# Automatic Guided Vehicles

## AGV Comprehensive Catalog

MEIDEN
Quality connecting the next

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.

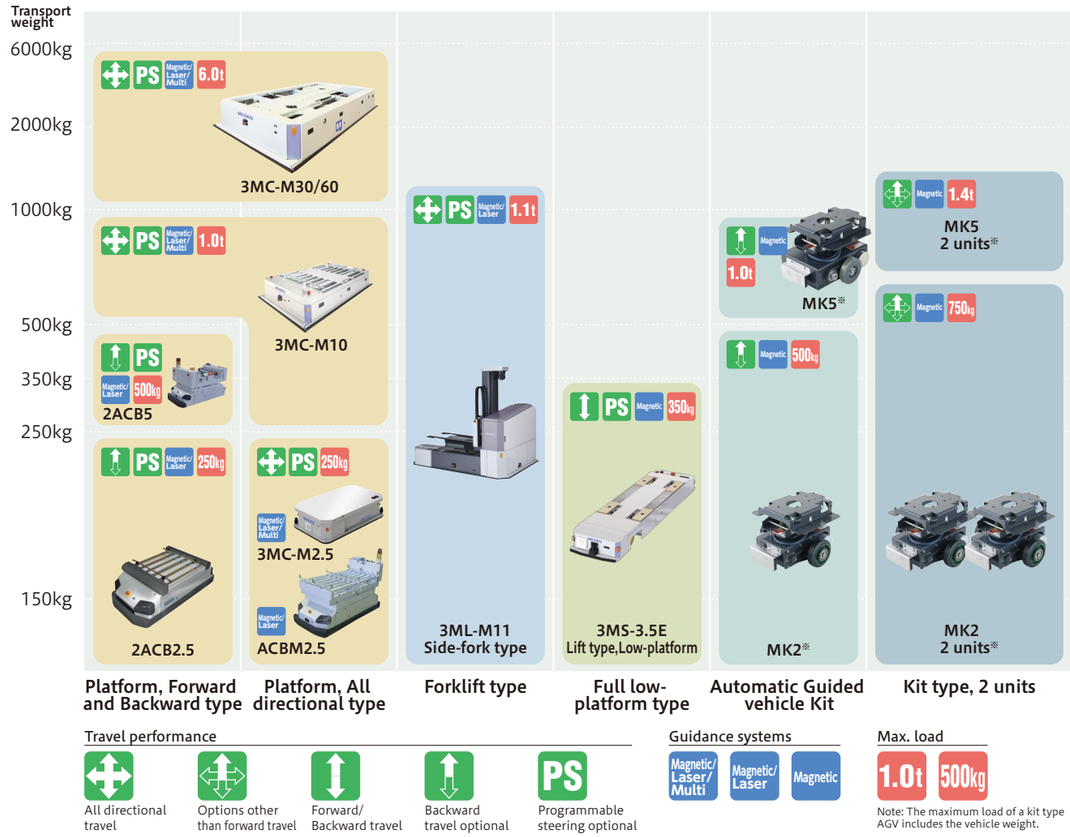
### Excellent User Interface

- 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.



## Transport Weight and Applicable AGV Model

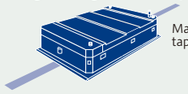
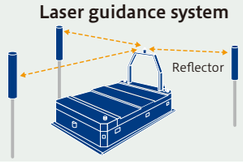
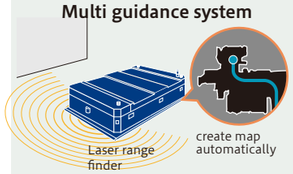
We provide the best AGV for your Transport system needs for goods weight from 150 kg to maximum 6000 kg.




Note: The maximum load of a kit type AGV includes the vehicle weight.

## 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.

| Guidance systems | System description | Features | Supported models |
|---|---|---|---|
| **Magnetic guidance system**<br>  | 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. | ①**The guidance system with the most proven track record.**<br>②Requires burying magnetic rods or laying magnetic tapes. | ・Platform type<br>・Forklift type<br>・Low-platform type<br>・All kit type |
| **Laser guidance system**<br>  | 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. | ①**Allows creating and changing the traveling route using CAD software running on a PC.**<br>②Does not require laying a guide path.<br>③Requires installation of reflectors on the ceiling and walls. | ・Platform type<br>・Forklift type |
| **Multi guidance system**<br>  | 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. | ①**Allows the automatic generation of a map and creation of a traveling route on the map using a PC.**<br>②Changing the traveling route using a PC is easy.<br>③Perform guide path construction and installation of reflectors in locations that require positioning. | ・Platform type of 3MC series |

Platform, Forward and Backward type/
Platform, All directional type

# 3MC Series

PS | Magnetic/ Laser/ Multi | 6.0t

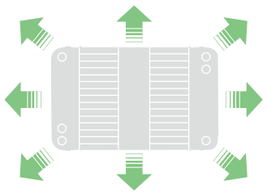
**Excellent traveling performance**
**Available to use up to 6 tons!!** ※3MC-M60

3MC-M30／60

3MC-M10
Optional vehicle attachments

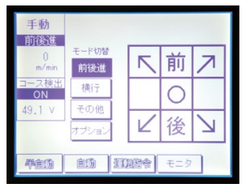
3MC-M2.5

## 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.



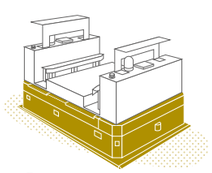

**Simple operation**

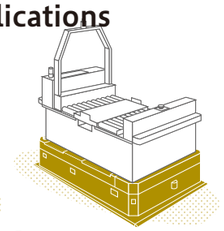
- Operation is simple using a touch panel.
- Displays AGV operating status, I/O monitor, and errors.

