

Max N10 Tugger

AUTOMATED INDUSTRIAL TOW VEHICLE



FEATURE HIGHLIGHTS

- **RUGGED**
Robust Industrial Vehicle with up to 10,000 lb. Towing Capacity
- **SMART**
Allocations and Dynamic path planning from source to destination.
- **FLEXIBLE**
Infrastructure-free Natural Features Navigation with High-Resolution LiDAR and SLAM Technology
- **SAFE**
ANSI/ITSDF B56.5-2012 Compliant
- **PRODUCTIVE**
Travels with full load up to 4 mph with Automatic Opportunity Charging for Maximum Availability
- **EFFICIENT**
On-Board Touchscreen Operator Interface with Wi-Fi communications to SurePath Fleet Controller
- **MODULAR**
Based on the Max N10 Modular Mobile Robot Platform

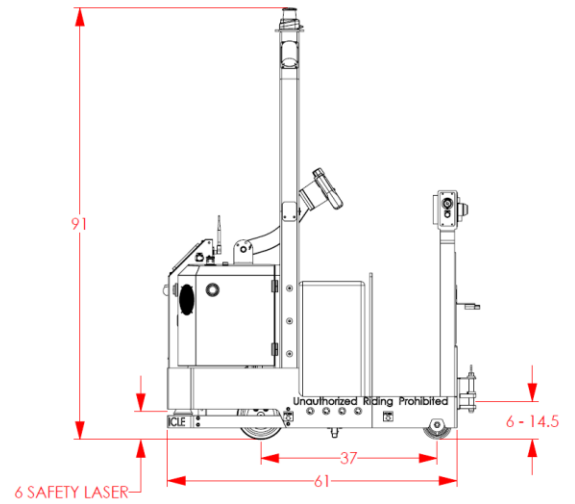
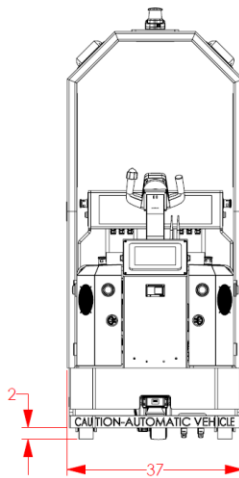
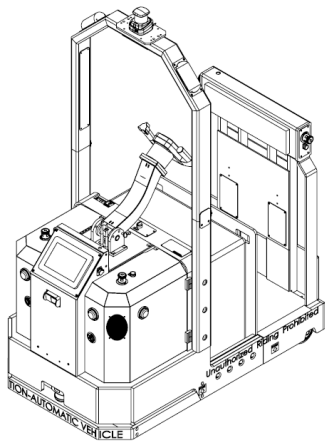
Industrial manufacturers and distribution centers looking to boost performance and reduce costs are searching for LEAN material transportation solutions that are safe, proven, and reliable to: improve worker and product safety, reallocate precious labor resources to more value-add activities, and improve delivery throughput and consistency.

The Max N10 Tugger is an automated tow vehicle that transports a train of trailers from point to point within industrial facilities. The standard towing capacity is up to 10,000 lbs. (4,536 kg).

Typical applications within industrial manufacturing include feeding materials or sub-assemblies to work cells, moving product through the manufacturing process, or transporting finished goods. Tuggers are also commonly used in Distribution Centers to transport products between the shipping docks and storage areas.

The vehicle design is compliant to ANSI safety standards with non-contact collision avoidance at full speed and with full payload. Under the supervision of the SurePath Fleet Controller, the optimum vehicle will be allocated to a transport task and its path will be dynamically planned to provide the fastest delivery. The vehicle will travel along the optimum path among the network of allowable paths throughout the facility. Operators feel safe that the operation is predictable and repeatable. They can safely coexist with the industrial vehicles and never be surprised by the vehicle behavior.

This Tugger, currently operating at Fortune 500/100 companies in both industrial manufacturing and distribution center facilities, was the first configuration released for the new Max N10 natural feature guided modular mobile robot platform. It has since been joined by the conveyor deck Unit Load configuration and the Pallet Stacker.... with both Pallet Truck and Hi-Bay configurations currently in development. The modular design helps AutoGuide drive down costs and offer the industry's best lead-times.



SPECIFICATIONS

Towing Capacity	Up to 10,000 lbs. (4,536 kg)
Travel Speed	Variable up to 4 mph (1.8 m/sec) at Full Load
LiDAR	Ultra-High Density, Up to 250,000 Measurements/sec, Resolution: 1 mm, 0.014 degrees
Path Indicator	Dual LEDs assist operator in the returning vehicle to Auto mode at any point on the path
Trailer Hitch	Standard 1" or 2.5" ID Pintle hitch options
Trailer Facilities	Power: SB 175, 24 VDC, 75 amp; E-Stop 8-pin Bayonet; Communications: Ethernet
Wireless Communications	Configurable 2.4 GHz or 5 GHz Wi-Fi
Hybrid Operation	Operator platform with pressure sensitive mat and Steering Wheel, Mode switch (Off/Auto/Manual)
System Status Indicators	Dual Light Poles (Green, Yellow, Red), flashing LEDs, and 80 dB Horn
Start/Reset Buttons	Green w/status light
Onboard Operator Interface	10 in. Touchscreen GUI, Main Status Screen (Operating Mode, Location, Destination, Navigation Status, Communication State, Battery Level), Manual Destination Select Screen, Alarm Screen, Maintenance and Diagnostics Screens
Grade	Up to 4%, Full Load/Full Speed
Drive	AC Servo with maintenance-free sealed gear train
Steering	AC Servo with maintenance-free sealed gear train
Drive Wheel	10 in. diameter, Polyurethane
Chassis Wheels	6 in. diameter, Polyurethane
Brakes	Regenerative Braking with fail-safe emergency disc brake
Turning Radius	61 in. Outside Radius
Gross Weight w/Battery	3,100 lbs. (1,400 kg)
Battery	24 VDC, 600 Amp-hr. capacity
Battery Connector	SB 350A-600V, Gray
Battery Compartment	31" L x 14.75" W x 35" H
Battery Charging	24 VDC, up to 200 amp.
Safety Standards	ANSI/ITSDF B56.5-2012 Compliance, Full Load/Full Speed
Collision Avoidance	Guarded non-contact Laser Scanners Front (category 3 compliant), 270 degree scan coverage each w/Smart Zones based on current vehicle speed and direction
E-Stops	Category 3 Safety Circuitry with Locking Mushroom Buttons
Environment	Operating Temperature 32-104° F (0-33° C), Relative Humidity <85% (non-condensing)
Floor Conditions	Free from oils, moisture, or debris; gaps or steps < 0.25 in. (6 mm)