The Mobile Robot Company

SELF-DRIVING PALLET JACK

J1600

A dual-mode collaborative pallet jack for easy, flexible automation.

THE MOBILE ROBOT COMPANY

J1600 SELF-DRIVING PALLET JACK

Our self-driving pallet jack is dual-mode: it can be used like a standard electric pallet jack and it can drive itself along preselected routes, freeing the operator for other tasks.

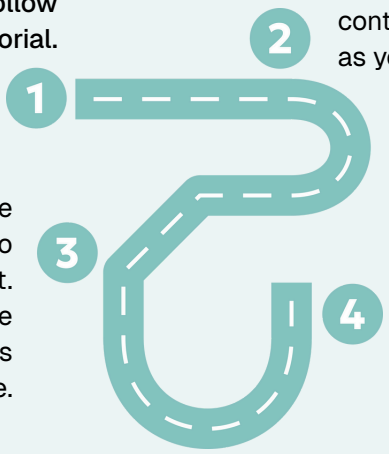
It handles floor-to-floor pallet transport in indoor environments and is ideal for moving goods between receiving, storage, production, and shipping.

Tasks are started easily by the operator via the touchscreen. The robot is ready out of the box and requires no IT infrastructure or system integration; Wi-Fi is optional.

Operator training can be completed in about 30 minutes, and new locations can be added quickly and easily by manually driving the robot to the spot and pressing “Save Location”.

Power on the robot and follow the on-screen tutorial.

Grab the tiller handle and manually drive the robot around in your facility. The robot continuously learns about its environment as you drive it around.



Drive to a location where you would like to autonomously drop a pallet. Click “Save Location” on the touchscreen. Repeat for as many locations as you like.

Pick up a pallet from anywhere in your facility and launch an automatic delivery run by selecting the drop destination and whether the robot should return to you or go wait at another location after the task is completed.

Max Payload: 1,600 kg
Lifting Height: 1.6 m
Speed: 5.4 km/h

3D LiDAR-based autonomous navigation
NVIDIA Jetson industrial AI computer
360-degree safety field
CE Certified
Made in Denmark

Human-in-the-Loop

Combine manual pallet handling with automated delivery and drop-off to achieve up to 80% reduction in manual work.

Plug-and-Play

Teaching the robot a new task is as quick and simple as performing the task yourself once.

Easy and Intuitive

If you already know how to operate an electric pallet jack, you can learn to use our robot with just 30 minutes of training.

Robust and Reliable

Our advanced technology, combined with the fact that a human can easily take control, protects you from costly downtime when the unexpected happens.

