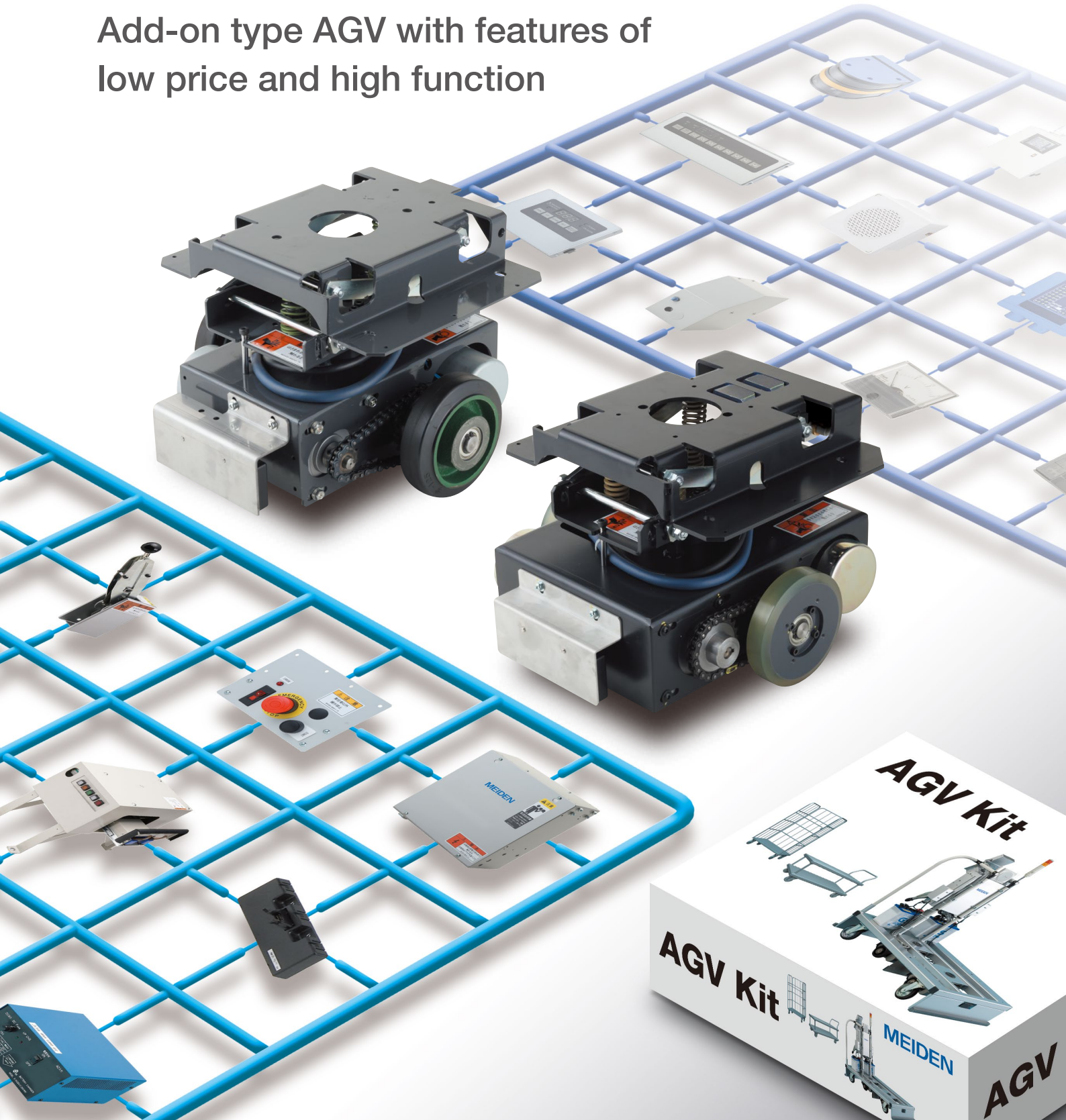
Automated Guided Vehicles Kit

MEIDEN
Quality connecting the next

AGV Kit

Add-on type AGV with features of low price and high function



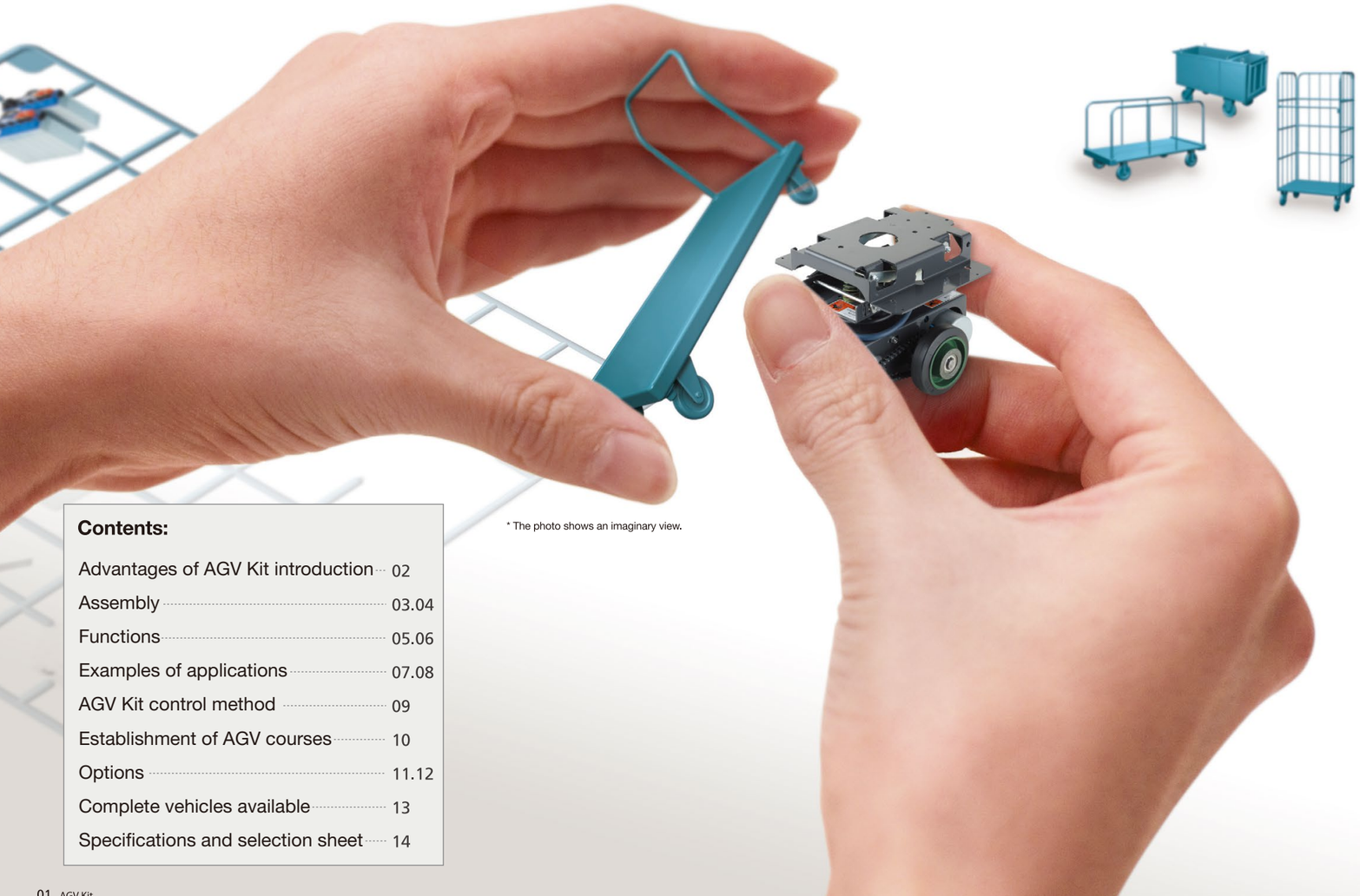
AGV Kit is the one and only AGV its kind in the world.

