



StAckEd

A Newsletter from RMT Robotics

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Message from the President

Welcome to the inaugural issue of *Stacked*, an RMT newsletter delivering fresh thinking and keen insight on critical issues impacting our customers, partners and industry. Over the past few months we've gathered feedback from a number of you on your challenges, your interests, and the type of information you find valuable.

Stacked was born as a result of those conversations. On these pages you'll find stacks of practical information, customer case studies, and interviews with industry experts that will give you pause not only for reflection, but for focused action.

In our first issue, take a behind-the-scenes look at how two clients transformed their tire and warehouse operations using RMT's innovative and flexible technology. You'll also have a chance to find out why Fortune 1000 companies around the world are insisting on the advantages of gantry technology.

Simply put, RMT Robotics stands for focused innovation. From day one, innovation has been the driving force behind delivering exceptional solutions to vexing problems, whether they involve design, manufacturing, installation or all three. *Stacked* is just one expression of our enthusiasm for our work, our customers, and our industry.

I hope you enjoy *Stacked*. And I thank you for being an important part of RMT Robotics' 25 years of success.

Sincerely,

Doug Pickard

North American robotics companies posted orders for 18,228 robots in 2005, valued at \$1.15 billion. That surpasses the industry's previous high set in 1999.

Source: Robotics Industries Association (RIA), 2006

P.S. We welcome your opinions and suggestions – please let us know what you think! If you have story ideas or topics you'd like to see us address in an issue of *Stacked*, please contact editor@rmtrobotics.com or call +1 905.643.9700 and speak to Bill Torrens, Director Sales & Marketing.



STACKING UP: Reusable Totes Solve a Major Distribution Dilemma

They're long-lasting, sturdy and chemical resistant. Europe's answer to eliminating corrugated cardboard from the waste stream. Now it seems there's another big benefit to using plastic totes in distribution, and this time North American manufacturers are taking notice.

For decades the single-use corrugated carton has been a mainstay of the distribution system throughout North America. As a result, each day millions of cardboard boxes are manufactured, used and recycled or thrown away. While advocates claim the cardboard container is still the best option for packaging and shipping, it's hard to ignore the advantages of the reusable plastic tote.

In Europe, plastic containers have replaced cardboard right across industry sectors. Reusable totes are seen as a durable, environmentally-conscious alternative, and the economy has adapted to ensure that value is realized over and over again, with a streamlined system for handling returnable totes from the manufacturer to the retailer and back.

"When plastic totes are used effectively, the return on investment is far superior to cardboard," says Clay Davis, a spokesperson for Fort Wayne Plastics, a company that specializes in the manufacture of totes using structural foam – a durable, lightweight plastic. "When a plastic tote lasts 10 to 15 years, there's considerable cost savings when you consider that you would be replacing cardboard every day."

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Clay Davis, Spokesperson, Fort Wayne Plastics

So why haven't more companies in North America made the switch? One reason is that it could take months, even years, to realize those cost savings. For one thing, there's the initial capital outlay to modify existing automation systems within the plant. The plastic totes can also be costly, particularly if they're customized for use in specific automation needs.

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Then manufacturers face an uphill battle convincing marketplace partners to adapt to a new tote system. Shippers and retailers would have to adjust to new container sizes, and agree to participate in a returns program to ensure the totes get back to the manufacturer to begin the cycle again.

"It's a tough road if you decided to go it alone," says Davis. "In Europe, there's the political will to make sure everyone participates, and incentives to make sure the totes are used, returned and reused."

Totes: The Answer for Automation

While socio-economic pressures forced the wide-scale adoption of plastic totes in Europe, North American manufacturers may one day be forced to do the same for a very different reason – SKU proliferation.

As consumer demand and competition grow, companies are responding with an ever-widening lineup of products. To maintain inventories, they're sending smaller shipments more often, but with more products in each – the variety in packaging creates a whole new set of distribution problems. It's the cardboard conundrum.

"Inconsistency and variety in corrugate shipping containers has long been the major stumbling block to automation in most facilities," says Bill Torrens, Director Sales & Marketing at RMT Robotics. "In example after example, driven by the challenges imposed by the corrugate shipping container, companies considering process automation in their warehouses have been either stymied by the cost and complexity of the solution, or in many cases, have been told that automation is not even possible," adds Torrens.

