

MORELLO

# MORELLO AGV

AUTOMATING THE HANDLING OF HEAVY LOADS



LEADING GLOBAL MANUFACTURER  
OF INNOVATIVE HIGH TECH ELECTRIC VEHICLES



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# MORELLO AGV

AUTOMATION - PRECISION - SAFETY - COST EFFICIENCY - ENERGY EFFICIENCY

Morello Automated Vehicles operate in Heavy Duty and Hi-Tech Industries across the globe.  
Our mission is to optimize Heavy Load Logistics Management to reduce operating costs  
and increase safety.





MORELLO'S HEAVY DUTY AGVs ARE AIMED AT PRODUCTION COMPANIES, IN ALL INDUSTRIAL SECTORS WORLDWIDE, WHO WISH TO TAKE ADVANTAGE OF THE REAL BENEFITS OF INDUSTRY 4.0, BY AUTOMATING THE HANDLING OF HEAVY LOADS WITHIN THEIR FACILITY

MORELLO'S AGVs ARE CUSTOM-DESIGNED AUTOMATED VEHICLES FOR TRANSPORTING HEAVY MATERIAL WITHIN INDUSTRIAL PLANTS FOR LOADS FROM 2 TO 500 TONS



# AUTOMATION DELIVERS **SAVINGS & SAFETY**

## SAFE AUTOMATED DRIVING

**Eliminate the human error** factor and increase safety by removing all manually guided driving.

**Reduce the number of trained operators** and simplify staffing requirements by eliminating manual driving.

**AGVs reduce risk and increase safety.**

## COST REDUCTIONS

The costs related to logistical inefficiency caused by people productivity issues puts constant pressure on operations and staff management. The cost of damage due to human error is eliminated when using an AGV thanks to the increased driving precision and accuracy which the technology delivers.

The risk of damaged materials, machinery, infrastructure, and often staff injuries when moving heavy materials is significantly less when operating with an AGV.

**AGVs drive down operational costs.**



# BENEFITS OF A MORELLO HEAVY DUTY AGV



## CREATE A SAFER WORKPLACE

The safety systems built into Morello AGVs are state-of-the-art, ensuring total safety during all stages of operation. These systems **minimise human error and eliminate the risk of accidents due to driver distraction.**

Transport via AGV **eliminates the use of overhead loads.**

Moreover, the load is placed in a very stable position on the loading surface, thus **eliminating the risk of overturning.**

The design of a Morello AGV is always tailored to the customer's specifications and operating environment, **ensuring a comprehensive assessment of the customer's unique risks**, in compliance with current safety regulations and the latest standards.



## TAILOR MADE SOLUTIONS

Morello uses state of the art technologies on all vehicles, and for AGVs in particular its navigation systems, such as natural guidance (SLAM) and advanced GPS, **eliminate the need for floor alterations making route modification quick and inexpensive.**

Morello designs and manufactures customized AGVs focusing on optimizing the cost/performance relationship for each individual client. **Every detail of the AGV is personalized to the client's specific needs:** navigation technology, safety sensors, mode of steering, wheel types, vehicle layout, etc.



### ENERGY EFFICIENCY

Morello uses lithium battery powered solutions combined with electric brushless motors to maximize energy efficiency, in order to **decrease the environmental impact and the running costs.**



### REDUCE OPERATING COSTS

**Cut the costs associated with handling operators,** who must also be adequately trained to handle large loads. **Decrease the damage to materials** being transported and to the surrounding areas by taking the human factor out of the equation.