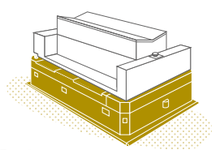
## Specifications

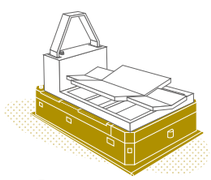
| Type | 3MC-M2.5 | 3MC-M10 | 3MC-M30 | 3MC-M60 |
|---|---|---|---|---|
| Load capacity | 250kg | 1000kg | 3000kg | 6000kg |
| Guidance system | Magnetic rod and Magnetic tape, Laser, and Multi | | | |
| Driving, Steering system | Front/Rear wheel drive, Front/Rear wheel steering | | | |
| Traveling direction | Forward, Backward, Sideways, Slantwise and Spin turn | | | |
| Max. Rated speed | Forward/Backward 60m/min Sideways 30m/min | | Forward/Backward 60m/min Sideways 30m/min | Forward/Backward 30m/min Sideways 15m/min |
| Min. turning radius | 850mm | 730mm | 1200mm (Forward 30m/min) | |
| Stopping accuracy | ±10mm | ±10mm | ±10mm | |
| Vehicle size | W704×H340×D1184mm | W1150×H307/407×D1950mm | W1522×H477×D2740mm | |
| Cargo transfer height | 340mm (cargo transfer unit excluded) | Automatic charging type:307mm、Manual charging type:405mm (cargo transfer unit excluded) | 477mm (cargo transfer unit excluded) | |
| Vehicle weight | 230kg | 600kg | 1550kg | |

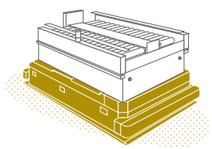
## Sample applications


**①Chain conveyor transfer machine**
Securely transfer slippery palettes using a chain conveyor.


**②Push-pull arm type transfer machine**
A push-pull arm comes out to transfer a work from the conveyor on top.


**③Lifter 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.


**④V-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.


**⑤Roller conveyor transfer machine**
Transfer super heavy loads forwards and backwards on a roller conveyor.

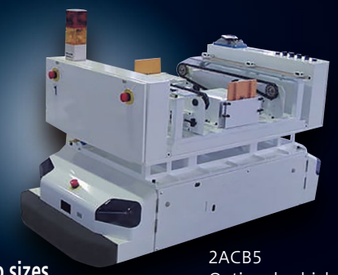


Platform, Forward and Backward type

# 2ACB

PS | Magnetic/ Laser | 500kg


2ACB2.5
Optional vehicle attachments


2ACB5
Optional vehicle attachments

**There are product lineups from small to medium types to be chosen according to cargo sizes.**
**This model is most suitable for intra-process transportation in production lines.**

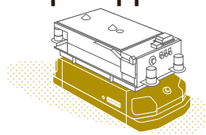
## Features

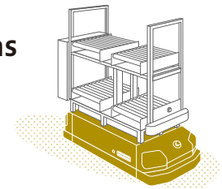
- This is a standard AGV of the 3-wheel type vehicle.
- The carrier coms in the roller table (2-serial, 3-serial, and 2-stage type), lifter, and push-pull type, useful in a variety of applications.
- These models support options such as automatic battery charging, destination orders using a wireless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

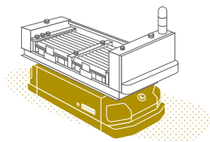
## Specifications

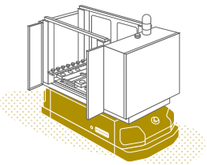
| Type | 2ACB2.5 | 2ACB5 |
|---|---|---|
| Load capacity | 250kg | 500kg |
| Guidance system | Magnetic rod and Magnetic tape, Laser | |
| Driving, Steering system | Front wheel drive, Front wheel steering | |
| Traveling direction | Forward (Backward: optional) and Spin turn | |
| Max. Rated speed | 60m/min | |
| Vehicle size | W685×H340×D1600mm | W800×H350×D1750mm |

## Sample applications


**①Lifter type transfer machine**
Transfer castings with a compact lifter transfer machine.


**②Two-stage, two-level conveyor transfer machine**
Transfer a lot of works at once using a two-stage, two-level conveyor.


**③Roller conveyor transfer machine**
Transfer works while preventing slipping with special rollers.

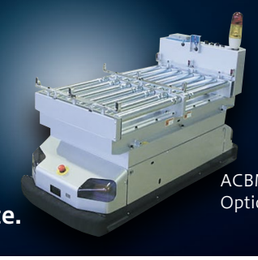

**④Elevator slide arm type transfer machine**
Position the vehicle using an outrigger and transfer works with high accuracy using an elevator slide arm.

Platform, All directional type

# ACBM All directional type

PS | Magnetic/ Laser | 250kg

**Most suitable for transportation in a narrow space.**


ACBM2.5
Optional vehicle attachments

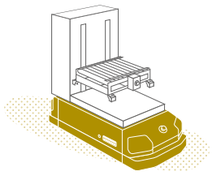
## Features

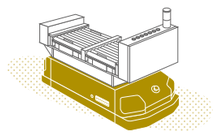
- This AGV is of the Front/Rear wheel driving and steering type.
- Traveling forward/backward, traverse slantwise, and spin turn is possible.
- Traveling is possible in a narrow space.
- Because it is possible to be moved to all direction, the cycle time can be shortened.

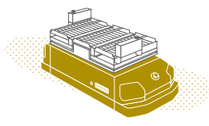
## Specifications

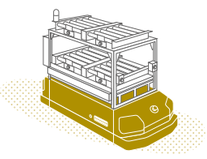
| Type | ACBM2.5 |
|---|---|
| Load capacity | 250kg |
| Guidance system | Magnetic rod and Magnetic tape, Laser |
| Driving, Steering system | Front/Rear wheel driving and Steering type |
| Traveling direction | All direction and Spin turn |
| Max. Rated speed | 60m/min |
| Vehicle size | W755×H360×D1600mm |

## Sample applications


**①Elevator type roller conveyor transfer machine**
With a roller conveyor that goes up and down, this vehicle transfers works on the conveyor to a different conveyor level.


**②Two-stage conveyor transfer machine**
Transfer two works at once using a two-stage conveyor.


**③Three-stage conveyor transfer machine**
Transfer three works at once using a three-stage conveyor.


**④Two-stage, two-level conveyor transfer machine**
Transfer a lot of works at once using a two-stage, two-level conveyor.

Forklift type

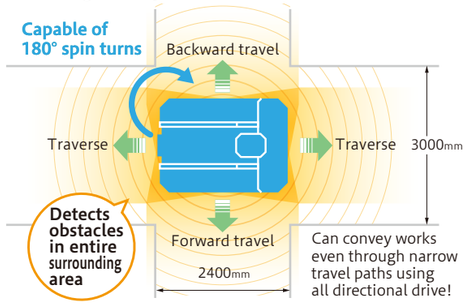
# Side-Fork Type Pallet Transport AGV

PS Magnetic/Laser 1.1t

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 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 senser and bumpers in order to secure high safety.

