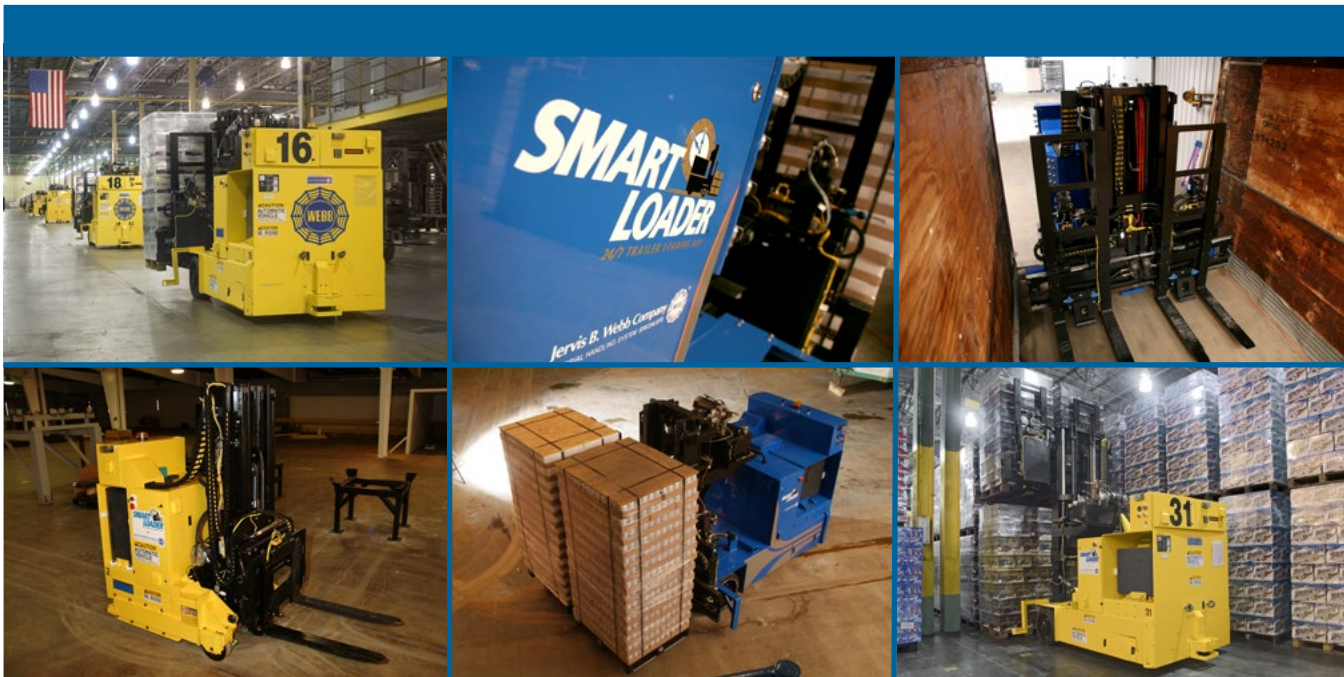


Smart Handling AGV Solutions

Automatic Trailer Loading / Unloading, Picking and Stacking

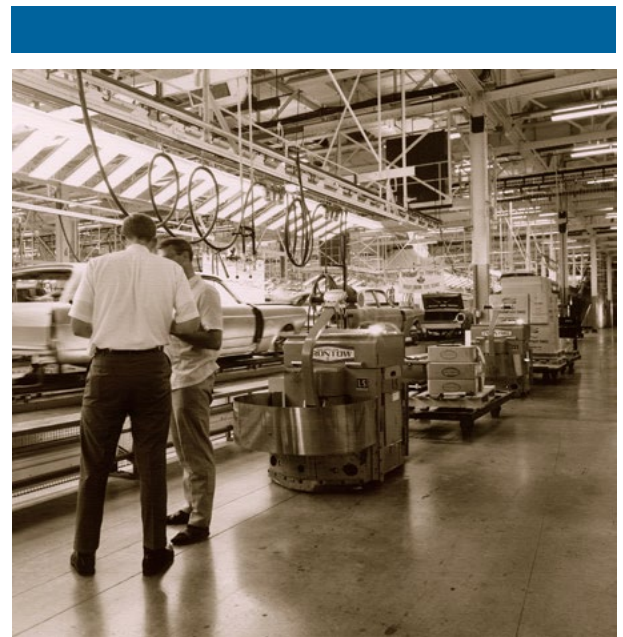


DAIFUKU

Innovation that stands the test of time

Since 1919, Daifuku Airport America, formerly Jervis B. Webb Company, has been at the forefront of the material handling industry. We have been providing Automatic Guided Vehicles (AGVs) since 1961 and we were the first to introduce automatic trailer loading and unloading vehicles to the marketplace.