### INCREASE PRODUCTIVITY

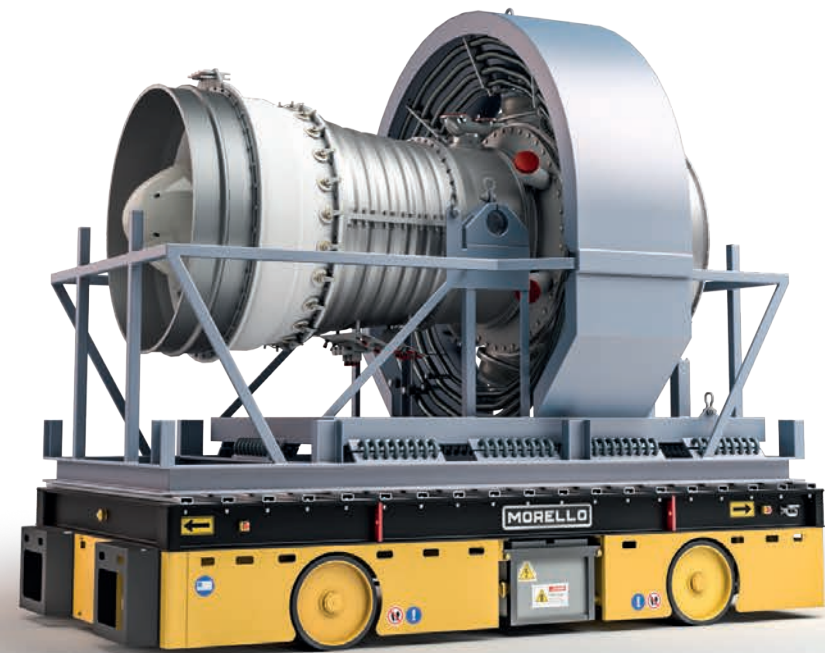
**Save on handling time** thanks to the accuracy and reliability guaranteed by automation. Optimise the use of all spaces through the **multiple steering options** with which Morello can equip its AGVs (e.g. omnidirectional steering).

