

# AUTOMATED GUIDED VEHICLE

Enabling smarter and safer seaport logistics operations



# Automated Guided Vehicle

Automated Guided Vehicle (AGV) is a highly customisable system with precise navigational technology engineered to meet the cargo handling requirements of seaports with limited storage capacity. It is designed to fully automate transfer of containers from quayside to yardside within a defined path by minimising manual handling and operational disruptions due to inconsistent or limited labour supply.

The AGV delivers a cost-effective and reliable solution to streamline logistic processes and lower total cost of ownership, making it suitable for 24/7 smart ports. Powered by an eco-efficient electric power system, it produces low carbon emissions that translate to better energy efficiency and improved environmental sustainability for greener ports.

## Key Benefits



Automate logistic processes for smarter and greener port operations



Enhance operational efficiency and productivity



Increase workplace safety and minimise manual handling and human errors



Reduce total cost of ownership



Optimise demand planning, maintenance schedule and utilisation of port space



Improve fleet resource management



Allow easy integration with seaport management systems



## Modular and Customisable Suite of Solutions and Services

On-board Vehicle System

Navigation System

Fleet Management System

Battery System

After Sales Support

## Key Features



Fully electric-powered and environmentally friendly  
- Cutting-edge lithium battery for ultra-fast and fully automated battery charging to ensure uninterrupted operation  
- Minimise environmental impact and engine noise



Crabbing movement  
- Superior maneuverability (allows 360° movement ability) to better navigate in tight and confined areas



Maximum load of 65 tonnes at speed of up to 25km/hr  
- Optimise speed, safety, accuracy and overall performance of load handling



Bi-directional capability  
- Allows movement in both directions to provide more flexibility and enable optimised routing paths



Advanced safety on-board navigation system using RFID technology  
- Agile and adaptive interaction with environment to ensure precise positioning and safe operation



All-weather performance  
- Suitable for operating in harsh environments i.e. ocean winds, intense heat and severe rain

## TECHNICAL SPECIFICATIONS

General Specifications	Applications	ISO container types
	Motor Type	Fully electric
	Rated Payload	Up to 65 tonnes
	Weight with Battery System	29 tonnes
Operational Characteristics	Max Speed (Straight)	7m/s
	Max Speed (Curve)	2.5m/s
	Max Speed (Crab)	2m/s
	Acceleration	0.33m/s <sup>2</sup>
	Steering	4 steerable wheels
	Inner Turn Radius	< 7.5m
Power System	Operating Cycle	5 hours
	Charging Time	10 minutes
	Power Unit Type	Battery powered
	Battery Capacity	156kWh to 226kWh
	Peak Power Output	320kW for 30s/instance

## BATTERY SYSTEM

Battery Type	Lithium Titanate Battery	
Operating Voltage Range	450V - 750V	
Battery Capacity	176kWh	
Peak Power Output	320kW for less than 30s/instance	
Continuous Charging Power & Max Current	450kW, 750A	
Working Ambient Temperature	Maximum : 40°C	Minimum : 20°C
Relative Humidity	Maximum : 98%	Minimum : 60%
Total Weight	5 tonnes	
Overall Dimension (L x W x H)	3.0465m x 3.002m x 1.134m	
Inner Dimension of Battery Cage (L x W x H)	2.5m x 2.95m x 0.97m	

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