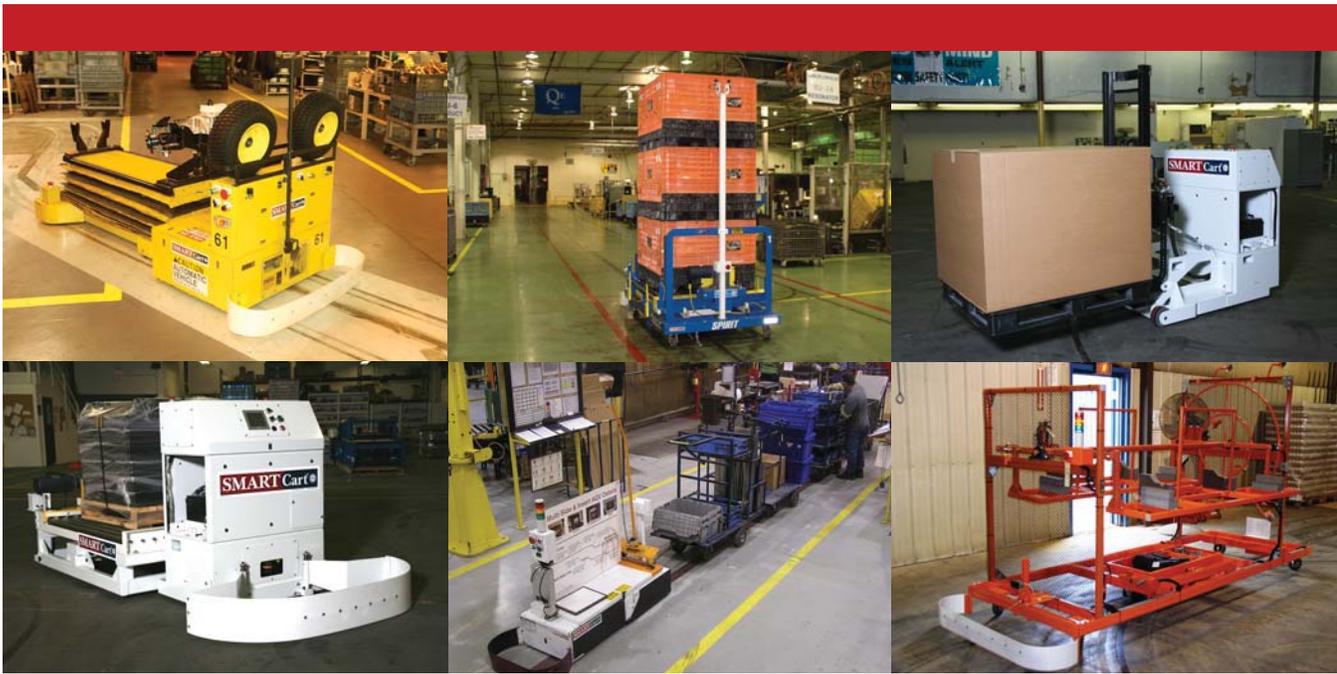




**Flexible & Cost-Effective
Automatic Guided Carts**



A Smart Move with Fast Payback

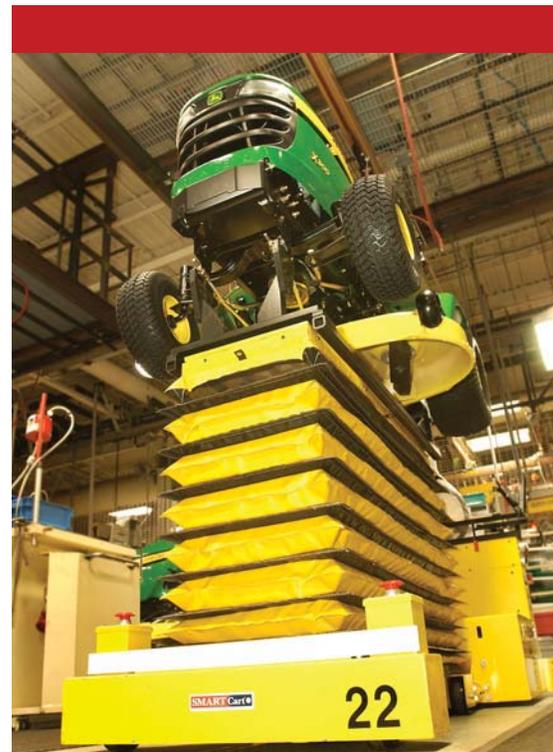
The SmartCart® Automatic Guided Cart (AGC™) is a flexible and cost-effective material handling solution from Jervis B. Webb Company. It is ideal for moving products on an assembly line or transporting goods throughout a plant or warehouse. Because it's automatic and durable, SmartCart provides reliable and consistent point-to-point movement of everything from small parts to heavy pallets.

What makes SmartCart AGCs so flexible and cost-effective?

SmartCart AGCs are guided by magnetic tape, which allows you to quickly install or modify the guidepath in as little as a few hours. In addition, SmartCart has numerous load handling options to meet your specific needs. Over time, the load handling carrier can be replaced to accommodate different products, protecting your initial investment.

Furthermore, SmartCart is much cleaner and quieter than traditional conveyors. With a SmartCart AGC system, you have the ability to add SmartCarts if you need to increase capacity or remove them if you want to reduce capacity.

Best of all, the affordability and flexibility of SmartCart allows you to reap immediate benefits by delivering a fast and impressive payback in as little as three months.



Increase Productivity, while Reducing Costs

A prime area for cost savings in manufacturing plants is through in-process inventory reduction. Simply by adding or removing SmartCart AGCs from the line, assembly production rates can be increased or decreased on demand. This is a substantial benefit over conventional conveyor methods, which require the assembly line to be designed and installed up front for the maximum potential production rate. And, because of their flexibility, SmartCart AGCs are an excellent choice for companies adhering to continuous improvement initiatives.

