



The Mobile Robot Company

Knowledge Center — Industries · 2026-08-04

<https://info.mobilerobot.com/category/industries>

Industries

Where the J1600 fits, industry by industry: manufacturing, warehousing, logistics, distribution, and the pallet flows inside each.



Manufacturing

How manufacturers use the J1600 self-driving pallet jack for production supply, buffer management, and work-cell transport without a full automation project.



Warehousing

Using the J1600 self-driving pallet jack in warehouses for zone-to-zone transport, temporary storage, and changing layouts without infrastructure changes.



Third-Party Logistics

Why the J1600 suits third-party logistics providers - fast reconfiguration for changing clients, SKU mixes, and layouts without an automation project per contract.



Grocery and FMCG

The J1600 in grocery and fast-moving consumer goods distribution - GMA and EPAL pallet support, steady material flow, and manual judgment for mixed loads.



E-Commerce and Fulfillment

How e-commerce and fulfillment operations use the J1600 to reclaim walk time and stabilize material flow in fast-changing facilities, deployed in hours.



Goods Receiving

Using the J1600 in goods receiving - manual truck unloading combined with autonomous delivery to inspection or storage, and why the dock stays human.



Internal Production Logistics

The J1600 in internal production logistics - line feeding, buffer and staging management, and local work-cell automation inside factories.



Shipping and Dispatch

The J1600 in shipping and dispatch - autonomous transport from storage and production to outbound staging, with truck loading kept under manual control.

Manufacturing

Manufacturing is a primary target environment for the [J1600](https://info.mobilerobot.com/products/j1600/overview/) self-driving pallet jack. Small and medium manufacturers — and larger plants with many small, local material flows — use it to automate the repetitive travel between storage, production lines, staging areas, and shipping, while operators keep control of pickup and every maneuver that needs judgment.

The manufacturing fit

Most factories move pallets with manual pallet jacks because their flows are too small, too variable, or too budget-constrained for a conventional automation project. Full automation typically needs expert configuration, [systems integration](https://info.mobilerobot.com/applications/results/lower-integration-complexity/), infrastructure, and stable processes. The J1600's [dual mode](https://info.mobilerobot.com/products/j1600/dual-mode/) sits between the two: the operator picks up materials manually, then sends the vehicle on the repetitive drive autonomously.

Typical manufacturing flows it serves:

- **[Production supply](https://info.mobilerobot.com/applications/use-cases/production-supply/)**. An operator prepares or picks a pallet of materials or components; the J1600 delivers it to the production line on demand.
- **[Buffer and staging management](https://info.mobilerobot.com/applications/use-cases/buffer-and-staging-management/)**. Transport between lines, staging areas, and storage zones.
- **[Line-to-line and work-cell transport](https://info.mobilerobot.com/applications/use-cases/local-work-cell-automation/)**. Serve stand-alone flows inside a larger facility where a full fleet project would be excessive.
- **[Receiving-to-storage-to-production-to-shipping](https://info.mobilerobot.com/applications/use-cases/production-to-shipping-transport/)**. Automate the long travel segments connecting standard zones.

Routes can be a few meters or more than 100 meters — the workflow is the same: [pick manually, select a saved destination, confirm autonomous mode, and step away](https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/).

Why judgment stays with the operator

Production environments generate [exceptions](https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/) (<https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/>), constantly: an urgent line-starvation reprioritization, an [unstable or sensitive load](https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/) (<https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/>), a congested aisle, a misplaced pallet. In [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/>), the operator handles these directly and can take over at any moment by grabbing the tiller. The robot handles the predictable part — the travel.

Practical constraints

- Autonomous driving requires [indoor, level floors](https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/) (<https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/>) (0% automatic gradeability); slopes and dock plates are manual tasks.
- Automatic pallet delivery is at floor level. [Manual mode](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) (<https://info.mobilerobot.com/documentation/user-guides/manual-operation/>) handles picks and drops up to 1,600 mm.
- [Operating temperature](https://info.mobilerobot.com/documentation/installation/operating-environment-requirements/) (<https://info.mobilerobot.com/documentation/installation/operating-environment-requirements/>) is 5–40 °C, ingress protection IP21.
- Loads must be [open-base carriers](https://info.mobilerobot.com/applications/planning/pallet-and-load-suitability/) (<https://info.mobilerobot.com/applications/planning/pallet-and-load-suitability/>), within a 1,250 × 1,250 mm envelope and up to 1,600 kg.

See the [technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>) for the full envelope.

