

MAXOLUTION® AGV / AMR

The mobile material handling robot for
factories and warehouses of the future. Right here. Today!



Industry 4.0 & IoT Ready

An introduction

Series of AGVs from SEW-EURODRIVE

The mobile material handling system for factories and warehouses of the future. Right here. Today!

Our products and services for your networked, digital factory.

MAXOLUTION® mobile material handling systems or AGVs, designed by SEW-EURODRIVE, combine the benefits of stationary conveyor technology with maximum flexibility and scalability thus ensuring process, system and staff safety. MAXOLUTION® AGVs have clearly defined interfaces and can interact with various high-level customer systems in order to enable the AGVs to travel predefined routes statically and dynamically. Additionally, based on the order, they can individually calculate their route through the factory.

German technology adapted to suit the Indian work environment

As a specialist in Drive Technology & Motion Control Automation for over 90 years, we at SEW- EURODRIVE are leading the change with our two latest factories in Europe built to Industry 4.0 standards. Our MAXOLUTION® offers an all-in-one systems solution that is managed from concept to commissioning and further integrated with your ERP system.

MAXOLUTION®

- **Easy integration with Industry 4.0 and IoT**
- **Reduction in labour and associated costs**
- **Increased safety and productivity**
- **Zero downtime in battery charging/ changing or fuelling**



Sectors which can benefit by using our MAXOLUTION® range of AGVs

MAXOLUTION® AGVs are ideal transport assistants suited to a number of industries as they are capable of handling raw material, components, assembled products and packed boxes in industries such as automotive, auto ancillary, manufacturing, rubber & tyre, material handling, pharmaceutical, food & beverage, warehousing, etc.

Typical applications

Manufacturing

- Components and raw material handling
- Movement of semi-assembled/work-in-process material
- Tooling transportation
- Finished goods movement

Warehousing / Distribution

- Storage and retrieval of material from the racks/block storage
- Cartons/crates/pallet handling
- Long distance transportation of material
- End-of-line (EOL)

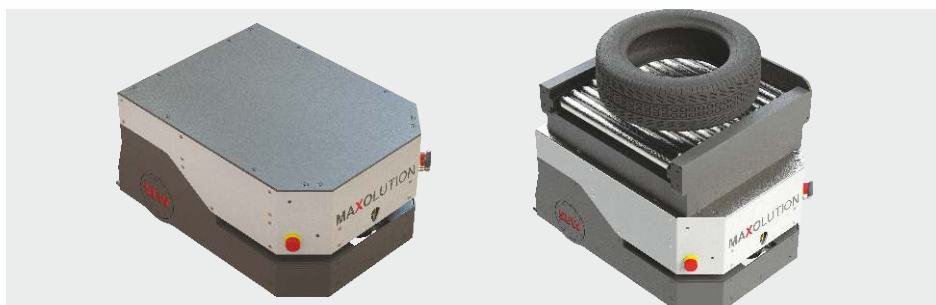
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Transport AGV: ST series

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The Transport AGV: ST series is particularly suitable for transport tasks in production and distribution logistics. It can carry up to 500 kg load when placed atop of AGV and has pulling load capacity of up to 1000 kg for manual tugging. It has a compact design and modular construction making it possible to optimize and customize the design. Standardized interfaces allow easy integration of different load handling devices such as bins, parts, tyres, etc.

→ **Application:**
Pallet / Bin Handling



	ST series - 500	ST series - 1000
Dimensions (mm)	L 1100 x W 700 x H 550	L 1100 x W 700 x H 550
Height with Lifter (H) (mm)	H 450	H 500
AGV Weight (kg)	200 (Max.)	350 (Max.)
Load Capacity (kg)	500	1000
Safety	Velocity-dependent protective fields, STO, SS1, SLS, SDI, SCA	
Velocity (m/s)	1.5	1.2
Positioning Accuracy (mm) (Line Navigation)	±10	±10
Curve Radius (m)	0.8 (Min.) at 0.4 m/s Speed	0.8 (Min.) at 0.4 m/s Speed
Load Handling Option 1	Lifting	
Lift Load (kg)	500	1000
Lift Height (mm)	150	150
Load Handling Option 2	Long Conveyor	
Conveyor Load (kg)	500	1000
Conveyor Velocity (m/s)	0.2	0.2
Load Handling Option 3	Lateral Conveyor	
Conveyor Load (kg)	500	1000
Conveyor Velocity (m/s)	0.2	0.2

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Transport AGV: UR series

The Transport AGV: UR series also known as Under Ride AGV has been specially developed for transport tasks in production and distribution logistics. Its compact design and differential drive also makes it possible to use the vehicle in compact factory layouts. The modular design makes it possible to transport different load carriers such as pallets, frames or customized constructions. Integrated lift can also lift the loads up to 1500 kg.