"We want to introduce the AGV, but we don't have enough budget."
"Conventional simplified AGVs are not enough for our plan."
Our AGV Kit has been born from such voices on the site. The AGV Kit can combine both the keen requirements of low cost and high function. This is a simplified AGV with a high degree of freedom and expansibility.

1 Compact and easy to install

2 Inproved functions

3 Optional functions increased



* The photo shows an imaginary view.

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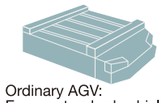
Leading AGV manufacturer

Add-on type AGV with features of low price and high function drawing on Meiden AGV technologies

Advantages of AGV Kit introduction:

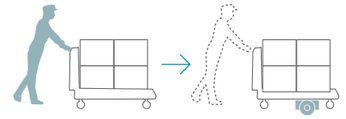
Low cost

AGV Kit:
The price is almost 1/8 that of an ordinary AGV.



Ordinary AGV:
Even a standard vehicle costs tens of thousands of dollars.

Low cost and high function:
A high-function AGV can be obtained for about 1/8 of the ordinary price. Many options are available for functional upgrading.



Produce high working efficiencies:
Labor saving on the transportation cost.
The reduction of heavy labor and an optimal arrangement of personnel can be attained.

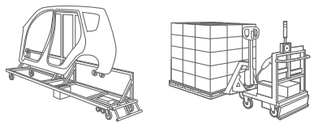
Simplicity

Easy assembly:
The customer can produce an original AGV by simply installing a new unit on the existing vehicle.

Simple setup:
The user can easily set up the unit by connecting a PC. After that, the AGV starts and stops automatically when the switch is merely pressed ON.

Flexibility

Free layout:
By sticking magnetic tapes to the floor, the traveling route and stop positions can be easily set. Urgent layout changes are acceptable.



Expansibility:
Any AGV can be produced according to the user's idea to carry cargoes. If an external I/O system is utilized, it can be developed into an auto-control system.

ASSEMBLY

Assembly is easy.
Your present vehicle will became AGV you wanted.

Basic assembly

You can produce your own AGV by installing the basic unit and some applicable options on your existing vehicle.

STEP 0 Vehicle (belonging to the customer)

▼

STEP 1 Basic unit

▼

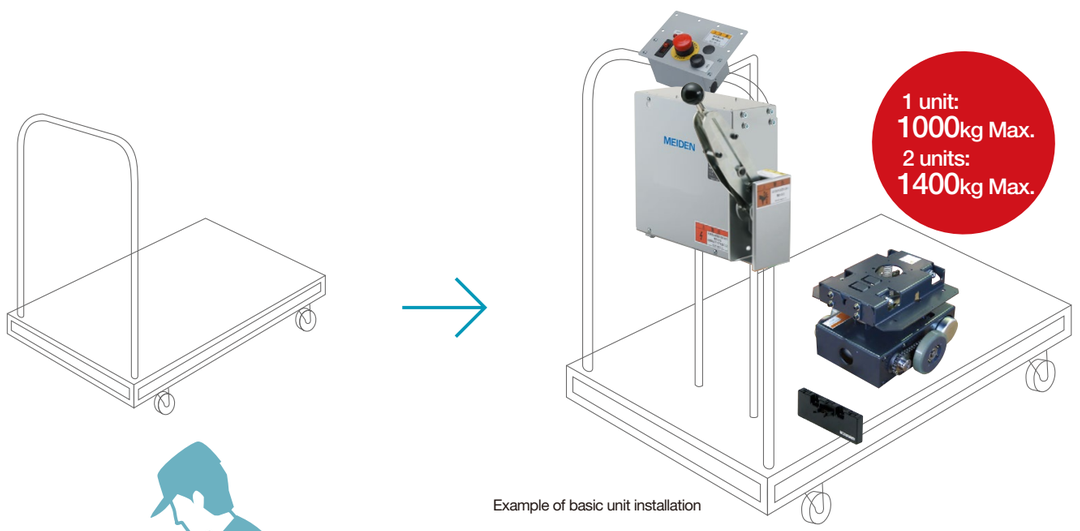
STEP 2 Optional unit (needed for traveling)

▼

STEP 3 Optional unit (for higher functions)

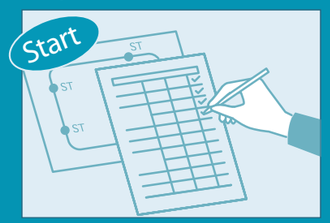
* Refer to Pages 11~12 for details about components and units.

You can choose a just-fits driver unit according to the carrying weight and the traveling speed.



Example of basic unit installation

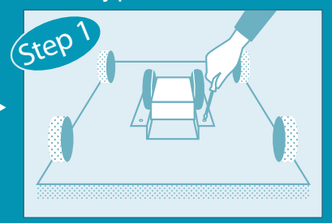
Confirmation of details and asking for quotation



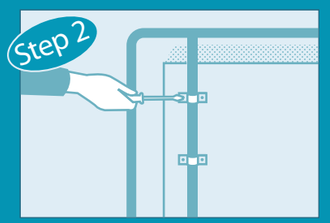
Please don't hesitate to contact us by phone or facsimile and ask us for explanations and a quotation.

* Please use the Specification Selection Sheet on Page 14.

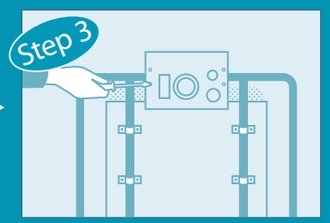
Assembly procedures



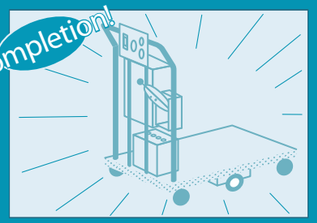
When your AGV Kit is delivered, start up the assembly work immediately. In the first place, install the driver unit and marker sensors on the reverse side of the vehicle.