Some companies see manual handling as the only alternative. But with growing throughput and the steep price of labour, many companies are turning to third party logistics firms to try and find a cost-effective distribution solution. "That's really just

a short-term fix," says Torrens. "As labour costs continue to increase, the annual investment for these subcontracts also continues to rise."

As it turns out, the EU may already have the answer. While the Europeans celebrate the environmental benefits of the reusable tote, there are some big automation benefits to using plastic containers. For one thing, they're built to be stacked, and therefore inherently consistent in sizing, unlike cardboard containers.



"Corrugate encourages a high variety of packaging whereas returnable containers mean more consistency," says Torrens. "The totes eliminate many of the technical challenges associated with dimensional inconsistency and material porosity," he adds. "In short, dunnage is far superior to corrugated cartons, when it comes to the speed and accuracy of automation."

It's that kind of performance that manufacturers count on to ensure a solid return on investment from warehouse automation, and the reason RMT Robotics is a strong proponent of reusable totes. "It's simple," says Torrens. "Change the container and automation is possible."

"It's simple. Change the container and automation is possible."

Bill Torrens, Director Sales & Marketing, RMT Robotics

Cardboard manufacturers insist their product can be built in standardized sizes, and reinforced for strength. But are they strong enough to compete with plastic? "Not a chance," says Davis. "There are limits to the design flexibility of cardboard, and our research indicates that cartons are much more prone to getting crushed. And, have you ever seen what happens to a cardboard box when it gets wet?"

"Used roughly, a plastic container will last a minimum of 5 years," he adds. "With some care in the way they're used, moved and stored, a plastic tote can be in service for up to 15 years. That's something you won't find with cardboard."

Strength and durability aside, the plastic tote still has a long, arduous journey to make in convincing North American manufacturers there's more than an environmental benefit to thinking outside the cardboard box.

We'd like to hear from you! Send us your thoughts on the long-running debate over the use of corrugated cardboard containers and whether plastic totes make more sense. Please send your comments to editor@rmtrobotics.com. We'll feature our readers' responses in an upcoming issue of *Stacked*.





Robotic Revolution: The Rise of RMT's Gantry

It's the tireless workhorse of tire distribution. The unstoppable arm of warehouse automation. And in many ways, the symbol for a mind shift in innovation. Today's robotic gantry is larger, faster and more flexible than ever before, making it a true performer and the technology of choice right across the manufacturing spectrum.

So what makes robotic gantries so exceptional? And why are they helping to establish Canada's RMT Robotics as the pre-eminent provider of automation solutions to the world's leading tire and consumer products manufacturers?

The answer dates back to 1981, the year RMT Robotics was founded. The three founders, electrical and mechanical engineers by training, had a wide range of expertise in designing robots and installing automated systems for the automotive industry. More importantly, they had a shared vision for the future.

"Early on, we felt a responsibility to make reliable, innovative equipment," says Doug Pickard, President of RMT Robotics and one of the original founders. "The companies who use robotic equipment are typically operating 24 hours a day, 7 days a week. They need to know that technology is dependable, and that it will last a long time."

The Evolution of the Gantry

The founders of RMT also knew that as technology and the business environment changed, their customers' needs would also continually evolve and grow. The extension and expansion of product lines, increased demand and the need for efficiencies, not only in throughput, but also in space utilization, caused many companies to look for innovative new technologies that would work effectively with their demanding and ever changing needs.

They faced a costly dilemma, comparing manual processes that were labour intensive and error prone, with traditional automation systems that were capital intensive and often limited in their ability to handle increased capacity.

RMT knew that meant the focus had to be on developing solutions that involved fewer machines capable of doing more. Perhaps even a single robot, that could perform multiple tasks.

An early step in that evolution occurred in the late 1980s, when RMT began a project with Coca-Cola® bottling. Initially, Coke® looked to conventional 'robotic arm' alternatives that were proven and popular around the world. But RMT suggested a simpler, less conventional palletizing solution, one built around the "robot on a rail" concept.

The Coke® project was a success, and RMT engineers set to work fine-tuning their creation. They reasoned that an area gantry built with one or more fast, flexible robots that could work from above, could offer unmatched productivity, not to mention astounding Return On Investment (ROI) for clients.

