

MORELLO

MORELLO SGAI & OMNI TRANSPORTERS

**ELECTRIC VEHICLES TO SOLVE
HEAVY MATERIAL HANDLING PROBLEMS**



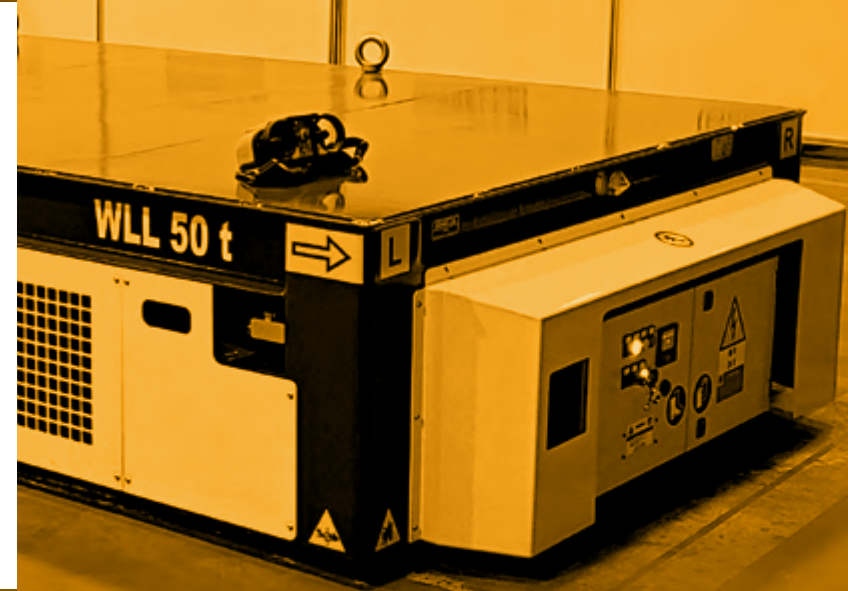
**LEADING GLOBAL MANUFACTURER OF INNOVATIVE
HIGH TECH ELECTRIC VEHICLES**



SGAI
TRANSPORTERS



OMNI
TRANSPORTERS



MORELLO

- SAFETY
- PRODUCTIVITY
- ENERGY EFFICIENCY
- ZERO POLLUTION
- COST EFFICIENCY



MORELLO ELECTRIC TRANSPORTERS



SGAI and OMNI Transporters

are battery-powered, custom-designed electric vehicles for the handling of specific heavy loads (from 2 tonnes to over 500 tonnes).



Factory Efficiency and Risk Reduction

are improved with Electric Transporters, custom designed to the needs of the client's factory and operations.



Our vehicles are aimed at manufacturing companies, in any industrial sector worldwide, **who need to move heavy loads within their factory.**



REDUCE OPERATIONS COSTS & HANDLING COSTS



OUTDATED HANDLING SOLUTIONS COST MUCH MORE THAN YOU THINK!

Using overhead cranes or basic trolleys on rails causes long handling times due to the limited area in which they can operate. This creates operational constraints and requires increased material handling. The lack of flexibility is not sustainable as it limits a company's ability to adapt and change.

Increasingly obsolete solutions such as endothermic vehicles or those with "big" hydraulic systems involve maintenance costs that are often underestimated. These lead to higher operating costs, including expensive spare parts, machine downtime and external maintenance support.

The traditional system combining tractors and trailers presents numerous issues. The tractor-trailer system is complex to maneuver, often requiring longer routes and complicated positioning at loading and unloading stations, increasing handling times. It requires significant valuable space within the plant. Moving three components (tractor, trailer, and load) reduces efficiency and increases energy consumption.

MORELLO SGAI AND OMNI BATTERY POWERED, ELECTRIC FLATBED TRANSPORTERS ARE THE OPTIMAL SOLUTION FOR REDUCING INTERNAL LOGISTICS COSTS.

Maximum operating flexibility

No operating constraints caused by structural or architectural barriers.

Zero maintenance and pollution

Battery power and electric motors are non-polluting and almost maintenance-free.

Total customization

Vehicle dimensions, load capacities, wheels and engines for working on uneven or sloping floors, with no need to modify plant layout or infrastructure.

INCREASE SAFETY

SAFETY IS NOT AN OPTION!

Postponing investments in safe handling could prove to be fatal for the company. Don't wait until an accident has occurred!

Unfortunately, some traditional handling procedures are also the most dangerous, and statistically cause the majority of accidents.

Bridge or gantry cranes, hoists and other crane equipment create numerous risks caused by the handling of suspended loads.

