



# OTTO Motors

**Empowered by PULSE Integration**

*Unlock the Hidden Potential of Your Facility*





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## Introduction

OTTO is more than a self-driving vehicle.

OTTO's products work together to reduce manual touches in the production process and deliver uptime, throughput improvements, and safety.

No tape, guides, or predefined paths required. OTTO analyzes the environment and makes real-time decisions about its route depending on where it needs to go.

*Increase your productivity without increasing your footprint or your workforce.*





## Benefits of OTTO Motors



INCREASE  
YOUR  
PLANT'S  
THROUGHPUT

OTTO adds reliability and cadence to your material flow, which improves availability and overall effectiveness of equipment and process.

RECLAIM  
UNPRODUCTIVE  
FLOORSACE

OTTO enables you to reduce buffer size by making smaller, more frequent deliveries, which reduces WIP and on-hand inventory.

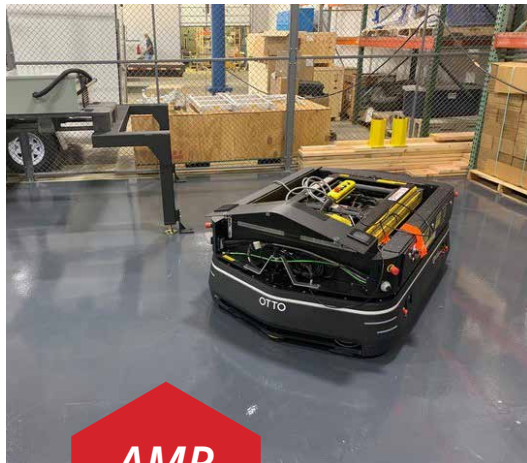
STANDARDIZE  
MANUFACTURING  
EXCELLENCE

The best processes in each facility can be shared with all facilities, distinguishing your brand with a world-class culture of innovation.



## Center of Excellence

**PULSE Integration's Center of Excellence**, located in Grand Rapids, Michigan serves as a primary testing facility for AMR's and technology used on current future projects. PULSE Integration brings a tremendous amount of value to each client through its COE and the dedicated engineers working tirelessly to understand and troubleshoot all technology equipment.



**AMR  
COE**

This location provides offices and collaboration areas for our growing contingent of PULSE Integration employees in the Grand Rapids area. The facility is located on the North side of Grand Rapids, Michigan, the epicenter for material handling companies.

The facility encompasses 1700 Sq. ft. in their demo area and another 1,200 Sq. ft. for their innovation lab, totaling 2,900 Sq. ft. The Center of Excellence is conveniently attached to Alternative Engineering Inc. a local partner that designs, manufactures, and installs custom machinery.

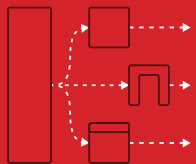




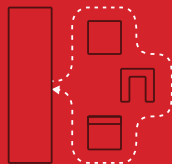
# OTTO Applications

OTTO combines the flexibility of a person with the efficiency and reliability of automation so the right parts get to the right place at the right time.

OTTO is designed to quickly adapt to different tasks, floorplans, and workflows in a few clicks.



Deliveries & Pickups



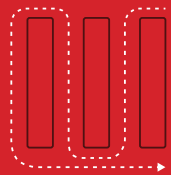
Bus Routes



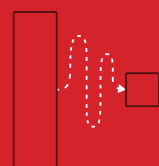
Pull Calls by Operator



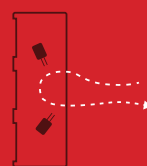
Lineside Delivery and Pickup



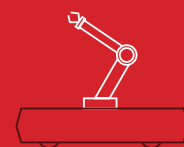
Knitting & Picking



Long Hauls



Fork Truck Handoffs



Custom Implementations and Workflows



# Self-Driving Vehicle Operating System

## Automate Your Material Flow

OTTO's core vehicle operating system is what transforms industrial material handling equipment into self-driving vehicles that can automate your material moves.

### Safe

OTTO safely navigates around people and infrastructure.

### Reliable

OTTO uses multiple sensors so it never gets lost in your plant.

### Intelligent

OTTO intelligently plans routes through dynamic environments.



Automating your material flow doesn't require a robotics degree. The OTTO App allows you to use a tablet to connect processes in the palm of your hand. It gives you the tools to improve your material flow minutes after taking OTTO out of the box.



### Map Your Facility

Show OTTO around and build a facility map in real time.



### Add Delivery Points

Tell OTTO where pickups and dropoffs need to happen.



### Put OTTO To Work

Send OTTO to destinations in your facility or create bus routes and milk runs.



# Fleet Manager

The OTTO Fleet Manager connects multiple self-driving vehicles to your production process for higher levels of efficiency and control.

## Material Flow Coordination

The OTTO Fleet Manager is your fleet's central dispatch and command center. It manages OTTO's job queue, dispatches work, and worries about material flow so you don't have to.

## Data-Driven Decisions

OTTO connects processes, collects data, and closes the automation loop for insight and action on your production floor.

## Uptime With Little Interruption

If OTTO is charging, it is not working. The OTTO Fleet Manager works to maximize uptime by sending OTTO automatically to the charger at opportune times for brief, high-powered super charges.

## Industry 4.0 Compatible

OTTO is designed for the factory of the future with powerful APIs for end-to-end automation and the digitization of your material flow.



*OTTO can receive simple directions or integrate with existing automation or software.*

### *Workstation Dispatch*

Create jobs for OTTO manually with a tablet or computer in the workstation.

### *Scheduled Dispatch*

Create a customized schedule of jobs by shift, time, or production requirements.

### *Automated Dispatch*

Automated job generation by existing PLCs at process end-points.

### *Software Dispatch*

ERP, WMS, MES integrations for automated and coordinated moves.



# Self-Driving Vehicles, Attachments & Accessories

OTTO is designed for work in your facility by using one of OTTO's standard attachments, or by connecting to the hardware, power, and communications attachment interface for more creative and customized deployments.



## OTTO 100

### Specs

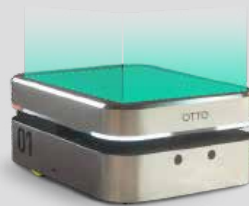
740 x 550 x 301 mm (29.1 x 22 x 12 in)  
Payload Capacity: 100 kg (220 lbs)  
Top Speed: 2.0 m/s (4.47 mph)  
Turning Radius: 0 mm (0 in)

### Move

Boxes, bins and other small parts



OTTO 100 Cart Base



OTTO 100 Custom Attachment Interface



OTTO Charge 100





# Self-Driving Vehicles, Attachments & Accessories

“Small or large facility, simple or complex workflow, OTTO is designed for your application.”

## OTTO 1500

### Specs

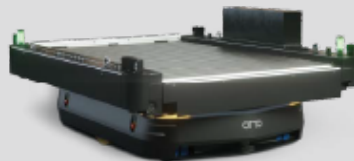
1810 x 1190 x 400 mm (71 x 47 x 16 in)  
Payload Capacity: 1500 kg (3306 lb)  
Top Speed: 2.0 m/s (4.47 mph)  
Turning Radius: 0 mm (0 in)

### Move

Pallets, bins, rack and other large parts



OTTO 1500 Lift



OTTO 1500 Conveyor



OTTO 1500 Custom Attachment Interface



OTTO Charge 1500