AMERDEN INC.

AUTOMATIC **G**UIDED **V**EHICLE **S**YSTEMS

AGV Model FLA 1000-5000

FLA Automatic Guided Vehicle

- 15 years guaranteed hardware/software support
- Automatic load pickup & delivery
- Load Capacity 1000 - 5000 lbs.
- Compact dimensions requiring little floor space
- Variable dimensions to accommodate load size
- Ruggedly designed for demanding conditions
- Laser or wire guidance & free ranging capabilities
- Designed for reliability & ease of maintenance through technical simplicity
- On board AGV microprocessor with long term guarantee and user-friendly software
- Display panel with a clear text display of errors and commands in plain English
- Simplified diagnostics and troubleshooting via keypad and display panel

MECHANICAL

The vehicle chassis is built on a massive steel plate at the base of the vehicle frame. A low center of gravity makes the machine very stable at high speed and in turns. The frame and the upright are a one-piece assembly with no more than ten integrated parts that are welded together. The basic design allows modification to suit your specific AGV system application.

DRIVE AND LIFT

The combination drive/steer wheel is located under the battery in the front. It is an integrated unit with a drive motor, a steer motor, potentiometer, encoder, and a fail-safe brake. The lift unit is a ball screw driven by an electric motor with a fail-safe brake. An encoder measures the movements of the lift very accurately at +/- 1 mm. The vehicle has three long-wearing wheels with the drive/steering wheel and the rear wheels located a short distance from each other. This gives excellent turning and reverse travel capabilities. There is no hydraulic system on the standard version of this vehicle.

CONTROLS

The controls are state of the art, yet field proven in hundreds of AGVs worldwide. The controls are designed specifically for an AGV and have a 15 year hardware and software support guarantee. Wire or laser guidance in combination with an encoder to measure the travel distance translates into a reliable, easy to use and install guidance system. The AGV can be dispatched via direct input on it's onboard keypad or be remotely controlled by a PC with AGV control software for dispatch and traffic control. The control system uses WiFi, 802.11 (b) or, if desired, wireless spread spectrum to communicate between the vehicles and the PC, and can handle the most complex systems with multiple AGVs. The AGV can also be operated in semi-automatic via keypad entry or manually via a hand held control pendant.

SAFETY

The AGV has front and rear bumpers, and optional sensors can be added to the sides of the vehicle to totally encompass the AGV and the load when required. A laser scanner in the front or rear is a viable and popular safety option. The AGV has three emergency stop buttons, two warning lights and an electronic beeper for personnel safety.

POWER/ELECTRICAL SYSTEM

A 48 volt battery with a capacity up to 420 Ah powers the vehicle. The AGV can operate between 16-24 hours before the battery has to be exchanged or charged. The battery sits on rollers for an easy exchange. The AGV can also be equipped for opportunity or automatic charging with a collector located overhead, on the side, or underneath the vehicle. This will require smaller, lower weight, batteries, which is a saving. All electric motors are 48 VDC, controls 24, +/- 12, and 5 VDC. Each motor has a 4 quad servo controller for effective, smooth, and reliable operation.

SYSTEM SOFTWARE

The vehicle offboard control system used for multi vehicle and advanced systems is De'Carte™ which is based on Windows 2000 or XP and MS Visual Studio.net object oriented software development techniques. It utilizes ODBC (Open DataBase Connectivity) for easy integration and compatibility and supports virtually any database including MS Access, SQL server and Oracle. A system can be run from a stand alone PC or be interfaced with a host computer system with ERP or WMS.

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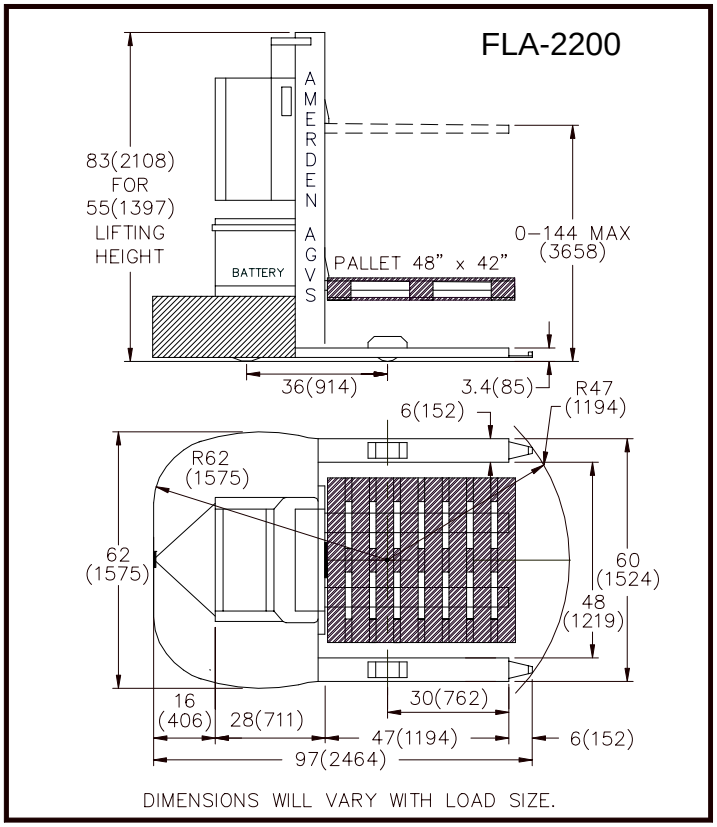
FLA 1000 - 5000 AGV MODEL

Width	Depends on load configuration.min.43″/1100mm.
Length	Depends on load configuration. Normal 92”/2340mm.
Front Turning Radius	Due to the location of the rear wheel it is kept to a minimum. Normal 50”/1270mm.
Rear Turning Radius	Depends on the load configuration.
Wheel Base	Depends on load transfer configuration. Min. 30”/760mm.
Lift Height	From 8”/200mm to 300”/7620mm, as per specification. The vehicle is prepared for a multistage mast.
Total Height	83”/2100mm will vary with lift height.
Bumper Stroke	15”/375mm
Fork Length	49”/1250mm. Built to load specification.



Due to simple and flexible design concepts several other dimensions may also be changed.

Drive Unit	Electrical integrated motor-in-wheel drive.	**Guidance and Travel**	Laser or wire, forward, reverse, rotate and free ranging capabilities.
Steer Unit	Electrical integrated with drive unit.	**Travel Speed**	Forward: 200ft./min., 1 m/sec Reverse: 100ft./min., 0.5 m/sec
Drive Brake	Electro magnetic, with drive unit.	**Weight**	2200 lbs. / 1000 kg. without battery.
Battery	48 Volt DC wet lead acid or Gel, up to 420 Ah.	**Controls**	Automatic, wire guided and off wire. Manual, hand held controller. Display panel.
Lift Unit	Electrical motor, ball screw and gearbox.	**Paint**	According to customer specification
Lift Speed	10”/sec., 75mm/sec.	**Lift Capacity**	1000-5000 lbs. depending on model selected
Adjustable forks, Clamp or rollerdeck	Electrically operated, optional	**Charging**	Battery exchange with rollers or opportunity charging
Wheels	Drive Wheel 10.6”/270mm Dia. Rear Wheels 11.9”/300mm Dia. Single or Dual 3.3”/80mm Dia. (Larger Wheels optional)	**Safety Functions**	Flashing Warning Lights, Beeper Emergency Stop Pushbuttons Front / Rear or optional Side Bumpers Fork Tip and deep Stacking Sensors Fork Bumpers PLS Safety Laser Scanner

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