Automatic Guided Vehicles

AGV Comprehensive Catalog

Irreplaceable Technical Capability
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 our 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.

Excellent User Interface

- Using a command mark system, the simple model AGV Kit provides a user interface that allows you to configure a system on your own.
- Allows creating and changing the traveling route using CAD software running on a PC.
- Does not require laying a guide path.
- Requires installation of reflectors on the ceiling and walls.

Transport Weight and Applicable AGV Model

We provide the best AGV for your Transport system needs for goods weight from 150 kg to maximum 6000 kg.

Guidance Systems

We have magnetic, laser, and multi (autonomous travel type) guidance systems. You can select the best guidance system suited to the environment 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>Operate automatically</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>- 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. - Does not require laying a guide path. - Requires installation of reflectors on the ceiling and walls.</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. - Changing the traveling route using a PC is easy. - Perform guide path construction and installation of reflectors in locations that require positioning.</td>
<td>- Platform type of 3MC series</td>
</tr>
</tbody>
</table>
3MC Series

3MC Series

3MC-M10 Optional vehicle attachments

3MC-M30 Optional vehicle attachments

**Features**

- **Excellent traveling performance**
  - Traveling in all directions is possible, such as forward, backward, sideways, slantwise, and spin turn.
  - Efficient traveling is possible with a high degree of freedom, making full use of spin turn performance.

- **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-M10</th>
<th>3MC-M30</th>
<th>3MC-M60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load capacity</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>
</tr>
<tr>
<td>Driving system</td>
<td>Front/Rear wheel drive, Front/Rear wheel steering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. Rated speed (Forward/Backward)</td>
<td>60m/min</td>
<td>30m/min</td>
<td>60m/min</td>
</tr>
<tr>
<td>Min. turning radius</td>
<td>730mm</td>
<td>1200mm (Forward 30m/min)</td>
<td></td>
</tr>
<tr>
<td>Stopping accuracy</td>
<td>Forward: 15mm, Sides: 10mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle size</td>
<td>W1150×H407×D477×D1950mm</td>
<td>W1522×H447×D2740mm</td>
<td>250kg</td>
</tr>
<tr>
<td>Cargo transfer height</td>
<td>Automatic charging type: 307mm, Manual charging type: 405mm (cargo transfer unit excluded)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td>48V enclosed lead-acid battery, Auto-charge type</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sample applications**

- Lift type transfer machine
  - Transfer castings with a compact lift type 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.

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>Max. Rated speed</td>
<td>60m/min</td>
</tr>
<tr>
<td>Vehicle size</td>
<td>W755×H365×D1600mm</td>
</tr>
</tbody>
</table>

**Sample applications**

- Elevator type roller conveyor transfer machine
  - With a roller conveyor that goes up and down, this vehicle transmits works on the conveyor to a different conveyor level.
- Two-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.
**Side-Fork Type Pallet Transport AGV**

AGV especially for conveying palettes.

### 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 1000mm 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 bumpers in order to secure high safety.

### Specifications
- **Type**: 3ML-M11
- **Load capacity**: 1100kg (Cargo center 600mm, deviation from the center of gravity ±50mm)
- **Guidance system**: Magnetic rod and Magnetic tape/Laser
- **Driving, steering system**: Front/Rear wheel driving and Steering type
- **Traveling direction**: Forward/Backward Sideways, and Spin turn
- **Max. Rated speed**: 60m/min (Sideways 30m/min)
- **Max. Elevating height**: 1000mm, or 1800mm for optional
- **Max. Elevating speed**: 250mm/sec
- **Reach stroke**: 1350mm
- **Reach speed**: 250mm/sec
- **Min. turning radius**: 1500mm (Forward/Backward 15m/min)
- **Stopping accuracy**: Vehicle base ±100mm, Front and ±300mm
- **Transport pallet size**: Max. 1200x1200mm
- **Vehicle size**: W2278xL1748xH1738mm
- **Vehicle weight**: 2050kg
- **Voltage**: Automatic battery charging system 48V 150Ah

### Description of operation
- The AGV houses a fork.
- Safe design!
- After traveling and stopping, the AGV extends the fork into the palette.
- The fork lifts the palette and pulls it onto the AGV.
- After loading the item to be conveyed onto the AGV, the vehicle starts traveling.