Then, install the control unit.
The control unit is so-to-speak the brain of AGV Kit ; it gives traveling instructions to the driver unit.



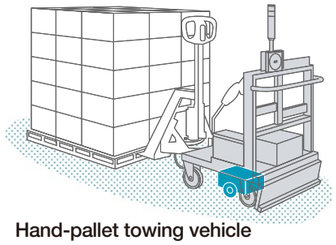
Install the operator switch and the wheel lifter. As required, install options according to the purposes.



Connect cables between the control unit and the driver unit, options, etc. When the storage battery is installed, the completed assembly is ready to run.

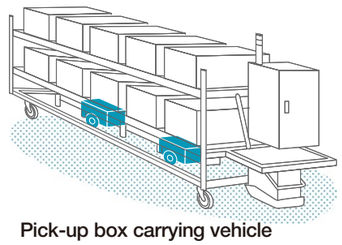
Applications

AGV Kit can make any type AGV according to the cargo being transported.



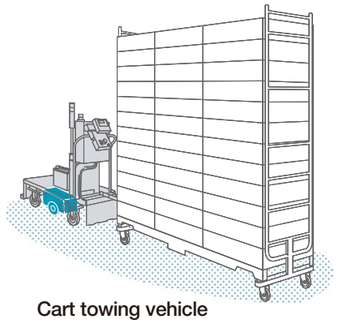
Hand-pallet towing vehicle

The truck installed with AGV Kit tows the hand pallet behind it. When the joint is released, the towed hand pallet can be used as an ordinary one.



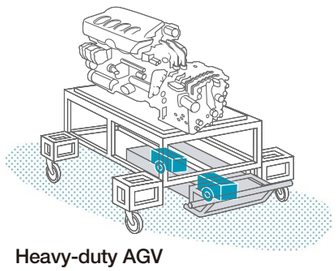
Pick-up box carrying vehicle

With the digital pickup system, collected cargos can be supplied to the assembly line. Many parts boxes can be carried at a time.



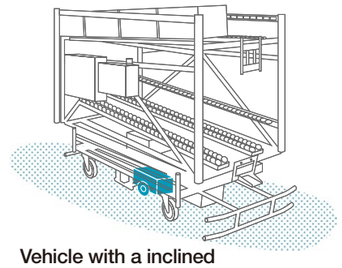
Cart towing vehicle

The AGV Kit tows specialized carts on which products are placed. It can transport products from the loading/unloading area to the storage location at the distribution center.



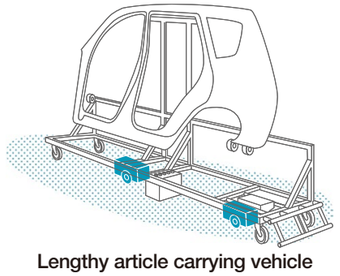
Heavy-duty AGV

If two driver units are installed, a maximum of 1400kg can be transported. (Up to 1000kg per driver unit)



Vehicle with a inclined conveyer

The loading and unloading of heavy articles can be done easily. Since a driving conveyer need not be installed, this application is useful for cost reduction.



Lengthy article carrying vehicle

If two driver units are installed, the transportation of lengthy articles becomes possible. Because these two driver units run along the guided lines independently, stabilized traveling is assured.

SETTING

This is a kit, but what a high function! AGV Kit assures such an achievement.

Anyone can operate it. It is an easy-to-handle AGV.

[Easy operation]

Select the station with the operational console. The vehicle starts moving just by pressing the START switch. Any person can drive it easily

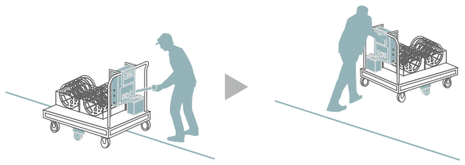
Step 1
Specify the destination with the operational console.

Step 2
Start with the START switch.

Available also as a dual mode (manual or AGV) handle cart. It can be flexibly applied to all kinds of situations.

"Changeover from AGV to handle cart"

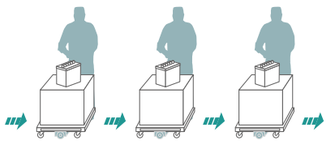
When the wheel lifter is operated, the AGV can be simply modified into an ordinary handle cart. Such a changeover action is useful where no guided lines are laid.



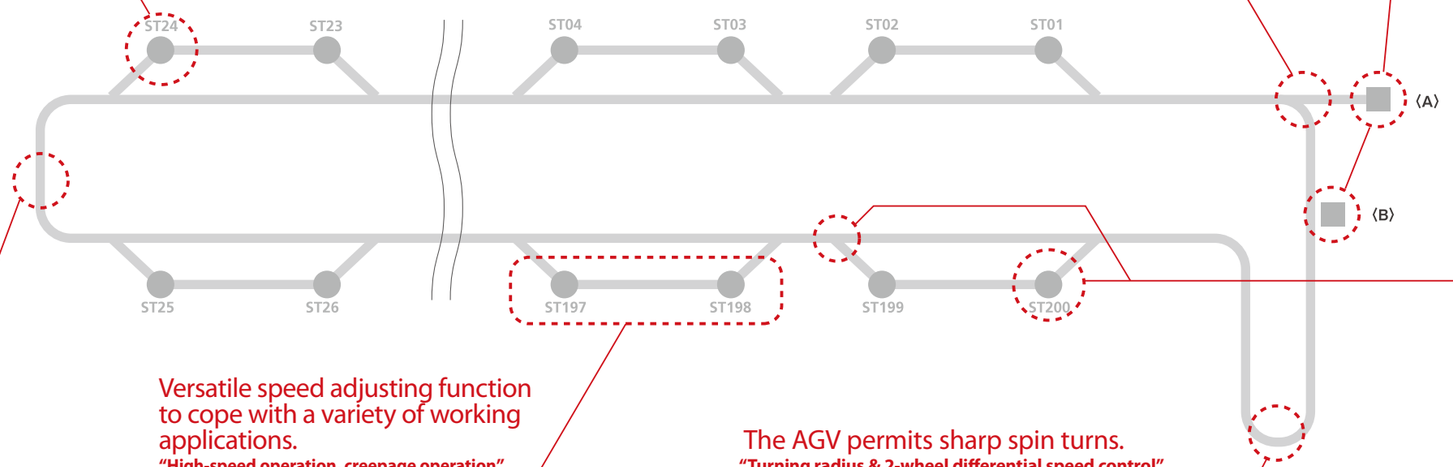
Versatile speed adjusting function to cope with a variety of working applications.