Without the need for costly, conventional palletizing equipment, the gantry could also operate in far less space. Its flexible work envelope could be fit into a variety of footprint shapes and sizes while offering three-dimensional volume coverage and limitless layout options.

With the gantry robot, RMT knew it had a solution that could address the changing needs of customers. The focus turned to designing systems for reduced footprints, SKU proliferation and higher throughput, triggering the interest of manufacturers in plastics, food, beverage and tire.

Focus on the Future

Now, with more than 200 robots installed worldwide, RMT Robotics is considered a leader in automation technology. "We're a small company in comparison to our clients," says Bill Torrens, Director Sales & Marketing, "but the effect we have on their business is huge."

"As a philosophy, we're always trying to evolve the equipment to meet our customers' changing needs, says Torrens. "It's our primary focus to develop and manufacture gantry robots that are large, fast, and technically innovative while remaining financially competitive."

"To build the largest, fastest gantries in the world, it takes the right combination of mechanical and electrical design, motion control and software," adds Torrens. "We've consistently set the gold standard for gantry technology in materials handling. We're very proud of what we've done."

The company founder agrees. "Our reputation for design quality is very positive," says Pickard. "We held off on worldwide expansion until recently, just to be sure we have the best product available on the market. Now, with our reputation for satisfying customers and our partners in Europe and Asia, we're ready to go."

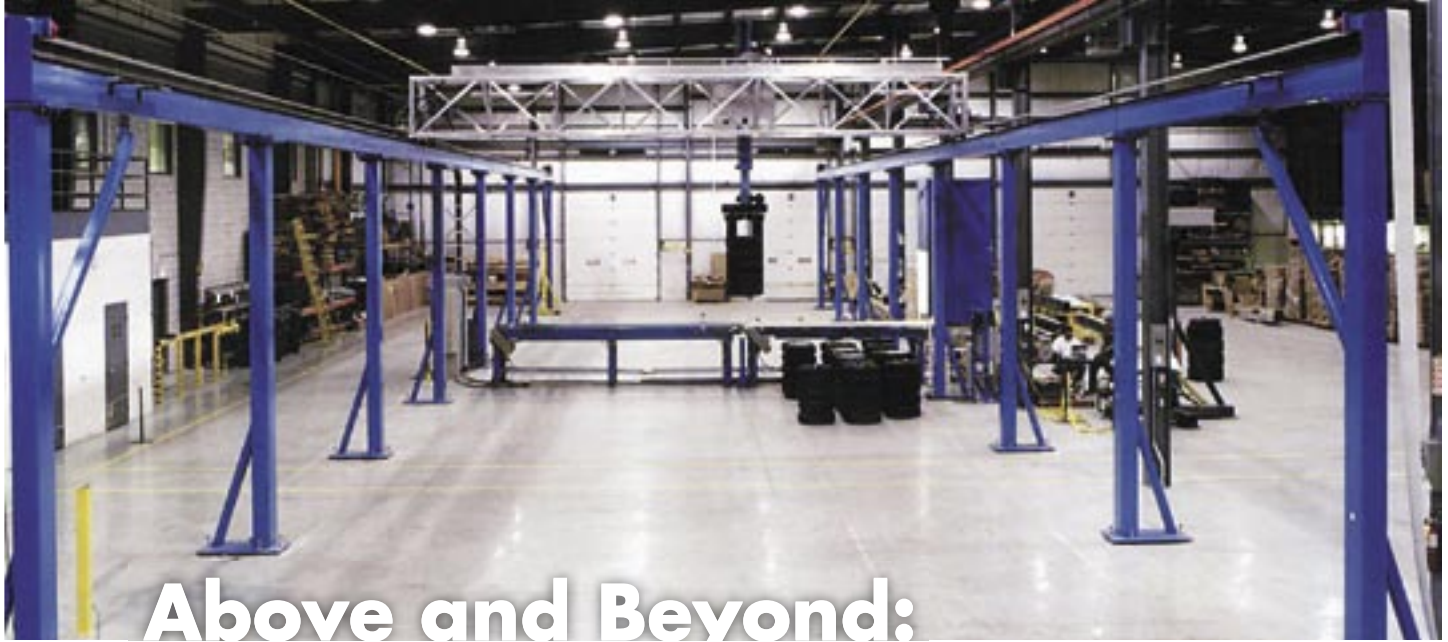
Pickard says part of his work is to continue to promote the advantage of gantry systems. "It just makes sense," he explains. "The return on investment is huge for our clients. To have the system working and working well, that's what we do it for. It's a great feeling."