→

Application:

Pallet / Platform Handling



	UR series - 1500	UR series - 2000
Dimensions (mm)	L 1350 x W 1100 x H 380	L 1350 x W 1100 x H 380
Height with Lifter (H) (mm)	H 500	H 500
AGV Weight (kg)	500 (Max.)	700 (Max.)
Load Capacity (kg)	1500	2000
Safety	Velocity-dependent protective fields, STO, SS1, SLS, SDI, SCA	
Velocity (m/s)	1.2	1
Positioning Accuracy (mm) (Line Navigation)	±10	±10
Curve Radius (m)	1 (Min.) at 0.4 m/s Speed	1 (Min.) at 0.4 m/s Speed
Load Handling Option 1	Lifting	
Lift Load (kg)	1500	2000
Lift Height (mm)	150	150
Load Handling Option 2	Long Conveyor	
Conveyor Load (kg)	1500	2000
Conveyor Velocity (m/s)	0.2	0.2
Load Handling Option 3	Lateral Conveyor	
Conveyor Load (kg)	1500	2000
Conveyor Velocity (m/s)	0.2	0.2

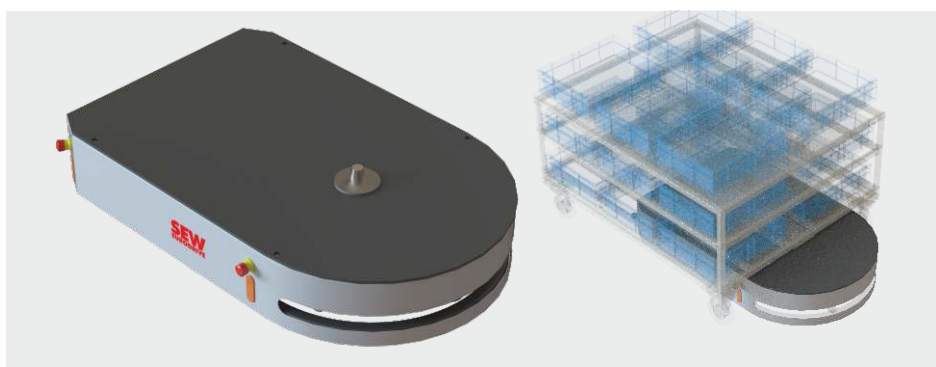
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Transport AGV: TL series

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The Transport AGV: TL series also known as Tunnelling / Lurking AGV is used to transport parts in a trolley e.g. child parts, storage parts and customer specific parts. It is used for parts transport in machine shop, assembly line and incoming/outgoing stores for any production logistics. Modular design of the AGV makes it possible to use it as a Lurking type or Tunnelling type in complex and compact factory layouts. Transport AGV: TL series is offered in two variants - 200 kg lifting and 500 kg lifting with integrated lift.

→ **Application:**
Trolley Handling (Tunnelling)



	TL series - 200	TL series - 500
Dimensions (mm)	L 1200 x W 700 x H 250	L 1200 x W 700 x H 250
Height with Lifter (H) (mm)	H 250	H 250
AGV Weight (kg)	150 (Max.)	250 (Max.)
Load Capacity (kg)	200	500
Safety	Velocity-dependent protective fields, STO, SS1, SLS, SDI, SCA	
Velocity(m/s)	1.5	1.5
Positioning Accuracy (mm) (Line Navigation)	±10	±10
Curve Radius (m)	0.8 (Min.) at 0.4 m/s Speed	0.8 (Min.) at 0.4 m/s Speed
Load Handling Option 1 Lurking Load (kg)	200	500
Load Handling Option 2 Lifting Height (mm)	50	50