Fitting an existing plant

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/>). It navigates with [3D LiDAR SLAM](https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/) (<https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/>) — no tracks, wires, reflectors, or building modifications — and operators [add or change destinations by driving to a point](https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/) (<https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/>) and tapping **Save location**. Preferred travel zones can be defined for safer routing through production areas. Basic use requires [no Wi-Fi](https://info.mobilerobot.com/documentation/installation/net-work-and-wi-fi-requirements/) (<https://info.mobilerobot.com/documentation/installation/net-work-and-wi-fi-requirements/>), no warehouse-management-system connection, and no IT project; [VDA 5050](https://info.mobilerobot.com/products/software/vda-5050/) (<https://info.mobilerobot.com/products/software/vda-5050/>), a [REST API](https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>), and fleet management are available when a plant later scales up.

[Training](https://info.mobilerobot.com/documentation/getting-started/operator-training/) (https://info.mobilerobot.com/documentation/getting-started/operator-training/) for an existing electric-pallet-jack operator takes about 30 minutes, and [typical setup takes hours to one day](https://info.mobilerobot.com/applications/results/faster-deployment/) (https://info.mobilerobot.com/applications/results/faster-deployment/).

Related pages

- [Internal production logistics](https://info.mobilerobot.com/applications/industries/internal-production-logistics/) (https://info.mobilerobot.com/applications/industries/internal-production-logistics/) — the intra-plant flows in detail
- [Goods receiving](https://info.mobilerobot.com/applications/industries/goods-receiving/) (https://info.mobilerobot.com/applications/industries/goods-receiving/) and [Shipping and dispatch](https://info.mobilerobot.com/applications/industries/shipping-and-dispatch/) (https://info.mobilerobot.com/applications/industries/shipping-and-dispatch/) — the inbound and outbound ends of the flow
- [Productivity improvements](https://info.mobilerobot.com/applications/results/productivity-improvements/) (https://info.mobilerobot.com/applications/results/productivity-improvements/) and [ROI examples](https://info.mobilerobot.com/applications/results/roi-examples/) (https://info.mobilerobot.com/applications/results/roi-examples/) — what manufacturers gain

Warehousing

Warehouses are the J1600's home turf: horizontal, indoor, floor-to-floor pallet flows between receiving, storage, staging, and shipping. The [J1600](https://info.mobilerobot.com/products/j1600/overview/) automates the repetitive travel in these flows while operators keep manual control of pickup and [exceptions](https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/) — the [dual-mode](https://info.mobilerobot.com/products/j1600/dual-mode/) split that distinguishes it from both manual pallet jacks and conventional [AGVs](https://info.mobilerobot.com/documentation/concepts/mobile-robot-terminology/).

Who it targets

The [priority segment](https://info.mobilerobot.com/company/about/markets-we-serve/) is warehouse operators running roughly one to five pallet-jack operators on a single shift — sites that cannot justify a large automation project but lose hours every day to walking and travel time. Larger warehouses use it for [local work cells](https://info.mobilerobot.com/applications/use-cases/local-work-cell-automation/) and flows too small or changeable for a conventional fleet deployment.

Warehouse flows it serves

- **Zone-to-zone transport.** Automate the long travel segments connecting receiving, storage, production, and shipping.
- **[Temporary storage](https://info.mobilerobot.com/applications/use-cases/temporary-storage/)**. [Create short-lived storage points when demand changes](https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/) — drive to the spot once, tap **Save location**, and it is a destination.
- **[Cross-docking](https://info.mobilerobot.com/applications/use-cases/cross-docking/)**. Shuffle pallets across multiple origins and destinations without teaching every possible A-to-B combination; saved locations recombine freely.
- **[Buffer and staging](https://info.mobilerobot.com/applications/use-cases/buffer-and-staging-management/)**. Move pallets between staging areas and storage zones as flow requires.

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/>); practical limits come from available floor space.

No infrastructure changes

The J1600 maps the warehouse with [3D LiDAR SLAM](https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/) (<https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/>) while an operator drives it. It needs no tracks, wires, reflectors, or building modifications, and it continuously updates its map as the environment changes — racking moved, pallets staged in new places, people in the aisles. Basic 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/>), and [no warehouse-management-system integration](https://info.mobilerobot.com/applications/results/lower-integration-complexity/) (<https://info.mobilerobot.com/applications/results/lower-integration-complexity/>). When a site later wants orchestration, [Advanced software](https://info.mobilerobot.com/products/software/advanced-software/) (<https://info.mobilerobot.com/products/software/advanced-software/>) adds [VDA 5050](https://info.mobilerobot.com/products/software/vda-5050/) (<https://info.mobilerobot.com/products/software/vda-5050/>), a [REST API](https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>), and fleet management.