To fully automate a warehouse, SmartCart AGCs can be integrated with our Automatic Trailer Loading vehicle, SmartLoader[®], and/or an Automated Storage and Retrieval System (AS/RS). This adds reliability, dependability and predictability to day-to-day processes. SmartCart AGCs can also dramatically improve warehouse and plant safety.

The Old Way



The SmartCart Way



SmartCart AGC Strengths **VS.** Conventional Conveyor Systems

- Scalable Material Handling: SmartCart allows you to increase throughput by simply adding AGCs.
- Easy Installation: SmartCarts can be installed in as little as a few hours; conveyor system installations can take weeks or months to complete.
- Easy Modification: Changes to the SmartCart AGC guidepath can be made in as little as a few hours, while conveyor system modifications can be very costly and take weeks or months to complete.
- No building modifications are required with SmartCarts.

SmartCart AGC Strengths **VS.** Manual Transport

- Reducing Costs: In cases where transportation of products is repetitive, SmartCart AGCs can dramatically reduce operational expenses such as labor, benefits and lost time.
- Continuous Operation: In most applications, SmartCarts operate two shifts a day without charging. Opportunity charging allows SmartCart systems to operate 24/7.
- Improved Safety/Damage Reduction: SmartCart AGCs remain on a designated path at a predictable speed and use a safety bumper, reducing the likelihood of injury or damage.

Endless Industries, Applications & Customers

SmartCart® AGCs are improving productivity in almost every industry including automotive, agricultural equipment, furniture, healthcare, food and beverage, as well as in numerous warehouses and distribution centers.

