches for connecting the J1600 to WMS, equipment, and site software.

Site prerequisites to verify

Autonomous operation is an indoor, [level-floor application](https://info.mobilerobot.com/documentation/installation/floor-requirements/) (<https://info.mobilerobot.com/documentation/installation/floor-requirements/>). Verify these limits during the feasibility phase:

Parameter	Requirement
Gradeability, automatic mode	0° / 0% — level floors only
Floor flatness/levelness	TR34 FM3 (FF 25 / FL 20)
Maximum traversable bump	25 mm / 1 in
Maximum traversable gap	20 mm / 0.8 in
Operating temperature	5–40 °C / 41–104 °F
Relative humidity	20–80%, non-condensing
Ingress protection	IP21 — indoor use
Load carriers	Open-base, forkable, within 1,250 × 1,250 mm including overhang, load height up to 1,700 mm

Pallet pickup is always manual, and autonomous pallet delivery is at floor level. Ramps, dock plates, and slopes remain manual-mode tasks.

PRELIMINARY SPECIFICATIONS

The January 2026 [specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>) are preliminary and subject to change. Confirm current figures against the latest product documentation before finalizing a design.

Commissioning services

A fixed-price [installation and commissioning package](https://info.mobilerobot.com/product-s/buying-and-deployment/installation-and-commissioning/) (<https://info.mobilerobot.com/product-s/buying-and-deployment/installation-and-commissioning/>) (€10,000 end-user list) covers pre-installation feasibility, [risk assessment](https://info.mobilerobot.com/safety-compliance/safe-deployment/site-risk-assessment/) (<https://info.mobilerobot.com/safety-compliance/safe-deployment/site-risk-assessment/>) and project planning, setup of up to 25 [drop points](https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/) (<https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/>), task and safety validation, [operator training](https://info.mobilerobot.com/documentation/getting-started/operator-training/) (<https://info.mobilerobot.com/documentation/getting-started/operator-training/>), monitoring, acceptance testing, and handover over five days. Available add-ons include integration with other software and equipment, additional validated drop points, and Fleet Management System setup.

On-site engineering support costs €2,400 per day plus travel.

Getting help

Route technical questions through your local partner or hello@mobilerobot.com. The support portal accepts tickets and device-log uploads, and the robot's Help/Support menu provides a QR code for sending technical requests directly. Partners can consult [integration troubleshooting](https://info.mobilerobot.com/documentation/technical-integration/integration-troubleshooting/) (<https://info.mobilerobot.com/documentation/technical-integration/integration-troubleshooting/>).

Integration Overview

This page maps the J1600's integration options, from a single standalone robot to a multi-vendor fleet. Use it to decide which software level and interfaces a deployment needs.

Integration is optional

The J1600 (<https://info.mobilerobot.com/products/j1600/overview/>) works out of the box. Basic use requires no Wi-Fi (<https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/>), no warehouse management system (WMS), no fleet manager, and no IT integration project (<https://info.mobilerobot.com/applications/results/lower-integration-complexity/>). An operator maps the facility by driving (<https://info.mobilerobot.com/documentation/getting-started/creating-the-first-map/>), saves locations, and launches tasks from the touchscreen. Integration capabilities exist for scaling up — they are never a precondition for productive use.

The capability ladder

Level	Capabilities	Requirements
Manual functions	Pallet pick and drop up to 1.6 m; full manual tiller control	None
Basic automation	On-screen task start; saved locations; autonomous travel; floor-level drop; return-to-me; go-to-parking	Standard software
Advanced automation	Come-to-me; automatic charging; VDA 5050 fleet management; API integrations	Advanced software and options

Come-to-me (<https://info.mobilerobot.com/applications/scenarios/come-to-me/>) calls the robot to a location through a mobile app or web interface, which means the connected functions on the advanced rung need a network.

Standard and Advanced software

One hardware platform supports [two software versions](https://info.mobilerobot.com/products/software/software-comparison/) (<https://info.mobilerobot.com/products/software/software-comparison/>):

- **Standard software** (<https://info.mobilerobot.com/products/software/standard-software/>) is reduced to essential functions for maximum ease of use. It is built around configuration-free [teach and repeat](https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/) (<https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/>) and is intended for single-unit deployments without systems integration.
- **Advanced software** (<https://info.mobilerobot.com/products/software/advanced-software/>) adds [VDA 5050](https://info.mobilerobot.com/documentation/technical-integration/vda-5050-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/vda-5050-documentation/>), interoperability, a [REST API](https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>), [Fleet Manager](https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/) (<https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/>), advanced mission planning, and advanced integration with other software and equipment.

Upgrade path

The Advanced software upgrade is priced as a separate item:

Item	End-user list price
Advanced software upgrade	€14,500
Fleet Manager, per robot	€6,500

The upgrade is easiest to install at the factory when the robot is ordered. A partner may perform it later; the customer cannot perform the upgrade. If fleet operation or system integration is plausible within the robot's life, consider ordering the Advanced software with the robot.

Where to go next

- Planning a full project: [system integrator technical guide](https://info.mobilerobot.com/documentation/technical-integration/system-integrator-technical-guide/) (<https://info.mobilerobot.com/documentation/technical-integration/system-integrator-technical-guide/>)
- Connecting to a WMS or other equipment: [external system integration](https://info.mobilerobot.com/documentation/technical-integration/external-system-integration/) (<https://info.mobilerobot.com/documentation/technical-integration/external-system-integration/>)

- Multi-vendor fleets: [VDA 5050 documentation](https://info.mobilerobot.com/documentation/technical-integration/vda-5050-documentation/) (https://info.mobilerobot.com/documentation/technical-integration/vda-5050-documentation/) and [VDA 5050 explained](https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/) (https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/).
- Typical task flows: [example workflows](https://info.mobilerobot.com/documentation/technical-integration/example-workflows/) (https://info.mobilerobot.com/documentation/technical-integration/example-workflows/).

REST API Documentation

The J1600 offers a REST API for [integrating the robot with other software and equipment](https://info.mobilerobot.com/documentation/technical-integration/external-system-integration/) (<https://info.mobilerobot.com/documentation/technical-integration/external-system-integration/>). This page explains what the API is for, what it requires, and how to obtain the detailed interface reference. It is aimed at integrators and technical staff planning a connected deployment.

What the API is for

The REST API is the J1600's software interface for custom integrations: connecting the robot to site software and equipment beyond what the [touchscreen workflow](https://info.mobilerobot.com/documentation/technical-integration/example-workflows/) (<https://info.mobilerobot.com/documentation/technical-integration/example-workflows/>) covers. It is part of the advanced automation capability set, alongside [come-to-me](https://info.mobilerobot.com/applications/scenarios/come-to-me/) (<https://info.mobilerobot.com/applications/scenarios/come-to-me/>), automatic charging, and [VDA 5050](https://info.mobilerobot.com/documentation/technical-integration/vda-5050-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/vda-5050-documentation/>), fleet management.

The API is never required for basic use. A standalone J1600 runs [teach-and-repeat](https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/) (<https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/>) tasks with [no network connection](https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/) (<https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/>) and [no integration project](https://info.mobilerobot.com/applications/results/lower-integration-complexity/) (<https://info.mobilerobot.com/applications/results/lower-integration-complexity/>).

Requirements

API access is included in the [Advanced software](https://info.mobilerobot.com/products/software/advanced-software/) (<https://info.mobilerobot.com/products/software/advanced-software/>) package, together with VDA 5050 interoperability, [Fleet Manager](https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/) (<https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/>), advanced mission planning, and advanced system integration. The upgrade has a list price of €14,500.

The upgrade is easiest to install at the factory when the robot is ordered. A partner can install it on an existing robot later; the customer cannot perform the upgrade.

Choosing between the API and VDA 5050

Use [VDA 5050](https://info.mobilerobot.com/documentation/technical-integration/vda-5050-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/vda-5050-documentation/>) when the goal is fleet coordination under a compatible fleet-management layer, including fleets that mix robot vendors. Use the REST API for direct integration between the J1600 and other software or equipment. The two can coexist under the same Advanced software package.

Getting the interface reference

The detailed endpoint reference is available on request — contact your local partner or hello@mobilerobot.com for the current API documentation when scoping an integration.

Integration support

Integration with other software and equipment is available as an add-on to the [installation and commissioning package](https://info.mobilerobot.com/documentation/technical-integration/system-integrator-technical-guide/#commissioning-services) (<https://info.mobilerobot.com/documentation/technical-integration/system-integrator-technical-guide/#commissioning-services>). On-site engineering support has a list price of €2,400 per day plus travel. If an integration misbehaves after go-live, partners can follow [integration troubleshooting](https://info.mobilerobot.com/documentation/technical-integration/integration-troubleshooting/) (<https://info.mobilerobot.com/documentation/technical-integration/integration-troubleshooting/>).

VDA 5050 Documentation

The J1600 has full VDA 5050 support. This page covers what that means in practice for a deployment: what the interface enables, what it requires, and how a VDA 5050 fleet setup is delivered. For the standard itself, see [VDA 5050 explained](https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/) (<https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/>).