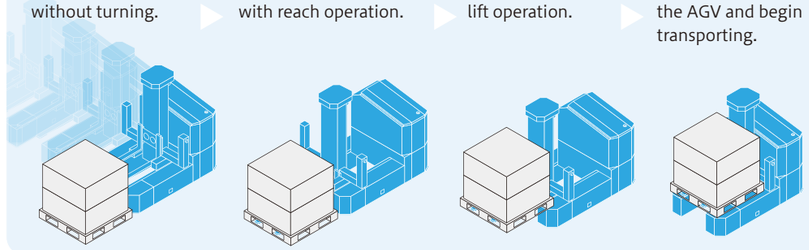


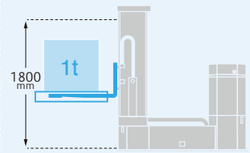

## Specifications

| | |
|---|---|
| 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 end ±10mm, Fork end ±30mm |
| Transport pallet size | Max.1200×1200mm |
| Vehicle size | W2278×L1748×H1738mm |
| Vehicle weight | 2050kg |
| Voltage | Automatic battery charging system 48V 150Ah |

## Description of operation

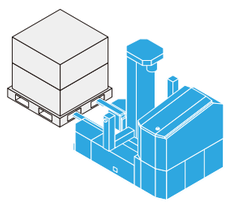
①Approach without turning. ▶ ②Insert fork portion with reach operation. ▶ ③Lift pallet with lift operation. ▶ ④Place pallet onto the AGV and begin transporting.



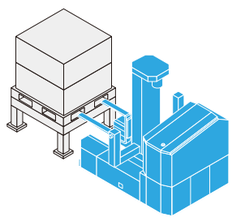



Designed with the center of gravity in mind to **safely transfer** even heavy loads located in high places!

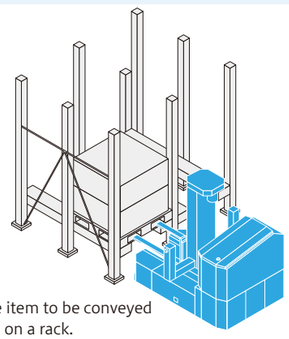
## Sample applications



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.

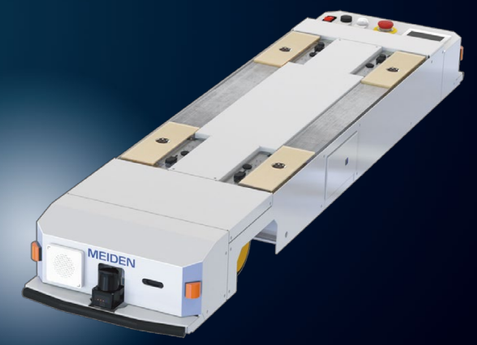


Full flat low-platform type

# Lift type Low-platform AGV

PS Magnetic 350kg

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



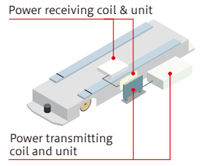

## Features

- 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.

### Wireless battery charger option

- Power receiving coil and unit built in to the AGV
- Resilient against mispositioning and easy to install.

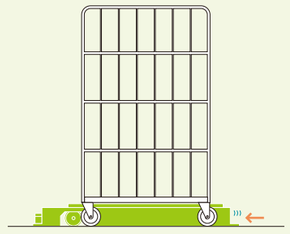
| Specifications | |
|---|---|
| Type | D-Broad Mini |
| Manufacturer | DAIHEN Corporation |
| Rated input power | 1.0KW |
| Output voltage/current | 30V/20A |
| Distance between coils | 30mm±10mm |



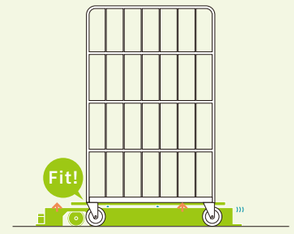

## Specifications

| | |
|---|---|
| Type | 3MS-3.5E |
| 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 (Backward 30m/min) |
| Stopping accuracy | ±10mm |
| Working time | 1h (Continuous with auto-charge feature) |
| Vehicle size | W380×H180×D1650mm |
| Cage cart dimensions | W800～1100×D600～1100mm<br>Secure width of 440 mm or more for vehicle body to slide under<br>Distance between bottom plate and floor:<br>Cage truck set condition: Positioning accuracy ±10mm |
| Storage battery | Lithium-ion battery |
| Vehicle weight | 150kg |

## Description of operation



The AGV can go under commercial trucks thanks to its thin, low body.

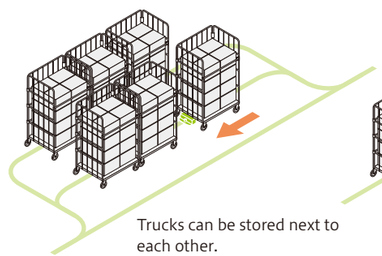



Built-in lifter! Truck modification is not required because the AGV lifts up ad carries the truck frame.

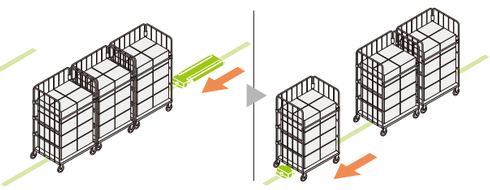
**Lift up cage truck and transport it.**

## 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.

Automatic Guided Vehicle Kit

# Meiden AGV Kit MK2/5 Series

Magnetic 1.4t

**Wouldn't you like to gave such an AGV? Anyone can use it. This is an open interface AGV that permits easy system structuring.**

1ユニット 最大1000kg搬送
2ユニット 最大1400kg搬送

Example of basic unit installation

## Basic unit

Light-weight drive unit

Heavy-weight drive unit


Control unit


Operating switch

## Setting of options

- Battery
- Battery charger
- Battery voltmeter
- Setter on vehicle (A/2B type)
- Laminate pilot lamp
- Auto-charger
- Wireless controller
- Simple backward function
- Tape bumper
- Obstacle sensor
- Traveling melody unit
- Magnetic tape marker
- Urethane tire
- Manual operation pendant
- Magnetic brake
- Traversing and spin turn function

### Simple how to use !

- The AGV offered meets arbitrary requirements, from a basic unit to a completed vehicle.
- Start/Stop operetion is simple with a single button.
- Since an external I/O circuit is released to be open, any customer can establish a favorite system.

### Flexible interaction possible with layout change !

- Stick a magnetic tape to the floor surface-That's all. By taking such an easy action, a traveling route can be easily set up.
- When markers are installed on the floor, operation control for acceleration and deceleration can be accomplished easily.
- Using a simplified backward traveling function, varios running routes can be established.

### Expansibility that is attractive !

- A wireless controller option can be used to provide call in control, dispatch control and standby control.
- There are two control systems available according to applications.

