



The Mobile Robot Company

Knowledge Center — Manufacturing · 2026-08-04

<https://info.mobilerobot.com/applications/industries/manufacturing>

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