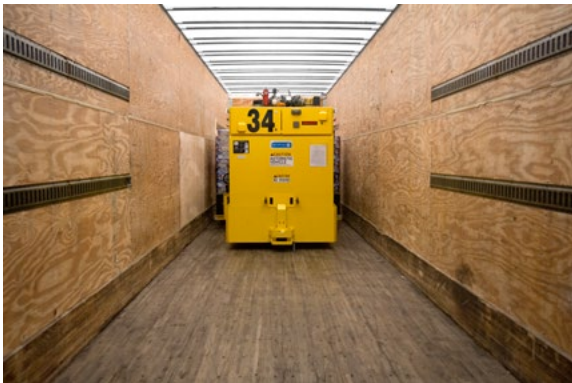
Today, our innovative material handling solutions help plants and warehouses all across the globe increase productivity and reduce costs. As a wholly-owned subsidiary of Daifuku Co., Ltd., we form one of the largest material handling companies in the world, providing the widest range of solutions in the industry.



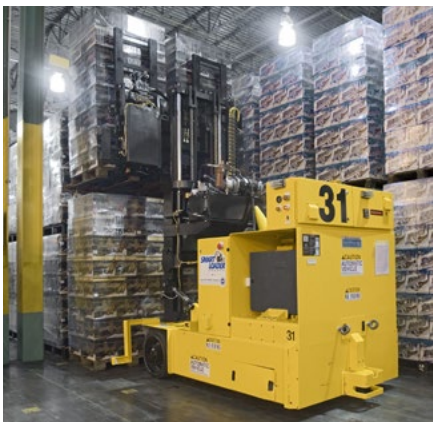
SmartLoader can do it all

Designed to handle all types of shipping and receiving applications in your plant or warehouse, SmartLoader® Automatic Storing/Retrieving Vehicle (AS/RV) moves loads from a palletizer to any conventional over-the-road trailer, staging area or storage area – unmanned, 24/7. If trailer unloading is your objective, SmartLoader also has the ability to remove loads from a trailer and deliver them anywhere in your facility. Best of all, SmartLoader is equipped with LADAR® scanning technology, which dynamically adapts to each trailer so you don't have to worry about making trailer modifications.

There's more good news. SmartLoader is not just a trailer loading and unloading vehicle. It can pick up palletized loads from the floor or stacked positions and stack them with pinpoint accuracy anywhere you need. The flexible SmartLoader delivers and retrieves single or double loads and is available in three different models to accommodate load weights up to 7,000 pounds. SmartLoader can also come equipped with various attachments to move different types of loads such as slip sheets.



Optimize productivity with an industry leader



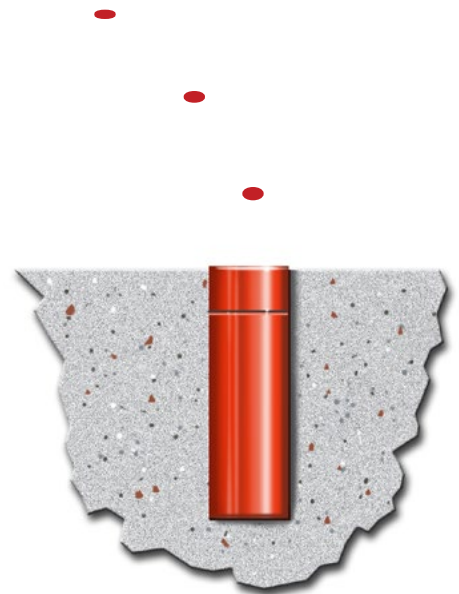
We have the largest fleet of AS/RVs in the world. Each year, SmartLoader loads over 315,000 trailers and moves over 11 million loads.

Industries from food and beverage to durable goods can reduce labor, operational costs and product damage while optimizing productivity and inventory control. Continuous flow and just-in-time delivery mandates become much easier to achieve with predictable, around-the-clock trailer loading/unloading. Also, SmartLoader is ideal for moving loads in hazardous environments where workers could be at risk.

