

M300-NTX

Tunnel/Tugger

4,500 kg Towing Capacity

The Model M300-NTX is part of the top-selling family of AGVs offering ultimate flexibility, reliability, scalability and a maximum towing capacity of 4,500 kg (10,000 lbs) at an affordable price.

FEATURES

Low Profile: Designed to “tunnel” under mobile racks and trailers to tow them from underneath. This keeps the footprint of the AGV with trailer to a minimum.

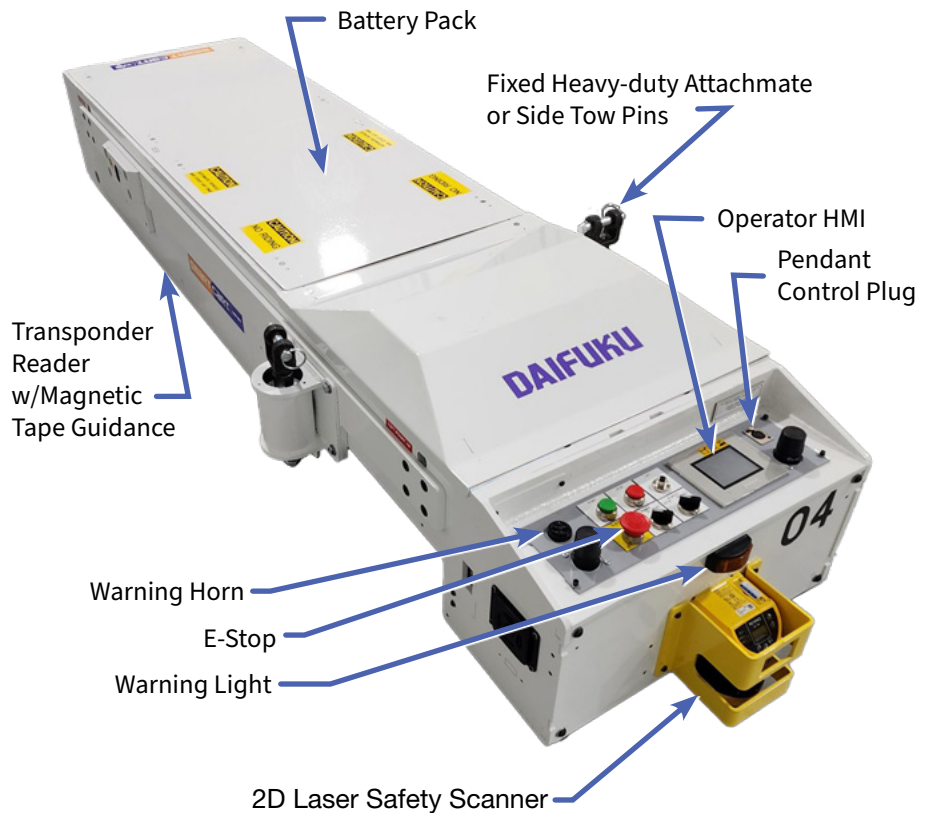
Safe: The M300-NTX offers a 16-pattern laser to detect obstructions and personnel.

Affordable: Many applications can demonstrate Return on Investment in three months or less.

Simple: CartTools™ and AGV Tools software provide a user-friendly interface to implement/make changes.

Industrial: Steel construction with powder coat and industrial enamel paint.

Integration: Can integrate with Plant Control Systems via Wi-Fi communications and our System Automation Manager™ (SAM) software providing traffic control.



NAVIGATION AND GUIDANCE OPTIONS

Natural Feature Navigation (NFN):

The AGV determines its location using LIDAR to identify structures in the environment and match their locations to a virtual map of the facility.

Inertial Navigation:

Odometry data and in-floor waypoints are used by the vehicle computer to determine location.

Magnetic Tape/Bar Guidance:

Magnetic path is followed using sensors.

NAVIGATION ENHANCEMENTS

Enhanced Navigation: Additional sensors can be added to augment the vehicle's navigation technology.

Co-Navigation Technology: Multiple navigation packages may be used on a vehicle in challenging environments.

