



The M10 Tug AV powered by Bastian Solutions is a game changer for manufacturing



The M10 Tug Autonomous Vehicle with Natural Features Navigation

EXECUTIVE SUMMARY

Your pathway to increased productivity. The M10 Tug AV is designed to fit under various carts/payloads reducing the footprint required in your facility.

A single M10 automatically hitches and unhitches your carts/payloads allowing it to maximize your material handling investment.

The M10 Tug AV can optimize your manufacturing and assembly line processes by staying under your products allowing full 360 degree access.



OVERVIEW

- General maximum weight capacity: Up to 1000 kg (2200 lbs)
- Drawbar (maximum): 95 lbf ¹
- Electrical system: 24-volt
- Guidance method: natural features via LIDAR
- Drive type: DC brushless motors
- Bi-directional travel with category 3 safety
- Drive suspension system to maintain consistent traction over various floor conditions

¹ Preliminary data

M10 Tug AV

General Capacity **1000 kg**
(2200 lbs)

Maximum Drawbar Pull **95 lbf¹**

Voltage **24**



Specifications

Model number

General Data		M10 Tug AV	
General Weight Capacity	kg (lbs)	1000 (2200)	
Maximum Drawbar	Nm (lbf) ¹	43 (95) sustained, 94 (208) instantaneous	
Speed	Maximum	m/s (mph)	Forward: 0.83 (1.85), Reverse: 0.7 (1.54)
	Minimum	m/s (mph)	0.1 (0.22) ¹
Electrical System		24-volt	
Battery & Charging Information		28 amp/hour AGM	
		Standard: Automatic battery charging contacts	
		Automatic power off	
Guidance Method		Natural features via 2D LIDAR	
Travel Instruction Method		Feature map with virtual path planning & devices	
Drive Type		DC brushless motors with dedicated drives	
Steering Method		Tricycle with differential traction wheels	
Braking Method		Electromagnetic	
Cart Engagement Method	mm (in)	30 (1.18) dia. retractable pin	
Coupling Sensor		Photo-reflective sensor to lower pin	
Drive Unit Up/Down Method		Electric lift (toggle switch)	
Wireless Communications		WIFI - 2.4 & 5.0 GHz	
Human-Machine Interface (HMI)		Configuration interface & status display	
Safety Devices	Optical Sensor	CAT 3 safety rated 4 meter distance measuring LIDAR	
	Status Light	Color to indicate AV state	
	Chime & Melody Box	Multi-tune music box: running & fault chime	
	Safety Controller	Safety PLC	
	Circuit Protection	Resettable breakers for: main, drive motors, pin & drive lift	
Minimum turning radius	cm	4; minimum pivots on two rear fixed casters ¹	
Dimensions	Overall AGV Length	mm	1996
	Overall AGV Width	mm	370
	Overall AGV Height	mm	180
Gross Vehicle Weight (without battery)	kg (lbs)	157 (346)	
Floor Conditions	Slope	%	3 or less ²
	Step (ridge)	mm	5 or less ²
	Gap (crack)	mm	20 or less ²
	Waviness	mm	10 or less over the length of the AGV ²
Working Environment	Temperature	C° (F°)	0 - 40 (32 - 104)
	Humidity	%	35 - 85 RH (no condensation)
	Outdoor Use	Prohibited	
Optional Accessories		Automatic battery charging station (includes 2-contact floor plate, 110V / 40 amp battery charger & 10 ft. wire lead for floor plate)	
		12 pin breakaway connector for remote I/O	

¹ Preliminary data

² M10 Tug AV only, does not account for cart