



**STRONG PARTNERS.
TOUGH TRUCKS.™**

HYSTER ROBOTICS

WWW.HYSTER.COM

TRANSFORM YOUR WORKFORCE

Hyster® robotics offer a reliable solution to help optimize work flow, provide flexibility and help achieve significant cost savings. Furthermore, these automated vehicles can help lower expenses by reducing damage to goods, and increase productivity by putting people at less risk of physical strain from uncomfortable tasks. Furthermore, consistent timing of tasks helps improve the flow of your materials handling operation.

COBOTICS

The collaboration between people and robotics, working and interacting in a productive environment.

THE BASICS

- Helps reduce cost of operations and optimize work flow
- Robotic components are added to a standard production chassis
- Navigation technology is infrastructure-free
- Available in dual mode (manual and automatic)
- Interfaces with Warehouse Management Systems

Tow Tractor, LO7.0T
15,000 lb towing capacity

End Rider, B80ZHD
8,000 lb capacity

Counterbalanced Stacker, S1.0-1.5C
2,000-3,000 lb capacity

Reach, N35ZDR2
3,500 lb capacity



KEY FEATURES OF A ROBOTIC LIFT TRUCK



Geoguidance laser

*Curtain laser:
obstacle detection*

Optional bar code reader

*User interface equipped
with intuitive touch screen*

*Visual and acoustic
warning indicators*

Emergency stop buttons

*Tiller: simply activating the
buttons or the tiller itself stops
the truck immediately and
returns it to manual mode*

*Chassis-first laser scanner
for obstacle detection and
intelligent pallet detection*

*Forks-first detection lasers
(not shown)*

HOW CAN YOU DECREASE COST OF OPERATIONS WHILE STABILIZING YOUR WORK FORCE?

While logistics tasks will always be directed by people, robotic vehicles are programmed to perform repetitive, non-value added tasks. As a result, you can reassign your current employees to more satisfying and rewarding jobs, potentially reducing labor costs by avoiding high turnover, absenteeism and new employee training.

With labor consistently in short supply, added to the cost of repetitive new employee training, it makes sense to add more cost-effective labor to your existing workforce. One forklift operator can cost a company up to \$25.00 per hour. Training a new operator can cost a company, on average, \$4,000 each time.

A Hyster robotic vehicle averages an expense of \$7-12 per hour. The more shifts your operation runs, the sooner you can reap a full return on your RLT investment – possibly two years or less for multi-shift operations.

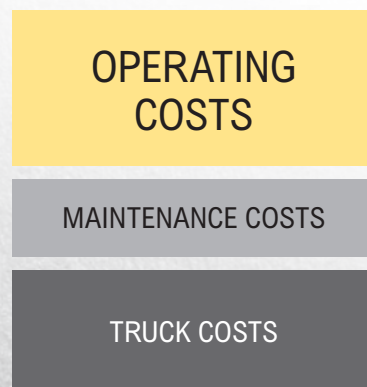
IN A TYPICAL WAREHOUSE

- labor can use up to **70%** of the budget¹
- average annual turnover rate is **44%**¹
- Finding and training new hires can cost up to **2X** an employee's salary²

DRIVER OPERATED



ROBOTIC



REDUCE OPERATING COSTS BY UP TO 70%

¹ Labor Management Strategies in the Warehouse. August 2014. <https://www.kaneisable.com/blog/reduce-warehouse-costs-its-all-about-labor-management>

² Employee Retention – The Real Cost of Losing an Employee. February 2016. <https://www.zanebenefits.com/blog/bid/312123/employee-retention-the-real-cost-of-losing-an-employee>

SO YOU'VE HEARD THAT ROBOTIC SOLUTIONS INVOLVE EXPENSIVE INFRASTRUCTURE...

Traditional automatic guided vehicles (AGVs) are designed as custom, highly-specialized equipment; then, when navigational infrastructure is added, costs skyrocket.