The tractor and trailer combination presents numerous issues. Tractors, such as forklifts or electric tugs, are often not certified for towing specific trailers, compromising safety. Towing on inclines or uneven terrain without trailer braking increases risks. Maneuvering an articulated tractor-trailer system is complex and increases accident risk. For electric movers with walk-behind systems, inclines and braking issues can cause serious accidents, with the entire system potentially crushing the operator.



MORELLO SGAI AND OMNI TRANSPORTERS ARE AMONG THE SAFEST MEANS OF MOVING HEAVY AND/OR LARGE MATERIALS.

- No suspended loads**
The equipment is on-floor and wheel-based.
- Stability**
The load is positioned with the centre of gravity at the optimal point to guarantee stability, as the dimensions of the loading surface are studied and planned together with the customer.
- Risk analysis**
The vehicle design and its risk analysis are developed in accordance with the client's specific plant environment and materials to be handled.
- Highest safety standards**
Compliance with the highest safety standards and the most recent safety regulations.

IMPROVE THE FACTORY ENVIRONMENT

CREATING A SAFE AND SECURE WORK ENVIRONMENT, WITH A FOCUS ON EMPLOYEE WELL-BEING, REDUCES EMPLOYEE ANXIETY AND IS HIGHLY IMPORTANT.

It is well known that employee happiness contributes to a company's success. Working in a clean and safe environment, with **ergonomic, non-polluting** and **easy to use machinery** contributes to greater personnel satisfaction and well-ness, lower staff absenteeism and turnover, **improved overall productivity** and **lower total costs**.

For this reason, replacing unsafe, obsolete handling equipment which emits pollutants (air, noise, liquids) and which involves excessive and unnecessary effort with hidden costs is an intelligent investment decision.

MORELLO SGA I AND OMNI TRANSPORTERS
SATISFY ALL THE ABOVE REQUIREMENTS.

100% "clean" solutions

Thanks to their electric motors and battery power supply.

Totally safe

Secure material handling with on-floor, wheel-based, solutions.

Ergonomic solutions

Easy to use, effort-free solutions, contributing to improved productivity.



BENEFITS OF MORELLO BATTERY POWERED TRANSPORTERS

SGAI AND OMNI ARE CUSTOM-DESIGNED FOR YOUR COMPANY

- Optimize plant logistics, reduce material handling times and costs and increase safety, thanks to the design and risk analysis of the machine, specific for each client project.
- Avoid costly civil works interventions on indoor and outdoor flooring of the plant. The type and number of wheels, and the type of steering is designed to suit specific project needs.

OMNI SAVES YOU TIME AND SPACE

- Reduce handling times and make maximum use of all available space thanks to Morello's omnidirectional steering.

SAFETY THAT ENSURES NO SLEEPLESS NIGHTS

- SGAI and OMNI transporters are among the safest systems for the handling of heavy and large materials, avoiding the risk of overturning and all the risks associated with suspended loads.
- SGAI and OMNI are designed according to clients' needs, guaranteeing a complete analysis of clients' factory and project risks, in accordance with the most recent safety standards and current regulations.

AVOID EXPENSIVE CIVIL WORKS INTERVENTIONS

- It is not necessary to change the current flooring; SGAI and OMNI adapt to your environment, especially the OMNI thanks to its suspension systems and all-wheel drive.
- SGAI and OMNI, with their non-slip steering system, do not damage your flooring and allow you to avoid frequent maintenance and repair interventions.

AVOID COSTLY DOWNTIME

- Avoid long machine downtimes, thanks to our monitoring and remote assistance systems, which allow real-time intervention on our vehicles, thus solving the problem in a timely manner.
- Despite the great customization of its machinery, Morello has decided to invest in an extremely well-stocked warehouse, with all the costs that this entails. This is because it knows the added value that a ready-to-deliver spare part can mean for the productivity of its customers.

FORGET ABOUT MAINTENANCE COSTS

- SGAI and OMNI minimize usage and maintenance costs, thanks to our Italian electric motors, high efficiency lithium batteries and our integrated diagnostic system.

OUR GUARANTEE, YOUR PEACE OF MIND

- If one of our machines has a problem, we are committed to physically visiting your site to solve it. Wherever you may be.