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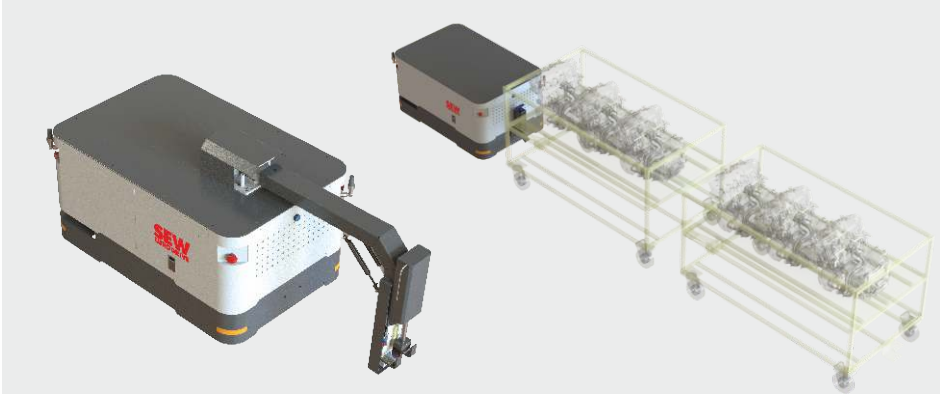
Transport AGV: TG series

- Variant 1: Tugger with Auto Hooking / Release
- Variant 2: Tugger with Manual Hooking / Auto Release

The Transport AGV: TG series also known as Tugger AGV is particularly suitable for transporting material over longer distances within the facility or between facilities with a predetermined stop location, where the operator could add parts in the trolley or remove parts from the trolley tugged to the AGV. Tugger AGV can also pull a train of trolleys. Two models are available for towing capacity up to 500 kg and 1000 kg.

→

Application:
Trolley Handling



	TG series - 500	TG series - 1000
Dimensions (mm)	L 1100 x W 700 x H 550	L 1100 x W 700 x H 550
AGV Weight (kg)	250 (Max.)	400 (Max.)
Load Capacity (kg)	500	1000
Safety	Velocity-dependent protective fields, STO, SS1, SLS, SDI, SCA	
Velocity (m/s)	1.2	1.2
Positioning Accuracy (mm) (Line Navigation)	±10	±10
Curve Radius (m)	0.8 (Min.) at 0.4 m/s Speed	0.8 (Min.) at 0.4 m/s Speed
Load Handling Option 1 Lurking Load (kg)	500	1000
Lifting Height (mm)	50	50

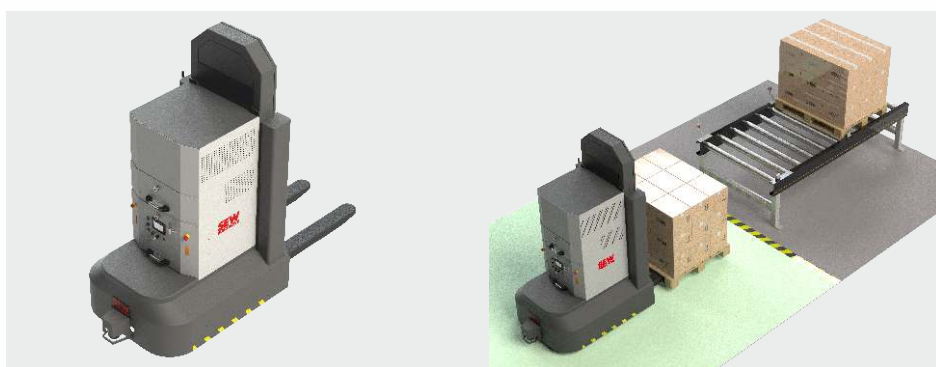
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Forklift AGV: FL series

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The Counter Balanced Type Forklift AGV: FL series is perfectly suitable for pickup and delivery, which can be performed at the floor level or for storage stacking, deep lane storage and conveyors. Counter Balanced Forklifts are the ideal solution for EOL (end-of-line) applications, warehouses, distribution centres and can also be used for a wide range of other applications. The Counter Balanced Forklift AGV: FL series is without wheel arms and equipped with an additional counterweight (counterbalance). They are specially designed for closed loads and transfer positions that cannot be served with wheel arms on the industrial truck. Moreover, they are perfectly suitable for automatic goods transport in a confined area and can pick up and deliver goods at the floor level or order picking via conveyors, palletisers or stretchers. Our Counter Balanced Forklift AGV: FL series can also provide excellent versatility. The lift mast mounted at the very end of the vehicle, keeps the AGV clear of loads and minimizes vehicle width. This allows the AGV to handle multiple load types without complications.