What VDA 5050 enables on the J1600

VDA 5050 is the interoperability interface that lets mobile robots from different vendors work together in the same space under a compatible fleet-management layer. With VDA 5050 enabled, the J1600 can:

- operate as part of a fleet coordinated by a VDA 5050 fleet manager;
- coexist with robots from other vendors under the same fleet layer;
- scale from a single teach-and-repeat unit into an orchestrated multi-robot deployment without changing hardware.

The Mobile Robot Company works with established VDA 5050 fleet-management providers.

Requirements

VDA 5050 support is part of the [Advanced software](https://info.mobilerobot.com/products/software/advanced-software/) (<https://info.mobilerobot.com/products/software/advanced-software/>) package (€14,500 end-user list), which also includes the [REST API](https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>), [Fleet Manager](https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/) (<https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/>), and advanced mission planning. The upgrade is easiest to install at the factory when the robot is ordered; a partner can install it later, but customers cannot install it themselves.

Connected fleet operation requires a network. Basic standalone use of the J1600 does not — [Wi-Fi is optional out of the box](https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/) (<https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/>).

Planning a VDA 5050 deployment

1. Order the robots with Advanced software, or have a partner upgrade existing units.
2. Confirm interface specifics — including the supported VDA 5050 version and the fleet-management products validated for your project — with The Mobile Robot Company or your partner during scoping.
3. Include Fleet Management System setup in the commissioning scope. It is an add-on to the [installation and commissioning package](https://info.mobilerobot.com/documentation/technical-integration/system-integrator-technical-guide/#commissioning-services) (<https://info.mobilerobot.com/documentation/technical-integration/system-integrator-technical-guide/#commissioning-services>).
4. Validate tasks and safety on site as part of commissioning before handover.

When VDA 5050 is the wrong tool

A single J1600 serving one flow needs no fleet layer: [teach and repeat](https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/) (<https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/>) on the [Standard software](https://info.mobilerobot.com/products/software/standard-software/) (<https://info.mobilerobot.com/products/software/standard-software/>) covers it. For direct point integrations with site software or equipment rather than fleet coordination, use the [REST API](https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>).

Fleet Manager Guide

Fleet Manager is The Mobile Robot Company's software for orchestrated multi-robot J1600 deployments. This page explains when a fleet manager is needed, how Fleet Manager is licensed, and how it is set up.

When you need a fleet manager

A single J1600 does not need one: the operator creates and launches tasks directly on the touchscreen. A fleet layer becomes relevant when an application grows — several robots sharing routes and zones, orchestrated missions across a site, or coordination with robots from other vendors. Fleet operation is part of the J1600's [progressive-scaling design](https://info.mobilerobot.com/documentation/technical-integration/integration-overview/) (<https://info.mobilerobot.com/documentation/technical-integration/integration-overview/>): start with one standalone unit, add fleet software when the application justifies it.

What Fleet Manager provides

- orchestration of multiple J1600 robots in one deployment;
- advanced mission planning beyond single-robot teach-and-repeat tasks;
- a scaling path that keeps the same hardware and the same [operator workflow](https://info.mobilerobot.com/documentation/technical-integration/example-workflows/) (<https://info.mobilerobot.com/documentation/technical-integration/example-workflows/>).

Fleet Manager belongs to the [Advanced software](https://info.mobilerobot.com/products/software/advanced-software/) (<https://info.mobilerobot.com/products/software/advanced-software/>), portfolio, alongside [VDA 5050](https://info.mobilerobot.com/documentation/technical-integration/vda-5050-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/vda-5050-documentation/>) interoperability and the [REST API](https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>).

Licensing

Item	End-user list price
Fleet Manager software, per robot	€6,500
Advanced software upgrade	€14,500

Fleet Manager is licensed per robot. The Advanced software upgrade is easiest to install at the factory when a robot is ordered; a partner can perform it later, and customers cannot perform it themselves.

Fleet Manager or a third-party VDA 5050 fleet layer

The J1600 has full VDA 5050 support, and The Mobile Robot Company works with established VDA 5050 fleet-management providers. Sites that already run — or plan to run — a mixed-vendor fleet under a VDA 5050 layer can integrate the J1600 into it. Discuss which fleet approach fits your site with the company or your partner during scoping.

Setup and commissioning

Fleet Management System setup is available as an add-on to the [installation and commissioning package](https://info.mobilerobot.com/documentation/technical-integration/system-integrator-technical-guide/#commissioning-services) (<https://info.mobilerobot.com/documentation/technical-integration/system-integrator-technical-guide/#commissioning-services>), which also covers [drop-point creation](https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/) (<https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/>), task and safety validation, operator training, and acceptance testing. For issues after go-live, partners can use [integration troubleshooting](https://info.mobilerobot.com/documentation/technical-integration/integration-troubleshooting/) (<https://info.mobilerobot.com/documentation/technical-integration/integration-troubleshooting/>).

External System Integration

This page covers connecting the J1600 to systems outside the robot: warehouse management systems (WMS), fleet layers, site software, and other equipment. It is for teams deciding whether, when, and how to integrate.

Integration is a choice, not a requirement

The J1600's [basic workflow](https://info.mobilerobot.com/products/j1600/how-it-works/) — map by driving, [save locations](https://info.mobilerobot.com/documentation/getting-started/saving-the-first-location/), launch tasks from the touchscreen — requires no WMS, no fleet manager, [no Wi-Fi](https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/), and no IT project. Optional rather than mandatory systems integration is a [core design principle](https://info.mobilerobot.com/company/about/our-approach-to-automation/): a deployment can stay standalone for its entire life, or scale into a connected system when the application grows.

This matters for cost. Full automation of a pallet flow typically requires WMS-to-fleet-manager integration, precise load data, and tightly controlled processes. Keeping the operator in the loop lets the J1600 skip that layer for most deployments. See [human-in-the-loop automation](https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/).

Available integration routes

Route	Use it for	Requires
VDA 5050 (https://info.mobilerobot.com/documentation/technical-integration/vda-5050-documentation/)	Fleet coordination, including multi-vendor fleets under one compatible fleet layer	Advanced software
REST API (https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/)	Direct integration with other software and equipment	Advanced software
Fleet Manager (https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/)	Orchestrated multi-J1600 deployments and advanced mission planning	Per-robot license

The [Advanced software upgrade](https://info.mobilerobot.com/products/software/advanced-software/) (<https://info.mobilerobot.com/products/software/advanced-software/>) (€14,500 end-user list) covers VDA 5050, the REST API, advanced mission planning, and advanced system integration with other software and equipment. It is easiest to install at the factory with the robot order; a partner can retrofit it, and customers cannot install it themselves.

Who performs the integration

Integration with other software and equipment is offered as an add-on to the five-day [installation and commissioning package](https://info.mobilerobot.com/documentation/technical-integration/system-integrator-technical-guide/) (<https://info.mobilerobot.com/documentation/technical-integration/system-integrator-technical-guide/>) (€10,000 end-user list), which also handles feasibility, drop points, task and safety validation, training, and acceptance testing. On-site engineering support lists at €2,400 per day plus travel. Partners and The Mobile Robot Company deliver this work; contact your partner or hello@mobilerobot.com to scope a project.

Typical scaling sequence

1. **Standalone start.** One robot, [Standard software](https://info.mobilerobot.com/products/software/standard-software/) (<https://info.mobilerobot.com/products/software/standard-software/>), [teach-and-repeat](https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/) (<https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/>) tasks. Value from day one, [no integration](https://info.mobilerobot.com/applications/results/lower-integration-complexity/) (<https://info.mobilerobot.com/applications/results/lower-integration-complexity/>).

2. **Connected functions.** Add Wi-Fi to use [come-to-me](https://info.mobilerobot.com/applications/scenarios/come-to-me/) (https://info.mobilerobot.com/applications/scenarios/come-to-me/) (calling the robot from a mobile app or web interface) and automatic charging.
3. **Fleet and systems.** Upgrade to Advanced software for VDA 5050, the REST API, and Fleet Manager when several robots or external systems enter the picture.

For concrete task patterns at each stage, see [example workflows](https://info.mobilerobot.com/documentation/technical-integration/example-workflows/) (https://info.mobilerobot.com/documentation/technical-integration/example-workflows/).

Example Workflows

This page collects the J1600's standard task patterns and end-to-end workflows. Use it to match a material flow in your facility to a task type the robot already supports.

The standard delivery workflow

The most common task is [manual pickup, autonomous delivery](https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/) (<https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/>), floor-level drop, and [return to origin](https://info.mobilerobot.com/applications/scenarios/deliver-and-return/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-return/>):

1. Manually pick up a [supported pallet or load carrier](https://info.mobilerobot.com/products/j1600/pallet-and-load-compatibility/) (<https://info.mobilerobot.com/products/j1600/pallet-and-load-compatibility/>).
2. Open task creation on the touchscreen.
3. Choose the task type and a saved drop destination.
4. Choose what happens after delivery: return to origin, go to another point or parking, or stop and wait.
5. Execute the task.
6. The robot asks to enter automatic mode; confirm with the physical start/resume button.
7. Step away when the interface instructs you to.
8. The J1600 [travels autonomously](https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/) (<https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/>), avoids obstacles, drops the pallet at floor level, and performs the selected post-delivery action.