**Command mark system** : Command markers are stuck to the floor for simple control.

**Relative address system** : Operation is programmed for each mark on the floor for complicated operation control.

## Specifications

| | | | Light-duty class (MK2) | | | Heavy-duty class (MK5) | |
|---|---|---|---|---|---|---|---|
| | | | Standard type | High-speed type | Heavy load type | High-speed type | Heavy load type |
| Permissible load※1 (total weight) | 1 Unit - Advance | | 250kg | 250kg | 500kg | 500kg | 1000kg |
| | 2Units | Forward/Backward travel | 350kg | 350kg | 700kg | 700kg | 1400kg |
| | | Traverse ※2 | 350kg | 350kg | 700kg | 700kg | 1400kg |
| | | Spin turne ※2 | 175kg | 175kg | 350kg | 350kg | 700kg |
| Rated speed※3.4.5 | | | 30m/min | 60m/min | 30m/min | 60m/min | 30m/min |
| Guidance system | | | Magnetic tape | | | | |
| Traveling direction | | | Forward (Backward for optional) | | | | |
| Stopping accuracy※6 | | | Standard ±30mm ( ±15mm for optional) | | | Standard ±15mm | |
| Gradability (5m continuous) | | | 2% (at the rated load), 3% (at 70% load) | | | | |
| Voltage | | | DC24V | | | | |
| Enviroument※7 | | | Temperature 0-40°C, Relative humidity 20-80% Road surface step differences within 6mm (at 15m/min speed), Road surface undulations within 10mm, Groove width not more than 20mm | | | | |

※Note 1. The allowable load includes vehicle. The allowable weight also 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 elastomer is used for the caster wheel material.
※Note 3. When the AGV is fully charged and moving a standard empty frame
※Note 4. Maximum speed during traverse or spin turning is 15 m/min. ※Note 5. Maximum speed during simple backward travel is 20 m/min.
※Note 6. The stopping accuracy for lateral travel and spin turning is ±30 mm. ※Note 7. Lateral travel and spin turning should be done on a non-sloping surface.



## Standard Carts with an AGV Kit

Magnetic 1.4t

## Assembled carts with AGV Kit

**Assembled carts equipped with an AGV Kit are also available.**

### Sheet metal cart

Simple backward | Backward | 2 Units | Light-duty class | Heavy-duty class

- Among the assembled vehicle line-up, this is the only model to which 2 units can be attached.

Cart external dimensions/W700×H1320×L1250mm
Platform-section dimensions/W700×H240×L950mm

### Handcart

Light-duty class

- Can be used immediately as a replacement for your current handcart.

Cart external dimensions/W620×H1015×L942mm
Platform-section dimensions/W620×H265×L785mm

### Pipe cart

Simple backward | Light-duty class

- The body of this model can be modified daily.

Cart external dimensions/W700×H1320×L1250mm
Platform-section dimensions/W700×H345×L945mm

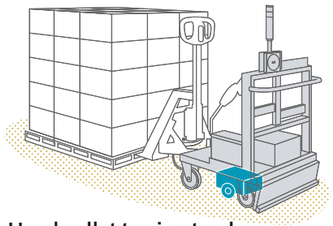
### Flat cart

Simple backward | Light-duty class

- This low-platform model is compact.

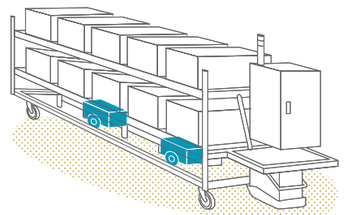
Cart external dimensions/W500×H350×L1232mm
Platform-section dimensions/W500×H350×L1000mm

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



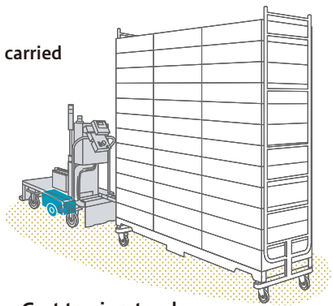
### Hand pallet towing truck

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



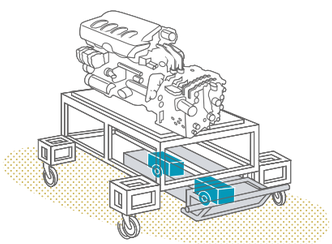
### Truck for conveying a picking box

Supply collected parts to a line using a digital picking system. Many parts can be transported at a time.



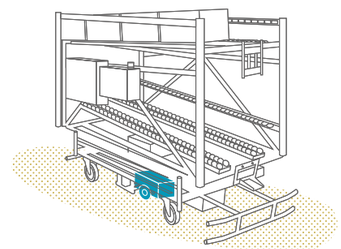
### Cart towing truck

The AGV Kit can tow carts on which products are placed from where they come in to where they are stored.



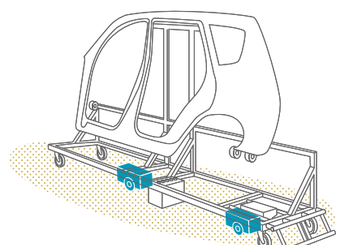
### Truck for conveying heavy items

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

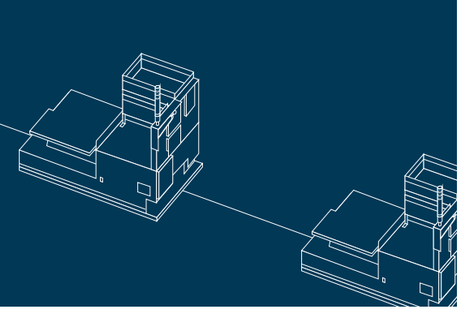


### Truck for conveying long items

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.

AGV introduction example 1 Unit assembly line

# Mixed flow production with large variety achieved.



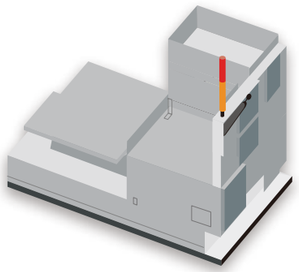
Assembly pallets and parts trays are loaded on AGVs, and unit part assembly work is done on the AGVs. AGVs run at a creeping speed of 1.5 meters per minute, and assembly work proceeds without stopping. By AGVs continuously traveling, time loss for transporting work is reduced. Moreover, the transport route is selected from model information recorded to RFIDs mounted on assembly pallets for automatic operation.