Enhanced Safety

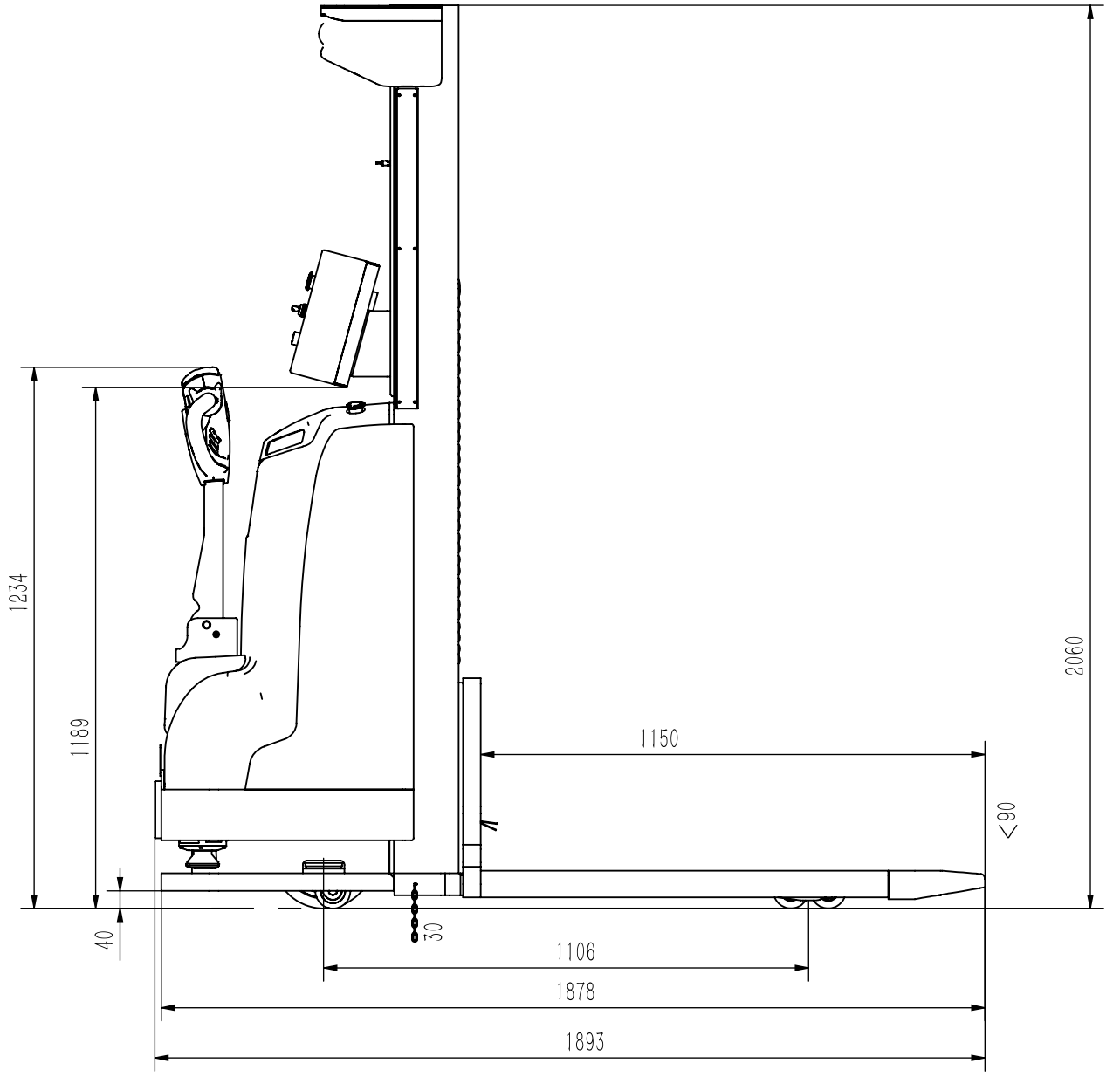
The self-driving pallet jack navigates safely among people with built-in safety features that are many times more reliable than the average operator.

DUAL MODE

Manual Functions	Pallet pick & drop at up to 1.6 m	Full manual control with tiller
	Initiate automatic tasks on-screen	Save new locations
Basic Automation	Pallet drop at floor location	Self-drive to any location
	Return to me	Go to parking
Advanced Automation	Come to me function	Automatic charging
	VDA 5050 fleet manager	API integrations

PHYSICAL DIMENSIONS

Parameter	Metric	Imperial
Vehicle length	1893 mm	75 in
Vehicle width	850 mm	33 in
Vehicle height (when forks are lowered)	2060 mm	81 in
Vehicle height (forks at maximum height)	2350 mm	93 in
Fork height at highest position	1600 mm	63 in
Fork height at lowest position	90 mm	3.5 in
Fork length	1150 mm	45 in
Fork width	180 mm	7 in
Fork thickness	60 mm	2.4 in
Fork outer distance	680 mm	27 in
Fork inner distance	320 mm	13 in
Ground clearance	30 mm	1.2 in
Tiller handle height (upright position)	1234 mm	49 in
Wheelbase	1106 mm	44 in
Turning radius	1501 mm	59 in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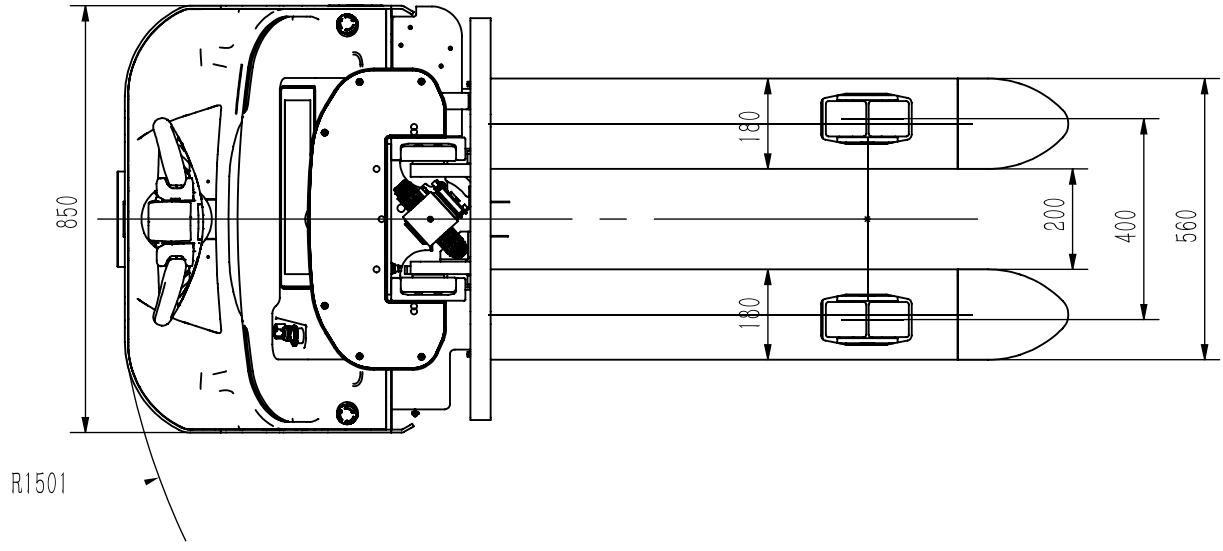
850
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560
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R1501