The route can be a few meters or well over 100 meters — the workflow is the same. Pallet pickup is always manual, and autonomous delivery is always at floor level.

Named task patterns

Pattern	Behavior	Software level
Boomerang	Deliver to a destination, then return to the origin/operator	Basic automation
Simple ABC	Deliver from A to B, then travel on to C	Basic automation
Drop and wait	Deliver, drop, and remain at the destination	Basic automation
Deliver and park	Complete the drop, then proceed to a defined parking location	Basic automation
Multi-point to multi-point	Combine saved points freely for cross-docking and changing flows	Basic automation
Come to me	Call the robot to a location from a mobile app or web interface	Advanced automation

Locations are created by driving to a point and tapping **Save location** — see [teach and repeat](https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/) (<https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/>). Saved points recombine freely: you do not teach every A-to-B variation, and there is no software limit on the number of [saved locations](https://info.mobilerobot.com/documentation/user-guides/location-management/) (<https://info.mobilerobot.com/documentation/user-guides/location-management/>).

First-time setup workflow

1. Power on the J1600 and follow the on-screen tutorial.
2. [Drive manually through the facility](https://info.mobilerobot.com/documentation/getting-started/creating-the-first-map/) (<https://info.mobilerobot.com/documentation/getting-started/creating-the-first-map/>) with the tiller. The robot continuously learns and updates its 3D map.
3. Drive to each desired autonomous [floor-drop point](https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/) (<https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/>).
4. Tap **Save location**, name the point, and repeat for every destination.

A worked example: drive to a bay, save it as "Pallet Bay 1", create a task with **Drop Pallet at Location**, choose [stop-and-wait](https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/>), execute, confirm automatic mode, and step back.

Charging workflows

- **Manual charging** (<https://info.mobilerobot.com/documentation/user-guides/charging/>): plug in the charger during a break or when the machine is idle, as with a conventional electric pallet jack.
- **Automatic charging** (<https://info.mobilerobot.com/applications/scenarios/automatic-charging/>) (**advanced automation**): the robot drives to the station, positions itself, and the charging interface extends to the vehicle's charging plates. This enables opportunity charging whenever the robot is not busy.

Material-flow examples

- **Inbound receiving** (<https://info.mobilerobot.com/applications/use-cases/inbound-receiving/>): unload the truck manually, then send the pallet autonomously to inspection or storage.
- **Production supply** (<https://info.mobilerobot.com/applications/use-cases/production-supply/>): an operator picks or prepares a pallet; the J1600 delivers materials to the line on demand.
- **Cross-docking** (<https://info.mobilerobot.com/applications/use-cases/cross-docking/>): shuffle pallets across multiple origins and destinations by combining saved points — no bespoke task per pair.
- **Temporary storage** (<https://info.mobilerobot.com/applications/use-cases/temporary-storage/>): create short-lived storage points in minutes when demand changes.
- **Buffer and staging management** (<https://info.mobilerobot.com/applications/use-cases/buffer-and-staging-management/>): transport between lines, staging areas, and storage zones.
- **Receiving-storage-production-shipping** (<https://info.mobilerobot.com/applications/use-cases/production-to-shipping-transport/>): automate the long travel segments that connect standard warehouse zones.

For the environments these flows suit, see the [J1600 overview](https://info.mobilerobot.com/products/j1600/overview/) (<https://info.mobilerobot.com/products/j1600/overview/>); for integrating workflows with fleet or site software, see the [integration overview](https://info.mobilerobot.com/documentation/technical-integration/integration-overview/) (<https://info.mobilerobot.com/documentation/technical-integration/integration-overview/>).

Software Updates

One J1600 hardware platform runs [two software versions, Standard and Advanced](https://info.mobilerobot.com/products/software/software-comparison/) (<https://info.mobilerobot.com/products/software/software-comparison/>), and both stay current through software upgrades tied to your support plan. This page separates the two things people mean by "update": ongoing software upgrades, and the one-time upgrade from Standard to Advanced.

Ongoing software upgrades

Upgrade entitlement follows the [after-sales plan](https://info.mobilerobot.com/support/faq/service-and-warranty/) (<https://info.mobilerobot.com/support/faq/service-and-warranty/>) chosen at purchase:

Plan	Software upgrades
Free Plan	Included for the first year
Basic Care (€4,900 per robot/year list)	Included while the plan is active
Full Care (€13,000 per robot/year list)	Included while the plan is active

If an update needs assistance, remote support is available through the support portal — see [Diagnostics and Log Collection](https://info.mobilerobot.com/documentation/service-maintenance/diagnostics-and-log-collection/) (<https://info.mobilerobot.com/documentation/service-maintenance/diagnostics-and-log-collection/>).

Standard and Advanced software

Standard software (<https://info.mobilerobot.com/products/software/standard-software/>) is reduced to essential functions for maximum ease of use: configuration-free [teach-and-repeat](https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/) (<https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/>), touchscreen task launch, and saved locations, with Wi-Fi optional. It is intended to be usable by an existing pallet-jack operator without training beyond the basics, and it fits a single-unit deployment with [no systems integration](https://info.mobilerobot.com/documentation/technical-integration/integration-overview/) (<https://info.mobilerobot.com/documentation/technical-integration/integration-overview/>).

Advanced software (<https://info.mobilerobot.com/products/software/advanced-software/>) adds:

- [VDA 5050](https://info.mobilerobot.com/documentation/technical-integration/vda-5050-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/vda-5050-documentation/>) interoperability;
- a [REST API](https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>);
- Fleet Manager;
- advanced mission planning;
- advanced [integration with other software and equipment](https://info.mobilerobot.com/documentation/technical-integration/external-system-integration/) (<https://info.mobilerobot.com/documentation/technical-integration/external-system-integration/>).

See [dual mode](https://info.mobilerobot.com/products/j1600/dual-mode/) (<https://info.mobilerobot.com/products/j1600/dual-mode/>) for how these capabilities layer on the same machine.

Upgrading from Standard to Advanced

Fact	Detail
End-user list price (2026)	€14,500
Easiest installation	At the factory, when the robot is ordered
Later installation	A partner may perform the upgrade on an existing robot
Self-service	Not available — the customer cannot perform the upgrade

TIP

If fleet integration, [VDA 5050](https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/) (<https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/>), or API work is plausibly in your future, order the Advanced upgrade with the robot. Factory installation is the easiest path, and the capability then simply waits until you need it.

[Fleet Manager software](https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/) (<https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/>) is licensed per robot at €6,500 (end-user list, 2026). Fleet Management System setup is available as an add-on to the [commissioning package](https://info.mobilerobot.com/documentation/installation/deployment-checklist/) (<https://info.mobilerobot.com/documentation/installation/deployment-checklist/>).

Planning notes

- Advanced functions rely on connectivity — check [Network and Wi-Fi Requirements](https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/) (<https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/>), before an upgrade project.
- The 2026 list prices above are time-sensitive; confirm current pricing with your partner or hello@mobilerobot.com.

Product Data Sheets

This page consolidates the J1600's data-sheet figures in one place and points to the detailed reference pages. Use it when you need the headline numbers fast; use the linked pages when you need every value.

PRELIMINARY SPECIFICATIONS

The January 2026 specifications are preliminary and subject to change. Confirm current figures with The Mobile Robot Company or your partner before making deployment decisions.

Headline specifications

Parameter	Value
Drive type	Electric
Rated payload	1,600 kg / approximately 3,500 lb
Maximum manual pallet pick/drop height	1,600 mm / 63 in
Automatic pallet delivery height	Floor level
Top speed	5.4 km/h / 1.5 m/s / 3.4 mph
Truck weight	980 kg
Vehicle size (forks lowered)	1,893 × 850 × 2,060 mm
Turning radius	1,501 mm
Navigation	3D LiDAR SLAM
Compute	Industrial NVIDIA Jetson AI computer
Interface	15-inch multi-touch HMI
Battery	24 V, 200 Ah lithium iron phosphate (LiFePO4)
Ingress protection	IP21
Operating temperature	5–40 °C / 41–104 °F
Automatic gradeability	0° / 0%
Basic connectivity	Wi-Fi optional
Advanced integration	VDA 5050, REST API, fleet manager, advanced mission planning

The 1.6 m lift height is a manual capability; autonomous delivery is at floor level. Top speed is exactly 5.4 km/h.

Operating environment

Parameter	Limit
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
Operating temperature	5–40 °C / 41–104 °F
Relative humidity	20–80%, non-condensing
Floor flatness/levelness	TR34 FM3 / FF 25, FL 20

Load-carrier envelope

The J1600 requires an [open-base carrier with no bottom deck board](https://info.mobilerobot.com/products/j1600/pallet-and-load-compatibility/) (<https://info.mobilerobot.com/products/j1600/pallet-and-load-compatibility/>). Maximum load length and width are 1,250 mm / 49 in each, including overhang; maximum load height from the floor is 1,700 mm / 67 in. Supported types include the EPAL Euro Pallet, EPAL 3, EPAL 6, all GMA pallets with an open base, and any forkable open-base carrier within the size limits.