Operating envelope

- Payload up to 1,600 kg; manual picks and drops up to 1,600 mm; autonomous delivery at floor level.
- Top speed 5.4 km/h.
- [Indoor, level floors](https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/) (<https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/>) for autonomous mode; 5–40 °C; 20–80% non-condensing humidity; floor flatness to TR34 FM3 (FF 25 / FL 20).
- [Open-base pallets and carriers](https://info.mobilerobot.com/applications/planning/pallet-and-load-suitability/) (<https://info.mobilerobot.com/applications/planning/pallet-and-load-suitability/>) within 1,250 × 1,250 mm, load height up to 1,700 mm — EPAL Euro Pallet, EPAL 3, EPAL 6, open-base GMA pallets, and other forkable open-base carriers.

Full details are in the [technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>).

Related pages

- [Goods receiving](https://info.mobilerobot.com/applications/industries/goods-receiving/) (https://info.mobilerobot.com/applications/industries/goods-receiving/) — the inbound end of the warehouse flow
- [Shipping and dispatch](https://info.mobilerobot.com/applications/industries/shipping-and-dispatch/) (https://info.mobilerobot.com/applications/industries/shipping-and-dispatch/) — the outbound end
- [Third-party logistics](https://info.mobilerobot.com/applications/industries/third-party-logistics/) (https://info.mobilerobot.com/applications/industries/third-party-logistics/) — warehousing on behalf of clients
- [Reduction in manual walking](https://info.mobilerobot.com/applications/results/reduction-in-manual-walking/) (https://info.mobilerobot.com/applications/results/reduction-in-manual-walking/) and [Operational flexibility](https://info.mobilerobot.com/applications/results/operational-flexibility/) (https://info.mobilerobot.com/applications/results/operational-flexibility/) — the outcomes warehouses target

Third-Party Logistics

Third-party logistics (3PL) providers are a named [target segment](https://info.mobilerobot.com/company/about/markets-we-serve/) (<https://info.mobilerobot.com/company/about/markets-we-serve/>), for the [J1600](https://info.mobilerobot.com/products/j1600/overview/) (<https://info.mobilerobot.com/products/j1600/overview/>). Smaller 3PLs in particular face a structural problem with automation: their layouts, clients, and SKU mixes change too often for infrastructure-heavy systems, yet their margins are squeezed by exactly the repetitive pallet travel that automation removes.

The 3PL problem

A 3PL warehouse is rarely stable. Client contracts start and end, storage zones are reassigned, temporary buffers appear and disappear, and the SKU mix shifts with each client's season. Conventional automation assumes stable processes and pays back over years of unchanged operation — a poor match. Manual pallet jacks stay flexible but consume operator hours in [walking and travel](https://info.mobilerobot.com/application/s/results/reduction-in-manual-walking/) (<https://info.mobilerobot.com/application/s/results/reduction-in-manual-walking/>).

How the J1600 fits

The [dual-mode](https://info.mobilerobot.com/products/j1600/dual-mode/) (<https://info.mobilerobot.com/products/j1600/dual-mode/>) approach keeps the flexibility and removes the travel:

- **Reconfiguration by the operator, not an engineer.** When a client's zone moves, the operator drives to the new point, taps **Save location**, and the flow is updated — no automation specialist, no code, no map project.
- **[Multi-point cross-docking](https://info.mobilerobot.com/applications/use-cases/cross-docking/)** (<https://info.mobilerobot.com/applications/use-cases/cross-docking/>). Saved locations recombine freely, so pallets can move across many origin-destination pairs without teaching each one.
- **[Temporary storage on demand](https://info.mobilerobot.com/applications/use-cases/temporary-storage/)** (<https://info.mobilerobot.com/applications/use-cases/temporary-storage/>). Short-lived buffer points are [created in minutes and abandoned just as easily](https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/) (<https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/>).
- **Manual handling where it matters.** Truck unloading, mixed and unstable client loads, and congested docks stay under operator control with immediate takeover via the tiller.

Economics for smaller 3PLs

The J1600 targets single-shift operations with roughly one to five pallet-jack operators — the scale where a full automation project (which can reach approximately €1 million for a fully integrated system) is out of reach. The J1600 lists at €65,000, deploys in hours to one day, and requires about 30 minutes of [operator training](https://info.mobilerobot.com/documentation/getting-started/operator-training/) (<https://info.mobilerobot.com/documentation/getting-started/operator-training/>). 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/>) at €4,000 lets a 3PL validate a specific client flow before committing. See [ROI examples](https://info.mobilerobot.com/applications/results/roi-examples/) (<https://info.mobilerobot.com/applications/results/roi-examples/>).