SGAI & OMNI TECHNICAL SPECIFICATIONS

Load Capacity	from 1 ton to over 500 tons
Dimensions	custom designed
Power supply	battery
Travel speed	20÷30 m/min (on request up to 6 km/h)
Drive motors	AC motors
Steering motors	AC motors
Command	pendant control panel and remote controller (footplate and cabin on request)
Kind of wheels	solid rubber, polyurethane, pneumatic
Lifting deck	on request (lifting stroke from 50 mm)
Kind of battery	lead acid, gel, lithium, pure lead
Battery life	on request (distance from 1500 m to over 15000 m)
Climbing ability	on request (from 2% to over 20%)
Operating environment	indoor, outdoor, offshore
Safety devices	laser scanners, sensitive bumpers, ultrasonic sensors
Industry 4.0 ready	on request
Hazardous areas conform (EX)	on request (ATEX, IECEx, NEC 500)
Automatic version – AGV	on request



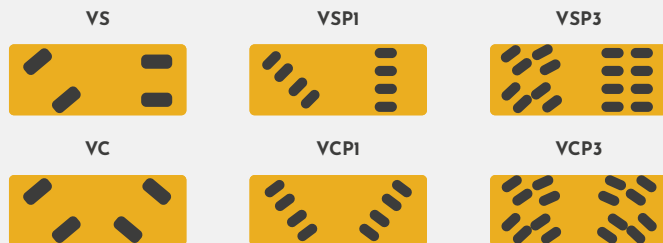
SGAI STEERING SPECIFICATIONS

SGAI transporters utilize a **traditional steering mechanism**. The axles can steer up to $\pm 45^\circ$ allowing the transporter to work in quite limited spaces. Two modes of steering are available. Firstly, front axle only steering (VS, VSP1 e VSP3). Secondly, all axle steering (VC, VCP1 e VCP3), in order to further reduce the steering radius.

Depending on the load capacity and the required ground surface pressure there are multi wheel versions as follows:

- 4 wheel version (VS e VC);
- 8 wheel version (VSP1 e VCP1);
- 16 wheel version (VSP3 e VCP3).

SGAI STEERING OPTIONS

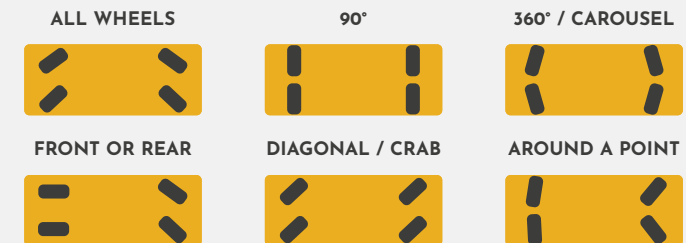


OMNI STEERING SPECIFICATIONS

OMNI transporters utilize a **special omnidirectional steering mechanism**. Thanks to the completely **independent wheel units**, the OMNI provides **multidirectional** (or omnidirectional) steering capacity, which allows it to transport even the largest loads in the smallest of spaces.

The independent wheel units allow for the addition of as many axle lines as necessary (and consequently many wheels), thus reaching a **load-bearing capacity of up to 1000 tons** per single heavy-duty platform cart.

OMNI STEERING OPTIONS



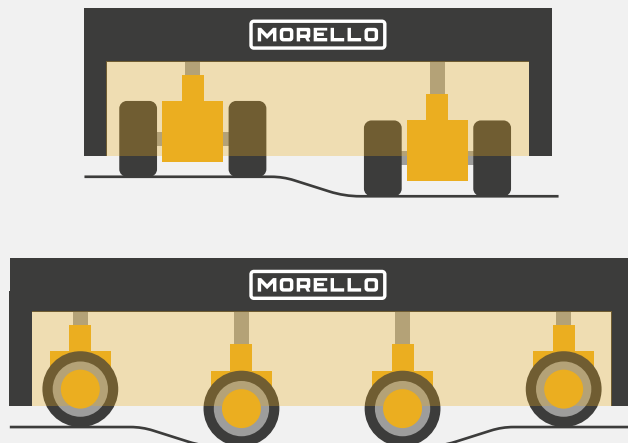
OMNI TECHNICAL SPECIFICATIONS

THE OMNI TRANSPORTER OFFERS A RANGE OF ADDITIONAL FEATURES

"ALL-WHEEL DRIVE" ALL WHEELS ARE MOTORISED

Every single wheel has its own brushless electric traction motor controlled by its own inverter. This means there are no transporter wheels which, if not controlled, would be "dragged" thus risking floor damage in the area they are travelling.

The Morello all-wheel drive system also ensures a **perfect grip on all types of flooring**, even sloping or wet floors, thus preventing frustrating cart "stop-pages" caused by small holes, sudden slopes or any unexpected uneven surfaces. In such cases, less advanced transporters may require a large crane or other equipment to solve the problem.