PERFORMANCE

Parameter	Metric	Imperial
Rated payload	1,600 kg	3,500 lbs
Top speed	5.4 km/h (1.5 m/s)	3.4 mph
Fork lifting speed, no load	0.1 m/s	0.33 ft/s
Fork lifting speed, full load	0.08 m/s	0.26 ft/s
Fork lowering speed, no load	0.08 m/s	0.26 ft/s
Fork lowering speed, full load	0.12 m/s	0.39 ft/s
Battery drain driving fully loaded	~13% per hour	
Battery drain driving no load	~12% per hour	
Battery drain standby	~2% per hour	
Battery charging speed	~47% per hour	
Automatic pallet delivery height	Floor level	
Manual pallet delivery height	Up to 1600 mm	Up to 63 in
Manual pallet pick height	Up to 1600 mm	Up to 63 in

PALLETS SUPPORTED

Parameter	Metric	Imperial
Pallet type	Open base (no bottom deck board)	
Maximum pallet length (including overhang of load)	1250 mm	49 in
Maximum pallet width (including overhang of load)	1250 mm	49 in
Maximum load height (from floor)	1700 mm	67 in
EPAL Euro Pallet support	EPAL Euro Pallet, EPAL 3, EPAL 6	
GMA pallet support	All GMA pallets with open base	
Custom load carrier support	All custom load carriers within size limits that can be forked	

OPERATING ENVIRONMENT REQUIREMENTS

Parameter	Metric	Imperial
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 and levelness	TR34 FM3	FF 25 / FL 20

