Meidensha AGVs solve the problem!
We will provide the best AGV for you

Meidensha AGVs

Our technical capability has been cultivated over our long history. Founded in 1897 as “Meiden Motors” the motor and control technology that we have accumulated in over 120 years is irreplaceable. We support motors, control devices and guidance technology, the core technologies at the heart of AGVs.

We have experience and know-how from working together with a wide variety of industries that require high-level transportation technology. We support “monozukuri” in Japan over the years by providing AGVs. We make full use of our experience as we have continually responded to the harsh operating conditions, frequent line changes, and high demand for reliability.

With an open AGV interface and full line of system support tools, we provide AGVs that are easy to use.

AGV Features

Excellent Traveling Control
- Excellent steering control allows AGVs to smoothly travel even steep curves and gently carry loads with little lateral shaking.
- Without any stationary steering of the drive wheels by powered wheels steering, vehicle height is kept low.

Excellent Guidance Systems
- We provide various guidance systems from traditional magnet guidance systems to the latest multi guidance system so that you can utilize the system best suited to the environment at your site.
- The multi guidance system is a proprietary guidance system that achieves both autonomous travel adopted a SLAM system and a stopping accuracy of ±10 mm.
- AGV travel is controlled according to route data. Created on a PC, route data is configured using over 200 types of commands.
- Using a command mark system, the simple model AGV Kit provides a user interface that allows you to configure a system on your own.

Excellent User Interface
- We will provide the best AGV for you

Guidance Systems

We have magnetic, laser, and multi (autonomous travel type) guidance systems. You can select the best guidance system suited to the way in which the AGV will operate.

<table>
<thead>
<tr>
<th>Guidance systems</th>
<th>System description</th>
<th>Features</th>
<th>Supported models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnetic guidance system</td>
<td>In some cases, a course is created by burying magnetic rods along the course or applying magnetic tape to the floor. The AGV detects the magnetism and follows the guide path.</td>
<td>Requires burying magnetic rods or laying magnetic tapes.</td>
<td>Platform type, Forklift type, Low platform type, All kit type</td>
</tr>
<tr>
<td>Laser guidance system</td>
<td>The AGV travels by detecting its position and orientation by using laser radar to scan for reflector installed in the ceiling and walls. This keeps down dust caused by construction because guide wires do not need to be buried.</td>
<td>Allows creating and changing the traveling route using CAD software running on a PC.</td>
<td>Platform type, Forklift type</td>
</tr>
<tr>
<td>Multi guidance system</td>
<td>The AGV drives autonomously by using a laser range finder to measure the surrounding environment. This system provides high precision positioning by using both magnet and laser guidance.</td>
<td>Allows the automatic generation of a map and creation of a traveling route on the map using a PC.</td>
<td>Platform type of 3MC series</td>
</tr>
</tbody>
</table>
3MC Series

Features
- Excellent traveling performance
  - Traveling in all directions is possible, such as forward, backward, sideways, slantwise, and spin turn.
- Simple operation
  - Operation is simple using a touch panel.
  - Displays AGV operating status, I/O monitor, and errors.

Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>3MC-M2.5</th>
<th>3MC-M10</th>
<th>3MC-M30</th>
<th>3MC-M60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load capacity</td>
<td>250kg</td>
<td>1000kg</td>
<td>3000kg</td>
<td>6000kg</td>
</tr>
<tr>
<td>Guidance system</td>
<td>Magnetic rod and Magnetic tape, Laser, and Multi</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Driving system</td>
<td>Forward/Rear wheel drive, Front/Rear wheel steering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. rated speed</td>
<td>Forward/Backward 60m/min Sideways: 30m/min</td>
<td>Forward/Backward 60m/min Sideways: 30m/min</td>
<td>Forward/Backward 30m/min Sideways: 15m/min</td>
<td></td>
</tr>
<tr>
<td>Min. turning radius</td>
<td>850mm</td>
<td>730mm</td>
<td>1200mm (Forward: 30m/min)</td>
<td></td>
</tr>
<tr>
<td>Shifting accuracy</td>
<td>±15mm</td>
<td>±15mm</td>
<td>±15mm</td>
<td></td>
</tr>
<tr>
<td>Vehicle size</td>
<td>W750×H340×D1840mm</td>
<td>W1350×H307×D1050mm</td>
<td>W1522×H447×D27400mm</td>
<td></td>
</tr>
<tr>
<td>Cargo transfer height</td>
<td>340mm (cargo transfer unit included)</td>
<td>Automatic charging type: 307mm, Manual charging type: 405mm (cargo transfer unit included)</td>
<td>477mm (cargo transfer unit included)</td>
<td></td>
</tr>
<tr>
<td>Vehicle weight</td>
<td>230kg</td>
<td>600kg</td>
<td>1550kg</td>
<td></td>
</tr>
</tbody>
</table>