Scaling with the business

A 3PL can start with one robot on one flow, with [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/>) or [systems integration](https://info.mobilerobot.com/applications/results/lower-integration-complexity/) (<https://info.mobilerobot.com/applications/results/lower-integration-complexity/>) required. When volume grows, [Advanced software](https://info.mobilerobot.com/products/software/advanced-software/) (<https://info.mobilerobot.com/products/software/advanced-software/>) adds [VDA 5050](https://info.mobilerobot.com/products/software/vda-5050/) (<https://info.mobilerobot.com/products/software/vda-5050/>) interoperability, a [REST API](https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>), and [Fleet Manager](https://info.mobilerobot.com/products/software/fleet-manager/) (<https://info.mobilerobot.com/products/software/fleet-manager/>), so the J1600 can join a multi-vendor fleet under a compatible fleet layer.

Load compatibility across clients

Client variety means carrier variety. The J1600 handles EPAL Euro Pallets, EPAL 3, EPAL 6, open-base GMA pallets, open cages, and other [forkable open-base carriers](https://info.mobilerobot.com/products/j1600/pallet-and-load-compatibility/) (<https://info.mobilerobot.com/products/j1600/pallet-and-load-compatibility/>) within a 1,250 × 1,250 mm envelope and 1,600 kg payload. Judgment about unusual or unstable client loads stays with the operator — 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/>).

Related pages

- [Warehousing](https://info.mobilerobot.com/applications/industries/warehousing/) (<https://info.mobilerobot.com/applications/industries/warehousing/>) — the underlying warehouse flows
- [E-commerce and fulfillment](https://info.mobilerobot.com/applications/industries/e-commerce-and-fulfillment/) (<https://info.mobilerobot.com/applications/industries/e-commerce-and-fulfillment/>) — a common 3PL service line

- [Operational flexibility \(https://info.mobilerobot.com/applications/results/operational-flexibility/\)](https://info.mobilerobot.com/applications/results/operational-flexibility/) — the core 3PL benefit in detail

Grocery and FMCG

Grocery and fast-moving consumer goods (FMCG) distribution is a named [priority segment](https://info.mobilerobot.com/company/about/markets-we-serve/) for the [J1600](https://info.mobilerobot.com/products/j1600/overview/) self-driving pallet jack. These operations move high pallet volumes on tight schedules, and much of that movement is repetitive travel between receiving, storage, staging, and [dispatch](https://info.mobilerobot.com/applications/industries/shipping-and-dispatch/) — exactly the portion the J1600 automates.

Why grocery and FMCG distribution

High-frequency replenishment makes pallet travel a constant cost. Demand shifts, promotions, and seasonal peaks change floor layouts and buffer locations faster than conventional automation can be reconfigured. The J1600's [dual mode](https://info.mobilerobot.com/products/j1600/dual-mode/) keeps operators in control of pickup and load judgment while [removing the walking](https://info.mobilerobot.com/applications/results/reduction-in-manual-walking/):

- **Dock-to-storage and storage-to-staging travel** runs autonomously after a manual pick.
- **Temporary buffers** [for promotions or peak periods are created by driving to a point](https://info.mobilerobot.com/applications/use-cases/buffer-and-staging-management/) and tapping **Save location** — and removed just as quickly.
- **Cross-docking** [across multiple origins and destinations works by recombining saved locations](https://info.mobilerobot.com/applications/use-cases/cross-docking/), without a bespoke task for every pair.
- **Steadier material flow** comes from consistent, repeatable autonomous delivery runs.

Pallet compatibility

Grocery and FMCG networks run on standard pallet formats, and the J1600 supports the common ones directly:

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

The [load envelope](https://info.mobilerobot.com/products/j1600/pallet-and-load-compatibility/) (<https://info.mobilerobot.com/products/j1600/pallet-and-load-compatibility/>) is 1,250 × 1,250 mm including overhang, load height up to 1,700 mm from the floor, and payload up to 1,600 kg. Carriers must have an open base with no bottom deck board so the forks can enter. Compatibility for an unusual carrier depends on base geometry, size, stability, and operator judgment.

Handling the messy reality

FMCG warehouses see damaged pallets, loose stretch-wrap tails, leaking or crushed cartons, and [top-heavy mixed-SKU loads](https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/) (<https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/>). These are the situations where [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/>) earns its place: the operator spots the problem at pickup, handles it manually, and hands only the predictable travel to the robot.

Environmental limits

The J1600 operates indoors at 5–40 °C with 20–80% non-condensing humidity and IP21 ingress protection. Ambient-temperature distribution areas are in range; chilled or frozen zones below 5 °C fall outside the specified [operating envelope](https://info.mobilerobot.com/documentation/installation/operating-environment-requirements/) (<https://info.mobilerobot.com/documentation/installation/operating-environment-requirements/>). Autonomous driving requires [level floors](https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/) (<https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/>) — dock plates and ramps remain manual. Full details are in the [technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>).