To learn more about the gantry robot and other automated solutions offered by RMT Robotics, visit our website at www.rmtrobotics.com or call +1 905.643.9700.



What is a Robotic Gantry?

- A high-speed robot mounted on rails above the warehouse floor
- 4-post construction and bridge design offers 4 axes of motion, access to a large rectangular work envelope
- Wide footprint extends reach (40 plus feet)



Above and Beyond:

How The High Flying Gantry Has Created a Mind Shift in Production Sequencing

Doing more with less. It's an enduring struggle for companies trying to compete, and one of the reasons some manufacturers choose to push their old production sequencing systems to the limit. It doesn't have to be that way. As T&WA discovered, occasionally new technologies come along that not only re-define performance, but our way of thinking too.

The Challenge

At T&WA, customer relationships aren't simply endured; they're cherished. As a global leader in the supply of mounted tire and balanced wheel assemblies, the Louisville, Kentucky-based company has earned contracts with some of the biggest automakers in the world, shipping product "on demand" to assembly plants across the U.S. operated by Daimler-Chrysler, Ford, BMW, General Motors, Honda, Hyundai and Toyota.

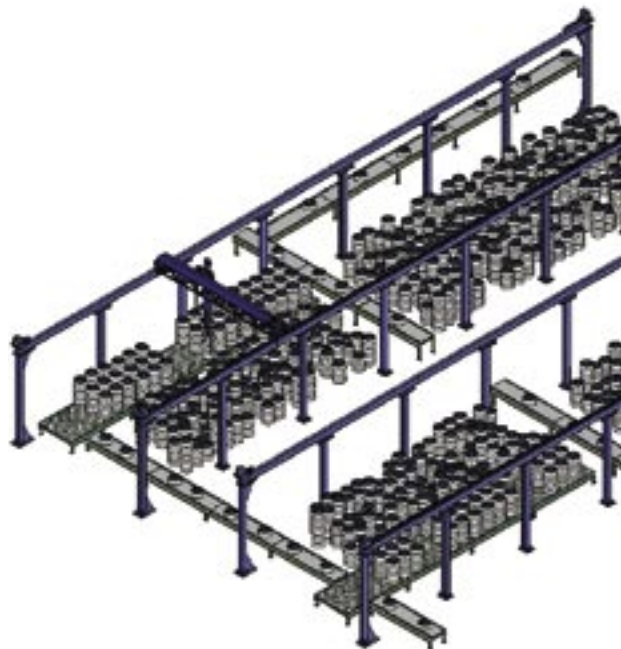
It's essential that the wheel sets assembled at T&WA arrive in order and just in time at their destination, and one of the reasons Tom Sirianno, Vice President of Engineering, regards supply chain management as critical to his company's success.

"Cycle time is everything," said Sirianno. "We have a responsibility to ensure our production sequencing system integrates seamlessly with that of our customers."

It's an issue Sirianno grappled with in 2000, when production demands threatened to outstrip the capacity of a manual storage and retrieval system at the T&WA facility in Paris, Kentucky. Limited space made it impractical to add more forklift trucks with clamps, and the demand for cost efficiencies ruled out additional labour costs.

"We needed to find technology that could hold finished goods, at the same time giving us access to them, using less floor space, and with greater flexibility," said Sirianno.

The answer came from RMT Robotics, a Canadian-based firm with a reputation for designing and installing the largest, fastest robotic gantry systems in the world.



“Cycle time is everything. We have a responsibility to ensure our production sequencing system integrates seamlessly with that of our customers.”

Tom Sirianno, Vice President Engineering, T&WA

The Concept

The in-house design team at RMT Robotics proposed a production sequencing system far different from anything in use at T&WA. Engineers developed plans for a pair of high-speed gantry robots (each robot servicing a separate Toyota assembly line) that would receive wheel sets from assembly, then sort and stack the tires in product groups, using the floor space below the gantry for temporary storage.

The computer-controlled system would be programmed to carry out each shipping task in sequence, with the speed and accuracy that could never be matched using a conventional pick system. Not only would the robots replace equipment and labour costs, they were capable of operating ‘error free’, and 24/7.