## 1 Effects of introduction

① Flexible response to fluctuations in production volume and changes to layouts
② Achievement of optimal and efficient transport per model, which was difficult to achieve with assembly conveyors
③ Achievement of mixed flow production with large variety by processes that use creeping speed type AGV and RFID

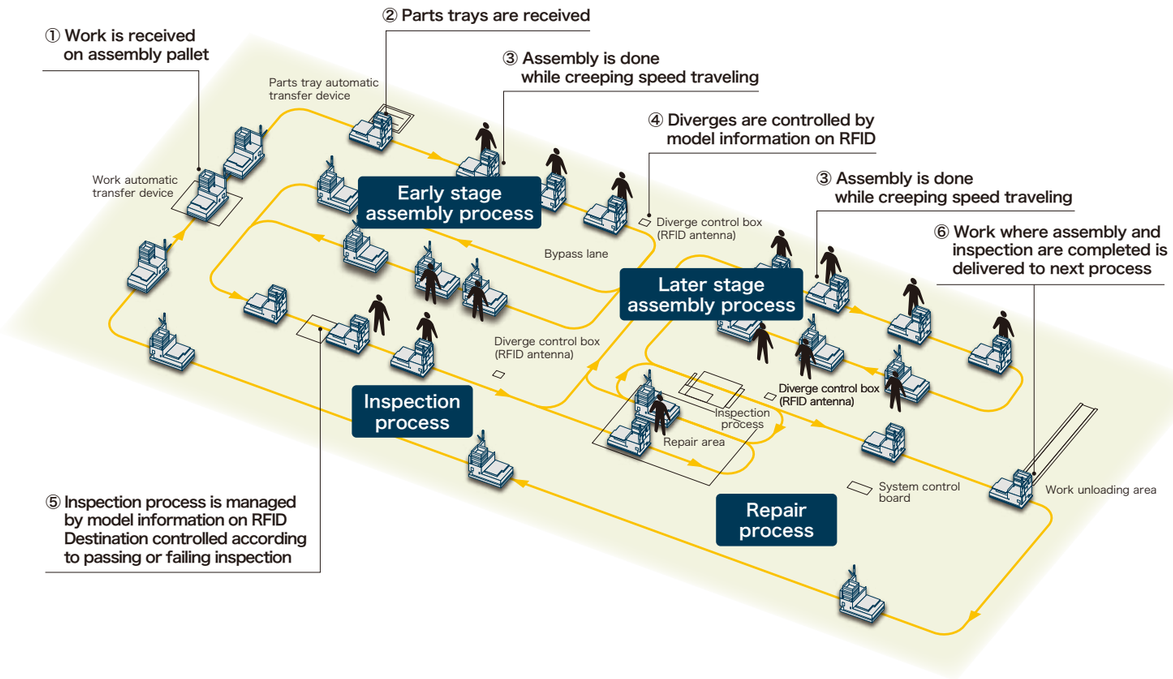
## 2 System composition

| | |
|---|---|
| Location introduced to | Unit assembly line |
| Model name | AGV Kit heavy-duty class MK5 special assembled vehicle |
| Travelling speed | Creeping speed travel 1.5 m/min Ordinary speed travel 30 m/min |
| Transported Items | Assembly pallets, parts trays |
| Transport weight | Up to 500 kg |
| Ground equipment | 1 system control board, 8 automatic battery chargers, 3 wireless LAN access points |



50 AGV Kit special assembled vehicles

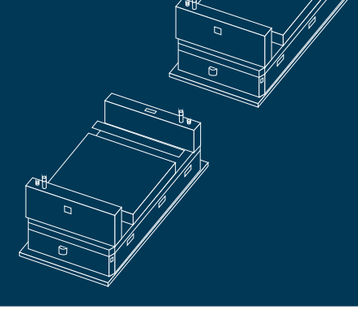
## 3 System operation






AGV introduction example 2 Machining line

# 24-hour-a-day automated operation made possible.



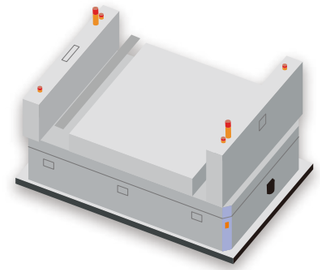
This automated transport system automatically supplies machining lines with materials and processing work. It applys AGVs that can travel in all directions, enabling reduced travelling space requirements and tight turning. The system control panel constantly communicates with the AGVs by wireless LAN, identifying where the AGVs are and their status to prevent collisions between AGVs and efficiently give transport instructions after unloading work.

## 1 Effects of introduction

① Achievement of automatic transport of pallets holding materials and processing work
② Ability to operate fully automated 24 hours a day thanks to automated battery charging
③ Minimal impact of broken down vehicles due to function to automatically generate detours when vehicles break down

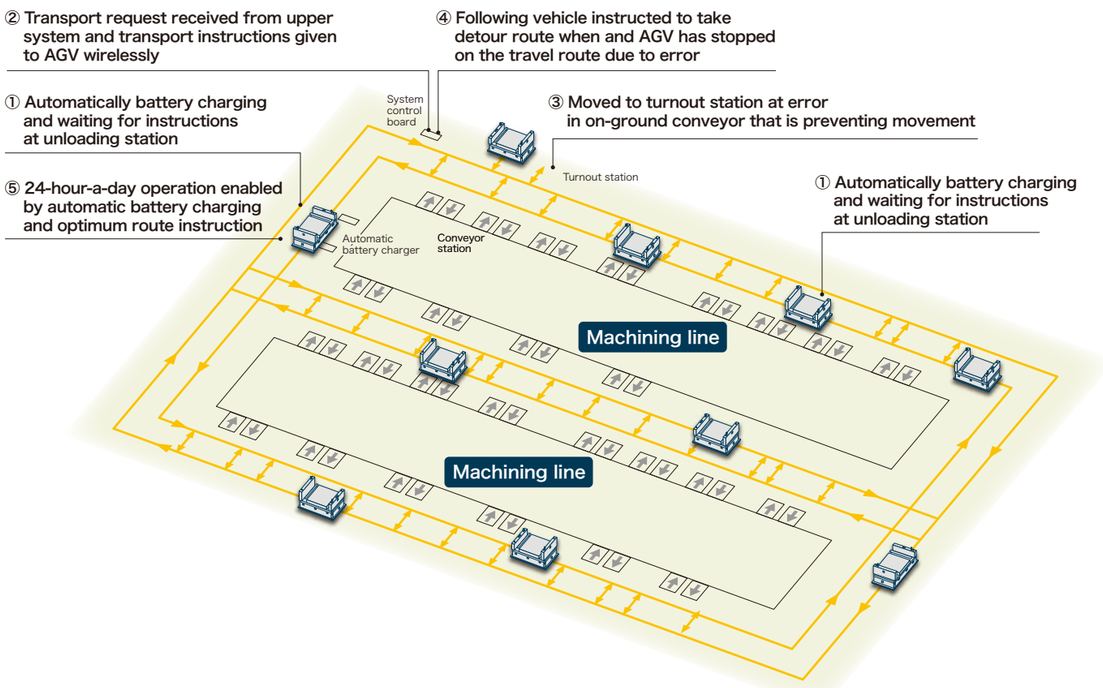
## 2 System composition

| | |
|---|---|
| Location introduced to | Machining line |
| Model name | Platform type AGV 3MC-M10 |
| Travelling speed | Max. speed 60 m/min |
| Transported Items | Material/processing work pallet |
| Transport weight | Up to 1,000 kg |
| Travel directions | All directional travel (forward, backward, sideways, and spin turn) |
| Ground equipment | 1 system control board, 4 automatic battery chargers, 13 wireless LAN access points |