NO INFRASTRUCTURE

Hyster adds robotic components to a standard production chassis. With Hyster robotics, you get high-quality, cost-effective standard robotic vehicles that require no added infrastructure, providing easy integration into your existing operations.

The infrastructure-free navigation relies on structural features such as walls, columns or racks. The system is programmed around existing physical structures and is re-programmable to accommodate multiple routes and changes in the environment. Robotic vehicles can pick up, transport and drop off pallets independently and reliably — **no laser reflectors, guide wire or magnets needed.**

REAL-TIME LOCALIZATION

Robotic vehicles make autonomous decisions by using the mapped environment and laser detection to perceive and interact in real-time with their surroundings.

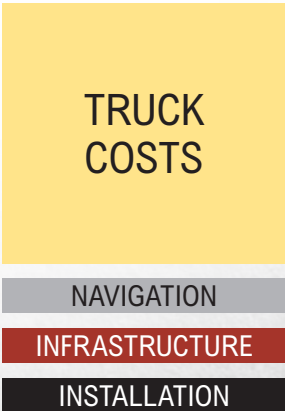
STRONG SUPPORT

You'll find that AGVs generally don't have the same level of local support as Hyster robotics. Hyster has an extensive network of exclusive dealers, providing local coverage through their sales and service locations.

PURPOSE-BUILT AGV



TYPICAL AGV



HYSTER® RLT



INFRASTRUCTURE-FREE SYSTEM REDUCES OPERATING COSTS

> A PLACE FOR EVERYTHING, AND EVERYTHING IN ITS PLACE

EVERYBODY MAKES MISTAKES — IT'S NOT A MATTER OF "IF" BUT "WHEN."

Simple, routine tasks are prime opportunities for error, such as misplacing inventory or failing to update the warehouse management system. Robotic vehicles place loads where they are programmed to be placed, reducing costly time spent hunting for misplaced inventory. And because Hyster robotics are capable of interfacing with warehouse management systems, they can be tracked in real time through a management portal.

Adding Hyster robotics can help reduce avoidable damage to your warehouse including: products, racking and materials handling equipment. The trucks are programmed to operate at a controlled acceleration and speed, avoiding permanent structures on its consistent path.

As always, your human workforce will be busily working side by side with robotic vehicles. Which is why our robotics are equipped with dual operating modes meaning they run autonomously on a programmed path or can be driven by an operator. An operator can take manual control of a robotic lift truck at any time during its operation.



INVENTORY ACCURACY

The average inventory inaccuracy rate is currently **1.25%**.¹ In an operation with \$100M in annual revenues, that's a **\$1.25M** impact.

SOFTWARE INTEGRATION

The robotic lift truck manager software gives you a complete view of your Hyster robotics in real time. With this tool, your RLT supervisory staff can control traffic and assign transport orders to individual trucks. The manager software interfaces with systems such as Enterprise Resource Planning (ERP), Warehouse Management System (WMS) and equipment such as automatic doors, conveyors and production machines.

¹WERC WATCH - DC Measures 2016. Warehousing Education and Research Council. Spring 2016.



END RIDER / B80ZHD / 8,000 LB

- Transport single or double pallets
- Handle loads to marshaling/staging areas
- Easily transfer over long distances
- Bar code scanner confirms appropriate pallet

REACH / N35ZDR2 / 3,500 LB

- Double-deep reach capabilities
- Deposit or remove pallets from as high as 30 feet
- Maximize vertical storage space
- Ideal fit for distribution centers



TOW TRACTOR / LO7.0T / 15,000 LB

- Standard trailer handling configurations
- Sequencing in assembly operations
- Kitting separate items to be supplied as one unit
- Stock replenishment and material hauling



COUNTERBALANCED STACKER / S1.0-1.5C / 2,000–3,000 LB

- Deposit or remove pallets from 2nd or 3rd level
- Handle smaller width pallets
- Stack or unstack loads
- Deposit or remove pallets from shrink wrap station




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