"High-speed operation, creepage operation"

15 speed settings (relative address type).
The maximum traveling speed is 60 meters per minute. For a lightweight class of the 30m/min type, an optional assembly can assure such a creepage traveling as 1.5 meters per minute.



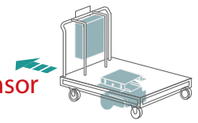
Used like a conveyer [Creep traveling]



The addition of a back-traveling sensor realizes backward traveling simply.

"Back-traveling, simplified back-traveling"

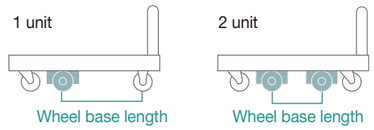
Back traveling: The use of two units can go along the same curves as for advancing.
Simplified back traveling: One unit is used. Only available for linear traveling and a large curvature.



The AGV permits sharp spin turns.

"Turning radius & 2-wheel differential speed control"

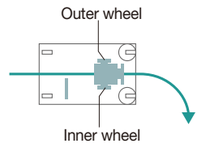
●Turning radius



■ For a turning of less than 90 degrees: Wheel length×0.75

■ For a turning of over 90 degrees: Wheel length×1.1

●2-wheel differential speed control



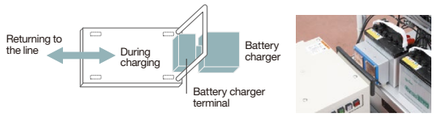
AGV Kit controls the revolving speed of the right and left wheels independently of each other. Therefore, high turning performance and stable running are assured even for a small turning radius.

Applicable to continuous 24-hour operation.

"Auto-charging"

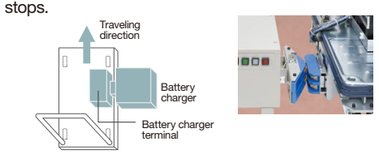
〈A〉 Backward type auto-charge

The AGV Kit makes backward traveling so that it is connected to the auto-charger terminal. Not in the middle of the course, it travels backwards to the refuge position and stops there automatically.
Auto-charge is started after the AGV Kit has stopped.



〈B〉 Side-surface type auto-charge

A charging station is installed on the traveling course of the AGV Kit.
With a charger terminal mounted on the AGV Kit side surface, auto-charge is started when the AGV Kit stops.



Up to 200 stations (ST) and 200 branches can be set up.

"Station (ST) and branch setup"

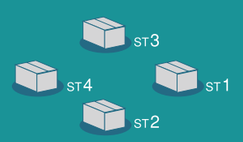
Onboard setter permits setting up more complicated courses.

●Operational console type A
Setting is possible up to 8 stations and 7 branches.
(ST system designated by the command marker)

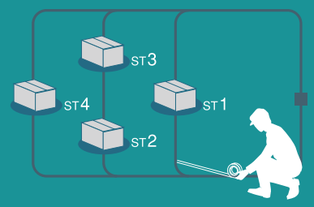
●Operational console type 2B
Setting is possible up to 200 stations and 200 branches.
(Relative address system)

●Command marker
To set up the course, a station marker is stuck to a stop position and a branch marker is located in front of each branch.

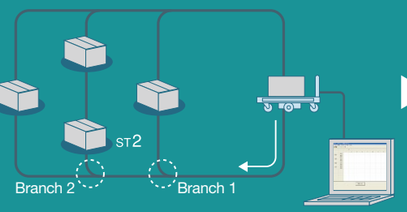
Setting procedures



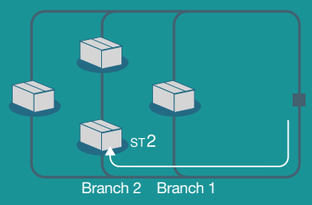
Explanations below are given for an example of a factory where four stop stations (ST) are located. First of all, an examination is carried out to define on which route AGV Kit should be driven.



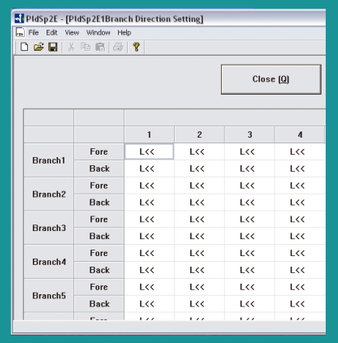
When the route is defined, stick the magnetic tapes to establish AGV Kit traveling route. Stick the command markers to the branch spots and stations.



Connect a personal computer to the control unit that is installed on the truck. Select the required truck motions. For example, the setting for going to ST2 is instructed to go to the left at Branch 1, and to the right at Branch 2.



On the PC screen, select "left" for Branch 1 and "right" for Branch 2. By simply clicking on the screen for the selection of the destination station and branch directions, even a complicated route can be set up easily.



There are a variety of applications because you can customize your original system by yourself. The scope of the application can be widespread according to your idea.

Examples of the application of AGV Kit

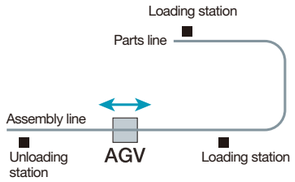
Assembled components carrying vehicle

"We could cut the logistic job and more than to other job" (By a machine manufacturer)

Backward function | 2 units | High speed

This system is used to convey the parts to the assembly line. The upper section of the vehicle is flat and is devised to have the height and shape suitable for putting parts on it. Assembly parts are procured from multiple parts shelves, and supplied to the assembly line.

- Since the vehicle can go backwards, it can enter a narrow space where cargos can be received.
- The traveling speed is as high as 60m per minute. The carrying mass is 350kg. It is a high-performance vehicle type AGV.



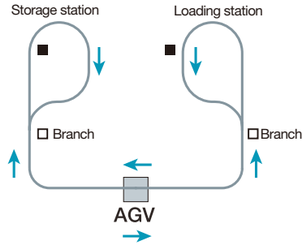
Hand pallet towing vehicle

"This is a very convenient system because hand pallets can be towed immediately." (By a logistics provider)

1 unit | Heavy Weight

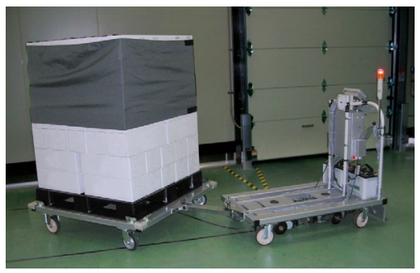
The hand pallet as a whole, carrying stacks of product boxes, can be towed and transported. In the warehouse, the vehicle automatically tows the hand pallet from the loading station to the storage station.

- The hand pallet can be connected to the coupler of AGV with a single operation.
- The maximum transport load is 800kg (mass).