➔ **Application:**
Pallet / Bin T Handling



Forklift AGV: FL series	
Dimensions (mm)	L 2700 x W 1050 x H 2200
AGV Weight (kg)	800
Load Capacity (kg)	1000
Safety	Velocity-dependent protective fields, STO, SS1, SLS, SDI, SCA
Velocity (m/s)	1
Power Supply	Battery
Charging	SPOT/DOCKING /CONDUCTIVE Charging
Battery Type (V)	Lithium Ion/ferro Phosphate
Battery Swapping Option	Manual Swaping Station / Automatic Swapping Station
Travel Time Without Recharging* (Hour)	8 hrs standard running (customizable)
Charging Time* (Hour)	2.5
Navigation	Inductive / Optical / Natural
Communication - WiFi	2.4 Ghz/5 Ghz
Curve Radius (m)	1.2 (Min.) with 0.25 m/s Speed
Direction of Motion (Options)*	Forward & Reverse (With Additional Scanner)

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Assembly AGV: AM series

The Assembly AGV: AM series has been designed specifically for the 2-wheeler manufacturing (automotive) industry for the bike assembly process. This AGV comes with a 360° rotatable fixture and a hitch provision for connecting kitting trolley that serves the operator to ease assembly process. The safe occupancy detection makes it possible for the vehicle to switch between assembly mode and normal driving mode. The integrated lifting device makes ergonomic height adaptation possible for multi-model vehicle assembly line.

➔ **Application:**
Bike Assembly



Assembly AGV: AM series

Dimensions (mm)	L 1850 x W 920 x H 1200
AGV Weight (kg)	600
Load Capacity (kg)	500
Safety	Velocity-dependent protective fields, STO, SS1, SLS, SDI, SCA
Velocity (m/s)	0.01 to 1
Power Supply	Inductive / Battery
Charging	Inductive / Conductive
Navigation	Inductive, Optical, Natural
Communication - WiFi (GHz)	5 (EUPEN Leaky Cable)
Curve Radius (m)	1 (Min.) at 0.25 m/s Speed
Direction of Motion (Options)*	Forward
Load Handling Option 1	
Lifting Mechanism	Scissor Lift with Ball Screw Mechanism
Lifting Height (mm)	300 (Min.) 1000 (Max.) Customized fixture assembly can be adopted.

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Omni Directional: Transport AMR

SEW AMRs are mobile robots designed to perform various tasks autonomously, such as transporting goods, managing inventories, and assisting in manufacturing processes. In which they navigate the warehouse freely based on dynamic routes generated by intelligent maps created by SEW Movii software. This software optimises the movements of the AMRs, assigning the perfect route for each task with state-of-the-art sensors and scanner. They can operate safely in collaborative environments alongside other machines as well as people.

→ **Application:**
Bike Assembly



	OMNI Directional AMR
Dimensions (mm)	L 1500 x W 900 x H 380
Payload (kg)	1000
Weight	600
Battery Type (V)	Lithium ION/Ferro Phosphate
Velocity (m/s)	1.2
Accuracy (mm)	±10
Energy Supply	Battery
Type of Charging	Spot, docking ,Auto /manual Swapping stations
Navigation	2D SLAM
Safety	Velocity-dependent protective fields, STO, SS1, SLS, SDI,SCA
Communication	Wi-Fi, 5G
Collision Sensor	2D Lidar safety Scanner
AMR Movement	Multi Travel with steering unit /Quasi OMNI directional
Load Handling	Lifter with Stoke length of 50 mm

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Customized AGV

The Customized AGV is suitable for multiple functions based on your requirements. It consists of the working functions of transporting, lifting, rotating, conveying and an extendable fork arm option. The modular design of the AGV makes optimum customer adaptation possible.