“We did look at other systems using vertical bins and shelving,” admits Sirianno. “But in the RMT design, everything is stacked on the floor. We felt that once we purchased the framework from RMT Robotics, we wouldn’t need anything else. It seemed to be the simple solution we were looking for.”

“As soon as they saw the gantry concept, they knew it was the right thing to do,” added Bill Torrens, Director Sales & Marketing at RMT Robotics. “What went in, came out in the order it was supposed to. The mis-picks and mis-ships went to zero.”

The Installation

In June 2001, RMT Robotics completed the T&WA installation, and the gantry robots took over production sequencing duties at the Paris, Kentucky, facility. Sirianno was immediately impressed by the robustness of the technology, and the speed at which the system worked.

“The technology is first-rate,” said Sirianno. “Their engineers are very innovative, and they really work hard to come up with solutions that work. In this case, the biggest challenge was integrating the controls and computer systems to ensure they would work with product from our client, Toyota.

With some fine-tuning the system functioned perfectly, assembling customized orders in the precise sequence they would be required at the assembly plant. Once a customer’s electronic order or manifest arrives, the gantry robots respond, assembling each five-wheel vehicle set based on the tire size, and determining whether it required a steel or aluminum alloy rim.

“We accomplished all of their objectives,” said RMT’s Torrens. “We were able to store far more in less space due to the inherent advantage of the gantry operating from above. And we eliminated labour costs while significantly increasing volume.”

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Bill Torrens, Director Sales & Marketing, RMT Robotics

The Future

Of course time is always the true test of technology. Today, T&WA confirms that despite ever-increasing output at its Paris, Kentucky, facility, it continues to rely on the same pair of gantry robots installed in 2001 to handle all order assembly and sequencing. It's the level of up-time dependability Sirianno was counting on, and a testament to the rigidity of the design.

"If a gantry goes down, we run the risk of shutting down an automotive assembly plant," said Torrens. "There's a lot of responsibility that goes with that. A Tier 1 supplier like T&WA counts on us to make sure downtime is not an issue."

For RMT Robotics, the T&WA installation was a 'watershed' event in the evolution of RMT's system applications.

"It was the evolutionary link that helped to catapult RMT into big warehousing solutions," said Torrens. "We learned the gantry could be used not just to move and assemble product, but could hold it in temporary storage, then send out in a calculated, controlled and sequential manner. The T&WA system began the revolution towards flexible, large size and full-scale robotic gantry based AS/RS picking solutions."

To learn more about the Production Sequencing System or other tire solutions, visit www.rmtrobotics.com or call +1 905.643.9700.



Automotive companies and their component suppliers accounted for 70 percent of new robot orders in 2005.

Source: Robotics Industries Association (RIA), 2006

Lasting Link: The Intralox Connection

Durability and performance. They're key considerations for every RMT installation and fundamental to every RMT Robotics product. To build the best automation solutions available today, RMT relies on products that meet the highest standards in quality. It's the reason RMT engineers insist on Intralox conveyor belting.

Intralox invented the modular plastic conveyor belt in 1971. The unique belt design uses molded plastic parts that are assembled in an interlocking pattern, then connected with hinge rods. The belts are lightweight, energy efficient and easy to maintain. They can be made to order in any width or length.

"We always specify Intralox when we buy product from a conveyor supplier," says Bill Torrens, Director Sales & Marketing at RMT Robotics. "Intralox is a reliable product, and it allows the operational solution to be very simple. The advantage of Intralox is the quick and easy integration of periphery automation necessary for sortation."

RMT isn't alone in its admiration. Today, Intralox belts are considered the gold standard in the tire industry, replacing traditional belt technology that is more mechanically and electrically complex, and prone to damage.

"In the tire industry, RMT has consistently employed Intralox belting for single line sortation. Our experience in the tire industry has certainly allowed us to see its merits and advantages," says Torrens. "While the technology isn't as common in case sortation, we've adopted it for all of our warehousing solutions that require belting."

Torrens says the Intralox product is a perfect fit with RMT's philosophy. "We're always looking for creative ways of solving problems better, and the Intralox product is a very simple, but highly effective solution."



Intralox Series 400 Transverse Roller Top (TRT) belt, used in the curing and final finish areas of tire plants, successfully transfers tires 90 and 180 degrees without jams. www.intralox.com



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