Product cart towing vehicle

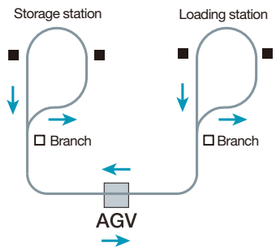
"We feel relieved because the transportation to the stowage warehouse can be automated." (By a medical product manufacturer)



2 units | Heavy load

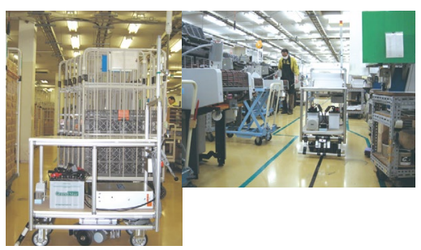
AGV Kit tows two types of product carts, a box pallet and a flat pallet. These are combined with the pallet vehicle by means of joint pins, and automatically transported as far as the stowage warehouse. An automatic shutter on the way can be opened and shut automatically by means of a sensor that senses the arrival of AGV Kit.

- Two driver units are installed for the traction of a heavy article that amounts to 500kg.
- A joint mechanism for traction is added to a standard sheet metal truck.
- AGV Kit waits in front of the automatic shutter. It begins to run again after confirming the rise of the shutter by means of the sensor.



Printed matter carrying vehicle

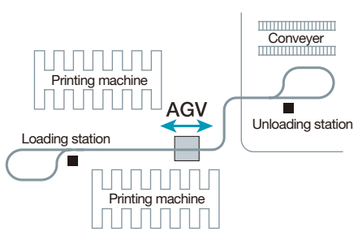
"Even an intern student could assemble it easily." (By a printing company)



1 unit | Standard

AGV Kit carries the printed plan sheets to the next process. The operator attending to each printing machine puts the printed matters on the vehicle and presses the START switch for transportation to the destination. This is the standard type with the carrying weight of 250kg and speed of 30m per minute.

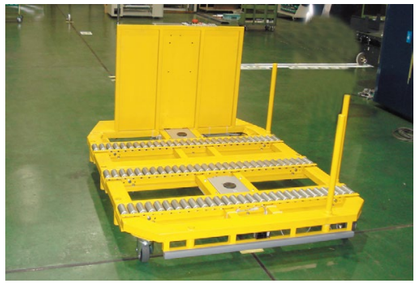
- This is the standard type with a carrying mass of 250kg and a speed of 30m/min.
- Even a beginner can operate the AGV easily with a single button.



Examples of the application of AGV Kit (More sophisticated classes)

Printing materials carrying vehicle

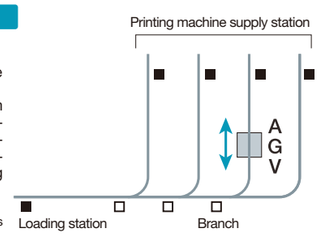
"An AGV exclusively used for large-size pallets has been established easily." (By a printing company)



Backward function | 2 units | Heavy load
External I/O

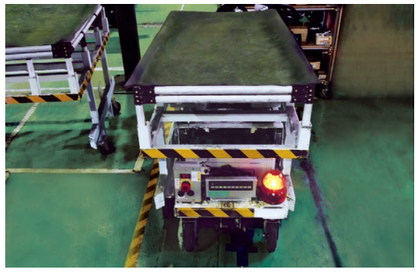
This is AGV Kit used to supply raw materials to the printing machine.
Raw materials are put in stacks on a pallet of 1500mm square and AGV Kit carries the materials from the material storage to the raw material supply port of the printing machine. A request for the material supply is transmitted in wireless mode from the station of the printing machine and AGV Kit carries the raw material.

- This is the large-scale forward/backward type with a carrying mass of 700kg.
- The vehicle height is made as low as possible by incorporating the free rollers.



Slip-in carrying vehicle

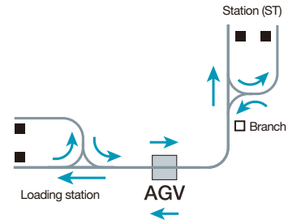
"This is our first experience to have an AGV that permits such a sharp spin turn." (By a specific vehicle manufacturer)



Backward function | 2 units | High speed
External I/O

AGV Kit creeps under a carrying truck to be used as a tractor. The vehicle height is suppressed as low as possible and AGV Kit creeps under the truck and a traction pin is protruded from the bottom to hook it on the truck frame so that the vehicle as a whole can be towed and moved. Upon the arrival at the station, the traction pin is automatically withdrawn to let the truck remain there. AGV Kit alone moves to another point for the next transportation.

- All system management is done automatically. Destination instructions and start commands are identified by AGV Kit sensors. No instructions by workers are required.
- The wheel base has been made short to secure a sharp spin turn.



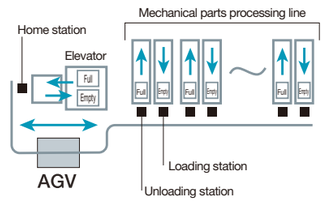
Mechanical parts carrying vehicle

"We replaced our existing AGVs with a low cost." (By a machine manufacturer)

Backward function | 2 units | Heavy load
External I/O

This AGV Kit is used for materials loading and empty bucket recovery on the mechanical parts processing line. Each bucket full of materials is received from the elevator and automatically fed to the conveyer of the processing line. An empty bucket is automatically received from the processing line and automatically transferred to the elevator.

- Driving conveyers are installed for automatic load transfer with ground conveyers..
- Destination is indicated by an optical communication unit mounted on the ground conveyer.



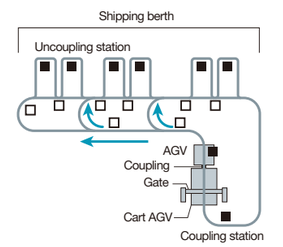
Physical distribution center cart towing vehicle

"Advantages are great because transportation personnel has been curtailed and wrong delivery is prevented." (By a warehouse owner)

1 unit | Heavy weight | External I/O
Radio LAN

At the Physical Distribution Center, incoming cart AGVs are classified and transferred to the shipping berth. Merchandise barcodes on the cart AGV are automatically read out and destination of this cart AGV is automatically discriminated. It is towed as far as the destination. Cart AGV coupling is manually performed by a worker, while uncoupling is done automatically.

- A maximum of 400kg of Cart AGV is transported at the maximum of 50m/minute.
- A merchandise barcode on the cart AGV is read out to designate the destination to the AGV Kit.
- When multiple units are operated, standby control by radio LAN is of the autonomous type.



AGV Kit control method

Utilization of I/O systems “Automatic control”

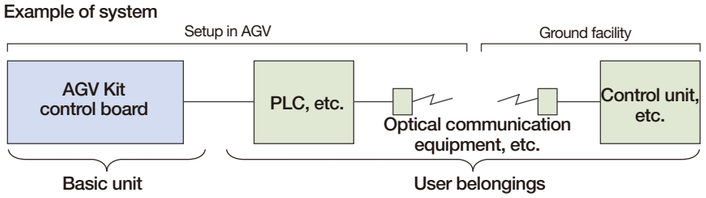
* In this case, an optional onboard setter may be required. Please ask our business contact for further details.

