



The Mobile Robot Company

Knowledge Center — Cross-Docking · 2026-08-04

<https://info.mobilerobot.com/applications/use-cases/cross-docking>

Cross-Docking

Cross-docking moves pallets from inbound doors to outbound doors or staging lanes with little or no storage in between. Origins and destinations multiply quickly, and lanes change with the day's volume. The J1600 fits this pattern because [saved locations](https://info.mobilerobot.com/documentation/user-guides/location-management/) (<https://info.mobilerobot.com/documentation/user-guides/location-management/>) can be recombined freely: you do not teach a bespoke task for every origin-destination pair.

How the flow works

1. Save each door, lane, and staging point once by driving there and tapping **Save location**. There is no software limit on the number of saved locations.
2. At the inbound side, [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/>) — trailer interiors and dock plates are manual work, since automatic mode requires [level floors](https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/) (<https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/>).
3. Select the outbound lane or staging point for this pallet and choose the post-delivery behavior: return to you, continue to another point, park, or wait.
4. Confirm autonomous mode. The robot delivers at floor level and follows the selected behavior.

Any saved point can be the next origin or destination, which is what makes multi-point-to-multi-point shuffling practical. See [Multi-Point Pallet Transport](https://info.mobilerobot.com/applications/use-cases/multi-point-pallet-transport/) (<https://info.mobilerobot.com/applications/use-cases/multi-point-pallet-transport/>) and [A-to-B-to-C Transport](https://info.mobilerobot.com/applications/scenarios/a-to-b-to-c-transport/) (<https://info.mobilerobot.com/applications/scenarios/a-to-b-to-c-transport/>).

Built for changing lanes

Cross-dock layouts rarely stand still. Observations at a major e-commerce cross-docking facility — a visit that shaped the J1600's [flexibility-first design](https://info.mobilerobot.com/applications/results/operational-flexibility/) (<https://info.mobilerobot.com/applications/results/operational-flexibility/>) — found layout, flow, buffer, and SKU-mix changes occurring several times per week, even in a heavily automated operation. The J1600 answers this with:

- **Teach and repeat** (<https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/>): add or move a lane in minutes by driving there once and saving it — see

[Temporary Location Setup](https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/) (<https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/>).

- **3D LiDAR SLAM navigation** (<https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/>): the robot continuously updates its environment model and routes around obstacles, with no tracks, wires, or reflectors to relocate — see [Dynamic Route Changes](https://info.mobilerobot.com/applications/scenarios/dynamic-route-changes/) (<https://info.mobilerobot.com/applications/scenarios/dynamic-route-changes/>).
- **Immediate manual takeover:** when a lane overflows or a pallet is misplaced, grab the tiller and handle it — see [Handling Exceptions and Irregular Loads](https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/) (<https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/>).

Busy floors

Cross-dock floors are crowded with people, pallet jacks, and staged freight. The J1600's 360-degree safety field, two 2D safety LiDARs, and speed-dependent protective zones support autonomous travel through this traffic, and blue light strips show the protected area. See [Operation in Crowded Environments](https://info.mobilerobot.com/applications/scenarios/operation-in-crowded-environments/) (<https://info.mobilerobot.com/applications/scenarios/operation-in-crowded-environments/>).

Capacity per trip

Each trip carries up to 1,600 kg at up to 5.4 km/h, with loads up to 1,250 × 1,250 mm including overhang on any supported open-base carrier. See [Open Cages and Alternative Load Carriers](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 the [J1600 technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/) (<https://info.mobilerobot.com/products/j1600/technical-specifications/>).