Related pages

- [Warehousing](https://info.mobilerobot.com/applications/industries/warehousing/) (<https://info.mobilerobot.com/applications/industries/warehousing/>) — the general warehouse flows behind grocery distribution

- [Goods receiving](https://info.mobilerobot.com/applications/industries/goods-receiving/) (https://info.mobilerobot.com/applications/industries/goods-receiving/) — the inbound dock processes
- [Productivity improvements](https://info.mobilerobot.com/applications/results/productivity-improvements/) (https://info.mobilerobot.com/applications/results/productivity-improvements/) — throughput and flow outcomes

E-Commerce and Fulfillment

E-commerce and fulfillment operations are a [target segment](https://info.mobilerobot.com/company/about/markets-we-serve/) for the [J1600](https://info.mobilerobot.com/products/j1600/overview/) self-driving pallet jack. Fulfillment sites live on throughput and change constantly — two conditions that favor automation which deploys in hours and reconfigures in minutes rather than requiring an infrastructure project.

What fulfillment sites gain

The J1600 gives [factories](https://info.mobilerobot.com/applications/industries/manufacturing/), third-party-logistics warehouses, and e-commerce fulfillment centers four outcomes:

- **Reclaimed walk time** (<https://info.mobilerobot.com/applications/results/reduction-in-manual-walking/>). Operators stop escorting pallets across the building; travel runs autonomously after a manual pick.
- **Stabilized material flow.** Repeatable autonomous delivery runs smooth out the peaks and gaps of manual transport.
- **Higher throughput without infrastructure overhaul.** No tracks, wires, reflectors, or building modifications — the robot maps the site with [3D LiDAR SLAM](https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/) while an operator drives it.
- **Deployment in hours rather than months.** Typical setup takes hours to one day, and [operator training](https://info.mobilerobot.com/documentation/getting-started/operator-training/) takes about 30 minutes.

Built for facilities that change

Even the most automated fulfillment operations stay in motion. [Observations from a visit to a major e-commerce cross-docking facility](https://info.mobilerobot.com/newsroom/stories/behind-the-scenes/) shaped the J1600's flexibility-first design: layout, flow, buffer, and SKU-mix changes occurred several times per week; not every process was automated despite heavy robotics investment; and minor mechanical downtime happened several times a day. The conclusion — flexibility and robustness are business necessities even in highly automated facilities — is why the J1600 pairs

autonomy with immediate manual takeover instead of pursuing full automation. See [dual mode](https://info.mobilerobot.com/products/j1600/dual-mode/) (<https://info.mobilerobot.com/products/j1600/dual-mode/>).

In practice this means:

- **Peak-season buffers** (<https://info.mobilerobot.com/applications/use-cases/buffer-and-staging-management/>) are [saved as new locations in minutes](https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/) (<https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/>) and retired after the peak.
- **Cross-docking flows** (<https://info.mobilerobot.com/applications/use-cases/cross-docking/>) recombine saved origins and destinations without teaching every pair.
- **Exceptions** (<https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/>) **stay human**. Congested aisles, urgent reprioritizations, and awkward loads are handled manually, with takeover available at any moment via the tiller.

Scale path

A fulfillment site can start with a single robot, [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/>), and [no warehouse-management-system integration](https://info.mobilerobot.com/applications/results/lower-integration-complexity/) (<https://info.mobilerobot.com/applications/results/lower-integration-complexity/>). When orchestration becomes worthwhile, the [Advanced software](https://info.mobilerobot.com/products/software/advanced-software/) (<https://info.mobilerobot.com/products/software/advanced-software/>) adds [VDA 5050](https://info.mobilerobot.com/products/software/vda-5050/) (<https://info.mobilerobot.com/products/software/vda-5050/>) interoperability, a [REST API](https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>), and [Fleet Manager](https://info.mobilerobot.com/products/software/fleet-manager/) (<https://info.mobilerobot.com/products/software/fleet-manager/>), letting the J1600 work alongside robots from other vendors under a compatible fleet layer.

Operating envelope

Payload up to 1,600 kg; autonomous delivery at floor level; [indoor, level floors](https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/) (<https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/>); 5–40 °C; [open-base carriers](https://info.mobilerobot.com/applications/planning/pallet-and-load-suitability/) (<https://info.mobilerobot.com/applications/planning/pallet-and-load-suitability/>) within 1,250 × 1,250 mm. See the [technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>).