It is possible to use an I/O system. By setting up applicable motions, a more functional AGV can be produced.

Examples of possible items with applicable I/O systems

Speed setting change	Branch direction change
Auto start-stop	Forward/backward direction changeover
Standby instructions	Destination ST instructions & setup from external I/O

Example of system



External terminals

IN (inputs) Start command, stop command, temporary stop, temporary low speed, bumper (for stop) branch signal, forward/backward changeover, external speed command, obstacle sensor stop prevention

OUT (outputs) Alarm, error, buzzer, ON guide monitor, branch direction monitor, marker sensor monitor, run, arrival signal, running direction monitor, running speed monitor

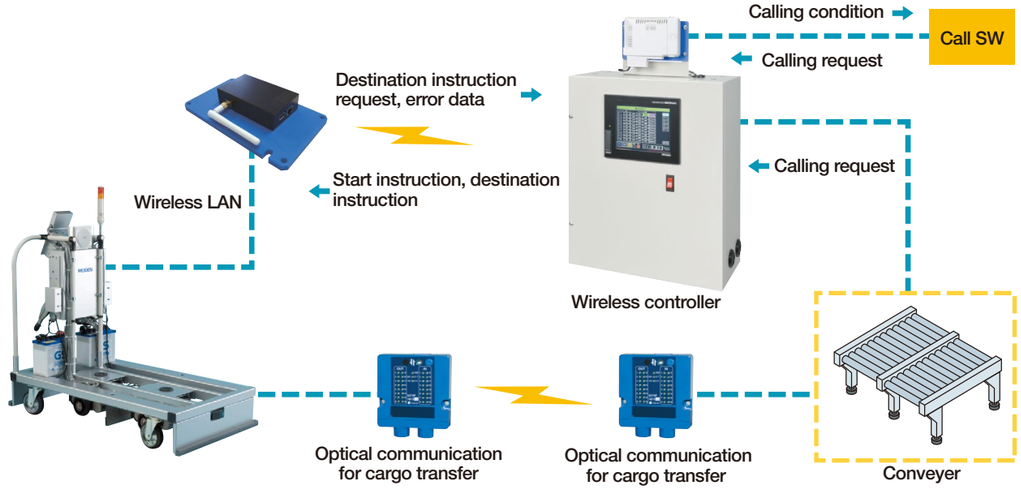
Wireless controller exclusive for AGV Kit where a wireless LAN is installed

Status supervision | Timer start | Standby control

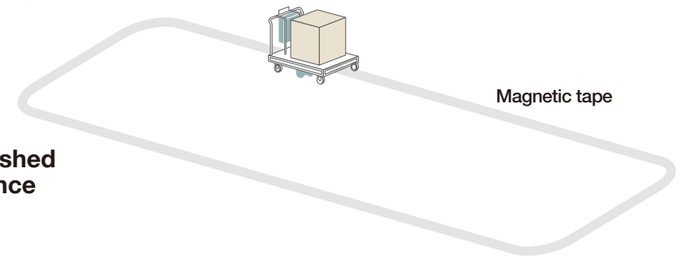
An optional wireless LAN is also used.

- With a signal from the I/O system, an instruction of servicing can be given to AGV Kit that is in rest condition at a station.
- Since the conveyer connection mode and the switch box connection mode are available, a nearby AGV Kit can be called up easily.

(Example)
When the signal of a conveyer cargo sensor is applied to the controller, AGV Kit waiting for an instruction at the specific station can be called up to travel to this conveyer.
* Cargo transfer communication between the conveyer and AGV Kit can be exchanged by optical communication equipment. It also applies to the call switch.
*The wireless controller can handle communication with Stations 1 to 50.



Easy setting of an AGV route by using magnetic tapes and command markers

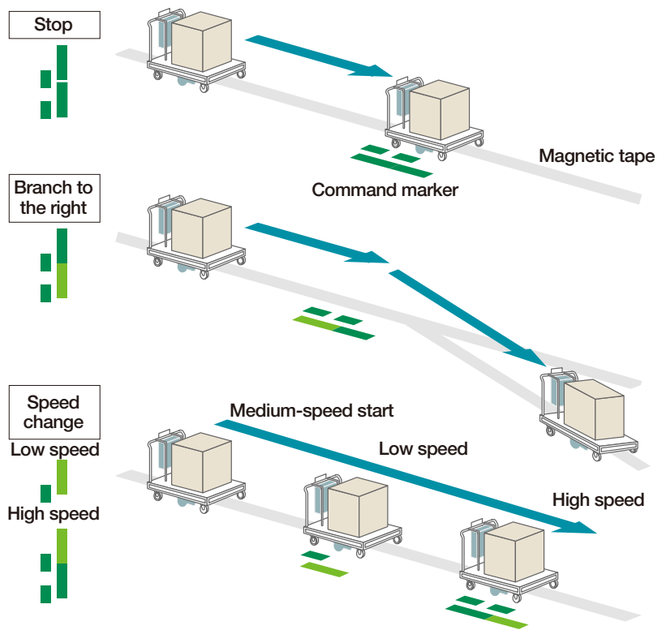


AGV Kit traveling route can be established easily by sticking the magnetic guidance tapes to the traveling course.
***Use only Meidensha magnetic tape.**

In case of command marker system unit.

Until arrival at the goal station, the command markers stuck to the floor are read out and commands are sequentially executed.

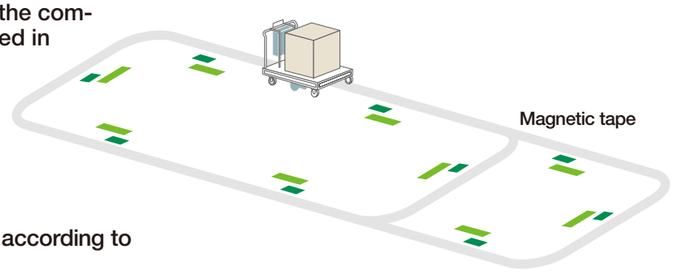
A variety of command markers can be used to give instructions of stop, branch, speed change, and so on.



In case of relative address system unit.

Command markers stuck to the floor are read out and AGV Kit goes runs according to the command instructions preliminarily entered in these command markers.

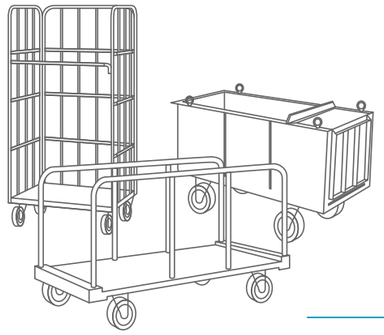
Command markers are stuck to positions where the AGV Kit has to perform stop, branch, and speed change.