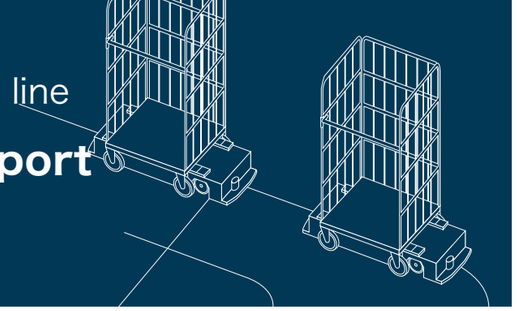
10 3MC-M10s

## 3 System operation



AGV introduction example 3 Cage truck shipping line

# Easy automation of transport without need to modify existing cage trucks.



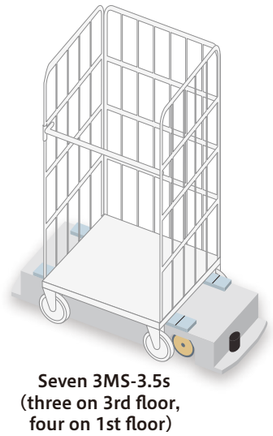
With this system, cage trucks are transported automatically without intervention by workers on the shipping line where products are transported by cage trucks. AGVs are low-platform type, and they slide underneath cage trucks and lift them up to transport them, meaning no modifications need to be made to cage trucks. And as they can pass underneath cage trucks, they can transport in order from the first one in a line, thereby reducing the space needed for cage truck holding areas.

## 1 Effects of introduction

① Cage truck received on third floor, transported to the stock area, and then automatically transported to the shipping lane on the first floor
② Ability to use without modifying existing cage trucks means reduced total costs at introduction
③ Space needed for straging cage trucks is reduced, so the customer can make the maximum use of its work area

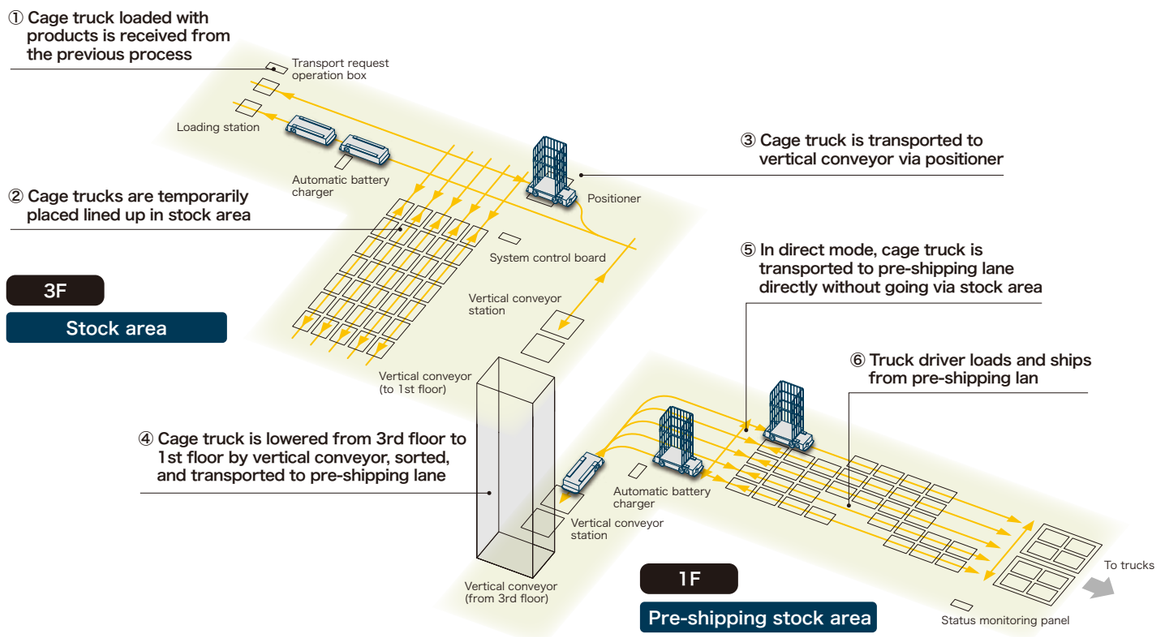
## 2 System composition

| | |
|---|---|
| Location introduced to | Lined stock area and shipping sorting area |
| Model name | Lift type low-platform AGV 3MS-3.5 |
| Travelling speed | Max. speed 60 m/min |
| Transported Items | Cage trucks loaded with products |
| Transport weight | Up to 350 kg |
| Ground equipment | 1 system control board, 1 status monitoring panel, 2 automatic battery chargers, 1 cage truck positioner, 3 wireless LAN access points |



Seven 3MS-3.5s (three on 3rd floor, four on 1st floor)

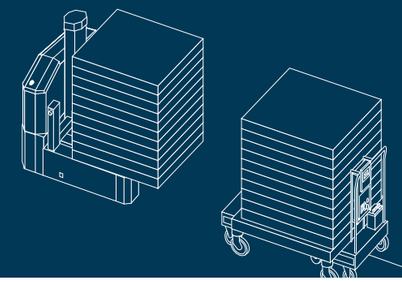
## 3 System operation






AGV introduction example 4 Food production line

# Contribution made to automation of manned forklift work.



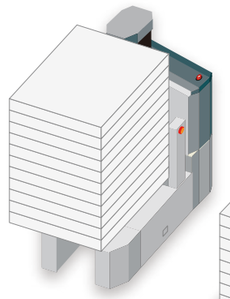
This system automatically supplies production lines with pallets loaded with containers, caps, and other materials. Manned forklift work was automated with two types of AGV—side-fork type AGV for cargo sorting in warehouses and towing truck AGV for production lines. Pallets loaded with materials are removed by side-fork type AGV and unloaded to special towing truck AGV, and the AGV tow them to the production line.

