



TUG

Smart Autonomous Mobile Robot

TUG

Eliminate Labor Costs

Material movement does not add value to your manufacturing processes. Eliminating or reassigning the labor associated with material movement makes your process more efficient.

Support Lean Manufacturing

The TUG obviously eliminates material handling waste but can also respond to various signals supporting “pull” models of material flow. It can respond to real-time MES signals or ad-hoc requests from the production line. This helps prevent choking the line with unwanted material.

Create Collaborative Automation

The TUG connects your islands of automation by moving materials to where they are needed. The TUG is able to perform its duties alongside your production workers rather than in isolation, making it a collaborative robotic technology.

Improve Worker Safety

Injuries sustained while moving heavy loads are common, as are injuries related to repetitive stress motion. TUG eliminates material movement tasks and helps improve safety in your facility.

Enable Industry 4.0 Implementation

At the forefront of manufacturing is “Industry 4.0” - an assortment of sensors, software and robotics to increase automation in manufacturing. As an autonomous robot, TUG supports this initiative through its own automation along with its ability to connect to machines and systems in real time.





TUG is a smart autonomous mobile robot that delivers materials and supplies. TUG efficiently delivers components, raw materials, tools, WIP, finished goods, boxed goods, and waste materials. It hauls up to 1,000 pounds and automatically picks up and drops off racks or bins of materials based on signals from your MES system or production workers.

TUG



Omni-Directional Locomotion



Navigates around obstacles



Self-charging



Works directly with people

One Platform, Multi-Purpose

A fleet of TUGs can be used to transport and deliver a wide variety of racks and carts throughout the facility by virtue of its exchange platform. This ensures the TUG is a highly utilized and flexible transportation resource. If routes need to change, it can be easily re-programmed since it does not rely on magnets, strips or beacons in the facility.

Manufacturing

- Automatically replenish production with components or assemblies.
- Drop off and pick up carts automatically at the point of use (rather than a remote staging location).
- Move WIP to the next production location or to the warehouse.



Warehouse & Distribution

- Move de-palletized boxes into warehouse or through the shipping process.



Multiple Delivery Modes

TUG can accommodate a wide array of delivery modes



Scheduled runs
Pre-defined schedule



System generated
i.e. Integrates MES to TUG fleet's home-base server



Milk-run
Multi-stop routes



Pull / Ad-hoc
User request using handheld mobile units



Push
User sends when ready using touchscreen



Unattended Exchange
Automatic pickup & drop-off



Secure Delivery

In certain situations, it might be necessary to secure the delivery or control chain-of-custody of components, products or tools. We offer two delivery robots with secure drawers or a door. Materials sent can only be accessed by registered users placing their fingerprint on the reader and entering their pin code.

Different than AGVs

The TUG is an autonomous mobile robot (AMR) - not an automated guided vehicle (AGV). As an AMR, the TUG provides you with unique and important advantages:

- Delivers to the immediate point of use rather than staging depots.
- Can navigate unexpected obstacles and still complete its delivery. This prevents bottlenecks.
- Does not require infrastructure like beacons or wires.
This allows it to be deployed quickly and re-mapped easily.



Specification Chart

Maximum Carrying Capacity	1,000 lbs
Battery Run Time	24 hours with intermittent charging
Battery Technology	Valve-Regulated Lead-Acid
Torque	156 in-lbs
Drive System	Omni-directional 4-wheel drive
Navigation	Overlapping laser, sonar and infrared sensors
Communications	WiFi or 900MHz
Support	Remote to Aethon via VPN
Turning Radius	Rotate about center
Docking Station Width	24" plus 12" clearance
Environmental	Interior use
Travel Speed	30 inches per second

There is no equal

TUG is unique in its capabilities compared to other autonomous mobile robots:

- **1,000 lb capacity**
- **Automatic pickup and drop-off of carts**
- **True omni-directional navigation**
- **Multiple cart configurations**
- **Fleet management software**
- **Open IT architecture for integration to MES and building systems**
- **Universal elevator control & command**
- **Remote monitoring & control support**





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About Aethon

Leader in intralogistics automation.

Founded in 2001, Pittsburgh-based Aethon has become a proven leader of intralogistics automation through its turnkey platform, which includes TUG, an autonomous mobile robot to automate physical deliveries and transportation of materials. Transportation tasks in manufacturing are necessary, but add no value to the finished product. By automating internal logistics processes, manufacturers can reduce labor or direct it to more important areas of production.



Made in the USA

TUG robots are proudly designed, manufactured and supported in Pittsburgh, PA.