Compliance summary

The J1600 is [CE marked](https://info.mobilerobot.com/safety-compliance/certificates/ce-declaration-of-conformity/) (<https://info.mobilerobot.com/safety-compliance/certificates/ce-declaration-of-conformity/>) and [meets EU and US safety requirements](https://info.mobilerobot.com/safety-compliance/certificates/compliance-statements/) (<https://info.mobilerobot.com/safety-compliance/certificates/compliance-statements/>), including [EN ISO 3691-4:2023](https://info.mobilerobot.com/safety-compliance/standards/iso-3691-4/) (<https://info.mobilerobot.com/safety-compliance/standards/iso-3691-4/>) and [ANSI/ITSDF B56.5-2024](https://info.mobilerobot.com/safety-compliance/standards/ansi-itsdf-b56-5/) (<https://info.mobilerobot.com/safety-compliance/standards/ansi-itsdf-b56-5/>). The battery is tested to [UN 38.3](https://info.mobilerobot.com/safety-compliance/certificates/battery-un-38-3-documentation/) (<https://info.mobilerobot.com/safety-compliance/certificates/battery-un-38-3-documentation/>). See [how J1600 safety works](https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/>) for the safety architecture.

Detailed reference pages

- [Dimensions](https://info.mobilerobot.com/documentation/technical-reference/dimensions/) (<https://info.mobilerobot.com/documentation/technical-reference/dimensions/>) — every vehicle, fork, and wheel measurement.
- [Electrical specifications](https://info.mobilerobot.com/documentation/technical-reference/electrical-specifications/) (<https://info.mobilerobot.com/documentation/technical-reference/electrical-specifications/>) — motors, power, and charging.
- [Battery specifications](https://info.mobilerobot.com/documentation/technical-reference/battery-specifications/) (<https://info.mobilerobot.com/documentation/technical-reference/battery-specifications/>) — chemistry, drain rates, runtime, and transport testing.
- [Interface specifications](https://info.mobilerobot.com/documentation/technical-reference/interface-specifications/) (<https://info.mobilerobot.com/documentation/technical-reference/interface-specifications/>) — operator controls, indicators, and integration interfaces.
- [J1600 technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>) — the product-section specification page.

Dimensions

Complete dimensional data for the [J1600 self-driving pallet jack](https://info.mobilerobot.com/products/j1600/overview/) (<https://info.mobilerobot.com/products/j1600/overview/>), in metric and imperial units. Use these figures for layout planning, aisle checks, and load-carrier verification.

 PRELIMINARY SPECIFICATIONS

The January 2026 specifications are preliminary and subject to change.

Vehicle dimensions

Parameter	Metric	Imperial
Vehicle length	1,893 mm	75 in
Vehicle width	850 mm	33 in
Vehicle height, forks lowered	2,060 mm	81 in
Vehicle height, forks at maximum height	2,350 mm	93 in
Ground clearance	30 mm	1.2 in
Wheelbase	1,106 mm	44 in
Turning radius	1,501 mm	59 in
Tiller-handle height, upright	1,234 mm	49 in
Truck weight	980 kg	—

Fork geometry

Parameter	Metric	Imperial
Fork height, lowest position	90 mm	3.5 in
Fork height, highest position	1,600 mm	63 in
Fork length	1,150 mm	45 in
Fork width	180 mm	7 in
Fork thickness	60 mm	2.4 in
Fork outer distance	680 mm	27 in
Fork inner distance	320 mm	13 in

The 1,600 mm maximum fork height applies to manual pick and drop. Autonomous pallet delivery is at floor level.

Wheels

Wheel	Size
Load wheels	70 mm wide × 80 mm diameter (2.8 × 3.1 in)
Drive wheel	75 mm wide × 230 mm diameter (3 × 9 in)

Wheels are polyurethane.

Supported load envelope

Parameter	Metric	Imperial
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; carriers must have an [open base with no bottom deck board](https://info.mobilerobot.com/products/j1600/pallet-and-load-compatibility/) (<https://info.mobilerobot.com/products/j1600/pallet-and-load-compatibility/>). Supported types include EPAL Euro Pallet, EPAL 3, EPAL 6, open-base GMA pallets, and any forkable open-base carrier within these limits.

Related reference

- [Product data sheets](https://info.mobilerobot.com/documentation/technical-reference/product-data-sheets/) (<https://info.mobilerobot.com/documentation/technical-reference/product-data-sheets/>) — the consolidated specification summary.
- [Electrical specifications](https://info.mobilerobot.com/documentation/technical-reference/electrical-specifications/) (<https://info.mobilerobot.com/documentation/technical-reference/electrical-specifications/>), and [battery specifications](https://info.mobilerobot.com/documentation/technical-reference/battery-specifications/) (<https://info.mobilerobot.com/documentation/technical-reference/battery-specifications/>).
- [J1600 technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>) in the product section.

Electrical Specifications

Electrical reference data for the J1600: motors, battery system, charging, and the electrically relevant safety functions. For battery chemistry, drain rates, and runtime, see [battery specifications](https://info.mobilerobot.com/documentation/technical-reference/battery-specifications/) (<https://info.mobilerobot.com/documentation/technical-reference/battery-specifications/>).

PRELIMINARY SPECIFICATIONS

The January 2026 specifications are preliminary and subject to change.

Motors and drive

Parameter	Value
Drive motor	AC, 1.5 kW
Lift motor	2.2 kW
Drive type	Electric
Top speed	5.4 km/h / 1.5 m/s / 3.4 mph

Lift performance

Parameter	Metric	Imperial
Fork lifting speed, no load	0.10 m/s	0.33 ft/s
Fork lifting speed, full load	0.08 m/s	0.26 ft/s
Fork lowering speed, no load	0.08 m/s	0.26 ft/s
Fork lowering speed, full load	0.12 m/s	0.39 ft/s

Battery system

Parameter	Value
Nominal voltage	24 V
Capacity	200 Ah
Chemistry	Lithium iron phosphate (LiFePO4)
Charging rate	Approximately 47 percentage points per hour

Chargers

Charger	Behavior	End-user list price
Manual charger	Plug in during breaks or idle time, as with a conventional electric pallet jack	€3,600
Automatic charger	The robot drives to the station, positions itself, and a charging interface extends to the vehicle's charging plates; enables opportunity charging	€8,400

[Automatic charging](https://info.mobilerobot.com/applications/scenarios/automatic-charging/) (<https://info.mobilerobot.com/applications/scenarios/automatic-charging/>) is an advanced automation capability. When purchased with commissioning, its setup is part of installation Day 1.

Electrical protection and safety

Item	Value
Ingress protection	IP21 — protected against objects over 12.5 mm and vertically dripping water
Charging-current relay safety function	Performance Level b (PL b)

The [charging-current relay](https://info.mobilerobot.com/safety-compliance/safety-functions/charging-safety/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/charging-safety/>) is one of the certified safety functions in the J1600's layered safety architecture; [person detection](https://info.mobilerobot.com/safety-compliance/safety-functions/person-detection/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/person-detection/>), [braking](https://info.mobilerobot.com/safety-compliance/safety-functions/braking/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/braking/>), and emergency-stop functions carry higher [Performance Levels](https://info.mobilerobot.com/safety-compliance/safety-functions/performance-levels/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/performance-levels/>). See [how J1600 safety works](https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/>).

Related reference

- [Battery specifications](https://info.mobilerobot.com/documentation/technical-reference/battery-specifications/) (<https://info.mobilerobot.com/documentation/technical-reference/battery-specifications/>) — drain rates, runtime, and transport testing.
- [Product data sheets](https://info.mobilerobot.com/documentation/technical-reference/product-data-sheets/) (<https://info.mobilerobot.com/documentation/technical-reference/product-data-sheets/>) — the consolidated specification summary.

Battery Specifications

Reference data for the J1600's battery system: chemistry, consumption, charging, runtime, and compliance. For charger hardware and prices, see [electrical specifications](https://info.mobilerobot.com/documentation/technical-reference/electrical-specifications/) (<https://info.mobilerobot.com/documentation/technical-reference/electrical-specifications/>).

PRELIMINARY SPECIFICATIONS

The January 2026 specifications are preliminary and subject to change.

Battery data

Parameter	Value
Nominal voltage	24 V
Capacity	200 Ah
Chemistry	Lithium iron phosphate (LiFePO4)

LiFePO4 chemistry supports [opportunity charging](https://info.mobilerobot.com/application/s/scenarios/automatic-charging/) (<https://info.mobilerobot.com/application/s/scenarios/automatic-charging/>): topping up the battery during breaks or idle periods rather than waiting for a full discharge cycle.

Consumption and charging rates

Operating state	Rate
Driving, fully loaded	Approximately 13% of capacity per hour
Driving, without load	Approximately 12% per hour
Standby	Approximately 2% per hour
Charging	Approximately 47 percentage points per hour

Runtime

Runtime exceeds eight hours in a typical duty cycle. The drain rates above imply approximately 7.7 hours of continuous fully loaded driving, or 8.3 hours unloaded, before allowing for standby time, lifting, duty cycle, battery reserve, and operating conditions.