Multiple commands can be executed according to a command marker in one position.
Speed setting is possible up to a maximum of 15 speeds.
Obstacle sensors (scanner type) can be set up in a maximum of 15 areas.
A maximum of 200 stations and a maximum of 200 branches can be set up.

Unit introduction

We can offer a variety of lineups to meet various needs.



Optional functions

Back-traveling function

This is a function for the backward traveling of AGV Kit. Two sets of driver units and guidance sensors are added to modify the control unit.

Simplified back-traveling function

This is a function for the short-span backward traveling. It is applicable to a linear course and a large curvature. (magnetic tape radius at least 1.5m)
Without requiring the addition of any driver units, this function can be established with the addition of guidance sensors.

Lateral movement and spin turning functionality

The unit has the ability for lateral movement and spin turning, effective for switching directions in tight areas. Drive unit, marker sensor, and stop sensor are additionally required. Lateral movement distance, speed, and carrying weight are limited.

Electromagnetic brake

This function prevent the vehicle from sliding down a slopes or shifting during cargo transfer. (Standard installation for heavy articles)

Encoder

With an encoder, Light-load-30m/min type vehicle can travel at lowest speed, 1.5m/min.
Reading a pulse improves driving speed accuracy.
This encoder function is used for assembling or picking work with moving AGV (instead of conveyer).

Stopping accuracy upgrading

The stoppage accuracy is upgraded from the standard level.(±30mm → ±15mm) (Heavy-load type includes this option as a standard)
* The stopping accuracy is upgraded through the combination of the electromagnetic brake and the creep traveling function.

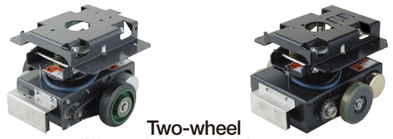
Extension of power supply

Power is fed to optional units. (24V × 1.8A)

I/O connecter & harness

Dedicated connecters and harnesses are needed for using I/O.
If a customer prepares harnesses, dedicated crimp tool is needed for termination.

Basic units



Two-wheel differential speed driver unit

Select between the light-duty and heavy-duty types, depending on the weight of the load to be hauled.
Up to 2 units can be attached to 1 vehicle.

Light duty driver unit
Size: W355×H230×L379mm
Min. ground height : 16mm
Self-mass : 23kg

Heavy duty driver unit
Size: W355×H230×L379mm
Min. ground height : 15mm
Self-mass : 27kg

Control unit

This is a core section of AGV Kit. It contains a computer and a control unit.
Size : W260×H110×L265mm
Self-mass :10kg

Operation switch

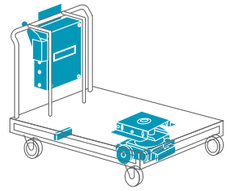
Power, Start, and Emergency Stop switches are provided. Each LED is lit when the power supply is turned ON.

Driver unit lifter

This device is used for the elevation of the driving block. When the driving block is lifted, the cart can be moved manually.

Marker sensor

This is a command sensor to read out the command marker.



Optional units
(required)

These optional units are needed for AGV traveling.

Battery (24V)

Used as the AGV power supply. 25AH, 35AH, 65AH, and 100AH are available.
*Closed mold type battery is recommended for Auto-charging.

Battery charger

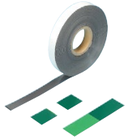
This is a battery charger. AC 100V and AC 200V versions are available.

Auto-charger(Rear type)

Battery cells are charged while the AGV is in standby mode through the connections between the battery charger terminal and the charger.

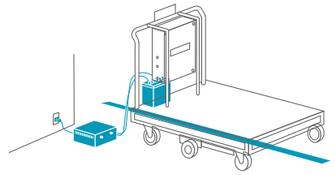
Auto-charger (Side type)

Since it can touch the side terminal, automated charging is possible without any back-traveling function.



Magnetic tape, marker

These are the magnetic tapes for guidance and markers.



Optional units
(for further improvements)

These optional units are intended for further functional improvements.

Operation console Type A

It is used for multi-spot stoppage with command markers. The AGV can stop at a maximum of 8 stations. A maximum of 7 branches can be set up. An error code is indicated in case of an error.

Operation console Type 2B

It is used for relative address type multi-spot stoppage. The AGV can stop at a maximum of 200 stations and a maximum of 200 branches can be set up. An error code is indicated in case of an error.

Laminate pilot lamp

It is lit during automatic traveling, an emergency stop, a stop at a station, and others. An independently controllable buzzer is incorporated. (Up to three colors to choose from)

Optical communication equipment

It is used when an instruction of AGV operation is given from the ground level.
* An onboard setter may be required.
* Its harness needs to be crimped by customer.

Wireless controller + Wireless LAN unit

Refer to Page 9 for more details.

Motor-powered wheel lifter

With a single switch, wheels of the driver unit can be elevated.

Obstacle sensor (PC setting type)

The detection areas can be set up with a personal computer. For each detection area, a detection distance of 2-stage output can be set up.
* May not be able to detect small objects, or matte black objects.

Obstacle sensor (Volume setting type)

The presence of an obstacle is sensed by infrared rays. When coming closer to the obstacle, the vehicle loses speed and stops.
* May not be able to detect small objects, or matte black objects.

Tape bumper

An emergency stop takes place when the tape bumper touches an obstacle.
* Dead zones are provided to both ends.

Running melody unit

A melody is broadcast during traveling or cargo transfer.

Battery voltmeter (Digital type)

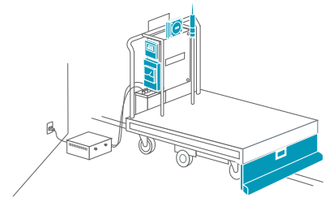
The battery voltage is measured and digitally displayed.
(Not available for auto-chargers)

Battery voltmeter (Analog type)

The battery voltage is measured and displayed.

Manual operation pendant

This is a wired remote control. It is useful when moving a heavy class vehicle outside the tapes.



Safety facts

This product is a unit to make an AGV and an AGV system. The final security under the operating conditions shall rest with the judgment of the customer.
*** Please refer to the JIS description in regard to the standard way of thinking.**
(JIS D6802 Safety Rules for the Automated Guided Vehicle Systems)

Emergency stop

To reduce the braking distance in an emergency stop the electromagnetic brake option must be installed (installed by default on heavyweight models).

Contact prevention

There is a danger of bone fracture or similar injury when you collide with the AGV's driver block. The AGV stops after the bumper comes in contact with an obstacle. If the AGV has to be stopped before any contact, the use of an obstacle sensor is effective. In consideration of the worst case, the emergency switch should be located where it can be touched from any position.

Operation check

To know whether the AGV is moving, there is a visual method such that the laminate pilot lamp is made to light or blink. As an audio method, a melody may be used to notify of the running conditions.