FEATURES AND OPTIONS

- Communications Wi-Fi 5
- Automatic Shut Off
- Auto Sleep/Auto-wake
- Automatic Charging
- Lithium Battery Pack
- Wheel Brushes
- Side Swipe Optics
- Warning Light/Horn
- Tapped side pads for fixed towing attachmate
- Dual powered side tow pins

Smart Handling AGV Solutions

General Specifications

Weight / with batteries	750 kg (1650 lbs)
Dimensions	W: 559 mm (22"), 813 mm (32") w/attachmate L: 2388 mm (94") H: 421 mm (16-9/16")
Traction Power	90 kg (200 lbs) constant, 180 kg (400 lbs) starting
Safety – Front/rear	ANSI B56.5 compliant bumper
Speed – Laser Bumper	4.5 MPM (15 FPM) to 49 MPM (160 FPM), and 73 MPM (240 FPM) w/Inertial Guidance) 6 speeds, 304 MPM (1 FPM) increments
Rated Trailer	4500 kg (10,000 lbs) @ 18 MPM (60 FPM), With 2% friction factor trailer wheels Capacity reduced by 10% when reversing 1% Incline/Decline 1179 kg (2,600 lbs) @ 30 MPM (100 FPM)
Battery Options	AGM 210 AH 24VDC battery pack, AGM/TPPL 204 AH 24VDC battery pack Lithium (LiFePO4) 180AH 24VDC battery pack
Automatic Charge	80 amp charge rate (if equipped)
Fast Automatic Charge	138 amp (Lithium) and 140 amp (TPPL) charge rate (if equipped)
Manual Charge	Up to 25 amp charge rate

Environment

Environment – Atmosphere	0 to 40° C, 25% to 95% non-condensing humidity
Dust/Water-proof	No
Floor Specs – Edges/Debris	6 mm (.25") abrupt elevation change maximum, smoothed
Expansion Joints	6 mm (.25") maximum
Grade Rating	0%
Flatness	1% and 6 mm (.25") variation in 1524 mm (5') or less
Friction	0.6 coefficient of friction between wheels and floor, minimum
Floor Conductivity	Static dissipative, less than $3.5 \times 10^7 \Omega$
Radio Communication	Wi-Fi 5, plus security encryption (if equipped)

Detailed Specifications

Available Wheel Loading	Front add'l – 1122 kg (2475 lbs), Rear add'l – 357 kg (787 lbs) each Weight added to module is subtracted from rated trailer
Drive Direction – Automatic	Forward and Reverse (if equipped)
Duty Cycle	S2-60
Drive Unit – Wheel	Vulkolan 270 mm (10.63") dia. x 90 mm (3.54") wide
Drive Type	Gear driven steerable turntable
Motor	2.5 kW 24 VDC permanent magnet
Steering	24 VDC motor
Brake	20Nm, spring actuated (fail-safe)
Caster Wheels	Solid polyurethane 152 mm (6") diameter x 51 mm (2") wide
Guidance – Magnetic Tape/Bar	SmartCart AGV
Steer Angle Sensor	Analog 10 turn potentiometer
Steering Accuracy	+/- 25 mm (1") from physical path
Guide Loss Error	Error generated within 152 mm (6") of path loss
Hunt for Path	Not offered, violates ANSI B56.5
Sensor	16 millisecond data rate, 50 updates per second
SmartSteer Accuracy	+/- 76 mm (3") @ 3000 mm (10')
Stopping Accuracy	13 mm (.5") proximity sensor, 38 mm (1.5") transponder reader @ 9 MPM (30 FPM)
Location Method	Transponder tags, 5 data bytes including checksum Virtual Locations via distance initiated functions
Program Capacity	5000 program steps
Navigation	Daifuku AGV - Natural Feature Navigation and Inertial
Steer Angle Encoder	Yes
Steering/Stopping Accuracy	+/- 13 mm (.5") from physical path
HMI Display	89 mm (3.5") color touch screen – errors & destinations
Manual Movement	Pendant – via pendant plug receptacle, Rescue dolly
Minimum Path Radius	609 mm (24") – 90° turn, 762 mm (30") – 180° turn
Drive Stalled Detection	Yes
Distance Initiated Functions	Yes – in 25 mm (1") increments
Program Method	PC and Wireless (if equipped)
Obstacle Detection	180°, programmable up to 2.8 meters (3')
Emergency Stop	Front
Wiring	Per NEC ampacity guidelines

* For any applications greater than these specifications, please contact Engineering.

CARTTOOLS SOFTWARE

Simple, standardized toolbox of commands that make configuration a snap.



Pendant Control – When manual movement is required, it's as simple as driving the AGV where it needs to go.



Reverse Magnetic Tape Guidance – By just adding another guidance sensor and laser bumper, the M300-TT can act as a shuttle cart.



Load handling frames (LHF) engage the side tow pins to increase load stability.