SmartCart AGC customers include:

Chrysler



General Motors



Johnson Controls



Harley-Davidson



Ethan Allen



John Deere



Hearth & Home



Nissan



Types of applications for SmartCart AGCs include:

Assembly

moving products through
production processes

Kitting

collecting parts
for assembly

Transportation

loading pallets
and loose parts

Staging

delivering pallets for
production processes

Warehousing

moving products from
stretch wrappers to
docks or storage

Order Picking

moving ordered products
to trailer-loading area for
distribution

Parts/Just-In-Time (JIT) Delivery

towing trailers of parts/
materials to consumption
points

Here's What Customers & Industry Experts are Saying about SmartCart AGCs

“The advantage of being able to just pick up the magnetic tape and change the layout in a matter of minutes allows us to change an entire line over a weekend. When you look at the bang for the buck, you can't beat these SmartCarts.”

Dave Werkheiser | Manufacturing Engineer | John Deere



“SmartCart is an excellent example of standardizing the (automatic guided vehicles) and employing new technology to make them more cost-effective.”

Richard E. Ward | Executive Vice President
Material Handling Industry of America*



“The SmartCarts are safe, simple and easy to set up. They have a lot of potential for almost every industry, and they're relatively inexpensive.”

Nidamaluri Nagesh | Advanced Manufacturing Engineer | General Motors*

“With the carts, all we have to do is prep the floor and put down some magnetic tape to reconfigure the path. We can do that over a weekend or a holiday shut down.”

Larry MacAdam | Materials Industrial Engineer | CAMI

* "Automatic Cart Makes it Easier to Handle Parts" *The Detroit News*, January 11, 2005

Intuitive Navigation

Webb's SmartCart® AGC provides multiple navigation options to meet the specific needs of your environment. The most widely used option is magnetic tape, which is installed by merely cleaning the floor and applying the tape. Transponder tags can be placed on the floor to indicate locations where SmartCarts are to perform assigned tasks. Various tasks such as stopping, increasing/decreasing speed, lifting and lowering can be performed at different locations. To modify the guidepath, you can simply pull up the magnetic tape and reapply it in another location (along with any transponder tags).

In high-traffic areas where magnetic tape could be damaged, a bar magnet strip can be embedded into the floor in place of the magnetic tape. Another alternative, Webb's new SmartSteer™ technology allows you to program a SmartCart AGC to intentionally leave the navigation path and perform functions such as:

- crossing an aisle
- completing a three-point turn
- reversing direction
- returning to the guidepath.

Best of all, SmartSteer functionality is now standard on most SmartCart AGC models.

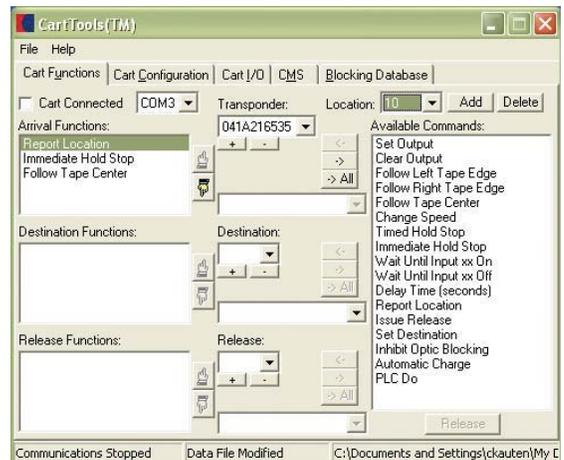


Simple Configuration

Setting up your SmartCart AGC system is simple with CartTools®, Webb's easy-to-use software configuration tool. CartTools lets you specify the tasks you want a SmartCart AGC to perform at various locations in your system. These functions include stopping, changing speed, triggering outputs, checking inputs, lifting, lowering and diverging from the guideway.