Related pages

- [Third-party logistics](https://info.mobilerobot.com/applications/industries/third-party-logistics/) (https://info.mobilerobot.com/applications/industries/third-party-logistics/) — fulfillment run as a service
- [Warehousing](https://info.mobilerobot.com/applications/industries/warehousing/) (https://info.mobilerobot.com/applications/industries/warehousing/) — the underlying zone-to-zone flows
- [Faster deployment](https://info.mobilerobot.com/applications/results/faster-deployment/) (https://info.mobilerobot.com/applications/results/faster-deployment/) and [Operational flexibility](https://info.mobilerobot.com/applications/results/operational-flexibility/) (https://info.mobilerobot.com/applications/results/operational-flexibility/) — the outcomes fulfillment sites value most

Goods Receiving

Goods receiving is one of the J1600's core applications and a clear illustration of its [dual-mode](https://info.mobilerobot.com/products/j1600/dual-mode/) (<https://info.mobilerobot.com/products/j1600/dual-mode/>), [division of work](https://info.mobilerobot.com/applications/scenarios/mixed-manual-and-autonomous-work/) (<https://info.mobilerobot.com/applications/scenarios/mixed-manual-and-autonomous-work/>): the dock is human territory, the travel afterward is not. An operator [unloads the truck manually, then sends each pallet autonomously](https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/) (<https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/>) to inbound inspection or storage.

The receiving workflow

1. The operator unloads a pallet from the truck in [manual mode](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) (<https://info.mobilerobot.com/documentation/user-guides/manual-operation/>) — the J1600 handles like a conventional walk-behind electric pallet jack.
2. On the touchscreen, the operator selects the saved destination (inspection area, storage zone, or staging point) and a post-delivery behavior.
3. The operator [confirms autonomous mode](https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/) (<https://info.mobilerobot.com/documentation/user-guides/autonomous-operation/>) with the physical start button and steps away.
4. The J1600 drives to the destination, avoids obstacles on the way, drops the pallet at floor level, and — in the common "[boomerang](https://info.mobilerobot.com/applications/scenarios/deliver-and-return/)" [pattern](https://info.mobilerobot.com/applications/scenarios/deliver-and-return/) (<https://info.mobilerobot.com/applications/scenarios/deliver-and-return/>) — returns to the dock for the next pallet.

While the robot travels, the operator keeps unloading. The repetitive walk between dock and storage disappears from the operator's day.

Why the dock stays manual

Receiving concentrates the situations where human judgment beats automation:

- **Dock plates and trailer interiors.** Autonomous mode has 0% gradeability and requires [level floors](https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/) (<https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/>); bumps, slopes, and misaligned dock plates are handled manually (manual gradeability is 5% unloaded, 3% at full load, with a maximum traversable bump of 25 mm and gap of 20 mm).
- **Damaged pallets and goods.** A broken bottom board, protruding nail, leak, or crushed corner is spotted by the operator before it becomes a jam or a customer

problem.

- **Unstable and wrapped loads.** [Top-heavy stacks](https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/) (<https://info.mobilerobot.com/applications/use-cases/sensitive-or-unstable-loads/>) and loose stretch-wrap tails get judged and fixed at pickup.
- **Crowded receiving floors** (<https://info.mobilerobot.com/applications/scenarios/operation-in-crowded-environments/>). The operator improvises a safe route through congestion that would stall a fully automated vehicle.

This split is the practical case for [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/>).

Setting up a receiving flow

[Destinations are created by driving to the point once](https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/) (<https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/>) and tapping **Save location** — inspection lanes, storage aisles, and [temporary overflow areas](https://info.mobilerobot.com/applications/use-cases/temporary-storage/) (<https://info.mobilerobot.com/applications/use-cases/temporary-storage/>) can each be a named location, with no software limit on how many. Locations recombine freely, so receiving can feed multiple zones without teaching each dock-to-zone pair separately.

Load compatibility at the dock

Inbound freight arrives on varied carriers. The J1600 accepts EPAL Euro Pallets, EPAL 3, EPAL 6, open-base GMA pallets, and any [forkable open-base carrier](https://info.mobilerobot.com/applications/planning/pallet-and-load-suitability/) (<https://info.mobilerobot.com/applications/planning/pallet-and-load-suitability/>) within 1,250 × 1,250 mm and 1,600 kg. Carriers need an open base with no bottom deck board. Details in [technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>).

Related pages

- [Warehousing](https://info.mobilerobot.com/applications/industries/warehousing/) (<https://info.mobilerobot.com/applications/industries/warehousing/>) — where the pallets go next
- [Shipping and dispatch](https://info.mobilerobot.com/applications/industries/shipping-and-dispatch/) (<https://info.mobilerobot.com/applications/industries/shipping-and-dispatch/>) — the mirror-image outbound process
- [Reduction in manual walking](https://info.mobilerobot.com/applications/results/reduction-in-manual-walking/) (<https://info.mobilerobot.com/applications/results/reduction-in-manual-walking/>) — the main receiving-area gain

Internal Production Logistics

Internal production logistics — the pallet flows that feed, connect, and clear production lines — is a named application sector for the **J1600** (<https://info.mobilerobot.com/products/j1600/overview/>). It covers the transport work between storage, staging, lines, and buffers that keeps a factory running but adds no value of its own.