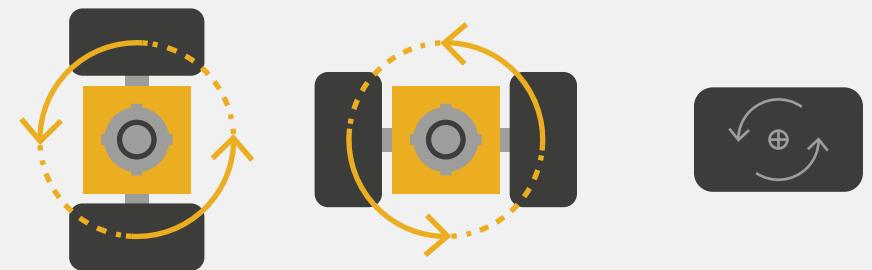


THE WHEELS ARE CONNECTED IN SETS OF TWO AND STEER AROUND THE CENTRELINE

None of the wheels rotate on their own axis or too close to it, thus **avoiding "slippage" or "dragging" during steering.**

Slippage would cause the following problems:

- Permanently ruin the wheels and/or flooring;
- Significantly reduce the vehicle's steering precision, especially if the wheels are turned when the transporter is stationary (not moving). It causes uncontrolled movements of the entire system that may make it difficult for the operator to precisely position the cart.



MORELLO



COMPETITORS

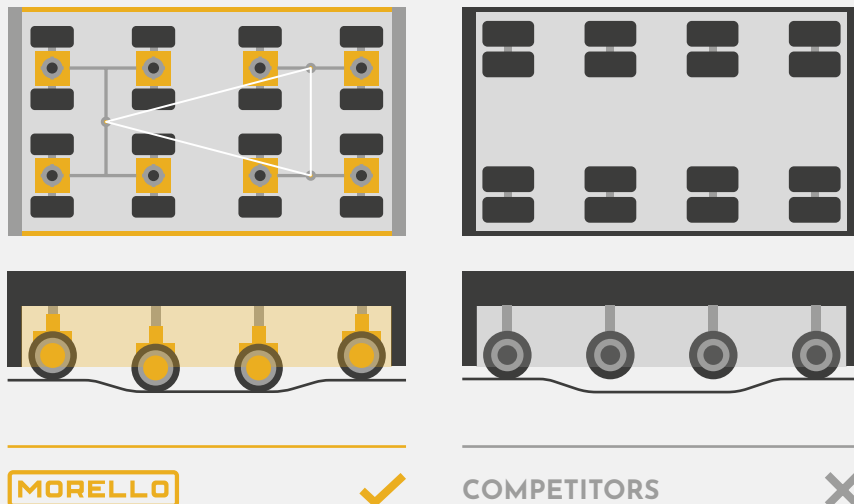


PAIRS OF WHEELS WHICH OSCILLATE ON A TILTING AXLE ARE SUPPORTED BY A HYDRAULIC SUSPENSION CYLINDER USED TO BALANCE THE WEIGHT ON THE WHEELS AND LIFT THE LOADING BED (IN VEHICLES EQUIPPED WITH LIFTING)

This hydraulic compensation means the vehicle can be brought into a state of balance known as isostatic, with 3 points of stability, 3 points which guarantee the formation of a single plane (the ground). Since the system is balanced on just 3 points:

- **We know for certain that all wheels are always in contact with the flooring**, even on imperfect surfaces, thus avoiding vehicle slippage and stoppages.
- **The weight is equally distributed across all wheels**, preventing wheel overloading that can lead to excessive wear or even structural failure.

Many systems on the market without this hydraulic compensation are balanced on 4 or more points! This creates a so-called hyperstatic system, an excessively “rigid” system that cannot ensure all wheels are effectively touching the ground. This, as described above, can lead to vehicle stoppages and overloading of the wheels and the entire structure, which can seriously damage the cart and the flooring on which it operates.



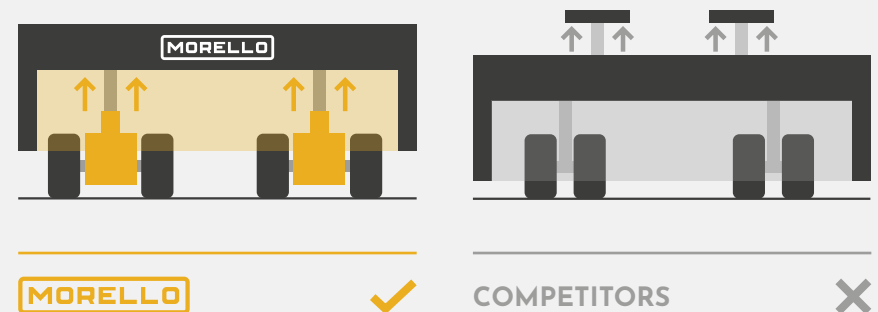
THE ENTIRE LOADING BED IS LIFTED VIA THE HYDRAULIC WHEEL COMPENSATION SYSTEM

The **hydraulic compensation system** also serves (where required) to lift the vehicle’s loading bed. By lifting the entire loading bed and not just certain beams/plates:

- **The cart is much more versatile** as it can be used to lift any type of load without any limitations due to specific support structures.
- **The contact surface with the load is substantially larger**, resulting in improved load stability and better distribution on the transporter, and therefore on the wheels and flooring.