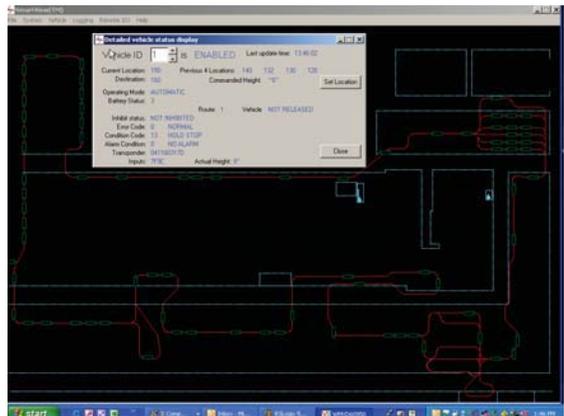
Real-Time Traffic Control

For real-time control and monitoring of multiple SmartCart AGCs within a system, you have the option to add Cart Management System (CMS) software. The CMS uses a wireless Ethernet LAN (802.11a/b/g) connection to collect data from all SmartCart AGCs in the system. The CMS also interfaces with upper level PLC systems or TCP/IP software for destination and routing logic. Additionally, the CMS provides status reporting and special functions, including the option to integrate with Warehouse Management Systems.



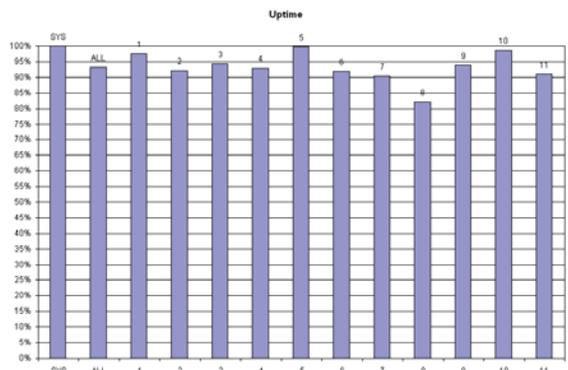
User-Friendly Interface

With the CMS, you can load a bitmap (.BMP) image of your entire SmartCart AGC system into Smart-View™, a standard program that allows you to add new SmartCart locations anywhere on the bitmap. As a result, you can easily visualize changes to the guideway before making them.



Effective Data Collection

SmartCart AGC systems that utilize a CMS come with a standard feature that constantly collects and retains system data via .CSV (Comma Separated Values) files. The .CSV files can be imported into a Microsoft Excel® spreadsheet that is pre-equipped with macros that allow you to examine the system for trends that might indicate service is needed on the guideway or SmartCarts.



Designed for the Way You Do Business

Webb offers numerous SmartCart® AGC models and options, allowing you to find the SmartCart that best fits your needs.



Model 50

This SmartCart AGC features a modular design that's perfect for today's lean manufacturing environments. With the ability to be configured with clamp-together tubing, this flexible AGC offers lightweight material handling with heavy-duty savings. Overall, this rugged little cart is ideal for transporting parts, picking orders or moving trailers up to 500 pounds. The Model 50 also gives you the unique option for a bolt-on rack to carry live loads up to 350 pounds.

Model 100

This SmartCart AGC offers configurations for towing and assembly uses. For assembly platforms, all the primary components (drive, controls, batteries and tag reader) are housed in one place, isolating the outer frame from the drive module via Webb's patented Attachmate™. This attachment method allows you to use a custom load handling carrier that is supported with swivel casters, making it very stable in narrow widths. Depending on the type of carrier, Model 100 assembly carts can handle live loads up to 1,700 pounds.

For towing purposes, the standard Model 100 Tugger is capable of towing up to 2,000 pounds (based on a trailer friction factor of 2% at low duty cycles), making it particularly handy for parts delivery, parts kitting, order picking and pallet delivery applications.

Model 200

This SmartCart AGC also offers configurations for towing and assembly uses. However, the Model 200 uses a larger drive unit and battery pack than the Model 100. Depending on the type of carrier, Model 200 assembly carts can handle live loads up to 3,600 pounds. Carrier options include a scissor lift, which can lift and lower products to improve ergonomics for assembly operations.

The standard Model 200 Tugger is capable of towing up to 4,000 pounds (based on a trailer friction factor of 2% at almost any duty cycle), making it a good choice for parts delivery, kitting, order picking and pallet delivery applications.



