

MURATA MACHINERY, LTD.

Logistics & Automation Division

<https://logistics.muratec.net/>



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Automated Guided Vehicle

Premex SLX
Premex

MURATA MACHINERY, LTD.

Premex SLX



Aging processes in food plants

SLAM Navigation AGV

Using SLAM technology reduces the need for reflector or other incidental construction. This allows the system to be easily installed in existing warehouses and changed layout. High speed and flexible travel in small spaces through a combination of a travel speed of 90m/min (295ft/min) and multiple driving capabilities. A practical unmanned forklift compatible with mobile rack and pallet rack transfer at a lifting height of 4.3m.

SLAM Navigation

The optimum route to the target destination is selected and followed automatically using the environmental map creation function and the auto-position identification function. Easy map creation using SLAM technology minimizes additional construction, is compatible with layout changes and makes introduction to existing facilities easy.

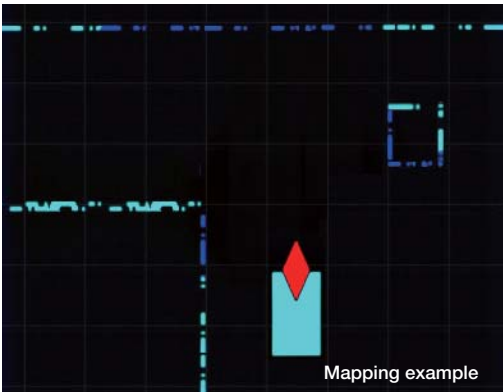
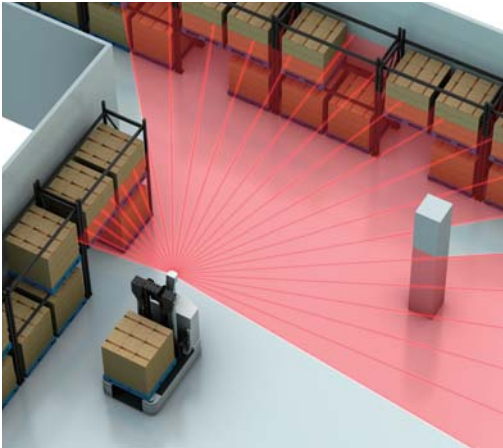
Multi-drive allows for flexible travel in even small spaces

- 180° spin turn
- Minimum turning radius: 1.2 m (4ft)
- Minimum path width 2.6 m (8.5ft) *1
- Parallel travel
- Oblique travel
- ±10 mm Stopping accuracy *2
- Direct drive motor with high-rigidity and gearless

*1: Minimum path width of 3.0 m when transferring
*2: Depending on the surrounding wall

Compatible with freezer and refrigerated environments

- Available up to -25°C (-13F) degrees
- Capable of continuous operation without requiring warm up breaks, improving productivity in cold storage warehouses



Capable of measuring the surrounding environment and moving without reflector by shining lasers using LiDAR sensors.

Main Specifications

Navigation	SLAM Navigation (Simultaneous Localization and Mapping)
Communication	Wireless LAN
Wheel configuration	3 drive/steer unit (multi-drive)
Lifting height	4,300 mm/1,500 mm (14.1ft./4.9ft)
Travel speed	Max. 90 m/min (295ft./min)
Minimum turning radius	Min. 1,200 mm (3.9ft.)
Travel turning radius	Min. 2,100 mm (6.9ft.)
Load size	(L) 1,100 mm x (W) 1,100 – 1,200 mm x (H) MAX.1,500 mm (3.6 ft. x 3.6 to 3.9 ft. x Max.4.9 ft.)

Load weight	Max. 1,000 kg (2,205 lb.)
Vehicle size*	(L) 2,250 mm x (W) 1,300 mm x (H) 2,700 mm (7.4 ft. x 4.3 ft. x 8.9 ft.)
Vehicle weight	2,500 kg (4,300 mm type) / Max. 5,512 lb. (14.1 ft. type) 2,000 kg (1,500 mm type) / 4,409 lb. (4.9 ft. type)
Safety detection function	Safety laser scanner x 3set
Charging method	Quick automatic charge
Battery	Lithium ion battery

* Excluding a bumper (option).
With bumpers : (L) 2,270 mm x (W) 1,320 mm x (H) 2,700 mm.
When the mast descends : (H) 2,700 mm



Inter-process transport

At a food factory

Because it adopts an electronic lifts, it can be used even in a clean environment of a food factory. Operation is possible for 24 hours. It is a multi-drive that travels smoothly even in narrow spaces and complicated routes.