HARDWARE

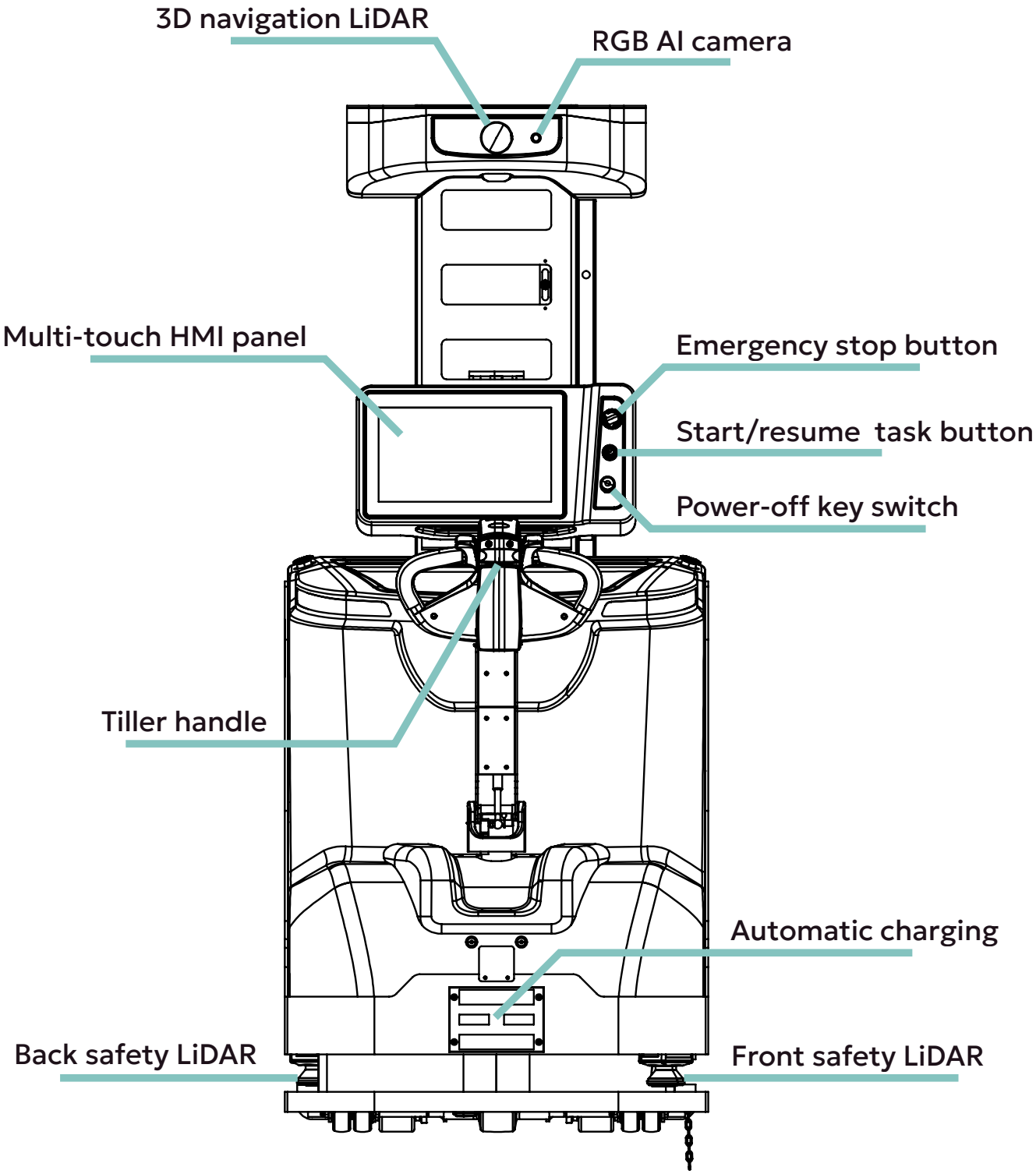
Parameter	Metric	Imperial
Drive motor power	AC 1.5kW	
Lifting power	2.2 kW	
Battery capacity	24 V, 200 Ah	
Battery technology	Lithium-iron-phosphate ($LiFePO_4$)	
Wheel material	Polyurethane	
Load wheels width / diameter	70 mm / 80 mm	2.8 in / 3.1 in
Drive wheel width / diameter	75 mm / 230 mm	3 in / 9 in
Ingress protection level	IP21	

CONTROL SYSTEM COMPONENTS

Parameter
3D LiDAR for obstacle detection and navigation
RGB AI camera
NVIDIA Jetson industrial PC
15-inch multi-touch HMI panel
Forklift tiller for manual control
Floor-indicator lights (automatic mode)
Power-off / Manual only / Automatic-mode key switch
LED start/resume button for automatic task execution
Lifting height sensor
Audio speaker

SAFETY COMPONENTS

Parameter
Safety controller
2D Safety LiDAR (x2)
Emergency stop buttons (x3)
Belly button for stop and reverse
Load detection sensor
Tiller position switch for E-stop
Tiller position switch for manual control
Safety-certified driving speed encoder
Safety-certified driving direction encoder
Safety-certified motor controllers (x2)


3D navigation LiDAR
RGB AI camera
Multi-touch HMI panel
Emergency stop button
Start/resume task button
Power-off key switch
Tiller handle
Automatic charging
Back safety LiDAR
Front safety LiDAR

SAFETY FUNCTIONS

Parameter	Performance Level
Braking System	PL d
Speed Monitoring and Control	PL c
Safety Field Size Adjustment	PL d
Load Detection	PL b
Charging Current Relay	PL b
Emergency Stop Button	PL d
Person Detection in Safety Field	PL d
Automatic / Manual Mode Selection	PL c
Tiller Position Detection	PL c

STANDARDS COMPLIANCE

Parameter
CE Marked
Directive 2006/42/EC (Machinery Directive)
Directive 2014/30/EU (EMC Directive)
Directive 2014/53/EU (Radio Equipment Directive – RED)
Directive 2011/65/EU (RoHS)
Regulation (EU) 2023/1542 (Batteries Regulation)
EN ISO 3691-4:2023
EN ISO 13849-1:2023
EN ISO 12100:2010
EN ISO 3691-1:2015+A1:2020
UN Manual of Tests and Criteria, subsection 38.3 (UN 38.3)
ANSI/ITSDF B56.5-2024
ANSI/ITSDF B56.1-2020

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