Flows the J1600 automates

- **Line feeding on demand** (<https://info.mobilerobot.com/applications/use-cases/production-supply/>). An operator picks or prepares a pallet of materials or components; the J1600 delivers it to the production line autonomously.
- **Buffer and staging management** (<https://info.mobilerobot.com/applications/use-cases/buffer-and-staging-management/>). Move pallets between lines, staging areas, and storage zones as production consumes them.
- **Line clearance**. Send finished or intermediate goods from the line to storage or the next process step.
- **Local work cells** (<https://info.mobilerobot.com/applications/use-cases/local-work-cell-automation/>). Serve a stand-alone flow inside a larger facility — a single cell, a single line pair — where a full fleet project would be excessive.

The common pattern is **manual pick, autonomous delivery** (<https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/>), floor-level drop, and a configured follow-up: **return to the operator ("boomerang")** (<https://info.mobilerobot.com/applications/scenarios/deliver-and-return/>), continue to another point, park, or **stop and wait** (<https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/>). With Advanced software, **come-to-me** (<https://info.mobilerobot.com/applications/scenarios/come-to-me/>) lets a line worker call the robot to their position from a mobile or web interface.

Production-floor behavior

Production areas mix people, forklifts, and changing obstacles. The J1600 navigates by **3D LiDAR SLAM** (<https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/>), continuously updating its map, and avoids obstacles along the route. Preferred travel zones can be defined so autonomous traffic keeps to safer corridors through production areas. A 360-degree, speed-dependent safety field with certified

components protects the people around it — 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/>).

[Urgency stays human](https://info.mobilerobot.com/safety-compliance/safety-overview/human-responsibilities/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/human-responsibilities/>): when a line is starving, the operator reprioritizes immediately instead of waiting on a system queue, and can take over any vehicle by grabbing the tiller.

Changing the flow without a project

Production layouts change with every new product and line rebalance. [Adding or moving a delivery point takes minutes](https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/) (<https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/>): drive there, tap **Save location**, name it. There is no software limit on saved locations, and no automation engineer is needed — the [design principle](https://info.mobilerobot.com/company/about/our-approach-to-automation/) (<https://info.mobilerobot.com/company/about/our-approach-to-automation/>) is that operators, not experts, reconfigure the flow. Basic use requires [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/>) and no connection to manufacturing IT systems; [VDA 5050](https://info.mobilerobot.com/products/software/vda-5050/) (<https://info.mobilerobot.com/products/software/vda-5050/>), a [REST API](https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>), and [Fleet Manager](https://info.mobilerobot.com/products/software/fleet-manager/) (<https://info.mobilerobot.com/products/software/fleet-manager/>) are available under [Advanced software](https://info.mobilerobot.com/products/software/advanced-software/) (<https://info.mobilerobot.com/products/software/advanced-software/>) when integration becomes worthwhile.

Constraints on the factory floor

Autonomous mode needs [indoor, level floors](https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/) (<https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/>) (0% gradeability) with flatness to TR34 FM3; ramps between halls are manual segments. Automatic delivery is at floor level; placing loads at height (up to 1,600 mm) is a [manual operation](https://info.mobilerobot.com/documentation/user-guides/manual-operation/) (<https://info.mobilerobot.com/documentation/user-guides/manual-operation/>). Operating range is 5–40 °C. See [technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>).

Related pages

- [Manufacturing](https://info.mobilerobot.com/applications/industries/manufacturing/) (<https://info.mobilerobot.com/applications/industries/manufacturing/>) — the broader manufacturing context
- [Warehousing](https://info.mobilerobot.com/applications/industries/warehousing/) (<https://info.mobilerobot.com/applications/industries/warehousing/>) — the storage side of the flow

- [Labor reallocation](https://info.mobilerobot.com/applications/results/labor-reallocation/) (https://info.mobilerobot.com/applications/results/labor-reallocation/) — what production teams do with the recovered time

Shipping and Dispatch

Shipping is a named target environment for the [J1600](https://info.mobilerobot.com/products/j1600/overview/) (<https://info.mobilerobot.com/products/j1600/overview/>): the outbound end of the warehouse or factory, where pallets travel from storage, [production](https://info.mobilerobot.com/applications/use-cases/production-to-shipping-transport/) (<https://info.mobilerobot.com/applications/use-cases/production-to-shipping-transport/>), or staging toward the dock. As in [goods receiving](https://info.mobilerobot.com/applications/industries/goods-receiving/) (<https://info.mobilerobot.com/applications/industries/goods-receiving/>), the J1600 automates the long travel segments and leaves the dock work to the operator.