Supply to production equipment

- The following can be automated : supply to and receipt to production equipment, transport between processes, etc.
- Full automation prevents cross contamination, and also contributes to improved productivity and hygiene control quality.
- Lift function allows for transfer between different height production equipment.



Compatible with a variety of layouts

- Layout design that gives priority to the placement of production facilities is possible.
- Low amount of incidental equipment allows for easier expansion and relocation. Also makes for easier cleaning.



Space saving and high density storage

- Since loads can be placed directly on the floor, high density storage is possible.
- Flexible travel in small space by multi-drive capabilities.

WIP (work-in-process) at pharmaceutical factory

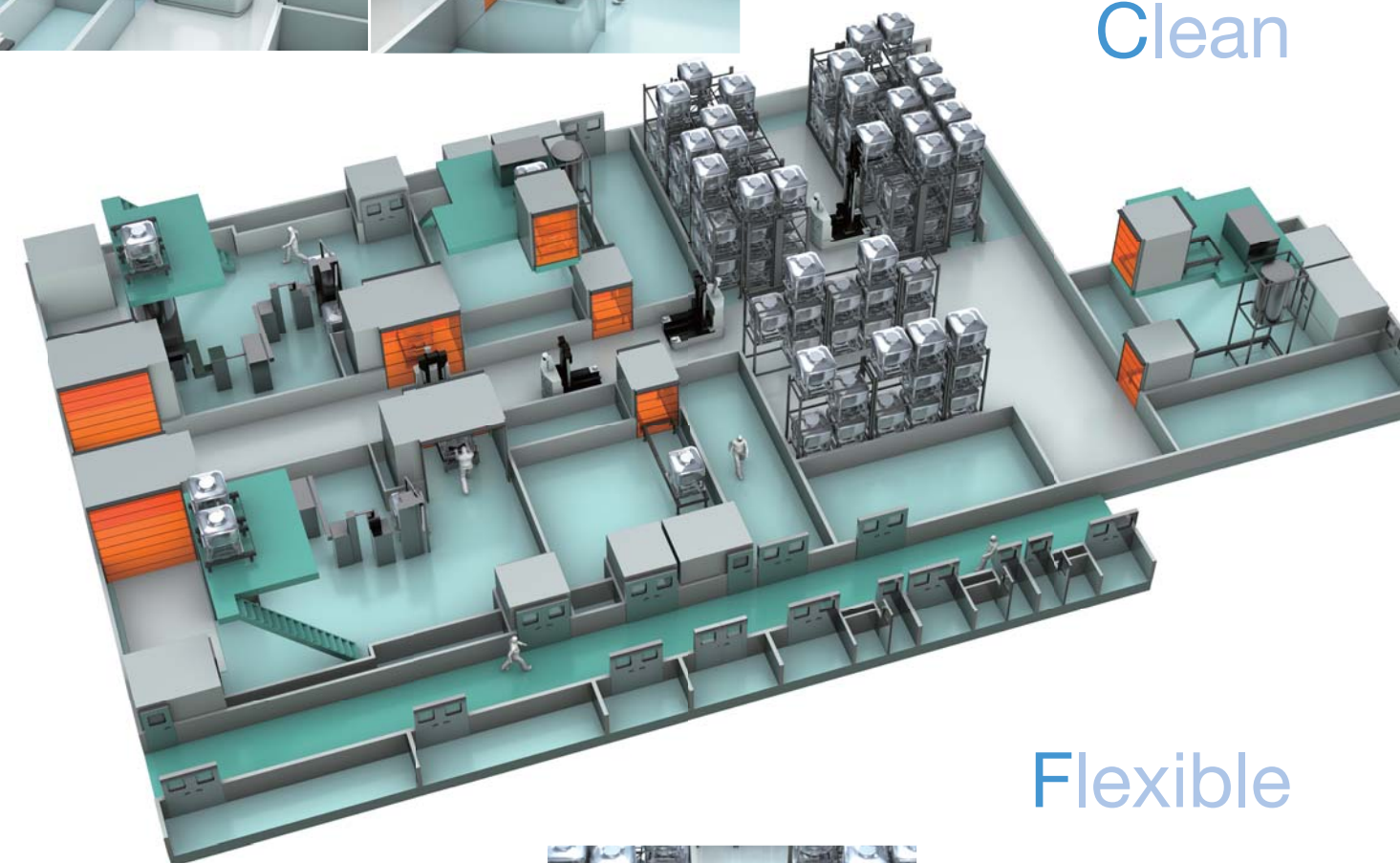
SLAM Navigation AGV can flexibly cope with layout changes of production facilities.



