



The Mobile Robot Company

Knowledge Center — Operating Environment Requirements · 2026-08-04

<https://info.mobilerobot.com/documentation/installation/operating-environment-requirements>

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.