Sample applications

- Chain conveyor transfer machine
  - Securely transfer slippery pallets using a chain conveyor.
- Push-pull arm type transfer machine
  - A push-pull arm comes out to transfer a work from the conveyor on top.
- Lifter type transfer machine
  - Position the AGV under a frame to lift cylindrical works. Transfers heavy loads stably thanks to the low height of the vehicle.
- "V" shaped bucket type transfer machine
  - Securely take hold of works with a V-shaped bucket, while an outrigger absorbs the shock at the time of transfer.
- Roller conveyor transfer machine
  - Transfer super heavy loads forwards and backwards on a roller conveyor.

Platform, Forward and Backward type

2ACB

Features
- This is a standard AGV of the 3-wheel type vehicle.
- The carrier coms in the roller table (2-tier, 3-tier, and 2-stage type), lifter, and push-pull type, useful in a variety of applications.
- These models support options such as automatic battery charging, destination orders using a wireless LAN, and intersection control.

Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>2ACB2.5</th>
<th>2ACB5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load capacity</td>
<td>250kg</td>
<td>500kg</td>
</tr>
<tr>
<td>Guidance system</td>
<td>Magnetic rod and Magnetic tape, Laser</td>
<td></td>
</tr>
<tr>
<td>Driving system</td>
<td>Front/Rear wheel driving, Front/Rear wheel steering</td>
<td></td>
</tr>
<tr>
<td>Traveling direction</td>
<td>Forward (Backward: optional) and Spin turn</td>
<td></td>
</tr>
<tr>
<td>Max. rated speed</td>
<td>60m/min</td>
<td></td>
</tr>
<tr>
<td>Vehicle size</td>
<td>W845×H340×D1600mm</td>
<td>W840×H340×D1750mm</td>
</tr>
</tbody>
</table>

Sample applications

- Lifter type transfer machine
  - Transfer castings with a compact lifter transfer machine.
- Two-stage, two-level conveyor transfer machine
  - Transfer a lot of works at once using a two-stage, two-level conveyor.
- Roller conveyor transfer machine
  - Transfer works while preventing slipping with special rollers.
- Elevator type transfer machine
  - Position the vehicle using an outrigger and transfer works with high accuracy using an elevator slide arm.

Platform, All directional type

ACBM All directional type

Features
- This AGV is of the Front/Rear wheel driving and steering type.
- Traveling forward/backward, traverse slantwise, and spin turn is possible.
- Traveling is possible in a narrow space.
- Because it is possible to be moved to all direction, the cycle time can be shortened.

Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>ACBM2.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load capacity</td>
<td>250kg</td>
</tr>
<tr>
<td>Guidance system</td>
<td>Magnetic rod and Magnetic tape, Laser</td>
</tr>
<tr>
<td>Driving, steering system</td>
<td>Front/Rear wheel driving and Steering type</td>
</tr>
<tr>
<td>Traveling direction</td>
<td>All direction and Spin turn</td>
</tr>
<tr>
<td>Max. rated speed</td>
<td>60m/min</td>
</tr>
<tr>
<td>Vehicle size</td>
<td>W755×H366×D1600mm</td>
</tr>
</tbody>
</table>

Sample applications

- Elevator type roller conveyor transfer machine
  - With a roller conveyor that goes up and down, this vehicle translers works on the conveyor for a different conveyor level.
- Two-stage conveyor transfer machine
  - Transfer two works at once using a two-stage conveyor.
- Three-stage conveyor transfer machine
  - Transfer three works at once using a three-stage conveyor.
- Two-stage, two-level conveyor transfer machine
  - Transfer a lot of works at once using a two-stage, two-level conveyor.
**Forklift type**

### Side-Fork Type

**Pallet Transport AGV**

AGV especially for conveying pallets.