Clean environment compliant system

- Automatic transfer without human intervention
- Easy floor cleaning without rail.

Clean



Flexible

Compatible with flexible layouts

- Easy to add rack to dead space.
- Access to the upper rack and the second floor is also possible.



Premex SLX

Automation of existing warehouses

Automation of existing rack warehouses using SLX



With the introduction of SLX,
you can change existing pallet rack to AS/RS.

- Requires no large-scale additional construction
- Easy to introduce even at low ceiling height
- Automatic loading at night

Space saving

Automatic replenishment

By using SLX, pallet exchange and replenishment can be performed automatically in rack direct picking.



Integration with mobile racks



High density

Combination with mobile racks, which allow for efficient storage in limited space, achieves an even higher level of automation and labor saving.

*The photo is of an exhibition model.

Full automation with SLX

Opening and shutting of mobile racks and entry of AGV can be linked according to instructions of WMS.



Premex SLX

with *Satellite Vehicle System*

AGV with satellite vehicle

Equipped with a lifter and a satellite vehicle, SLX is capable of high elevation access and multi-depth transfer. This system realizes you high density high volume storage.

Satellite vehicle mounted on AGV

- The satellite vehicle travels horizontally and stores the pallet in multi-depth.



Satellite vehicle

Lifting height 7m (23ft.)

- Access to high places such as multi-stage racks, upper floors, overhead of production equipment, etc.

Autonomous Navigation AGV

- Less incidental facilities construction.
- Easy to respond to route change, layout change, expansion of facilities.

Multi-drive enables traveling in small spaces

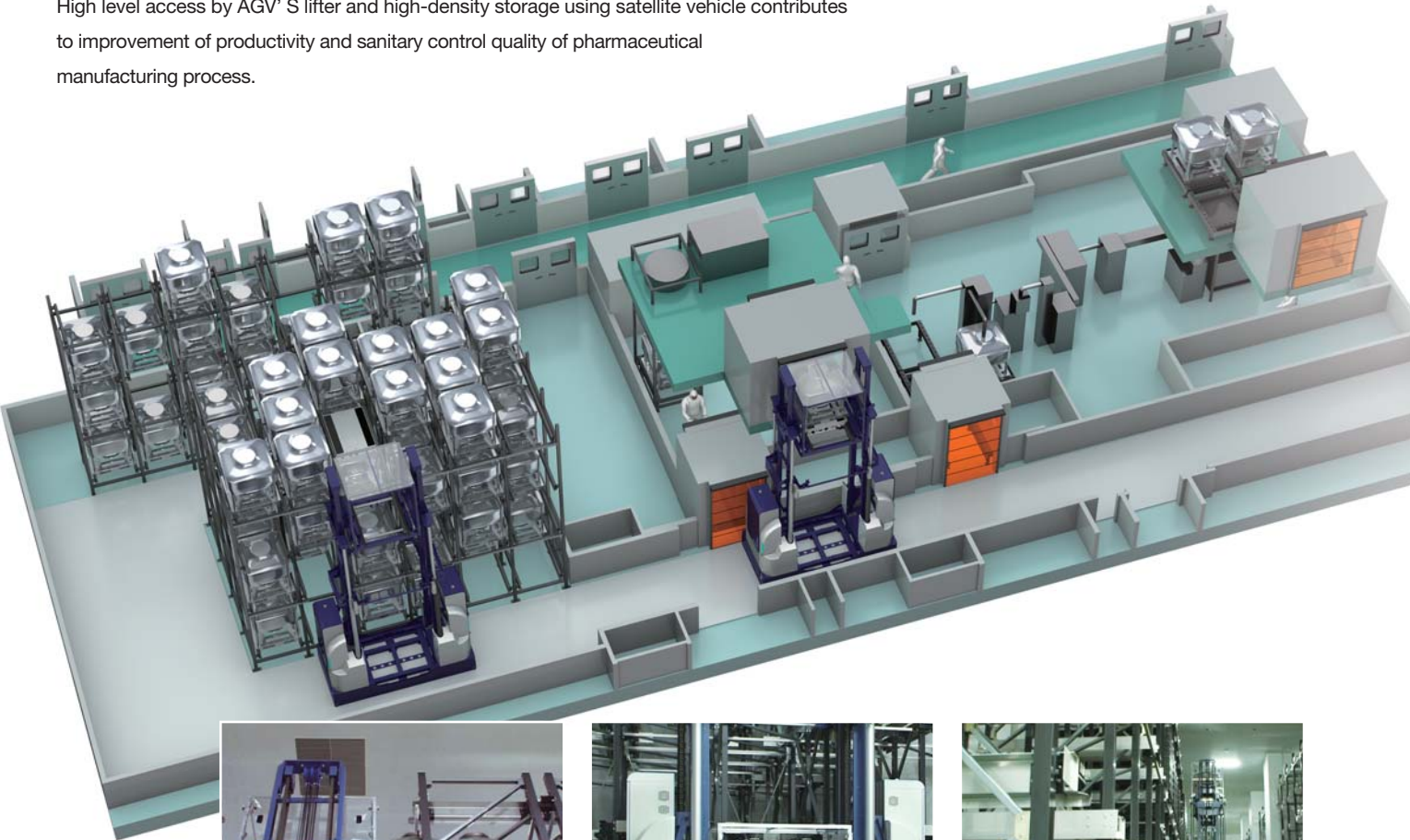
- Capable of parallel movement and 90 degree turns. Achieves outstanding space-saving transport.