### 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.

### 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
- **Type**: 3ML-3.5
- **Load capacity**: 350kg
- **Guidance system**: Magnetic rod and Magnetic tape
- **Driving, steering system**: Front wheel drive, Front wheel steering
- **Traveling direction**: Forward/Simple backward (straight-line)/Spin turn
- **Max. Rated speed**: 60m/min
- **Stopping accuracy**: ±100mm
- **Working time**: 2.5h (Continuous with auto-charge feature)
- **Vehicle size**: W380xH180xD1650mm
- **Cage cart dimensions**: W800~1100xD60~1100mm

### Sample applications
- Even after lifting the commercial truck, the AGV keeps the truck’s wheels in contact with the floor for stable transport!
- The AGV can go under commercial trucks thanks to its thin, low body.
- Built-in lifter! Truck modification is not required because the AGV lifts up ad carries the truck frame.

### Description of operation
- Built-in lifter! Truck modification is not required because the AGV lifts up and carries the truck frame.
- 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.
Standard Carts with an AGV Kit

Assembled carts with AGV Kit

Sheet metal cart

- In the nished-cart line-up, only this model can be equipped with all the speciﬁcations and options.
- Cart external dimensions: W/D/H=1130x1125x500mm
- Platform section dimensions: W/D/H=945x544x54mm

Hand cart

- Can be used immediately as a replacement for your current handcart.
- Intended for customers that want an easy start to use.
- Cart external dimensions: W/D/H=1130x1125x544mm
- Platform section dimensions: W/D/H=945x544x54mm

Pipe cart

- The body of this model can be modiﬁed daily.
- Cart external dimensions: W/D/H=1130x1125x500mm
- Platform section dimensions: W/D/H=945x544x54mm

Flat cart

- This low-platform model is compact.
- Cart external dimensions: W/D/H=1130x1125x500mm
- Platform section dimensions: W/D/H=945x544x54mm

[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 pallet behind a truck equipped with an AGV Kit and tow it. Once detached, it can be used as an ordinary hand pallet.

Truck for conveying a picking box

Supply collected parts to a line using a digital picking 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.

[Practical] Truck for conveying heavy items

When two drive units are attached, loads up to 1400 kg can be conveyed. Convoy 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.

Specifications

<table>
<thead>
<tr>
<th>Light-duty Class (MK2)</th>
<th>Heavy-duty Class (MK3)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Permissible load</strong></td>
<td><strong>Permissible load</strong></td>
</tr>
<tr>
<td>1 Unit: Advance</td>
<td>2 Units: Advance</td>
</tr>
<tr>
<td>Standard type</td>
<td>Standard type</td>
</tr>
<tr>
<td>250kg</td>
<td>250kg</td>
</tr>
<tr>
<td>High-speed type</td>
<td>High-speed type</td>
</tr>
<tr>
<td>250kg</td>
<td>250kg</td>
</tr>
<tr>
<td>Heavy load type</td>
<td>Heavy load type</td>
</tr>
<tr>
<td>500kg</td>
<td>500kg</td>
</tr>
<tr>
<td>1000kg</td>
<td>1000kg</td>
</tr>
<tr>
<td><strong>Rated speed</strong></td>
<td><strong>Rated speed</strong></td>
</tr>
<tr>
<td>30m/min</td>
<td>30m/min</td>
</tr>
<tr>
<td>60m/min</td>
<td>60min/m</td>
</tr>
<tr>
<td><strong>Traveling direction</strong></td>
<td><strong>Traveling direction</strong></td>
</tr>
<tr>
<td>Forward (Backward)</td>
<td>Forward (Backward)</td>
</tr>
<tr>
<td><strong>Stopping accuracy</strong></td>
<td><strong>Stopping accuracy</strong></td>
</tr>
<tr>
<td>Standard ±10mm</td>
<td>Standard ±13mm</td>
</tr>
<tr>
<td><strong>Guidance (5m continuous)</strong></td>
<td><strong>Guidance (5m continuous)</strong></td>
</tr>
<tr>
<td>Standard ±10mm</td>
<td>Standard ±13mm</td>
</tr>
<tr>
<td><strong>Voltage</strong></td>
<td><strong>Voltage</strong></td>
</tr>
<tr>
<td>DC48V</td>
<td>DC48V</td>
</tr>
<tr>
<td><strong>Environment</strong></td>
<td><strong>Environment</strong></td>
</tr>
<tr>
<td>Temperature 0-40°C</td>
<td>Temperature 0-40°C</td>
</tr>
</tbody>
</table>

Note 1: The allowable load includes vehicle. The allowable load varies depending on the traveling resistance of caster wheels.

Note 2: The allowable load given for lateral travel and spin turning is for when solid-elastic is used for the caster wheel material.

Note 3: Maximum speed during traverse or spin turning is 15 m/min.

Note 4: Maximum speed during straight backward travel is 10 m/min.

Note 5: Maximum speed during straight forward travel is 20 m/min.

Note 6: The stopping accuracy for lateral travel and spin turning is ±20 mm.