CALCULATED FIGURES

The 7.7- and 8.3-hour values are derived from the drain rates, not guaranteed runtimes. Real duty cycles mix driving, lifting, and standby, so achieved runtime varies by application.

Charging options

- **Manual charging** (<https://info.mobilerobot.com/products/chargers-and-accessories/manual-charger/>): plug in the charger during a break or while the machine is idle.
- **Automatic charging:** with the optional [automatic charger](https://info.mobilerobot.com/products/chargers-and-accessories/automatic-charger/) (<https://info.mobilerobot.com/products/chargers-and-accessories/automatic-charger/>), the robot drives to the station, positions itself, and the charging interface extends to the vehicle's charging plates — opportunity charging without operator involvement. This is an advanced automation capability.

Transport testing and regulation

Reference	Coverage
UN Manual of Tests and Criteria, subsection 38.3 (UN 38.3)	Lithium-battery transport testing
Regulation (EU) 2023/1542 — Batteries Regulation	EU battery regulation, part of the J1600's compliance list

Related reference

- [Electrical specifications](https://info.mobilerobot.com/documentation/technical-reference/electrical-specifications/) (<https://info.mobilerobot.com/documentation/technical-reference/electrical-specifications/>) — motors, chargers, and electrical safety functions.
- [Product data sheets](https://info.mobilerobot.com/documentation/technical-reference/product-data-sheets/) (<https://info.mobilerobot.com/documentation/technical-reference/product-data-sheets/>) — the consolidated specification summary.
- [Battery UN 38.3 documentation](https://info.mobilerobot.com/safety-compliance/certificates/battery-un-38-3-documentation/) (<https://info.mobilerobot.com/safety-compliance/certificates/battery-un-38-3-documentation/>) — what the transport test regime covers and how to request documentation.

Interface Specifications

Reference for every interface on the J1600: the controls an operator uses, the indicators the machine presents, the charging interface, and the [software interfaces available for integration](https://info.mobilerobot.com/documentation/technical-integration/integration-overview/) (<https://info.mobilerobot.com/documentation/technical-integration/integration-overview/>).

Operator controls

Control	Function
15-inch multi-touch HMI	Task creation, saved locations, tutorials, and the Help/Support menu
LED start/resume button	Physical confirmation and execution of automatic tasks
Three-position key switch	Selects power off, manual-only, or automatic mode
Tiller	Manual driving and lift control, as on a conventional electric pallet jack
Tiller-position switches	One switch for emergency stop, one for manual control — grabbing or moving the tiller enables immediate manual takeover
Emergency-stop buttons	Three, positioned on the vehicle
Belly button	Stop-and-reverse protection at the tiller

The operator must [confirm entry into automatic mode](https://info.mobilerobot.com/documentation/getting-started/manual-and-autonomous-modes/) (<https://info.mobilerobot.com/documentation/getting-started/manual-and-autonomous-modes/>), on the physical start/resume button, and the interface instructs the operator to step away before the robot starts.

Indicators and feedback

Indicator	Meaning
Blue light strips (three)	Display the current protective field/safety zone in automatic mode; the field expands with speed
Floor-indicator lights	Show automatic-mode status on the floor around the vehicle
White light indication	Manual mode
Audio speaker	Audible signals and instructions

Charging interface

The vehicle carries charging plates for the optional [automatic charger](https://info.mobilerobot.com/products/chargers-and-accessories/automatic-charger/) (<https://info.mobilerobot.com/products/chargers-and-accessories/automatic-charger/>): the robot positions itself at the station and the charger's interface extends to the plates. [Manual charging](https://info.mobilerobot.com/products/chargers-and-accessories/manual-charger/) (<https://info.mobilerobot.com/products/chargers-and-accessories/manual-charger/>) uses a plug-in charger. See [electrical specifications](https://info.mobilerobot.com/documentation/technical-reference/electrical-specifications/) (<https://info.mobilerobot.com/documentation/technical-reference/electrical-specifications/>).

Support interface

The HMI's Help/Support menu provides a QR code through which technical requests can be sent directly from the machine.

Software and integration interfaces

Interface	Purpose	Availability
VDA 5050 (https://info.mobilerobot.com/documentation/technical-integration/vda-5050-documentation/)	Multi-vendor fleet interoperability	Advanced software
REST API (https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/)	Integration with other software and equipment	Advanced software
Fleet Manager (https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/)	Orchestrated multi-robot deployments	Per-robot license
Wi-Fi	Optional; required only for connected functions such as come-to-me	All units

Related reference

- [Product data sheets](https://info.mobilerobot.com/documentation/technical-reference/product-data-sheets/) (https://info.mobilerobot.com/documentation/technical-reference/product-data-sheets/) — the consolidated specification summary.
- [How J1600 safety works](https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/) (https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/) — the safety architecture behind the controls and fields.

Human-in-the-Loop Automation

Human-in-the-loop automation — also called human-robot collaboration or operator-centric automation — is the operating philosophy behind [the J1600](https://info.mobilerobot.com/products/j1600/overview/) (<https://info.mobilerobot.com/products/j1600/overview/>). A person retains task authority, performs contextual handling, and can take over instantly; the robot performs repetitive, predictable travel. This page explains the concept, the division of work, and the reasoning behind it.

Division of work

Human operator	J1600
Judges load stability, pallet condition, congestion, urgency, and exceptions	Builds and updates a 3D map and navigates to saved points
Picks pallets and performs difficult or high manual handling	Carries up to 1,600 kg along repetitive routes
Selects the destination and what happens after delivery	Avoids obstacles and applies speed-dependent safety fields
Confirms entry into autonomous mode	Drops at floor level, then returns, parks, continues, or waits
Overrides or resumes manual control at any time	Repeats stored tasks consistently

Why the operator stays in the loop

The final part of pallet work is disproportionately difficult to automate: checking a pallet, placing forks, judging an unstable load, interfacing with a conveyor, choosing an improvised drop point, or reprioritizing when a production line runs dry. Removing the operator from those decisions typically requires [warehouse-management-system \(WMS\) and fleet integration](https://info.mobilerobot.com/applications/results/lower-integration-complexity/) (<https://info.mobilerobot.com/applications/results/lower-integration-complexity/>), infrastructure, expert configuration, and tightly controlled processes.

By keeping the operator, the J1600 avoids treating human judgment as a system failure. The intended balance is roughly 80% of automation's [productivity gain](https://info.mobilerobot.com/applications/results/lower-integration-complexity/) (<https://info.mobilerobot.com/applications/results/lower-integration-complexity/>).

[fo.mobilerobot.com/applications/results/productivity-improvements/](https://info.mobilerobot.com/applications/results/productivity-improvements/)) — the repetitive travel — while retaining [manual flexibility](https://info.mobilerobot.com/applications/results/operational-flexibility/) (<https://info.mobilerobot.com/applications/results/operational-flexibility/>), and lowering cost and implementation risk. See [dual mode](https://info.mobilerobot.com/documentation/concepts/dual-mode/) (<https://info.mobilerobot.com/documentation/concepts/dual-mode/>) for how the handover works in the vehicle.

Where human judgment beats automation

Warehouses are messy, dynamic, and unpredictable. The design assumes a person handles situations such as:

1. spotting a damaged pallet — a broken bottom board or protruding nail — before it becomes a hazard or a jam;
2. judging a [top-heavy, leaning, or poorly stacked load](https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/) (<https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/>) before lifting it;
3. seeing and tucking away a loose shrink-wrap tail before it catches a rack or doorframe;
4. finding a pallet that is not exactly at its recorded position instead of stopping on a system error;
5. catching leaks or crushed corners before goods reach a customer or production line;
6. handling steep dock plates and slopes — autonomous-mode gradeability is 0°, so ramps stay manual;
7. improvising a safe route through a [crowded or cluttered receiving area](https://info.mobilerobot.com/applications/scenarios/operation-in-crowded-environments/) (<https://info.mobilerobot.com/applications/scenarios/operation-in-crowded-environments/>);
8. reprioritizing a delivery immediately when a line is starving;
9. [teaching a new route](https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/) (<https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/>) by driving there and tapping **Save location**, without calling IT;
10. capturing most of the efficiency gain without the cost and rigidity of full automation.

These examples explain the [design logic](https://info.mobilerobot.com/company/about/our-approach-to-automation/) (<https://info.mobilerobot.com/company/about/our-approach-to-automation/>); they are not comparative test results.

Safety role

Human control is not the vehicle's only safety mechanism. The J1600 also uses an independent safety controller, certified components, two 2D safety LiDARs, emergency stops, and a 360-degree speed-dependent protective field. Human

takeover complements the [certified safety architecture](https://info.mobilerobot.com/safety-compliance/safety-overview/safety-architecture/) rather than replacing it. See [how J1600 safety works](https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/).