Clean electric forklift

- Equipped with long-life lithium ion batteries.
- Hydraulic free lift mechanism which utilizes electric cylinders.

WIP at pharmaceutical factory

High level access by AGV' S lifter and high-density storage using satellite vehicle contributes to improvement of productivity and sanitary control quality of pharmaceutical manufacturing process.



Lifting height 7m (23ft.)



Easy route change as there are few fixed facilities.



Easy cleaning without rail

Main Specifications

Navigation	SLAM Navigation (Simultaneous Localization and Mapping)
Communication	Wireless LAN
Motion drive	Powered wheel steering
Lifting height	7,000 mm (23ft.)
Travel speed	Max. 60 m/min (196.9ft./min)
Load size	(L) 1,100 – 1,200 mm x (W) 1,100 – 1,200 mm x (H) 1,300 mm (3.6 to 3.9ft. x 3.6 to 3.9ft. x 4.2ft.)
Load weight	Max. 750 kg (1,653lb.)

Vehicle size	(L) 3,400 mm x (W) 1,600 mm x (H) 3,830 mm (11.2ft.x 5.3ft. x12.6ft.)
Vehicle weight	5,750 kg (12,680lb.)
Satellite weight	250 kg (551lb.)
Safety detection	4 safety sensors
Charging method	Quick automatic charging
Battery	Lithium ion battery



End of line transport automation



Roller conveyor



Lifter



Chain conveyor



Sterilized containers



Rolls



Roll container



Integration with AS/RS

A wealth of achievements on AGV that have realized various automation needs.

Muratec has delivered AGV to various industries for over 40 years. Based on abundant experience and diverse know-how on transportation environment and transportation form, we will provide the best AGV solution for you.

Main Specifications

Transfer unit		Chain conveyor	Roller conveyor	Lifter
Navigation		Continuous magnetic navigation (Implemented magnetic rod, Attached magnetic tape) Magnetic spot navigation (Implemented magnetic rod, Attached magnetic mark)		
Communication		Wireless LAN (SS radio)		
Traveling mode		Forward travel , Backward travel, Sideways move, Spin turn		
Load transfer levels		Min. 450 mm (1.5ft.)	Min. 400 mm (1.3ft.)	Min. 450 mm (1.5ft.)
Load size	Width	700 – 1,300 mm (2.3ft. – 4.2ft.)		1,000 mm – (3.2ft. –)
	Length	600 – 1,600 mm (1.9 – 5.2ft.)	300 – 1,600 mm (0.9 – 5.2ft.)	1,000 – 2,000 mm (3.2 – 6.5ft.)
	Weight	1,000 kg (2,205lb.)		
Vehicle size	Width	900 – 1,400 mm (3.0 – 4.6 ft.)		
	Length	1,350 – 2,550 mm (4.5 – 8.4ft.)		
	Height (including transfer device)	Min. 535 mm (1.8ft.)	Min. 500 mm (1.7ft.)	Min. 450 mm (1.5ft.)
	Weight (including transfer device)	1,000 kg (2,205lb.)		
Traveling speed	Straight	60 m/min (197ft./min)		
	Curves	30 m/min (continuous navigation type) / 18 m/min (spot navigation type) (99ft./min / 59ft./min)		
	Sideways	15 m/min (continuous navigation type) / 18 m/min (spot navigation type) (49ft./min / 59ft.min)		
Charging method		Quick automatic charge		
Battery		Lithium ion battery		

*Other than the above load size may be separately discussed.