Automatic Guided Vehicle Systems (AGVS)

Towing Vehicles
**Dual rear drive wheels and a heavy duty frame make the DT-60 with 30,000 lbs of towing capacity ideal for the industrial environment.**

**AGVS Benefits**
- Deliver and move loads upon demand
- Zone containment of manual fork lift trucks
- Improved response time
- Safe vehicle movement
- Elimination of “conveyor walls”
- Adaptable to manual backup
- Re-usable asset
- Reduced product damage
- Better housekeeping
- Better discipline
- Improved logistics
- Electronic tracking of material
- Efficient scheduling
- Reduced aisle traffic
- Adaptable to future changes
- Reduction in workforce
- Flexible routing

**Specifications**

**Mechanical:**
- **DT-24**
  - Towing Capacity: 12,000 lbs*
  - Drawbar: 240 lbs**
  - Ramp: Yes, consult factory for details
  - Drive Configuration: Single front wheel drive
  - Drive Motors: 2.5 HP
  - Turning Radius: 8’ min.
  - Battery Compartment: 32”L x 13.5”W x 31”H
  - Manual Operation: Operator onboard compartment
  - Approximate Weight: 1,500 lbs w/o battery
  - Speed: 2.3 mph (200 fpm) Automatic, 6.0 mph (525 fpm) Manual
  - Front Wheels: 10” diameter x 4” wide
  - Rear Wheels: 7” diameter x 4” wide
  - Coupler: Jaw, ball, or towing eye
  - Frame: 3/8” steel plate

- **DT-40/60/100**
  - Towing Capacity: 20,000/30,000/50,000 lbs*
  - Drawbar: 400/600/1,000 lbs**
  - Ramp: Yes, consult factory for details
  - Drive Configuration: Dual rear wheel drive
  - Drive Motors: 3 HP/4 HP/5 HP
  - Turning Radius: 8’ min.
  - Battery Compartment: 30”L x 39”W x 23”H (DT-40/60), 30”L x 39”W x 35”H (DT-100)
  - Manual Operation: Operator onboard compartment
  - Approximate Weight: 3,000 lbs w/o battery
  - Speed: 2.3 mph (200 fpm) Automatic, 4.0 mph (350 fpm) Manual
  - Front Wheels: 10” diameter x 3” wide
  - Rear Wheels: 18” diameter x 6” wide
  - Coupler: Jaw, ball, or towing eye
  - Frame: 3/8” steel plate, 1/2” steel plate, 3” x 4” steel tube

* Towing capacity on level with 2% coefficient of friction tires
** Based on standard dry concrete with brushed or equivalent surface

**Battery:**
- **DT-24**
  - Battery AH: 570AH
  - Voltage: 24 V
  - Weight: 2,000 lbs
  - Cycle: 8 hrs minimum*

- **DT-40/60/100**
  - Battery AH: 700AH/1100AH
  - Voltage: 48 V
  - Weight: 3,000/4300 lbs
  - Cycle: 8 hrs minimum*

* Assumes standard duty cycle (consult factory for specifics)

**Control:**
- Controller: Onboard computer
- Speed Control: Solid state
- Display Method: English words and abbreviations
- Display Hardware: 2 line by 40 character vacuum fluorescent
- Operational Modes: Onboard dispatch, recirculate, remote dispatch, diagnostic
- Diagnostic Software: Comprehensive diagnostic mode for maintenance and troubleshooting
- Routing/Traffic Control: Onboard logic
- Communications: 2-way continuous RF
- Low Battery Control: Automatic return to battery change/charge stop
- Control Enclosures: Water resistant

**Note:** Manufacturer reserves the right to modify specifications.

**Versatile**

Dependable

The DT-60 Tow AGV transports up to 12 pallets per trip in this distribution center.