**Features**
- Even along a passage of 2400mm in width, it is possible to gain access to the destination without changing the posture.
- A 180° spin-turn is possible in a passage of 3000mm in width.
- Since the brushless motor is adopted for the driving unit, properties of cleanliness and maintainability have been improved.
- Every direction has obstacle sensor and bumperers in order to secure high safety.

**Specifications**

<table>
<thead>
<tr>
<th>Type</th>
<th>3ML-M11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load capacity</td>
<td>1100kg/Cargo center 600mm, deviation from the center of gravity ±50mm</td>
</tr>
<tr>
<td>Guidance system</td>
<td>Magnetic rod and Magnetic tape/Laser</td>
</tr>
<tr>
<td>Driving, steering</td>
<td>Front/Rear wheel driving and Steering type</td>
</tr>
<tr>
<td>Traveling direction</td>
<td>Forward/Backward Sideways, and Spin turn</td>
</tr>
<tr>
<td>Max. Rated speed</td>
<td>60m/min (Sideways 30m/min)</td>
</tr>
<tr>
<td>Max. Elevating height</td>
<td>1000mm, or 1800mm for optional</td>
</tr>
<tr>
<td>Max. Elevating speed</td>
<td>250mm/sec</td>
</tr>
<tr>
<td>Reach stroke</td>
<td>1350mm</td>
</tr>
<tr>
<td>Reach speed</td>
<td>250mm/sec</td>
</tr>
<tr>
<td>Min. turning radius</td>
<td>1500mm (Forward/Backward 15m/min)</td>
</tr>
<tr>
<td>Stopping accuracy</td>
<td>Vehicle base and 2100mm, Front and 3300mm</td>
</tr>
<tr>
<td>Transport pallet size</td>
<td>Max. 1200 x 1200mm</td>
</tr>
<tr>
<td>Vehicle size</td>
<td>W2278 x L1748 x H1738mm</td>
</tr>
<tr>
<td>Vehicle weight</td>
<td>2058kg</td>
</tr>
<tr>
<td>Voltage</td>
<td>Automatic battery charging system 48V 150Ah</td>
</tr>
</tbody>
</table>

**Description of operation**

1. Approach without turning.
2. Insert fork portion with reach operation.
3. Lift pallet with lift operation.
4. Place pallet onto the AGV and begin transporting.

**Sample applications**

- When the item to be conveyed is located on the floor.
- When the item to be conveyed is located on a frame.
- When the item to be conveyed is located on a rack.

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**Full flat low-platform type**

### Lift type

**Low-platform AGV**

This Lift type low-platform AGV is suitable to customers who do not want to modify their existing carts.

**Features**
- Carts do not need to be modified because they are lifted and carried by the lifter transfer unit.
- Attachments can be customized to match the shape of the carts.
- This AGV is strong enough to transfer 350kg, so it can also be used to transport heavy objects.
- The forward and backward function allow it to be loaded into an elevator.

**Specifications**

<table>
<thead>
<tr>
<th>Type</th>
<th>3ML-3.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load capacity</td>
<td>350kg</td>
</tr>
<tr>
<td>Guidance system</td>
<td>Magnetic rod and Magnetic tape</td>
</tr>
<tr>
<td>Driving, steering</td>
<td>Front wheel drive, Front wheel steering</td>
</tr>
<tr>
<td>Traveling direction</td>
<td>Forward/Simple backward (straight-line)/Spin turn</td>
</tr>
<tr>
<td>Max. Rated speed</td>
<td>60m/min</td>
</tr>
<tr>
<td>Stopping accuracy</td>
<td>±10mm</td>
</tr>
<tr>
<td>Working time</td>
<td>2.5h (Continuous with auto charge feature)</td>
</tr>
<tr>
<td>Vehicle size</td>
<td>W380 x H1800 x D1650mm</td>
</tr>
<tr>
<td>Cage cart dimensions</td>
<td>W800 ~ 1100 x D600 ~ 1100mm</td>
</tr>
</tbody>
</table>

**Description of operation**

1. Even after lifting the commercial truck, the AGV keeps the truck's wheels in contact with the floor for stable transport.