Product category

Human-in-the-loop operation places the J1600 in a tier of its own between manual pallet jacks and classic [automated guided vehicles \(AGVs\)](https://info.mobilerobot.com/documentation/concepts/mobile-robot-terminology/): more automated than a manual tool, more flexible and immediate than a fully automated system. For the market picture behind this positioning, see [pallet automation fundamentals](https://info.mobilerobot.com/documentation/concepts/pallet-automation-fundamentals/).

Dual Mode

Dual mode means one vehicle combines two operating behaviors: manual control like a conventional electric pallet jack, and operator-initiated autonomous driving. It is [the J1600](https://info.mobilerobot.com/products/j1600/overview/) (<https://info.mobilerobot.com/products/j1600/overview/>)'s defining concept. This page explains both modes, the handover between them, and the reasoning behind the combination.

The two modes

- **Manual mode:** a person controls the tiller and lift functions exactly as on a conventional electric pallet jack. [Manual operation](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) (<https://info.mobilerobot.com/documentation/user-guides/manual-operation/>), covers nuanced pickup, handling up to 1.6 m, difficult approaches, [sensitive or unstable loads](https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/) (<https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/>), and [exceptions](https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/) (<https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/>).
- **Automatic mode:** after the operator selects a saved destination and [confirms the mode change](https://info.mobilerobot.com/safety-compliance/safety-overview/manual-and-autonomous-mode-safety/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/manual-and-autonomous-mode-safety/>), the vehicle [drives autonomously](https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/) (<https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/>), performs a floor-level pallet drop, and follows its configured return, park, wait, or continue behavior.

How the handover works

The operator initiates autonomous work from the task interface and the physical start/resume button. The robot asks for confirmation and instructs the person to step clear before moving. Manual control is regained at any time through the tiller and safety controls: [tiller-position switches](https://info.mobilerobot.com/safety-compliance/safety-functions/tiller-detection/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/tiller-detection/>), govern emergency stop and manual control, and a [three-position key switch](https://info.mobilerobot.com/safety-compliance/safety-functions/mode-selection/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/mode-selection/>) selects power off, manual-only, or automatic mode. Grabbing or moving the tiller enables [immediate manual takeover](https://info.mobilerobot.com/safety-compliance/safety-overview/emergency-stops-and-manual-takeover/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/emergency-stops-and-manual-takeover/>).

Capability ladder

Level	Capabilities
Manual functions	Pallet pick and drop up to 1.6 m; full manual tiller control
Basic automation	On-screen task start; saved locations; autonomous travel to saved points; floor-level drop; return-to-me; go-to-parking
Advanced automation	Come-to-me; automatic charging; VDA 5050 fleet management; API integrations

The ladder describes what the vehicle can do; the [Standard and Advanced software packages](https://info.mobilerobot.com/products/software/software-comparison/) describe how capabilities are licensed. See the [integration overview](https://info.mobilerobot.com/documentation/technical-integration/integration-overview/).

Why dual mode exists

Full automation becomes expensive and rigid when the judgment-heavy part of a task — checking loads, placing forks, improvising around congestion — has to be engineered away with WMS and fleet integration, precise load data, and controlled processes. Dual mode leaves those decisions to a person and automates the long travel instead. The intended balance is [roughly 80% automation rather than 100%](https://info.mobilerobot.com/applications/results/productivity-improvements/), with greater [flexibility](https://info.mobilerobot.com/applications/results/operational-flexibility/) and a lower entry cost.

Manual control preserves the ability to unload trucks, handle unstable or sensitive loads, work around congestion, and respond to exceptions; autonomy [removes the repeated walking](https://info.mobilerobot.com/applications/results/reduction-in-manual-walking/). The result is a product tier between manual electric pallet jacks and conventional [AGVs](https://info.mobilerobot.com/documentation/concepts/mobile-robot-terminology/) and fully automated systems — see [pallet automation fundamentals](https://info.mobilerobot.com/documentation/concepts/pallet-automation-fundamentals/) and [human-in-the-loop automation](https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/).

Dual mode on the J1600

For the J1600-specific implementation — controls, workflows, and demonstrations — see the product page on [dual mode](https://info.mobilerobot.com/products/j1600/dual-mode/) (<https://info.mobilerobot.com/products/j1600/dual-mode/>) and the [example workflows](https://info.mobilerobot.com/documentation/technical-integration/example-workflows/) (<https://info.mobilerobot.com/documentation/technical-integration/example-workflows/>).

Teach and Repeat

Teach and repeat is the task-creation method at the heart of the J1600's [Standard software](https://info.mobilerobot.com/products/software/standard-software/): an operator demonstrates a destination once by driving to it, saves it, and the robot can then travel there autonomously — no code, no configuration project, no infrastructure. This page explains the concept and its practical consequences.

How teaching works

1. [Drive the vehicle manually through the facility](https://info.mobilerobot.com/documentation/getting-started/creating-the-first-map/). While you drive, the robot continuously builds and updates a 3D map using [LiDAR SLAM](https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/) (simultaneous localization and mapping).
2. Drive to a desired [drop point](https://info.mobilerobot.com/documentation/installation/mapping-and-drop-point-setup/).
3. **Tap Save location on the touchscreen and name the point** [on the touchscreen and name the point](https://info.mobilerobot.com/documentation/getting-started/saving-the-first-location/).
4. Repeat for every destination you need.

There is no software limit on the number of saved locations; practical limits come from available warehouse space. No tracks, wires, reflectors, or building modifications are involved.

How repeating works

The operator [picks up a pallet manually](https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/), selects a saved destination and a post-delivery behavior on the touchscreen, [confirms automatic mode](https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/) on the physical start/resume button, and steps away. The robot drives itself, avoids obstacles, and drops the pallet at floor level. See [example workflows](https://info.mobilerobot.com/documentation/technical-integration/example-workflows/) for the standard task patterns.

Locations recombine freely

Saved points are independent of each other. The robot navigates from wherever it is to any [saved location](https://info.mobilerobot.com/documentation/user-guides/location-management/) (<https://info.mobilerobot.com/documentation/user-guides/location-management/>), so you never demonstrate every possible origin-destination pair. Ten saved points support [cross-docking](https://info.mobilerobot.com/applications/use-cases/cross-docking/) (<https://info.mobilerobot.com/applications/use-cases/cross-docking/>) and changing flows without ten-squared taught routes.

Why it matters

- **No-code operation:** adding a destination is an operator action, not an automation-engineering task. When a layout changes, the person who noticed the change fixes it.
- **Speed:** [a new location takes minutes](https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/) (<https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/>) — drive there once and save it. [Operator training](https://info.mobilerobot.com/documentation/getting-started/operator-training/) (<https://info.mobilerobot.com/documentation/getting-started/operator-training/>) takes about 30 minutes, and a first-time user can typically create and launch an autonomous task within about 15 minutes.
- **Brownfield fit:** because the map is learned by driving and updated continuously, teach and repeat works in [existing facilities](https://info.mobilerobot.com/applications/use-cases/brownfield-automation/) (<https://info.mobilerobot.com/applications/use-cases/brownfield-automation/>), with [changing layouts](https://info.mobilerobot.com/applications/scenarios/dynamic-route-changes/) (<https://info.mobilerobot.com/applications/scenarios/dynamic-route-changes/>).
- **Low threshold:** teach and repeat is why basic J1600 use needs [no Wi-Fi](https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/) (<https://info.mobilerobot.com/documentation/installation/network-and-wi-fi-requirements/>), no WMS, and [no systems integration](https://info.mobilerobot.com/applications/results/lower-integration-complexity/) (<https://info.mobilerobot.com/applications/results/lower-integration-complexity/>) — see [human-in-the-loop automation](https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/) (<https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/>) for the philosophy behind that choice.

Where the concept sits in the product

Teach and repeat is the core of the **Standard software**, which is deliberately reduced to essential functions. The [Advanced software](https://info.mobilerobot.com/products/software/advanced-software/) (<https://info.mobilerobot.com/products/software/advanced-software/>) builds on the same foundation with [VDA 5050](https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/) (<https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/>), a [REST API](https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>), [Fleet Manager](https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/) (<https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/>), and advanced

mission planning — see the [integration overview](https://info.mobilerobot.com/documentation/technical-integration/integration-overview/) (<https://info.mobilerobot.com/documentation/technical-integration/integration-overview/>).

Mobile Robot Terminology

Mobile robotics comes with a dense vocabulary. This page explains the key terms in context — what they mean, how they differ, and how they apply to the J1600. For short definitions of every term, see the [glossary](https://info.mobilerobot.com/documentation/concepts/glossary/) (<https://info.mobilerobot.com/documentation/concepts/glossary/>).

AGV, AMR, and the tier in between

An **AGV** (automated guided vehicle) is the conventional automation category: vehicles that follow predefined guidance and typically require expert configuration, controlled processes, and integration work. An **AMR** (autonomous mobile robot) is the broader label for robots that navigate by sensing the environment rather than following fixed guidance; it is also used for the J1600 and comparable machines.

The J1600 occupies a tier between manual pallet jacks and classic AGVs: a [dual-mode](https://info.mobilerobot.com/documentation/concepts/dual-mode/) (<https://info.mobilerobot.com/documentation/concepts/dual-mode/>) vehicle that runs as a familiar manual tool and as a self-driving robot. Immediate human takeover is central to the category — see [human-in-the-loop automation](https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/) (<https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/>).