➔ **Application:**
Pallet



Customized AGV

Dimensions (mm)	L 2000 x W 1200 x H 2300
AGV Weight (kg)	700
Load Capacity (kg)	1000
Safety	Velocity-dependent protective fields, STO, SS1, SLS, SDI, SCA
Velocity (m/s)	1
Power Supply	Hybrid (Inductive + Battery)
Charging	Inductive
Battery Type (V)	Lithium Ion/Ferro Phosphate
Travel Time Without Recharging* (Hour)	8 hrs standard running time
Charging Time* (Hour)	2.5
Navigation	Inductive / Optical / Natural
Communication - WiFi (GHz)	5
Curve Radius (m)	1.2 (Min.) at 0.25 m/s Speed
Direction of Motion (Options)*	Forward and Reverse, 90° (with Additional Scanner)

Common technical specifications and features

MAXOLUTION®

ST series, UR series, TL series & TG series

Power Supply	Inductive / Battery
Charging	Inductive (Opportunity / On spot), Conductive, Docking type
Battery Type (V)	Lithium ION/Ferro Phosphate
Battery Swapping Option	Manual Swapping Station / Automatic Swapping Station
Travel Time Without Recharging* (Hour)	8 hrs standard time of operation
Charging Time* (Hour)	2.5
Battery Charging Cycle*	2000 / 3000 Cycles
Navigation	Inductive/ Optical/ Natural
Communication - WiFi (GHz)	5 / 2.4 (Dual Band)
Safety Features	2D LIDAR based Collision Scanner, Key Switch, Bumper, Safety PLC , Buzzer
Additional Features	Remote Control through Mobile App (Android 6.0 or Higher) and WiFi Handheld Joystick Display

FL series, AM series & Customized AGV

Drive Concept	Electric Servo Differential
Positioning Accuracy (mm) (Line Navigation)	± 10
Positioning Accuracy (mm) (Natural Navigation)	± 10
Safety Features	2D LIDAR-based Collision Scanner, Key Switch, Bumper, Safety PLC, Buzzer
Additional Features	Remote Control through Mobile App (Android 6.0 or Higher) and WiFi Handheld Joystick Display

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MOVITRANS® Decentralized

Contactless energy transfer system –
MOVITRANS® and TES decentralized supply unit

MOVITRANS® – a leap ahead energy transfer technology

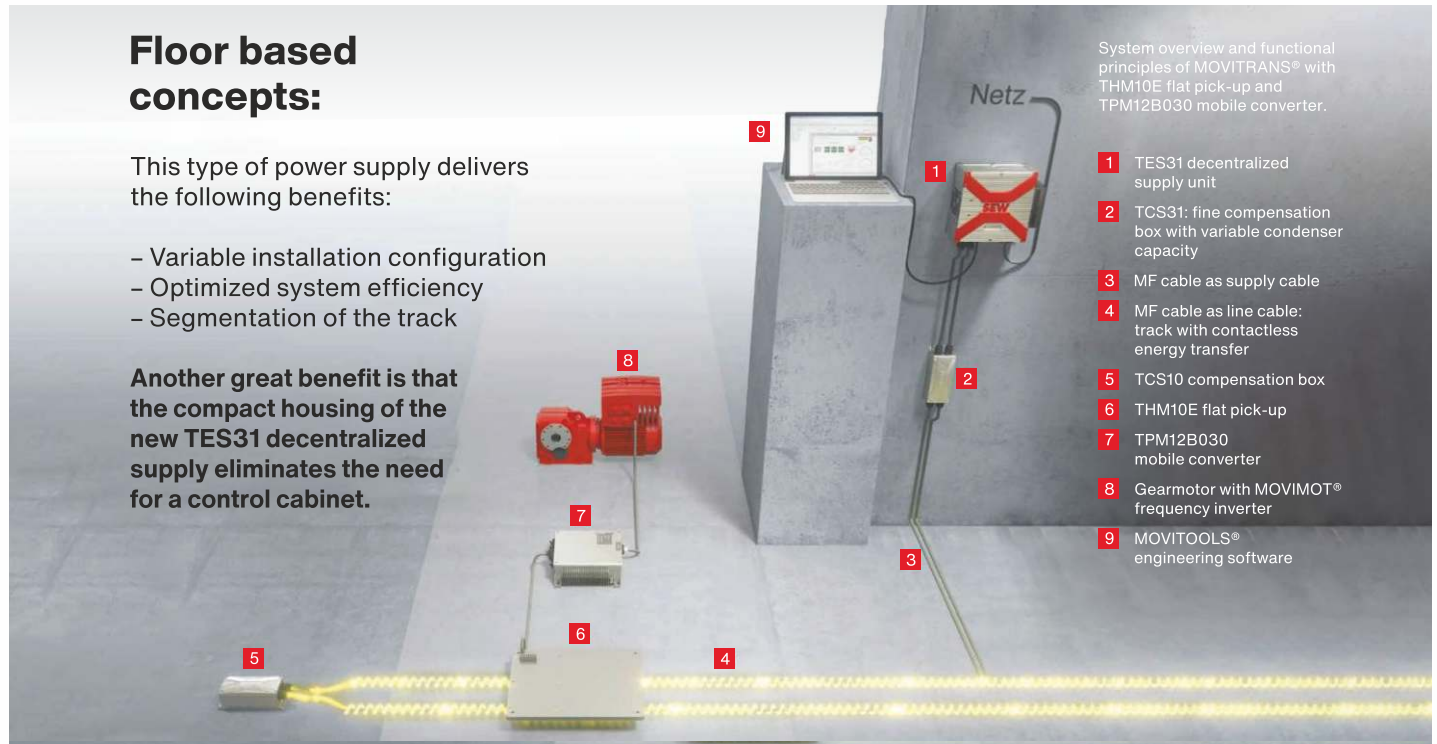
The MOVITRANS® contactless supply system from SEW-EURODRIVE works on the principle of inductive energy transfer. In this system, electrical energy is transferred without contact from a fixed conductor to one or more mobile consumers. The electromagnetic connection is made via an air gap and is not subject to wear, making it maintenance-free.