Navigation

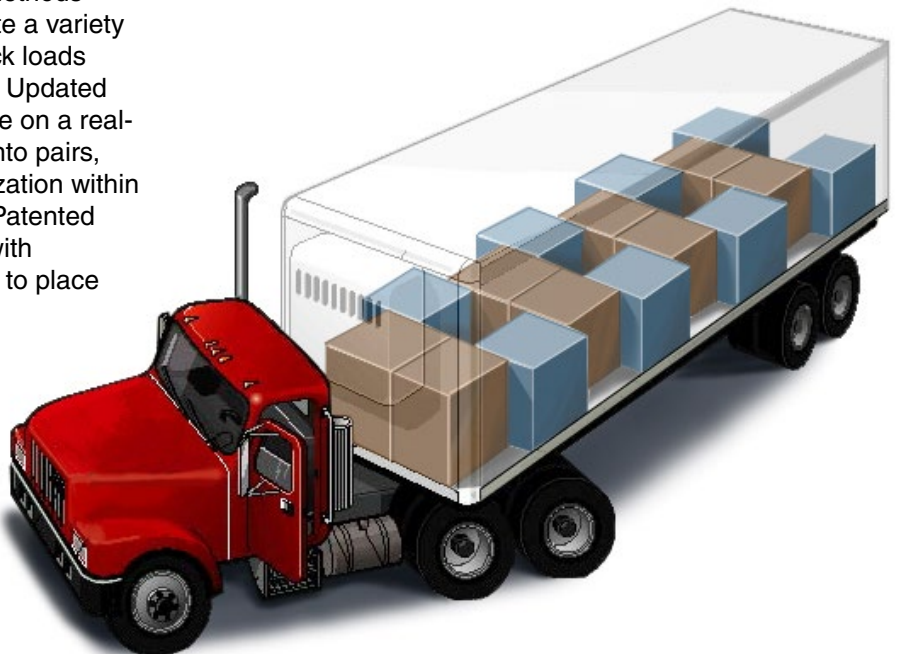
SmartLoader is available with either an inertial or laser guidance system that is coupled with LADAR scanning technology to provide accurate load stacking and trailer loading / unloading. SmartLoader's inertial guidance system is similar to the technology found in military guided missiles. This technology uses a solid state gyro to accurately maintain the intended path and speed and to perform required tasks. Transponders or SmartMark® tags, which are embedded in the floor, are sensed by the vehicle to confirm its specific location. Inertial guidance technology can be used in nearly any environment, including tight aisles and extreme temperatures.

SmartLoader's laser guidance system uses a laser scanner that measures angles and distances to reflectors that are mounted to walls and machines.



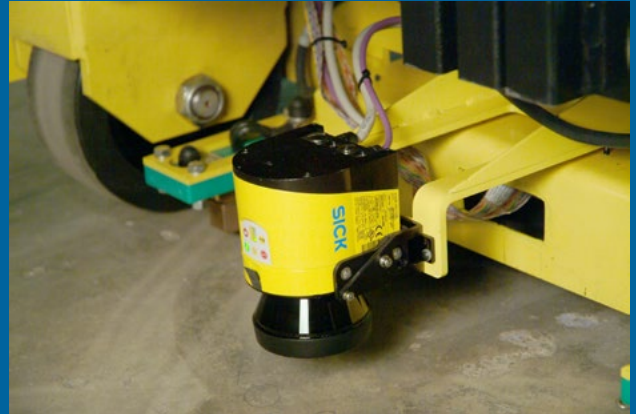
Trailer load patterns

SmartLoader can use cube out or weigh out methods when loading a trailer. It can also accommodate a variety of load patterns, such as pinwheeling, and pack loads tightly to limit movement during transportation. Updated load configurations are broadcast to the vehicle on a real-time basis. Single loads can be consolidated into pairs, while patterns can be optimized for space utilization within the trailer, at the staging area or on the dock. Patented LADAR scanning technology, in combination with patented articulating forks, allow SmartLoader to place loads at the end of the trailer. The end result is trailers are completely loaded with accurate load patterns and less product damage.