Pallet jacks and lowlifters

A pallet jack (pallet truck) moves palletized loads at or near floor level. **Lowlifter** is the warehouse-truck class the J1600 competed in as an IFOY applicant — trucks that lift loads for transport rather than for high-bay stacking. The J1600 picks and drops manually up to 1,600 mm and delivers autonomously at floor level.

SLAM, LiDAR, and navigation

LiDAR is a laser ranging sensor. **SLAM** (simultaneous localization and mapping) is the technique of building a map while simultaneously tracking the vehicle's position in it. The J1600 uses [3D LiDAR SLAM](https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/) (<https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/>) on an industrial NVIDIA Jetson AI computer: it learns the

environment continuously while an operator drives, then localizes and plans routes to saved destinations without tracks, wires, or reflectors.

[Navigation sensing and safety sensing are distinct](https://info.mobilerobot.com/safety-compliance/safety-overview/navigation-sensors-vs-safety-sensors/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/navigation-sensors-vs-safety-sensors/>). The 3D LiDAR and RGB AI camera belong to the navigation stack; personnel protection uses two separate 2D safety LiDARs, [certified components](https://info.mobilerobot.com/safety-compliance/safety-overview/safety-architecture/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/safety-architecture/>), and a safety controller.

Protective fields and Performance Levels

A **protective field** (safety field) is the monitored zone around the vehicle in which detected persons or obstacles trigger a safe reaction. The J1600's field covers 360 degrees and [expands with speed](https://info.mobilerobot.com/safety-compliance/safety-functions/safety-field-adjustment/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/safety-field-adjustment/>). A **Performance Level (PL)**, from EN ISO 13849-1, grades a safety function's reliability from PL a to PL e; J1600 safety functions range from [PL b to PL d](https://info.mobilerobot.com/safety-compliance/safety-functions/performance-levels/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/performance-levels/>). See [how J1600 safety works](https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/>).

Teach and repeat

Teach and repeat means an operator demonstrates destinations by driving to them and saving them, and the robot then repeats the travel autonomously — no code, no configuration project. It is the J1600's standard task-creation method; see [teach and repeat](https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/) (<https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/>).

Fleet managers, VDA 5050, and WMS

A **fleet manager** orchestrates multiple robots: assigning missions, coordinating traffic, and managing charging. **VDA 5050** is the interoperability interface that lets robots from different vendors run under one compatible fleet layer — see [VDA 5050 explained](https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/) (<https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/>). A **WMS** (warehouse management system) manages inventory and warehouse processes; full automation projects typically integrate WMS, fleet manager, and robots, while basic J1600 use requires none of them.

Brownfield and greenfield

A **brownfield** site is an existing facility whose layout and processes were not designed around new automation — the opposite of a purpose-built greenfield site. The J1600 targets [brownfield use](https://info.mobilerobot.com/applications/use-cases/brownfield-automation/) (<https://info.mobilerobot.com/applications/use-cases/brownfield-automation/>): 3D mapping handles changing layouts, and human takeover absorbs the [exceptions](https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/) (<https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/>) that would otherwise require engineering.

Dig deeper

- [Glossary](https://info.mobilerobot.com/documentation/concepts/glossary/) (<https://info.mobilerobot.com/documentation/concepts/glossary/>) — compact definitions, A to Z.
- [Pallet automation fundamentals](https://info.mobilerobot.com/documentation/concepts/pallet-automation-fundamentals/) (<https://info.mobilerobot.com/documentation/concepts/pallet-automation-fundamentals/>) — the market context behind the categories.
- [J1600 overview](https://info.mobilerobot.com/products/j1600/overview/) (<https://info.mobilerobot.com/products/j1600/overview/>) — the product these terms describe.

Glossary

Compact definitions of the terms used across the Knowledge Center, in alphabetical order. For fuller explanations of the central concepts, follow the links.

A–C

AGV — [Automated guided vehicle](https://info.mobilerobot.com/documentation/concepts/mobile-robot-terminology/) (<https://info.mobilerobot.com/documentation/concepts/mobile-robot-terminology/>); the conventional automation category contrasted with the J1600's product tier between manual pallet jacks and full automation.

AMR — Autonomous mobile robot; a broad label applied to the J1600 and comparable mobile automation.

API / REST API — Software interface for integrating the J1600 with other software and equipment; included in the [Advanced software](https://info.mobilerobot.com/products/software/advanced-software/) (<https://info.mobilerobot.com/products/software/advanced-software/>). See [REST API documentation](https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>).

Automatic charging — Optional capability where the robot drives to a charging station, positions itself, and charges through extending contact plates; an advanced automation function. See [Automatic Charging](https://info.mobilerobot.com/applications/scenarios/automatic-charging/) (<https://info.mobilerobot.com/applications/scenarios/automatic-charging/>).

Boomerang — Task pattern: [deliver to a destination and return](https://info.mobilerobot.com/applications/scenarios/deliver-and-return/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-return/>) to the origin/operator. See [example workflows](https://info.mobilerobot.com/documentation/technical-integration/example-workflows/) (<https://info.mobilerobot.com/documentation/technical-integration/example-workflows/>).

Brownfield — An existing facility or process not designed around new automation. The J1600 is designed for [brownfield sites](https://info.mobilerobot.com/applications/use-cases/brownfield-automation/) (<https://info.mobilerobot.com/applications/use-cases/brownfield-automation/>).

CE marked — European conformity marking; the J1600 is CE marked. See [CE Declaration of Conformity](https://info.mobilerobot.com/safety-compliance/certificates/ce-declaration-of-conformity/) (<https://info.mobilerobot.com/safety-compliance/certificates/ce-declaration-of-conformity/>).

Come to me — Advanced automation function that calls the robot to a location through a mobile app or web interface. See [Come-to-Me](https://info.mobilerobot.com/applications/scenarios/come-to-me/) (https://info.mobilerobot.com/applications/scenarios/come-to-me/).

D–I

Dual mode — Manual pallet-jack operation plus operator-initiated autonomous travel in one vehicle. See [dual mode](https://info.mobilerobot.com/documentation/concepts/dual-mode/) (https://info.mobilerobot.com/documentation/concepts/dual-mode/).

EPAL — European Pallet Association pallet formats; the J1600 supports the [EPAL Euro Pallet, EPAL 3, and EPAL 6](https://info.mobilerobot.com/products/j1600/pallet-and-load-compatibility/) (https://info.mobilerobot.com/products/j1600/pallet-and-load-compatibility/).

Experience center — A partner-maintained showroom with a dedicated robot, pallets, and chargers for hands-on customer demonstrations.

Fleet Manager — Per-robot software for orchestrated multi-robot J1600 deployments. See the [Fleet Manager guide](https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/) (https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/).

GMA pallet — Grocery Manufacturers Association pallet format; open-base variants are supported within the J1600's size limits.

HMI — Human-machine interface; the J1600 uses a [15-inch multi-touch panel](https://info.mobilerobot.com/documentation/technical-reference/interface-specifications/) (https://info.mobilerobot.com/documentation/technical-reference/interface-specifications/).

Human in the loop — Operating philosophy in which the operator retains judgment, task initiation, pickup, and takeover. See [human-in-the-loop automation](https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/) (https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/).

IFOY — International Intralogistics and Forklift Truck of the Year award. The J1600 won [Industrial Truck of the Year 2026](https://info.mobilerobot.com/newsroom/awards/ifoy-award-2026/) (https://info.mobilerobot.com/newsroom/awards/ifoy-award-2026/).

IP21 — The J1600's ingress-protection rating: protected against objects over 12.5 mm and vertically dripping water; indoor use.

J–P

J1600 — [The Mobile Robot Company](https://info.mobilerobot.com/company/about/company-overview/) (https://info.mobilerobot.com/company/about/company-overview/)'s 1,600 kg dual-mode self-driving pallet jack. See the [J1600 overview](https://info.mobilerobot.com/products/j1600/overview/) (https://info.mobilerobot.com/products/j1600/overview/).

LiDAR — Laser ranging sensor. The J1600 uses one 3D LiDAR for mapping and navigation and two 2D safety LiDARs for protective fields.

LiFePO4 — Lithium iron phosphate, the J1600's battery chemistry. See [battery specifications](https://info.mobilerobot.com/documentation/technical-reference/battery-specifications/) (https://info.mobilerobot.com/documentation/technical-reference/battery-specifications/).

Lowlifter — Warehouse-truck class for trucks that lift loads for transport rather than stacking; the J1600's IFOY applicant category.

Pallet location — A [saved destination created by driving the vehicle to a point](https://info.mobilerobot.com/documentation/getting-started/saving-the-first-location/) (https://info.mobilerobot.com/documentation/getting-started/saving-the-first-location/) and tapping **Save location**.