Assembled vehicles with AGV Kit are also available.

Sheet metal carrying vehicle

Simplified backward | Backward | 2 units | Light weight class | Heavy load

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

External truck size : W700×H1320×L1250mm
Platform size : W700×H240×L950mm

Handle cart

Lightweight class

●This type can be immediately used to replace the conventional handle cart that is presently used.

External truck size : W620×H1015×L942mm
Platform size : W620×H265×L785mm

Pipe carrying vehicle

Simplified backward | Lightweight class

●This is a model whose body can be modified daily.

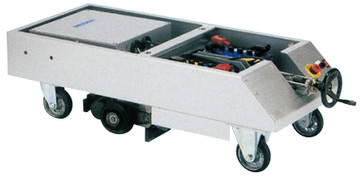
External truck size : W700×H1320×L1250mm
Platform size : W700×H345×L945mm

Flat vehicle

Simplified backward | Light weight class

●This is a compact low-platform model.
●Driver unit lifter is a special feature.

External truck size : W500×H350×L1232mm
Platform size : W500×H350×L1000mm

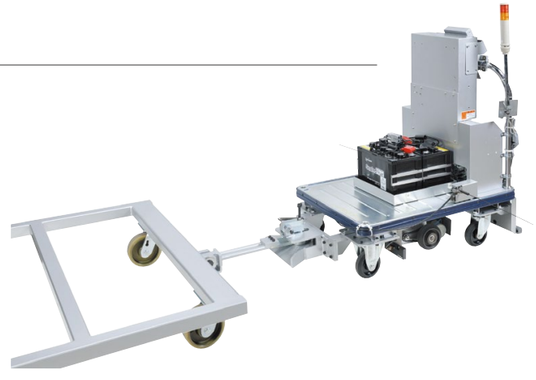


Vehicle with a towing hook

Light weight class | Heavy load

- This is the hinged pin type. (Four M8 bolts are enough for installation.)
- A maximum of about one ton (specification of 30m/min) can be towed if the heavy article type has been selected.
- If an optional setup whisker type sensor is installed, safety is assured for the customer's truck with a maximum width of 1400mm.

External truck size : W620×H1015×L942mm



Specification

			Light-duty class (MK2)			Heavy-duty class (MK5)	
			Standard type	High-speed type	Heavy load type	High-speed type	Heavy load type
Guidance system			Magnetic guidance system				
Traveling direction			Forward (Backward for optional)				
Permissible load (total weight)*1	1 Unit - Advance		250kg *2	250kg *2	500kg *2	500kg *2	1000kg *2
	2 Units	Advance/Back travelling	350kg *2	350kg *2	700kg *2	700kg *2	1400kg *2
		Lateral movement	350kg *3	350kg *3	700kg *3	700kg *3	1400kg *3
		Spin turning	175kg *3	175kg *3	350kg *3	350kg *3	700kg *3
Rated speed*4			30m/min	60m/min	30m/min	60m/min	30m/min
Stoppage accuracy			Standard ± 30mm（± 15mm for optional)*5			Standard ±15mm*5	
Gradability (5m continuous)			2% (at the rated load), 3% (at 70% load)				
Source voltage			DC24V				
Operating enviroument			Temperature 0~40℃, 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				

*1. A self-mass is included. *2. This was the actual measurement when a standard sheet-metal assembled vehicle (1 driver unit) Tosei sharyo rubber wheels as casters were used. The allowable load (total weight) will vary with changes to the vehicle configuration and path surface.
*3. This was the actual measurement when a standard sheet-metal assembled vehicle (2 driver units; unit adjustment for lateral movement and spin turning) with Sugatsune solid elastomer wheels as casters were used. The allowable load (total weight) will vary with changes to the vehicle configuration and path surface.
*4. The standard frame is unloaded and the battery is fully charged. *5. Repeated accuracy when load and speed are constant.
*6. Maximum speed during lateral movement or spin turning is 15m/min. *7. Maximum speed during simplified back travelling is 20m/min.
*8. Lateral movement and spin turning are to be done on a non-sloping surface. *9. Stopping accuracy for lateral movement and spin turning: Standard ±30mm.

Using conditions

- Not available for outdoor use.
- Do not apply a large impact to the vehicle while cargos are loaded.
- Road surfaces refuse traveling.

Road surface wet with water or oil
Road surface gradient more than 3%
Road surface heavily contaminated
Asphalt-paved road surface

Specification selection sheet

■Basic unit

Item	Specifications		Quantity
Basic unit (Driver unit, control unit, operator switch, elevator lever, marker sensor)	Standard type	Light-duty	
	High-speed type	Light-duty	
		Heavy-duty	
	Heavy load type	Light-duty	
		Heavy-duty	

■Standard vehicle

Item	Specifications	Quantity
Standard truck (completed truck)	Sheet metal vehicle type	
	Hand-push vehicle type (light-duty only)	
	Pipe vehicle type (light-duty only)	
	Flat vehicle type (light-duty only)	
	Vehicle with a towing hook	

■Options (Selected as required, or procured by customers)

	Item	Specifications	Quantity
1	Battery	24V(25･35･65･100AH)	
		Connector only	
2	Charger	Separate charger (for AC 100V)	
		Separate charger (for AC 200V)	
		Rear-type automatic charger (for AC 200V)	
		Side-type automatic charger (for AC 200V)	
3	Magnetic tape	For running guidance (W30mm×L25m) Pole N	
		For marker (W50mm × L1m) Pole N	
		For marker (W50mm × L1m) Pole S	
4	Bumper	Bumpers for completed vehicles (forward)	
		Bumpers for completed vehicles (forward/backward)	
		Bumper alone (　　mm)	
5	Battery voltmeter	Analog type	
		Digital type	
6	Onboard setter	Type A (Stop at 8 stations)	
		Type 2B (Stop at 200 stations)	
7	Wireless controller + Wireless LAN unit	For wireless LAN control	

	Item	Specifications	Quantity
8	Traveling safety function options	Obstacle sensor (PC setting type)	
		Obstacle sensor (volume setting type)	
		Running melody unit (95dB)	
		Signal tower (red, yellow, green) (Buzzer incorporated)	
9	Manual operation pendant	Used in common for forward/backward traveling	
10	Driver options	Magnetic brake	
		Encoder	
		Stopping accuracy upgrading function	
11	Backward function	Simplified backward function (1 unit)	
		Backward function (2 units)	
12	Extension power supply for external equipment	Allowable up to 1.8A	
13	Optical communication destination setter	4-Bit type	
		16-Bit type	
14	Motor-powered wheel lifter		
15	PC connector cable	RS-232C cable	
16	Lateral movement and spin turning functionality		
17	I/O connector & harness set		

■Please inquire from the web site

AGV Navi Search

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