Model 300

This heavyweight SmartCart AGC offers numerous options to meet your specific needs. The standard Model 300 Tugger has a 6,000 pound towing capacity (based on a trailer friction factor of 2%).

The Model 300 also includes options for a Single or Dual Roller Conveyor, which is useful for delivering pallets (as large as 48") to and from roller conveyor systems. The Model 300 Single Conveyor AGC can transport a load up to 3,200 pounds, while the Model 300 Dual Conveyor AGC can transport two 2,500 pound loads at a time.

Conversely, the Model 300 Counterbalanced Fork AGC features a 1,500 pound load capacity, which is perfect for picking up and dropping off pallets (as large as 48") from conveyors, stretch wrappers or the floor.

Additionally, the Model 300 can be customized with load handling carriers for assembly operations.

Standard Model 300 features and options include:

- CartTools[®] software for SmartCart configuration
- Magnetic tape or bar magnet guidepath
- SmartSteer[™] technology
- Transponder location sensing
- Precision stopping proximity sensor
- Four selectable speeds from 15 to 160 feet per minute
- Automatic restart front bumper
- Laser bumper
- Pendant control
- Color HMI display
- Opportunity charging
- Fast charging
- Battery level monitoring
- Stopping - with pushbutton release, timed release or remote release
- Automatic load transfer controls

SmartCart® AGC Model Specifications

Specifications	Model 50	Model 100	Model 200	Model 300	Model 300 Single Conveyor	Model 300 Dual Conveyor	Model 300 Counter-Balanced Fork
Live load capacity ¹	350 lbs	1,700 lbs	3,600 lbs	5,500 lbs	3,200 lbs	2,500 lbs + 2,500 lbs	1,500 lbs
Towing capacity ²	500 lbs	2,000 lbs	4,000 lbs	6,000 lbs	N/A	N/A	N/A
Max travel speed	120 fpm	120 fpm	120 fpm	160 fpm	160 fpm	160 fpm	160 fpm
Transfer speed	N/A	N/A	N/A	N/A	Up to 45 fpm	Up to 45 fpm	20 fpm
Transfer height	N/A	N/A	N/A	N/A	18" to 31" top of rail	18" to 31" top of rail	48" top of fork
Stopping accuracy ³	+/- 1 1/2"	+/- 1/2"	+/- 1/2"	+/- 1/2"	+/- 1/2"	+/- 1/2"	+/- 1/2"

All SmartCart AGCs have 24 VDC drive motors and battery packs.

In addition to AGCs, Webb offers a wide variety of Automatic Guided Vehicles (AGVs) that can handle loads up to 250,000 pounds. Our wide selection enables us to provide you with the most cost-effective and efficient solution that meets your needs. Webb was also the first to develop an Automatic Trailer Loading vehicle, SmartLoader®, which loads trailers and stacks pallets automatically with no trailer modifications needed. For more information on our AGVs and/or SmartLoader, contact a Webb sales engineer.

¹ On Model 50, 100 and 200 live-load capacity is directly affected by size and weight of material handling structure or automation. All stated capacities are based on a maximum of 50% duty cycle. For higher duty cycles, consult a Webb sales engineer.

² All stated capacities are based on 50% duty cycle. For higher duty cycles, consult a Webb sales engineer.

³ Best stopping accuracy is achieved by stopping on a proximity sensor from 30 FPM or less, with closed loop speed control. Model 50 is not equipped with closed loop speed control.

SmartCart AGC

Advantages:

- Affordability with a fast payback
- Flexibility with numerous models and options to meet your specific needs
- Magnetic tape navigation
- No building modifications required
- Easy to install
- Easy to configure
- Easy to modify





Established in 1919, Jervis B. Webb Company specializes in the design, engineering, installation and support of innovative material handling systems used in the automotive, airport, beverage, warehousing and manufacturing industries. As a subsidiary of Daifuku Co., Ltd., we form one of the largest automated material handling companies in the world, providing the widest range of solutions in the industry for companies around the globe.

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