**Towing Vehicles**

From left to right: DT-24, Compact Tow AGV; DT-40/60, Tow AGV; DT-100, Heavy Duty Tow AGV.
The Company Behind the Leading AGV Product Line

Inventors of AGV Technology

The history of Rapistan Systems AGV product group dates back to 1953 with the introduction of the world’s first automatic guided vehicle. Since then, our aggressive engineering has produced a series of breakthroughs, such as the first solid state controls (1962), the first microprocessor controls (1978), and the first autonomous guidance system - Virtual Path Guidance (1994).

Controlled Manufacturing

Rapistan Systems is one of the world’s leading AGV system companies; able to retain total control of our own technology. From onboard controls to vehicle frames, Rapistan Systems designs and manufactures critical components in its own vertically integrated plant.

Vehicle Features

Fully automated operation includes:
- Real-time continuous communications
- Onboard path routing logic
- Onboard traffic control logic (for multi-vehicle systems)
- Automatic return to battery change station area upon sensing low battery

Each USA manufactured Tow AGV has:
- Water resistant control enclosures
- Drive motor, transmission, and drive wheel as a unified module, requiring fewer parts and easy preventative maintenance
- Easy maintenance wire labeling
- Fork pockets that eliminate underframe sensor damage by fork lift pick up (DT 40/60/100)

Efficient

DT-24 Tow AGV transports up to 6 pallets per trip on trailers equipped with roller conveyors that assist with load transfer.

Automatic Load Transfer

Tow AGV accurately stops at drop off location and aligns trailers for automatic unloading.

Accessibility in Service and Parts

Rapistan Systems offers a variety of maintenance, training, and service programs that will protect the investment you have made. A 24-hour 800 number puts you in touch with parts, service, and engineering resources 7 days a week.

Automatic or manual usage:
- Simply select mode with keyswitch; vehicle can be removed or re-entered anywhere along path

Operator manually drives AGV off path for special operation.

Easy-to-service controls compartment allowing operator to stand up to service vehicle electronics.
System Controls

Smart AGV technology:

Rapistan Systems’ smart AGV technology provides decentralized system intelligence controls where they are most useful - onboard the AGV.

AGVs can communicate with each other and with an optional Vehicle Manager PC anywhere in the system by means of a RF (Radio Frequency) CSM (Constant System Monitor) Communications Multiplexor.

The RF CSM re-transmits the location and status from each AGV to all other AGVs operating in the system. An optional Rapistan Systems Vehicle Manager PC is utilized when AGVs need to be scheduled by remote input.

A Vehicle Manager system can gather data from remote I/O devices and schedule all AGV assignments, utilizing an optimizing “look for work” strategy.

The RF CSM can also be networked with a Windows® format AGView color graphics system monitor.

Vehicle Controls

User friendly operator interface:

Rapistan Systems AGVs are equipped with a user friendly, touch sensitive onboard display panel with sealed keys.

Control display panel features include:

- Easy to read, durable, 40 character by 2 line display
- Status, prompts, and error messages displayed in English
- Operator prompts for input (decreasing operator interface time)
- Display of vehicle’s current status, i.e., on path, off path, low battery, etc.
- Over 100 English text display messages
- Invalid entry notification which reduces input errors
- Easy to customize for special applications

Options:

- Virtual path guidance
- Object detection
- Automatic charging
- Automatic uncoupler
- Automatic trailer loading/unloading
- Remote start
- Vehicle Manager AGV call system
- Outdoor capability
- Turn signals
- AGView system monitor and performance recorder
- joystick steering
- Wide load protection

Simulation Optimizes AGV System Design

Rapistan Systems engineers bring to computer simulation a wealth of knowledge and experience in how AGV systems and controls operate. The resulting benefit is design experimentation where system performance can be optimized before system implementation.
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Automatic Load Transfer
Tow AGV accurately stops at drop-off location and aligns trailers for automatic unloading.

Load Extractor
A load extractor transfers a pallet from an AGV trailer onto drop-off conveyor.

Automatic or manual usage:
- Simply select mode with keyswitch; vehicle can be removed or re-entered anywhere along path
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**Versatile**

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  - Drive Configuration: Dual rear wheel drive
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