Floor based concepts:

This type of power supply delivers the following benefits:

- Variable installation configuration
- Optimized system efficiency
- Segmentation of the track

Another great benefit is that the compact housing of the new TES31 decentralized supply eliminates the need for a control cabinet.



Spot charging:



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Customized RGV

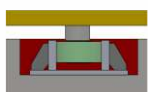
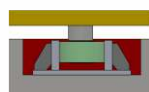
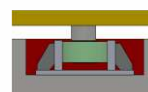
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Smarter material flow on rails

Customized RGVs are built to transfer industrial raw materials, waste / scrap and for assembly line application as per customer requirements. These RGVs are specially designed and built to carry heavy payload with two different power sources.

→ **Application:**
Material Handling



	RGV: Type A	RGV: Type B	RGV: Type C
Dimensions (mm)	Customizable	Customizable	Customizable
Load Capacity (T)	3	32	10
Frame & Body Material	MS	MS	MS
Velocity (m/min)	15 (Scalable)	15 (Scalable)	15 (Scalable)
Power Supply	Inductive / Battery (Lithium-Ion)	Inductive / Battery (Lithium-Ion)	Inductive / Battery (Lithium-Ion)
Charging	Contactless / Manual battery swapping station / Plug type charger	Contactless / Manual battery swapping station / Plug type charger	Contactless / Manual battery swapping station / Plug type charger
Operating Via	Wired / Wireless pendant	Wired / Wireless pendant and auto	Wired / Wireless pendant and auto
Direction of Motion	Forward & reverse	Forward & reverse	Forward & reverse
Load Handling	Adaptable	Adaptable	Adaptable
Communication	RF/2.4/5GHz	RF/2.4/5GHz	RF/2.4/5GHz
Rail with Guide			

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Shuttle System

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A shuttle system is a compact vehicle used in a storage area for the automatic transfer of pallets. Shuttle system runs individually in each row of racks. This solution increases the storage and retrieval performance. It can be used as a channel storage or satellite vehicle storage system when pallets are used as load carriers, and it can be combined with AMRs / AGVs for transportation and storage of goods from production to warehouse.