Note 7: Lateral travel and spin turning should be done on a non-sloping surface.

Meiden AGV Kit MK2/5 Series

Wouldn’t you like to give such an AGV? Anyone can use it. This is an open interface AGV that permits easy system structuring.
Dimensions

<table>
<thead>
<tr>
<th>Standard AGV</th>
<th>All directional AGV</th>
<th>Lift type Low-platform AGV</th>
</tr>
</thead>
<tbody>
<tr>
<td>2ACB2.5</td>
<td>2ACB5</td>
<td>3M3-3.5</td>
</tr>
</tbody>
</table>

Specifications

<table>
<thead>
<tr>
<th>Items</th>
<th>Platform, Forward and Backward type</th>
<th>Platform, All directional type</th>
<th>Forklift type</th>
<th>Full flat Low-platform type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load capacity (including transfer unit) kg</td>
<td>250 (400)</td>
<td>500 (750)</td>
<td>1000 (1500)</td>
<td>3000 / 6000</td>
</tr>
<tr>
<td>Guidance system</td>
<td>Magnetic rod / Magnetic tapes / Laser</td>
<td>Magnetic rod / Magnetic tapes / Laser</td>
<td>Multi</td>
<td>Magnetic rod / Magnetic tapes / Laser</td>
</tr>
<tr>
<td>Driving, Steering system</td>
<td>Front wheel driving, Front wheel steering</td>
<td>Front/Rear wheel driving, Steering</td>
<td>Front/ Rear wheel driving,Steering</td>
<td>Front wheel driving,Front wheel steering</td>
</tr>
<tr>
<td>Traveling direction</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td>Rated speed m/min</td>
<td>60</td>
<td>Forward/Backward 60 Traverse 30</td>
<td>Forward/Backward 60 Traverse 30</td>
<td>Forward/Backward 60 Traverse 30</td>
</tr>
<tr>
<td>Elevating speed mm/s</td>
<td>-</td>
<td>250</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Reach speed mm/s</td>
<td>-</td>
<td>250</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Minimum turning radius mm</td>
<td>850</td>
<td>900</td>
<td>730</td>
<td>1200</td>
</tr>
<tr>
<td>Stepping accuracy (Speed before stop: 8m/min) mm</td>
<td>±10</td>
<td>±5</td>
<td>±10</td>
<td>±10</td>
</tr>
<tr>
<td>Gradieny (3m continuous) %</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard working time h</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>Continuous (auto-charge only)</td>
</tr>
<tr>
<td>Length / ( ) Spec. for backward mm</td>
<td>1550 (1600)</td>
<td>1655 (1750)</td>
<td>1950</td>
<td>2470</td>
</tr>
<tr>
<td>Width mm</td>
<td>685</td>
<td>800</td>
<td>1150</td>
<td>1522</td>
</tr>
<tr>
<td>Height mm</td>
<td>340</td>
<td>350</td>
<td>397</td>
<td>407 (Steel Charge type)</td>
</tr>
<tr>
<td>Load-carrying platform height mm</td>
<td>340</td>
<td>350</td>
<td>397</td>
<td>407 (Steel Charge type)</td>
</tr>
<tr>
<td>Minimum ground height mm</td>
<td>25</td>
<td>30</td>
<td>30</td>
<td>35</td>
</tr>
<tr>
<td>Weight kg</td>
<td>220</td>
<td>360</td>
<td>600</td>
<td>1550</td>
</tr>
<tr>
<td>Type</td>
<td>Open type lead batteries for battery replacement system, Enclosed type lead batteries for auto-charge system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage V</td>
<td>24</td>
<td>48</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>Automatic battery charge type</td>
<td>Optional</td>
<td>Optional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wireless LAN</td>
<td>Optional</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Road surface where AGV cannot be used:
- Water and oil are prevalent
- Inclination is 2% or more
- Road surface heavily contaminated
- Asphalt-covered road surface
- Path surfaces where level differences, grooves and warps exceed specified values
- Magnetically active path surfaces such as steel floors (when using magnetic guidance)
# 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.  
- MEIDEN PACIFIC (CHINA) LTD.  
- MEIDEN INDIA PVT. LTD.  
- MEIDEN KOREA CO., LTD.  
- PT. MEIDEN ENGINEERING INDONESIA  
- MEIDEN MALAYSIA SDN. BHD.  
- MEIDEN METAL ENGINEERING SDN. BHD.

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- MEIDEN SINGAPORE PTE. LTD.

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- MEIDEN ELECTRIC (THAILAND) LTD.

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**Germany**  
- MEIDEN EUROPE GmbH.  
- TRIDELTA MEIDENSHA GmbH.

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