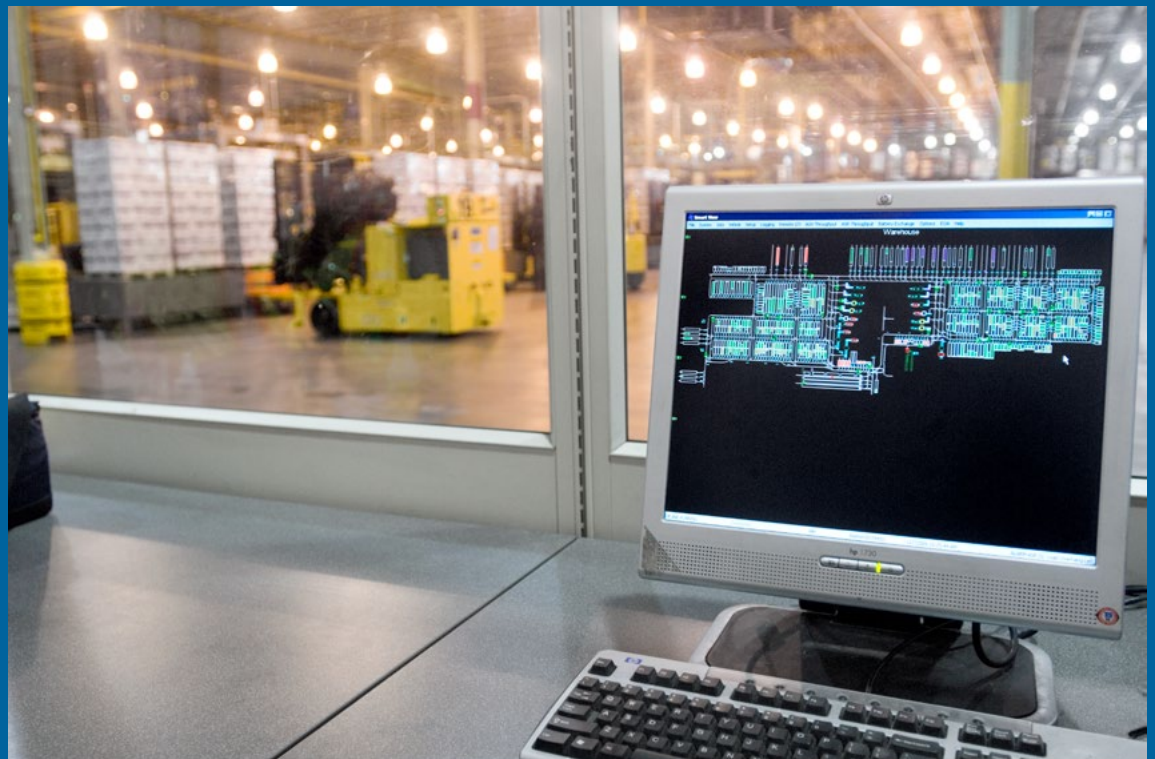
Safety

SmartLoaders use laser scanner bumpers to detect obstructions in the vehicle's path. If an object enters the guidepath, depending on the distance from the vehicle, SmartLoader will slow or come to an immediate stop. Once the object clears the guidepath, SmartLoader continues its assigned workload.



Real-time monitoring and control

SmartLoader's VSM™ (Vehicle System Manager) directs and monitors your system via radio transmissions, sending each vehicle task assignments. The VSM is easily integrated with your Warehouse Management System (or Supply Chain Execution System) software, allowing you to receive high-level communications regarding order fulfillment and inventory movement. If you don't use a supervisory warehouse system, you can manually enter tasks into the VSM.

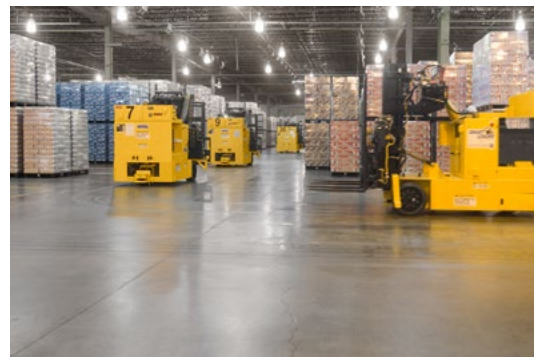
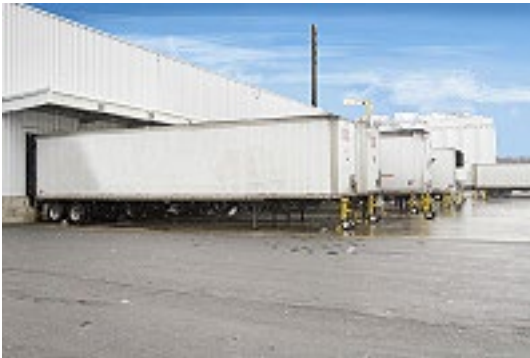


Which vehicle is right for you?