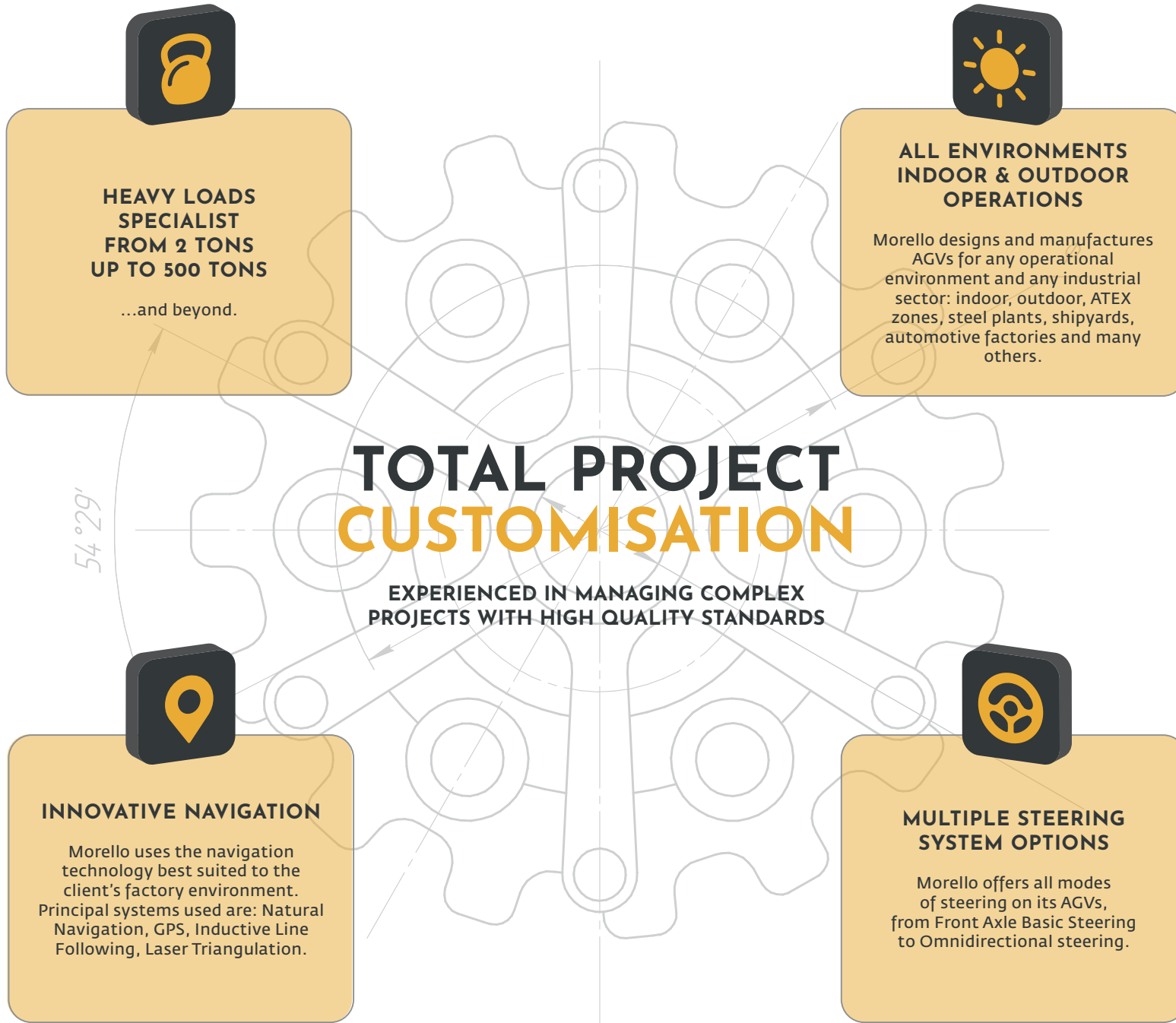


### MAINTENANCE FREE

All Morello AGVs use brushless AC electric motors, therefore avoiding hydraulic motors or old DC engines, thus minimizing the need for hydraulics and utilizing the latest generation lithium batteries.

**This reduces all maintenance requirements and related costs.**







# AGV MANAGEMENT SOFTWARE

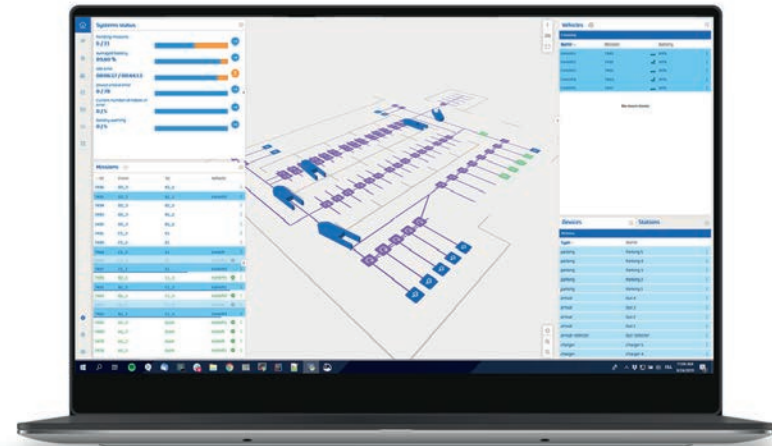
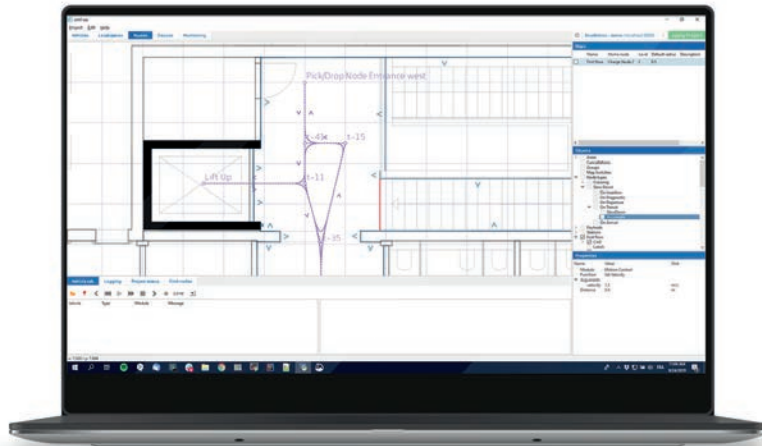
## NAVIGATION SOFTWARE