## 1 Effects of introduction

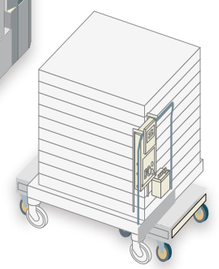
① Automation of manned forklift work by two types of AGV
② Achievement of automatic stocking and shipping by linkage with automated warehouse
③ Cost reduction by automating nighttime work (three-shift support)

## 2 System composition

| | |
|---|---|
| Location introduced to | Material storage warehouse, food production line |
| Model name | Side-fork type AGV 3ML-M11, AGV Kit MK5 special towing truck |
| Travelling speed | Max. speed 60 m/min |
| Transported Items | Pallets loaded with materials |
| Transport weight | Up to 800 kg |
| Ground equipment | 1 system control board, 2 automatic battery chargers, 1 wireless LAN access point |

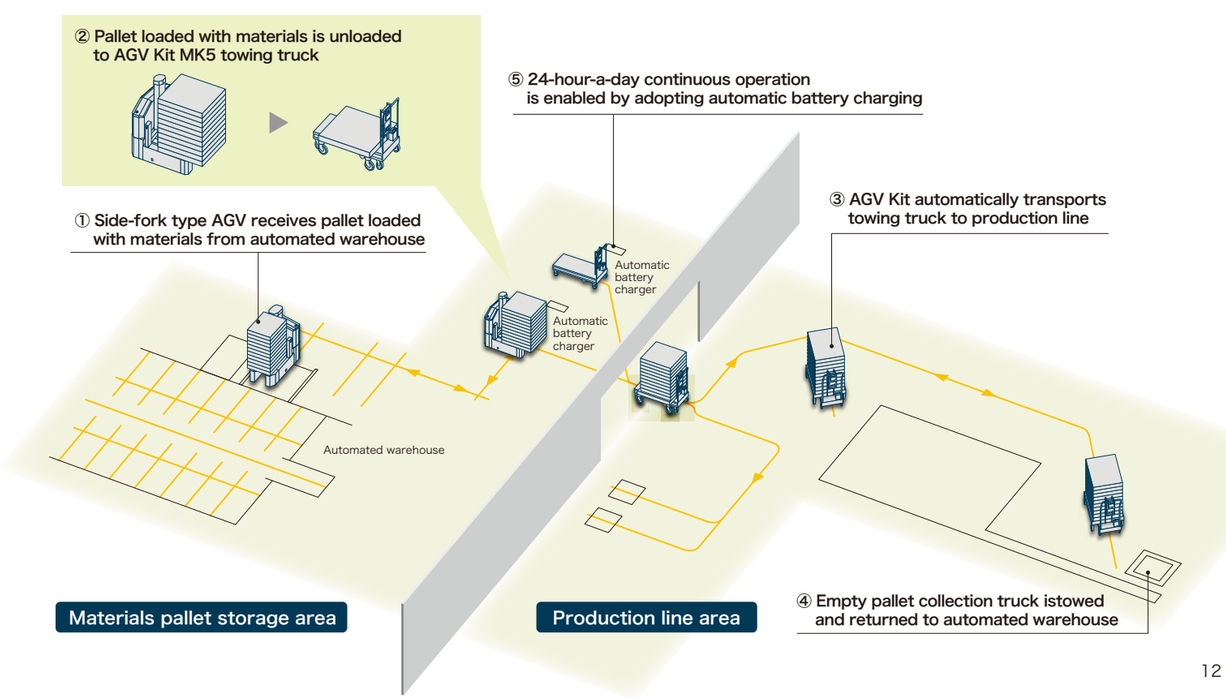


One 3ML-M11



One AGV Kit MK5 special towing truck

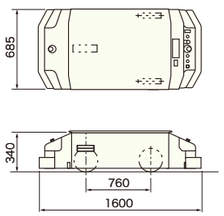
## 3 System operation



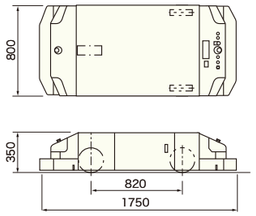
# Dimensions unit(mm)

## Standard AGV

### 2ACB2.5

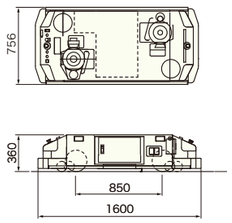



### 2ACB5



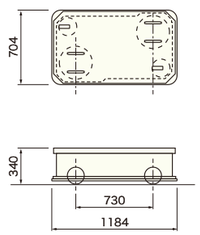

## All directional AGV

### ACBM2.5

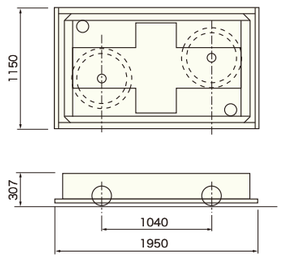



## All directional AGV

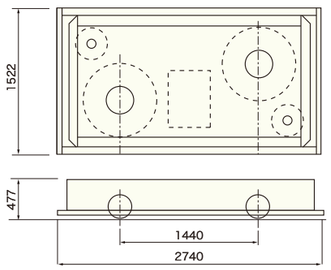
### 3MC-M2.5




### 3MC-M10

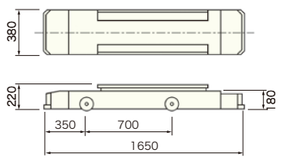



### 3MC-M30/60



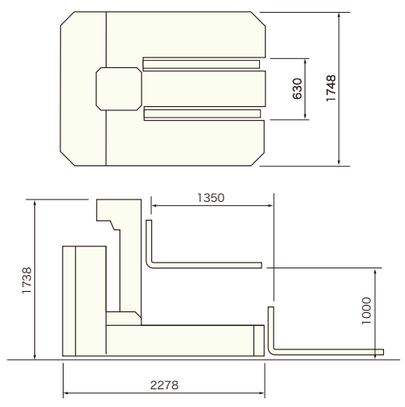

## Lift type Low-platform AGV

### 3MS-3.5E

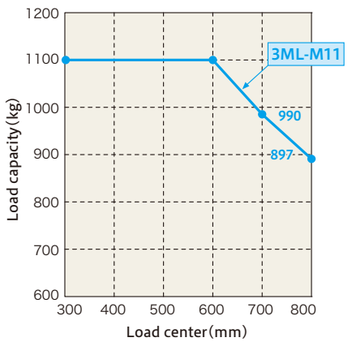



## Side-fork type AGV

### 3ML-M11




## Side-fork type AGV loading data

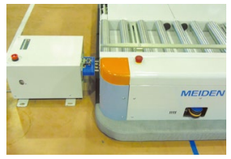



●Since the above data are based on calculations, a margin of more than 10% should be taken into account.

# Option

## Automatic Battery Charge

**Features:**




●Around-the-clock continuous operation is possible with a feature of automatic battery charging.

●Charging is performed after confirming the stop position of AGV.

●Wireless battery chargers also can be used.

## Wireless LAN unit

**Features:**

●Using a wireless LAN unit, high-speed communication with a ground station can be carried out.

●Wireless Standard IEEE802, 11b/g/n 2.4GHz

●Used for the destination order or call in control.