Specifications	SmartLoader 3000	SmartLoader 5000	SmartLoader 7000
Drive	Single AC Drive Motor	Dual DC Drive Motor	Dual DC Drive Motor
Maximum Load Capacity	3000 lbs.	5000 lbs.	7000 lbs.
Travel Speed	15 - 300 fpm	15 - 300 fpm	15 - 300 fpm
Maximum Transfer Height (raised top of fork)	167"	167"	138"
Stopping Accuracy	+ / - 0.4 inch (10mm)	+ / - 0.4 inch (10mm)	+ / - 0.4 inch (10mm)
Fork Options	<ul style="list-style-type: none"> - Single load fixed - Single with side shift - Double load fixed - Single/Double load 	<ul style="list-style-type: none"> - Single load fixed - Single with side shift - Double load fixed - Single/Double load 	<ul style="list-style-type: none"> - Single load fixed - Single with side shift - Double load fixed - Double load with side shift and auxiliary lift - Single/Double load
Attachment Options	<ul style="list-style-type: none"> - Clamp Attachment - Roll Clamps - Push / Pull Slip Sheet - End of Trailer Loading 	<ul style="list-style-type: none"> - Clamp Attachment - Roll Clamps - Push / Pull Slip Sheet - End of Trailer Loading 	<ul style="list-style-type: none"> - Clamp Attachment - Roll Clamps - Push / Pull Slip Sheet - End of Trailer Loading
Battery Types	<ul style="list-style-type: none"> - Low maintenance - No maintenance - Fast charge 	<ul style="list-style-type: none"> - Low maintenance - No maintenance - Fast charge 	<ul style="list-style-type: none"> - Low maintenance - No maintenance - Fast charge
Battery Charge Options	<ul style="list-style-type: none"> - Manual exchange - Opportunity / Auto charge - Fast charge - Automatic exchange 	<ul style="list-style-type: none"> - Manual exchange - Opportunity / Auto charge - Fast charge - Automatic exchange 	<ul style="list-style-type: none"> - Manual exchange - Opportunity / Auto charge - Fast charge - Automatic exchange
Approximate Vehicle Weight (unloaded)	6160 lbs.	9700 lbs.	14,000 lbs.

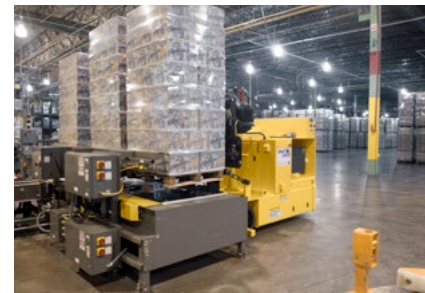
SmartLoader Benefits

- Reduce costs by automatically loading/unloading trailers 24/7 -- no trailer modifications necessary
- Pick up or drop off loads from/onto the floor, a conveyor, a stand, a rack or AS/RS
- Stack and locate pallets with pinpoint accuracy using LADAR technology
- Increase production by moving two loads at once
- Load and unload pallets in a variety of load patterns
- Optimize trailer space by placing loads at the end of the trailer
- Choose from a variety of low/no maintenance batteries and charge options
- Produce an impressive payback



Basic Features and Specifications

- Continuous, high-speed and bi-directional communications between SmartLoader and the VSM are through wireless Ethernet
- HMI touch screen provides diagnostics, trending data, I/O controls and help screens
- Fail safe control of the brakes, drives and lift enhances safety and reliability; the drive brake is spring set, electronically released
- Vehicle Speeds (in automatic mode) are from 15 to 300 fpm; speed is infinitely adjustable for smooth automatic starts and stops
- Automatic battery charging or battery exchange
- Battery duration is approximately 8-16 hours for vehicle operation (battery varies with each vehicle type)
- Low-power sleep mode automatically enters and recovers from a power-saving state to conserve the battery during extended idle periods
- Front and rear laser bumpers; multiple protection patterns
- Ground clearance: 4 inches (102mm)



Optional Features

- On-board barcode reader
- High-stacking forks that reach up to 18 feet (5.5m) in height
- Custom load capacities based on your application requirements

Go Green with SmartLoader

For environmentally-conscience businesses, SmartLoader provides:

- Overall energy savings – it operates in a “lights out” environment
- No emissions – unlike fuel-operated machinery
- No waste – you only purchase the throughput that is needed
- Long-lasting rechargeable and recyclable batteries



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