MORELLO uses a mix of proprietary software developed internally and standard software developed by AGV software-house leaders, **to ensure maximum flexibility in heavy-load AGV cart geometry customization, including paths to follow and automation logics that are part of the customer's production process.**

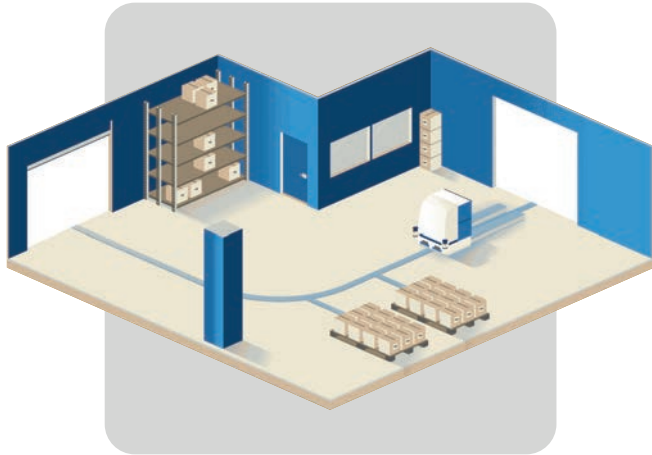
Our software can be customized to interface with all types of higher management systems and with the software of automated warehouses and other automatic machines.

## OUR SOFTWARE CAPABILITIES

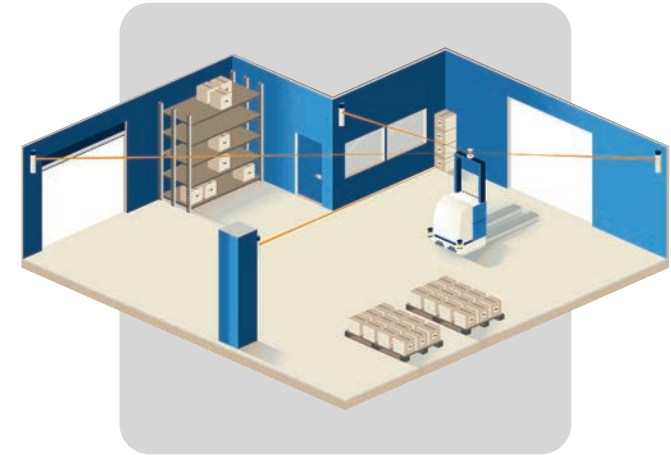
- Mapping of the AGV work area.
- Definition of routes and charging station locations.
- Definition of the work missions.
- Traffic management of the AGV fleet.