**Sample applications**

- Goes under the bottom of the commercial truck.
- Trucks can be stored next to each other.
- The truck at the head of the line can be taken away one at a time.
**Assembled carts with AGV Kit**

**Sheet metal cart**
- Among the assembled vehicle line-up, this is the only model to which 2 units can be attached.
- Standard type: Cart external dimensions/WxDxH: 1,132x1,125x1,096mm
  - Platform section dimensions/WxDxH: 480x453x344mm
- High-speed type: Cart external dimensions/WxDxH: 1,132x1,125x1,096mm
  - Platform section dimensions/WxDxH: 480x453x344mm

**Handcart**
- Can be used immediately as a replacement for your current handcart.
- Cart external dimensions/WxDxH: 1,132x1,125x1,096mm
  - Platform section dimensions/WxDxH: 480x453x344mm

**Pipe cart**
- The body of this model can be modified daily.
- Standard type: Cart external dimensions/WxDxH: 1,132x1,125x1,096mm
  - Platform section dimensions/WxDxH: 480x453x344mm
- High-speed type: Cart external dimensions/WxDxH: 1,132x1,125x1,096mm
  - Platform section dimensions/WxDxH: 480x453x344mm

**Flat cart**
- This low-platform model is compact.
- Cart external dimensions/WxDxH: 1,132x1,125x1,096mm
  - Platform section dimensions/WxDxH: 480x453x344mm

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**Practical Assembly** With the AGV Kit you can create an AGV suited to the items to be carried.

**Hand pallet towing truck**
- You can attach a hand pallettei behind a truck equipped with an AGV Kit and tow it. Once detached, it can be used as an ordinary hand pallette.

**Truck for conveying a picking box**
- Supply collected parts to a line using a digital piping system. Many parts can be transported at a time.

**Cart towing truck**
- The AGV Kit can tow carts on which products are placed from where they come in to where they are stored.

**Hand pallet towing truck**
- You can attach a hand pallettei behind a truck equipped with an AGV Kit and tow it. Once detached, it can be used as an ordinary hand pallette.

**Truck for conveying heavy items**
- When two drive units are attached, loads up to 1,400 kg can be conveyed. Conveyor loads by placing a truck with installed AGV Kit under a truck already being used (up to 1,000 kg per drive unit).

**Conveyor truck with inclined conveyor**
- Allows you to take down heavy loads easily. Also serves to reduce costs because a driven conveyor is not needed.

**Truck for conveying long items**
- You can also convey long items by attaching two drive units. Allows stable travel because the two independent drive units travel on a guide path.
Overseas Offices & Group Companies

China
MEIDEN ZHENGZHOU ELECTRIC CO., LTD.
MEIDENSHA (SHANGHAI) CORPORATE MANAGEMENT CO., LTD.
MEIDEN HANGZHOU DRIVE SYSTEMS CO., LTD.
SHANGHAI MEIDENSHA CHANGCHENG SWITCHGEAR CO., LTD.

Hong Kong
MEIDEN PACIFIC (CHINA) LTD.

India
MEIDEN INDIA PVT. LTD.
PRIME MEIDEN LTD.

Indonesia
P.T. MEIDEN ENGINEERING INDONESIA

Korea
MEIDEN KOREA CO., LTD.

Malaysia
MEIDEN MALAYSIA SDN. BHD.
MEIDEN METAL ENGINEERING SDN. BHD.

Singapore
MEIDEN ASIA PTE. LTD.
MEIDEN SINGAPORE PTE. LTD.

Thailand
THAI MEIDENSHA CO., LTD.
MEIDEN ELECTRIC (THAILAND) LTD.

United Arab Emirates
MEIDEN ASIA PTE. LTD. DUBAI BRANCH

Germany
MEIDEN EUROPE GmbH.
TRIDELTA MEIDENSHA GmbH.

The United States
MEIDEN AMERICA, INC.
MEIDEN TECHNICAL CENTER NORTH AMERICA LLC