



The Mobile Robot Company

Knowledge Center — Safety Improvements · 2026-08-04

<https://info.mobilerobot.com/applications/results/safety-improvements>

Safety Improvements

Manual pallet handling is tiring, repetitive work performed among people, racking, and vehicle traffic. The J1600 addresses this on two fronts: it removes operators from repetitive transport, and it performs that transport with a [layered, certified safety architecture](https://info.mobilerobot.com/safety-compliance/safety-overview/safety-architecture/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/safety-architecture/>).

Fewer exposure hours

Every hour an operator does not spend walking pallets through mixed traffic is an hour of removed exposure to collisions, strains, and fatigue-related mistakes. Reduced workplace accidents, injuries, and product damage are among the [non-labor benefits](https://info.mobilerobot.com/products/j1600/features-and-benefits/) (<https://info.mobilerobot.com/products/j1600/features-and-benefits/>) of a J1600 deployment, alongside less tiring work for employees. See [reduction in manual walking](https://info.mobilerobot.com/applications/results/reduction-in-manual-walking/) (<https://info.mobilerobot.com/applications/results/reduction-in-manual-walking/>).

Predictable machine behavior

An autonomous J1600 behaves consistently: it follows planned routes, respects its protective field, and repeats stored tasks the same way every time. Key elements of the safety system include:

- a 360-degree protective field covering forward and reverse autonomous travel;
- two 2D safety LiDAR scanners (front and rear) feeding an independent safety controller;
- [speed-dependent safety zones](https://info.mobilerobot.com/safety-compliance/safety-functions/safety-field-adjustment/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/safety-field-adjustment/>) that expand as travel speed increases;
- [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 for stop-and-reverse;
- blue floor-light strips showing the currently protected area around the vehicle;
- safety-certified encoders and motor controllers;
- [tiller-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 immediate manual takeover.

Safety functions carry defined [Performance Levels](https://info.mobilerobot.com/safety-compliance/safety-functions/performance-levels/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/performance-levels/>) 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/>), — for example PL d for [braking](https://info.mobilerobot.com/safety-compliance/safety-functions/braking/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/braking/>), emergency stop, [person detection](https://info.mobilerobot.com/safety-compliance/safety-functions/person-detection/) (<https://info.mobilerobot.com/safety-compliance/safety-functions/person-detection/>), and safety-field size adjustment. The full architecture is 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/>).

The human contribution

Human control complements the certified systems rather than replacing them. The operator must confirm entry into autonomous mode, the robot instructs the person to step clear before starting, and grabbing the tiller returns the vehicle to manual control immediately. At pickup, [the operator catches hazards no sensor is asked to judge](https://info.mobilerobot.com/safety-compliance/safety-overview/human-responsibilities/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/human-responsibilities/>): broken bottom boards, protruding nails, unstable stacks, loose stretch wrap. 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/>).

Compliance foundation

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/>), with a [compliance list](https://info.mobilerobot.com/safety-compliance/certificates/compliance-statements/) (<https://info.mobilerobot.com/safety-compliance/certificates/compliance-statements/>) that includes [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 key European and US standards for driverless industrial trucks — among other directives and standards.

USE CURRENT DOCUMENTATION FOR DEPLOYMENT DECISIONS

Accident-rate test data, stopping-distance curves, and validation reports are not available. Base [site-specific risk assessments](https://info.mobilerobot.com/safety-compliance/safe-deployment/site-risk-assessment/) (<https://info.mobilerobot.com/safety-compliance/safe-deployment/site-risk-assessment/>) and deployment decisions on the current product documentation.

Related pages

- [Labor reallocation](https://info.mobilerobot.com/applications/results/labor-reallocation/) (https://info.mobilerobot.com/applications/results/labor-reallocation/) — moving people from transport to judgment work
- [Goods receiving](https://info.mobilerobot.com/applications/industries/goods-receiving/) (https://info.mobilerobot.com/applications/industries/goods-receiving/) — a high-exposure area where the split applies
- [Safety overview](https://info.mobilerobot.com/category/safety-compliance/) (https://info.mobilerobot.com/category/safety-compliance/) — the full safety and compliance section