INDUCTIVE LINE FOLLOWING



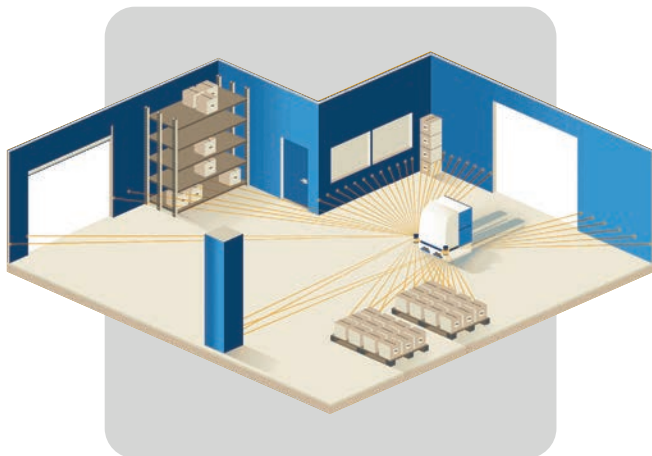
LASER TRIANGULATION



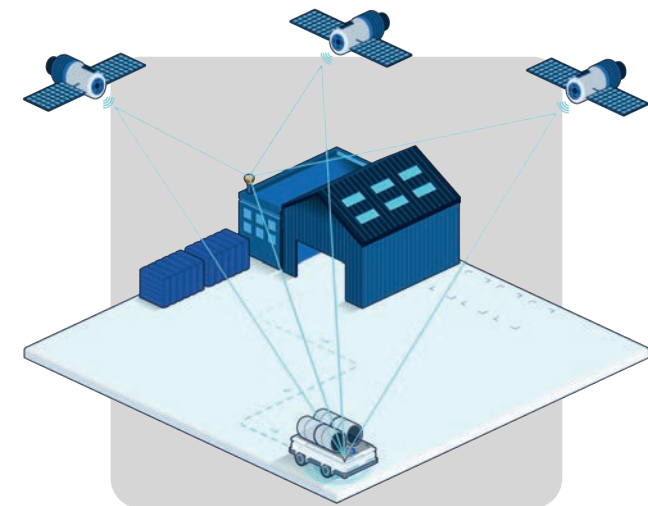
Morello utilises the most advanced navigation technologies available today and **will propose the most reliable technology for your project**, based on many years of experience working with industries around the globe.

## MORELLO NAVIGATION GUIDANCE SYSTEMS

The most suitable technology, or mix of technologies, is proposed by Morello's expert engineers based on each client's plant requirements. **The evaluation and proposal is based on system reliability and financial budget requirements.**



NATURAL FEATURE (SLAM)



GPS

## COMPARISON OF NAVIGATION SYSTEM TECHNOLOGIES

	AGV VEHICLE COST	INSTALLATION COST	MODIFICATION COST	ACCURACY	RELIABILITY	MULTIPLE AGV (FLEET) SUITABLE	OUTDOOR SUITABLE
LINE FOLLOWING INDUCTIVE	\$	\$\$\$	\$\$\$	+++	+++	++	NO
LINE FOLLOWING OPTICAL	\$	\$	\$\$	+	+	+	NO
NATURAL (SLAM)	\$\$	\$	\$	+++	+++	+++	YES with limitations
GPS	\$\$	\$\$	\$	+	+++	+++	YES
TAGS / TRANSPONDER	\$\$	\$\$	\$\$	+	++	++	NO
LASER TRIANGULATION	\$\$\$	\$\$	\$\$	+++	+++	+++	NO

■ MORELLO SELECTED TECHNOLOGIES BASED ON OPTIMAL COST/PERFORMANCE RATIOS

OMNIDIRECTIONAL  
AGV  
WITH LIFTING DECK  
CAPACITY 15 TONS



AGV CART  
FOR  
STEEL COILS  
CAPACITY 45 TONS



AGV DIE CART  
FOR MOVING  
AUTOMOTIVE SECTOR MOULDS  
CAPACITY 40 TONS

AGV CART  
FOR PRE-FABRICATED  
CONCRETE STRUCTURES  
CAPACITY 8 TONS



## INTERNATIONAL MARKET 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.

DESIGNED AND MANUFACTURED TO LAST FOR  
DECADES OF OPERATIONAL USE IN THE MOST  
EXTREME INDUSTRIAL ENVIRONMENTS

#### 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.

#### ON-SITE ASSISTANCE

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

#### 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.

#### 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!

# INTERNATIONAL MARKET 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



## AUTOMOTIVE



## OTHER HEAVY GOODS





# MORELLO

MATERIAL HANDLING TECHNOLOGY SINCE 1946