# Specifications

| | Items | | Platform, Forward and Backward type | | Platform, All directional type | | | | Forklift type | Full flat Low-platform type |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2ACB2.5 | 2ACB5 | ACBM2.5 | 3MC-M2.5 | 3MC-M10 | 3MC-M 30/60 | 3ML-M11 | 3MS-3.5E |
| Performance | Load capacity (including transfer unit) | kg | 250 (400) | 500 (750) | 250 (400) | | 1000 (1500) | 3000／6000 | 1100 | 350 |
| | Guidance system | | Magnetic rod / Magnetic tapes / Laser | | Magnetic rod / Magnetic tapes / Laser | Magnetic rod / Magnetic tapes/Laser/ Multi | | | Magnetic rod / Magnetic tapes / Laser | Magnetic rod / Magnetic tapes / |
| | Driving, Steering system | | Front wheel driving, Front wheel steering | | Front/Rear wheel driving, Steering | | | | Front/ Rear wheel driving,Steering | Front wheel driving,Front wheel steering |
| | Traveling direction | Back ward | Optional | | ○ | | | | ○ | ○ |
| | | All directional | — | | ○ | | | | | — |
| | | Spin turn | ○ | | | | | | | |
| | Rated speed | | 60 | | Forward/Backward 60 Traverse 30 (3MC-M60 Forward/Backward 30 Traverse 15) | | | | Forward/ Backward 60 Traverse 30 | Forward 60 Backward 30 |
| | Elevating speed | mm/s | — | | — | | | | 250 | — |
| | Reach speed | | — | | — | | | | | — |
| | Minimum turning radius | mm | 850 | 900 | 1000 | 850 | 730 | 1200 | 1500 | 800 |
| | Stopping accuracy (Speed before stop: 8m/min) | mm | ±10 | | ±10 | | | | Machine base end ±10 Fork end ±30 | ±10 |
| | Gradienty (5m continuous) | % | 2 | | | | | | | |
| | Standard working time | h | 8 | | 8 | | | Continuous Automatic charge type | | |
| Major dimensions | Length/ ( ) Spec. for backward | mm | 1550 (1600) | 1655 (1750) | 1600 | 1184 | 1950 | 2740 | 1748 | 1650 |
| | Width | mm | 685 | 800 | 756 | 704 | 1150 | 1522 | 2278 | 380 |
| | Height | mm | 340 | 350 | 360 | 340 | 307 (Automatic charging type) 407 (Manual charge type) | 477 | 1738 | 180 |
| | Load-carrying platform height | mm | 340 | 350 | 360 | 340 | 307 (Automatic charging type) 407 (Manual charge type) | 477 | 35～1035 | 180 |
| | Minimum ground height | mm | 25 | 30 | 30 | 25 | 30 | | 35 | 20 |
| | Weight | kg | 220 | 360 | 290 | 230 | 600 | 1550 | 2050 | 150 |
| Storage batteries | Type | | Open type lead batteries for battery replacement system, Enclosed type lead batteries for auto-charge system | | | | | | | |
| | Voltage | V | 24 | 48 | 24 | | 48 | | 48 | 24 |
| Automatic battery charge type | | | Optional | | | | | ○ | ○ | ○ |
| Wireless LAN | | | Optional | | | | | | | |

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)

## Introduction to AGV Factory

- AGV Factory is an exhibition space set up at the Nagoya Works.
- Four types of AGV with differing features are on permanent display.
- Features of vehicles with different guide methods and demonstrations of two trucks working in tandem to deliver cargo can be viewed.

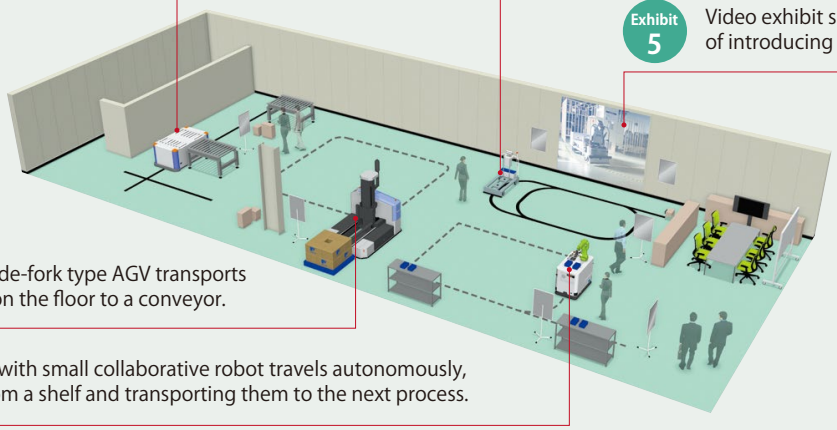


Exhibit 4 — Platform type AGV transports between processes, from previous process conveyor to following process conveyor.

Exhibit 1 — AGV Kit travels on double loop course according to destination instructions.

Exhibit 5 — Video exhibit shows examples of introducing AGVs.

Exhibit 3 — Laser-guided side-fork type AGV transports pallets placed on the floor to a conveyor.

Exhibit 2 — AGV equipped with small collaborative robot travels autonomously, taking cases from a shelf and transporting them to the next process.

**To sign up for a tour, please use the inquiry form at ""AGV Navi"" on the Meidensha website.**
**(Please do not sign up if you are in the same industry.)**

MEIDEN

# MEIDENSHA CORPORATION

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**www.meidensha.com**

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Meidensha (Shanghai) Corporate Management Co., Ltd.
Meiden Hangzhou Drive System Co., Ltd.
Shanghai Meidensha Changcheng Switchgear Co., Ltd.
Meiden (Hangzhou) Drive Technology Co., Ltd.

**Hong Kong**
Meiden Pacific (China) Ltd.

**India**
Meiden India Pvt. Ltd.
Meiden India Pvt. Ltd. Ahmedabad Branch

**Indonesia**
P.T. Meiden Engineering Indonesia

**Korea**
Meiden Korea Co., Ltd.

**Malaysia**
Meiden Malaysia Sdn.Bhd.
Meiden Metal Engineering Sdn. Bhd.

**Myanmar**
Thai Meidensha Co.,Ltd. Yangon Branch

**Singapore**
Meiden Asia Pte. Ltd.
Meiden Singapore Pte. Ltd.

**Thailand**
Thai Meidensha Co., Ltd.
Meiden Electric (Thailand) Ltd.

**Vietnam**
Meiden Singapore Pte. Ltd. Hanoi Office

**Philippines**
Meiden Singapore Pte. Ltd. Philippines Branch

**United Arab Emirates**
Meiden Asia Pte. Ltd. Dubai Branch

**Germany**
Meiden Europe GmbH.
Tridelta Meidensha GmbH.

**The United States**
Meiden America, Inc.
Meiden America Switchgear, Inc.



VEGETABLE OIL INK

**PA52-3139H** As of Mar., 2021
2021-3ME (9.9L) 0.5L