➔ **Application:**
Material Transfer

	Shuttle System
Dimensions (mm)	Customizable
Load Capacity (T)	0.5 / 1
Shuttle Body Material	MS
Velocity (m/s)	2 (Scalable)
Power Supply	Inductive / Battery (Lithium-Ion)
Charging System	Inductive
Operating Via	Order creation from auto logic via communication
Direction of Motion	Forward and reverse
Positioning Via	2D barcode
Load Handling	Adaptable
Communication	WiFi/2.4/5GHz

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Success Stories

MAXOLUTION®



Automatic Guided Vehicle (AGV) for bike assembly line

Capacity	500 kg
Application	Two-wheeler assembly line
Vehicle type	Contactless energy transfer system with inductive navigation. Communication via leaky wave
Load handling	Scissor lift with adjustable height for ergonomic assembly workstation.
Industry	Automotive - Two wheeler



Automatic Guided Vehicle (AGV) logistics hybrid AGV

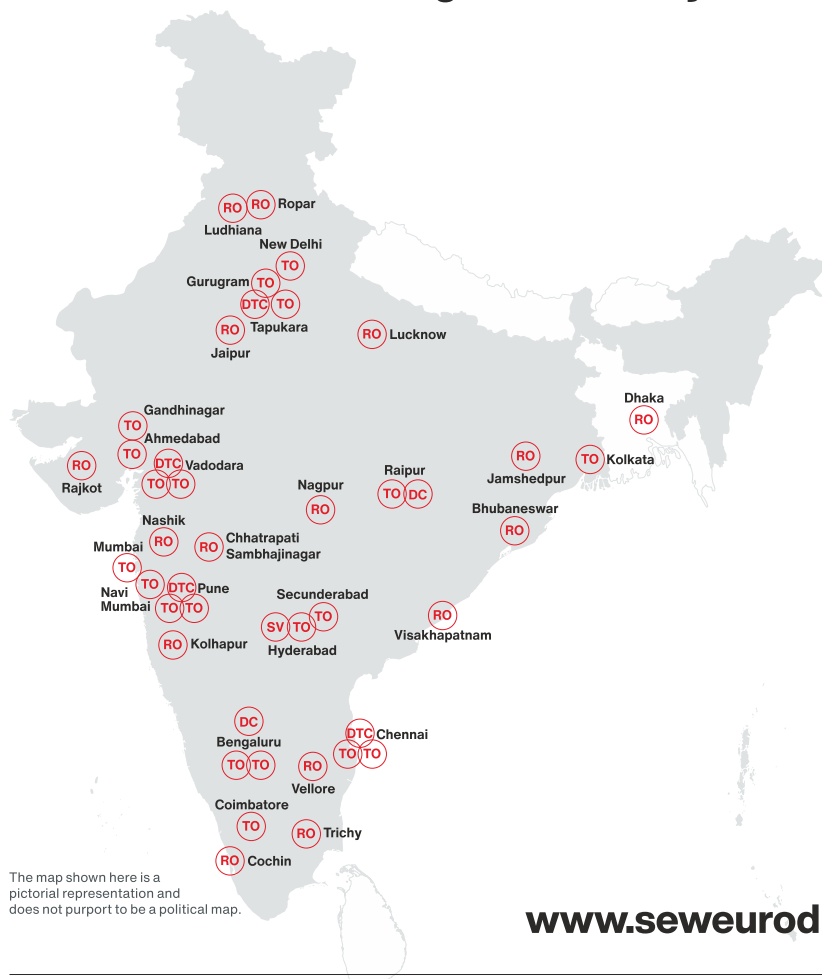
Capacity	1000 kg
Application	Transfer of battery tubs in production line
Vehicle type	Inductive + Battery (Hybrid) Inductive battery charging Inductive + Optical Navigation with wireless communication & SEW Logistic controller
Load handling	Scissor Lifter with telescopic fork for easy material transfer
Industry	Manufacturing



Rail Guided Vehicle (RGV) heavy industry assembly line

Capacity	3000 kg
Application	Assembly
Vehicle type	Inductive powered, Asynchronous servo motor Automatic / Remote operation
Industry	Manufacturing (Assembly line)

SEW-EURODRIVE is right there for you



The map shown here is a pictorial representation and does not purport to be a political map.

www.seweurodriveindia.com / sew-eurodrive.de

4

Drive Technology Centre
(Assembly Plant)

2

Drive Center

20

Technical Office

16

Residential Office

1

Service Vehicle

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(SV) Service Vehicle

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Scan to know a
service location
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