The outbound workflow

1. An operator [picks the outbound pallet manually](https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/) (<https://info.mobilerobot.com/applications/scenarios/manual-pickup-and-autonomous-delivery/>) — from storage, a production line, or a staging lane.
2. On the touchscreen, the operator selects the saved destination in the shipping area and what the robot should do afterward.
3. After confirmation with the physical start button, the J1600 drives autonomously, avoids obstacles, and drops the pallet at floor level in the outbound zone.
4. The final movement into the truck or trailer is manual: dock plates and slopes are outside autonomous mode's 0% gradeability, and [loading judgment stays with the operator](https://info.mobilerobot.com/safety-compliance/safe-deployment/operator-responsibilities/) (<https://info.mobilerobot.com/safety-compliance/safe-deployment/operator-responsibilities/>).

Useful [post-delivery behaviors](https://info.mobilerobot.com/documentation/user-guides/task-management/) (<https://info.mobilerobot.com/documentation/user-guides/task-management/>) for dispatch flows:

- **[Drop and wait](https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/)** (<https://info.mobilerobot.com/applications/scenarios/deliver-and-wait/>) — deliver to the staging lane and remain there until the operator arrives.
- **[Deliver and park](https://info.mobilerobot.com/applications/scenarios/deliver-and-park/)** (<https://info.mobilerobot.com/applications/scenarios/deliver-and-park/>) — complete the drop and proceed to a defined parking location out of the way of dock traffic.
- **[Boomerang](https://info.mobilerobot.com/applications/scenarios/deliver-and-return/)** (<https://info.mobilerobot.com/applications/scenarios/deliver-and-return/>) — return to the origin or operator for the next pallet.
- **[Simple ABC](https://info.mobilerobot.com/applications/scenarios/a-to-b-to-c-transport/)** (<https://info.mobilerobot.com/applications/scenarios/a-to-b-to-c-transport/>) — deliver from A to B, then continue to C, chaining staging moves.

Staging that follows the schedule

[Outbound staging](https://info.mobilerobot.com/applications/use-cases/buffer-and-staging-management/) (<https://info.mobilerobot.com/applications/use-cases/buffer-and-staging-management/>) is temporary by nature: lanes fill and empty with each departure, and peak days need extra buffer space. [New staging points are saved by driving to them once](https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/) (<https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/>) and tapping **Save location**, with no software limit on the number of locations. [Multi-point-to-multi-point combinations](https://info.mobilerobot.com/applications/use-cases/multi-point-pallet-transport/) (<https://info.mobilerobot.com/applications/use-cases/multi-point-pallet-transport/>) support [cross-docking-style flows](https://info.mobilerobot.com/applications/use-cases/cross-docking/) (<https://info.mobilerobot.com/applications/use-cases/cross-docking/>), where inbound pallets move directly toward outbound lanes.

Keeping the dock moving

While the J1600 shuttles pallets to the staging area, the operator stays at the dock loading, checking, and sequencing. Congested dock floors, last-minute order changes, and urgent reprioritization remain human decisions with immediate manual takeover via the tiller — the [human-in-the-loop](https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/) (<https://info.mobilerobot.com/documentation/concepts/human-in-the-loop-automation/>), split applied to outbound flow. Routes of a few meters or well over 100 meters follow the same workflow.

Practical limits

Autonomous operation is [indoor and level-floor](https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/) (<https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/>); automatic delivery is at floor level; payload is up to 1,600 kg on [open-base carriers](https://info.mobilerobot.com/applications/planning/pallet-and-load-suitability/) (<https://info.mobilerobot.com/applications/planning/pallet-and-load-suitability/>) within a 1,250 × 1,250 mm envelope. Full data in the [technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>).

Related pages

- [Warehousing](https://info.mobilerobot.com/applications/industries/warehousing/) (<https://info.mobilerobot.com/applications/industries/warehousing/>) — the zone-to-zone flows feeding dispatch
- [Goods receiving](https://info.mobilerobot.com/applications/industries/goods-receiving/) (<https://info.mobilerobot.com/applications/industries/goods-receiving/>) — the inbound mirror image
- [Productivity improvements](https://info.mobilerobot.com/applications/results/productivity-improvements/) (<https://info.mobilerobot.com/applications/results/productivity-improvements/>) — the throughput case for automating outbound travel