Systems which only lift certain beams/plates are far more “rigid” and risk becoming quite restrictive in the event the vehicle needs to be used for other purposes. Moreover, this can lead to poor distribution of the load, jeopardizing its stability and the structural strength of the entire system.

Lifting with the hydraulic compensation system allows individual control of each hydraulic point, “tilting” the loading bed as needed, a feature which is not possible with a “rigid” system.



IN-PLANT HEAVY MATERIAL HANDLING COMPARISON CHART

	Initial costs		Operating cost			Features			
	Purchasing cost	Installation cost	Maintenance cost	Layout modification cost	Handling time and cost	Space optimization	Safety	Green and clean	All terrain suitable
SGAI	\$	\$	\$	\$	\$	++	+++	+++	Yes
OMNI	\$\$	\$	\$	\$	\$	+++	+++	+++	Yes
OVERHEAD CRANE	\$\$	\$\$\$	\$\$	\$\$\$	\$\$\$	+++	+	+++	No
TRACTOR + TRAILER	\$\$	\$	\$	\$	\$\$\$	+	+	++	Yes
SPMT	\$\$\$	\$	\$\$\$	\$	\$	+++	+++	+	Yes
AIR CUSHION	\$\$	\$\$	\$\$	\$\$\$	\$	+++	++	+++	No



WHY MORELLO?

75 Years Experience

Family company with a solid financial history and decades of experience solving clients' heavy load challenges and developing a market leading position, all driven by deep understanding of clients' factory operations.

Full Project Customization

A consultancy-based approach to choosing the optimal solution based on our experience that each client has specifically unique requirements. Each plant, each manufacturing process and each load to be moved are all different.

Operate across all Environments

Operating both indoors and outdoors with a flexibility to change processes, factory layouts or factory location since our transporters have no civil works requirements or constraining factors. A company with experience of operating in the most extreme industrial environments: steel mills, nuclear facilities, offshore oil platforms, oceangoing ships and many more.

Management of complex projects with High Quality Standards

Decades of experience in managing complex projects for large corporations in demanding industries, such as for example oil and gas and nuclear energy, positions Morello as a qualified and trusted vendor and partner.

Proprietary Software Industry 4.0

Morello's proprietary software technologies allow for full project automation, integration into a client's ERP system and also for web communications, monitoring and remote assistance, with an experienced team of software developers at your service.

INTERNATIONAL MARKETS AFTER SALES SUPPORT

OUR WORKING APPROACH

Following delivery of the machine Morello continues to support all products throughout their entire lifetime. **Client Technical Support** is an integral part of the Morello customer commitment.

PREVENTIVE MAINTENANCE

For all machines, anywhere in the world, **we offer an ongoing preventive maintenance contract**, which frees up the customer from all routine maintenance, leaving this job to us.

REMOTE ASSISTANCE

Our machines can be equipped with devices which **allow us to connect directly to the machine from our offices**. This allows us collect and monitor data continuously and also connect to the machine in the case of a malfunction.

ON-SITE ASSISTANCE

Morello guarantees technical support, all over the world, **directly on-site** when required in the event of a machine malfunction.

SPARE PARTS

Machine spare parts are available and supplied all around the world. This applies even many years after the initial sale of a machine. **This client commitment applies to and lasts for the entire life of the machine!**



Designed
and manufactured
to last for decades
of operational use

IN THE MOST EXTREME
INDUSTRIAL ENVIRONMENTS

INTERNATIONAL MARKETS INVESTMENT & GROWTH

MORELLO OPERATES GLOBALLY ACROSS ALL CONTINENTS

We have strong international reach and the capacity to serve our clients in all corners of the world. Morello equipment is operating on a daily basis in over **45 countries worldwide**.



METALLURGY



POWER GENERATION & ENERGY



EPC



AUTOMOTIVE



OTHER HEAVY GOODS





MORELLO

MATERIAL HANDLING TECHNOLOGY SINCE 1946

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