Performance Level (PL) — Safety-function reliability grade under [EN ISO 13849-1](https://info.mobilerobot.com/safety-compliance/standards/iso-13849-1/) (https://info.mobilerobot.com/safety-compliance/standards/iso-13849-1/); J1600 safety functions range from [PL b to PL d](https://info.mobilerobot.com/safety-compliance/safety-functions/performance-levels/) (https://info.mobilerobot.com/safety-compliance/safety-functions/performance-levels/).

POC — [Proof of concept](https://info.mobilerobot.com/applications/planning/proof-of-concept-planning/) (https://info.mobilerobot.com/applications/planning/proof-of-concept-planning/); an on-site validation before wider purchase or deployment.

S–Z

SLAM — Simultaneous localization and mapping; the J1600 runs [3D LiDAR SLAM](https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/) (https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/), on an industrial NVIDIA Jetson AI computer.

Standard software — The [configuration-light J1600 software](https://info.mobilerobot.com/products/software/standard-software/) (https://info.mobilerobot.com/products/software/standard-software/), built around teach and repeat, intended for single-unit deployments.

Teach and repeat — Task creation by demonstration: the operator drives to a point and saves it; the robot repeats the travel autonomously. See [teach and repeat](https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/) (https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/).

Tiller — The manual pallet-jack handle; on the J1600 it also carries [position switches](https://info.mobilerobot.com/safety-compliance/safety-functions/tiller-detection/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/tiller-detection/>) for emergency stop and manual takeover.

VDA 5050 — Interoperability interface for multi-vendor mobile-robot fleets; fully supported by the J1600 under the Advanced software. See [VDA 5050 explained](https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/) (<https://info.mobilerobot.com/documentation/concepts/vda-5050-explained/>).

WMS — Warehouse management system; not required for basic J1600 use, but commonly integrated in full automation projects.

360-degree safety field — The all-around protective coverage produced by the J1600's [layered safety architecture](https://info.mobilerobot.com/safety-compliance/safety-overview/safety-architecture/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/safety-architecture/>); the field is [speed-dependent and expands at higher speeds](https://info.mobilerobot.com/safety-compliance/safety-functions/safety-field-adjustment/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/safety-field-adjustment/>).

VDA 5050 Explained

VDA 5050 is the interoperability interface that lets mobile robots from different vendors work together in the same space under one compatible fleet-management layer. This page explains the concept for readers planning or evaluating fleet automation.

The problem it solves

Without a shared interface, every robot vendor speaks its own protocol, and a site running robots from two vendors ends up with two control systems that cannot coordinate — or with a lock-in decision to buy everything from one vendor. VDA 5050 standardizes the communication between vehicles and the fleet layer, so a compatible fleet manager can coordinate mixed-vendor traffic in the same aisles.

What this means in practice

- A site can add J1600 robots to an existing VDA 5050 fleet without replacing its fleet layer.
- Robots from different vendors can share zones and routes under one coordinating system.
- Fleet decisions and robot purchases decouple: the fleet layer is chosen for the site, the vehicles for the task.

VDA 5050 and the J1600

The J1600 has full VDA 5050 support as part of its [Advanced software](https://info.mobilerobot.com/products/software/advanced-software/) (<https://info.mobilerobot.com/products/software/advanced-software/>), and The Mobile Robot Company works with established VDA 5050 fleet-management providers. A J1600 deployment can therefore start as a single standalone [teach-and-repeat](https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/) (<https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/>) unit and later join a coordinated fleet — the same hardware, upgraded software.

VDA 5050 sits on the advanced rung of the capability ladder, alongside [come-to-me](https://info.mobilerobot.com/applications/scenarios/come-to-me/) (<https://info.mobilerobot.com/applications/scenarios/come-to-me/>), automatic charging, and API

integrations. Basic use of the robot requires none of them.

When you need it — and when you do not

Situation	VDA 5050 needed?
One robot, one or a few flows, touchscreen tasks	No
Several J1600s coordinated as one fleet	Fleet software needed; VDA 5050 or Fleet Manager (https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/)
Mixed-vendor robot fleet under one fleet layer	Yes
Direct integration with site software or equipment	No — use the REST API (https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/).

Deployment details

For requirements, planning steps, and commissioning of a VDA 5050 setup on the J1600, see the [VDA 5050 documentation](https://info.mobilerobot.com/documentation/technical-integration/vda-5050-documentation/) (https://info.mobilerobot.com/documentation/technical-integration/vda-5050-documentation/) in Technical Integration.

Pallet Automation Fundamentals

This page gives the market and technology context for automating pallet transport: how large the manual segment is, what the automation options look like, and why most pallet movement is still done by hand. It is for readers evaluating automation for the first time.

The market in numbers

Pallet transport is a large, lightly automated market:

- more than one million pallet jacks are sold worldwide each year;
- more than 300,000 are sold in Europe annually;
- more than six million people use pallet jacks in their daily work;
- only about 1% of pallet handling is automated.

The unautomated remainder is dominated by smaller operations — typically one to five pallet-jack operators on a single shift — without the budget, time, or resources for a full automation project.

The automation spectrum

Model	Setup	Flexibility	Labor saving
Manual pallet jack	None	Full manual flexibility	None
Dual-mode vehicle	Hours	Manual control plus saved autonomous delivery	Up to 80% of operator time on repetitive travel
Fully automated system	Weeks or a longer project	Preprogrammed, expert-configured	Up to 100% of task labor, if fully automated

Manual solutions preserve flexibility but consume [operator walking](https://info.mobilerobot.com/applications/results/reduction-in-manual-walking/) and travel time. Full automation

can remove labor from a task but usually needs expert configuration, [systems integration](https://info.mobilerobot.com/applications/results/lower-integration-complexity/) — typically warehouse management system (WMS) to fleet manager — infrastructure, and stable processes; a full automation project can require investment approaching €1 million. [Dual mode](https://info.mobilerobot.com/documentation/concepts/dual-mode/) keeps manual control and automates the travel portion, targeting most of the labor benefit at a fraction of the cost and complexity.

The three adoption barriers

Three barriers keep pallet automation at about 1%:

1. **Price.** Large projects are hard to justify for single-shift economics; the J1600 [lists at €65,000](https://info.mobilerobot.com/products/j1600/pricing-and-roi/), and a typical configuration lands around or below €80,000.
2. **Flexibility**. Warehouses are messy and changing — damaged pallets, misplaced loads, congestion, reprioritization. Rigid systems handle these poorly; see [human-in-the-loop automation](https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/).
3. **Complexity.** Classic projects require experts to configure, integrate, and change. [Teach and repeat](https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/) puts [route changes](https://info.mobilerobot.com/applications/scenarios/dynamic-route-changes/) in the operator's hands instead.

What "automating the walking" means

The repetitive, low-judgment part of pallet work is the travel between points. The judgment-heavy part — checking pallets, placing forks, [handling unstable loads](https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/), adapting to congestion — is the hardest and most expensive to automate. Automating the travel while keeping a person for judgment captures roughly 80% of the [productivity gain](https://info.mobilerobot.com/applications/results/productivity-improvements/) at a fraction of full automation's cost. That division of work is the fundamental design idea behind the J1600 — see the [J1600 overview](https://info.mobilerobot.com/products/j1600/overview/).

Who benefits first

- [small and medium manufacturers](https://info.mobilerobot.com/applications/industries/manufacturing/) (<https://info.mobilerobot.com/applications/industries/manufacturing/>), and [warehouse operators](https://info.mobilerobot.com/applications/industries/warehousing/) (<https://info.mobilerobot.com/applications/industries/warehousing/>), with roughly one to five pallet-jack operators;
- [single-shift facilities](https://info.mobilerobot.com/company/about/markets-we-serve/) (<https://info.mobilerobot.com/company/about/markets-we-serve/>) that cannot justify a large automation project;
- small [third-party logistics](https://info.mobilerobot.com/applications/industries/third-party-logistics/) (<https://info.mobilerobot.com/applications/industries/third-party-logistics/>), providers, [grocery and FMCG distribution](https://info.mobilerobot.com/applications/industries/grocery-and-fmcg/) (<https://info.mobilerobot.com/applications/industries/grocery-and-fmcg/>), and [e-commerce fulfillment](https://info.mobilerobot.com/applications/industries/e-commerce-and-fulfillment/) (<https://info.mobilerobot.com/applications/industries/e-commerce-and-fulfillment/>);
- larger sites with [local work cells](https://info.mobilerobot.com/applications/use-cases/local-work-cell-automation/) (<https://info.mobilerobot.com/applications/use-cases/local-work-cell-automation/>) too small or changeable for a conventional fleet project;
- [brownfield sites](https://info.mobilerobot.com/applications/use-cases/brownfield-automation/) (<https://info.mobilerobot.com/applications/use-cases/brownfield-automation/>), seeking incremental automation without infrastructure changes.

Related vocabulary

For the terms used here — AGV, AMR, WMS, fleet manager, brownfield — see [mobile robot terminology](https://info.mobilerobot.com/documentation/concepts/mobile-robot-terminology/) (<https://info.mobilerobot.com/documentation/concepts/mobile-robot-terminology/>), and the [glossary](https://info.mobilerobot.com/documentation/concepts/glossary/) (<https://info.mobilerobot.com/documentation/concepts/glossary/>).