DAIFUKU

Case Study

Automatic Guided Vehicle Systems

General Motors

The Perfect Marriage... AGVs and Automotive Assembly Operations

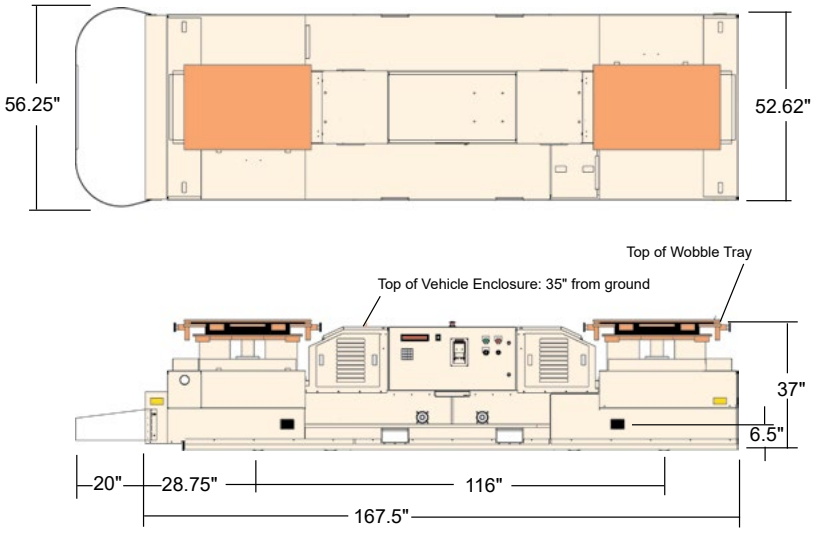
On-board assembly AGVs streamline chassis assembly and chassis-to-body assembly.

Daifuku's on-board assembly AGVs are the new standard for streamlining chassis assembly and chassis-to-body marriage operations. Current applications support complete sub-assembly build up as well as brake fill and test operations prior to chassis/body marriage. The system includes over 130 vehicles.

A rugged design provides a flexible platform for guidepath system changes and model year changeover plans.

Smart Handling
AGV Solutions

Assembly/Marriage Vehicle



Vehicle Specifications

Load capacity (including tool trays) .....4,500 lb

Gross vehicle weight w/battery, lifts and tool trays .....8,000 lb

Speed control (infinitely adjustable)Max 180 FPM

Stopping accuracy (vehicle fleet)..... +/- 1.0"

Ground clearance .....Min. 0.5"

Based on base AGV design utilizing the Fori Model 850A lift or equal.

Performance data given is based upon specific applications and may vary with individual applications. Consult factory for additional / alternative specifications.

Standard Features

- Rugged steel frame and all steel skin construction.
- Modular design provides easy access to all components to simplify maintenance procedures.
- Two 48 VDC power packs including four maintenance-free batteries.
- Automatic battery charging via floor mounted contacts and off-board 48VDC charger.
- Slide out stainless steel battery compartment for quick battery exchange.
- Overhead chassis/body marriage speed synchronization via patented optic device.
- Allen-Bradley push-button controls and operator lights.
- Two Operator interface lift control boxes mounted on tool trays
- Synchronized hydraulic flow for front/rear lifts without lift height monitoring devices.

Guidance

- Inertial (non-wire) guidance package is standard.
- In-floor wire guidance package (option).

Communications

- Continuous high speed bidirectional radio communications with the Vehicle System Manager.

Low Power Sleep Mode (Option)

- Automatically enters and recovers from power saving state to conserve battery power during extended idle periods.

On-Board Microcomputer

- The Vehicle Control Computer (VCC-2) is equipped with a 32 character display and over 270 diagnostic aids.
- Featuring the most advanced diagnostics available, and full word text based display messages - no cryptic codes.

Manual Vehicle Control

- Hand held pendant controller features manual enable steering, mode, and forward/reverse selector switches.
- Lifts are manually controlled using tool tray mounted pushbutton boxes.

Speed Control

- Infinitely adjustable speed control for smooth automatic starts and stops.

Drive Brake

- Fail-safe, spring set, electrically released operation.

Emergency Features

- Continuous monitoring of guidance, speed, and all emergency devices.
- Patented fail-safe optic bumper is standard.
- Front bumper covers entire width of vehicle and is designed to stop the vehicle within bumper collapse distance.
- Flashing amber warning lights and travel horn.
- Manual reset emergency stop push-buttons.
- Redundant computer control of brake, drives, and all moving assemblies.

Vehicle Options Priced Separately

- Laser bumper-front/rear
- Side optics
- Platform optics
- Lift height monitoring devices or synchronized front/rear lift controls (closed loop)
- Super kit roller deck on front of AGV
- Other custom features to meet application requirements

Lift and Tooling Package Priced Separately

- Two Fori lifts P/N 850-A or equal
- Lift accumulator tanks and lift valves
- Wobble plates, tooling plates, cheese plates, and tooling details
- Overhead synchronization targets and overhead carrier details

Typical System Options Priced Separately

- Guidepath and in-floor SmartMark™ codes
- Vehicle System Manager computer controls, system design, engineering, and commissioning.

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