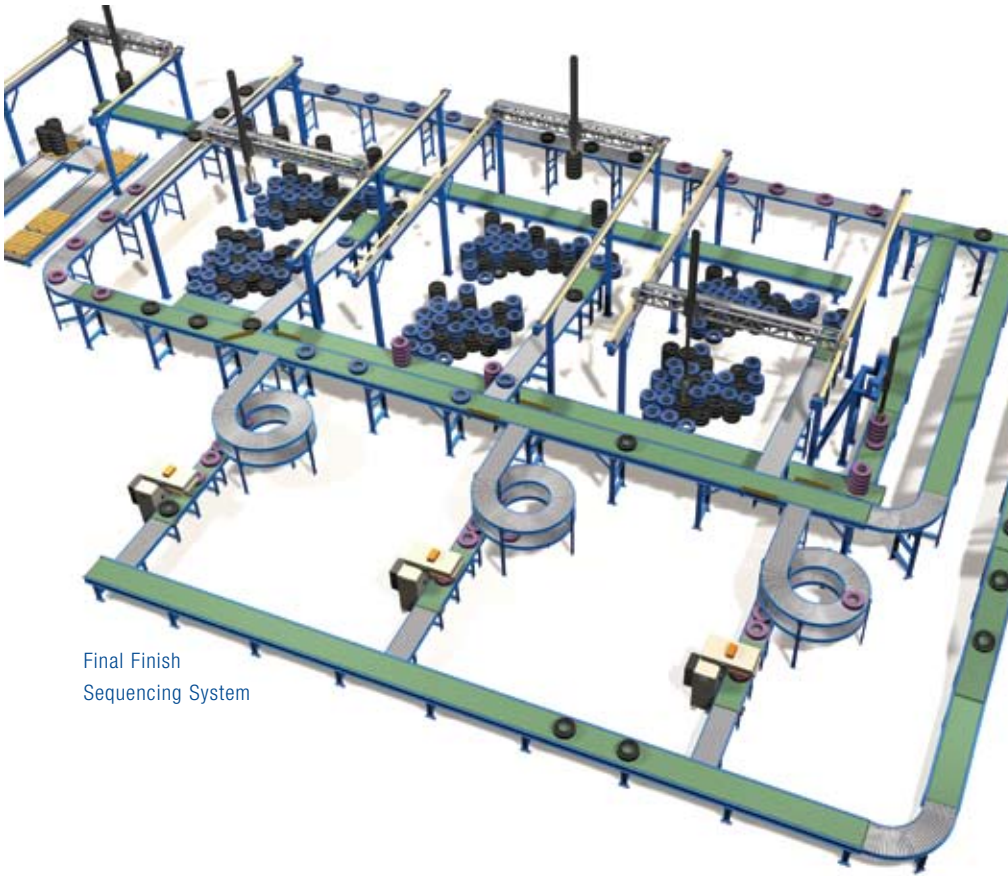




T I R E
T E C H N O L O G Y



Final Finish
Sequencing System

L E A D E R S H I P T H R O U G H F O C U S E D I N N O V A T I O N

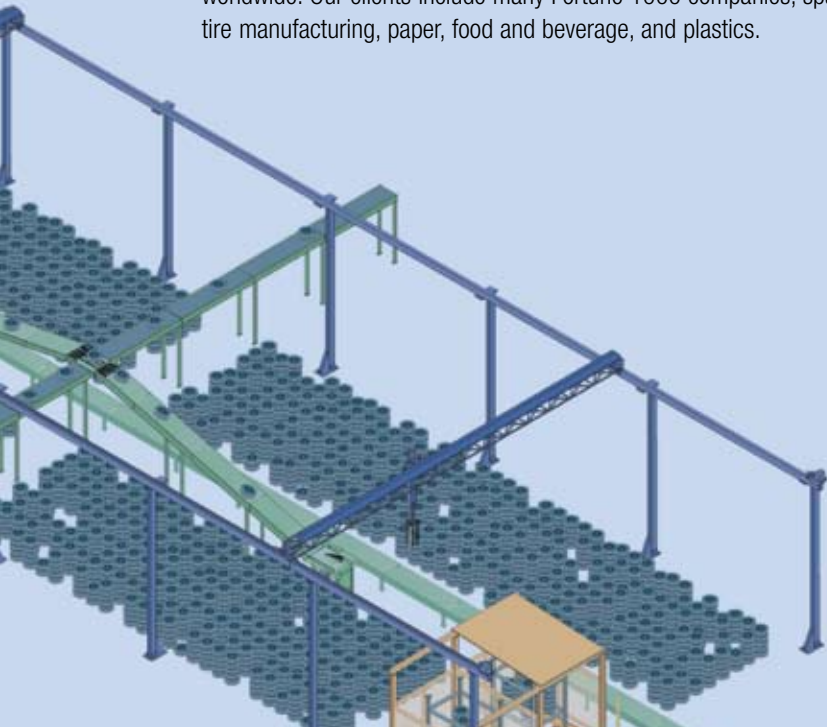
Maximize flexibility. Minimize costs.

How do you maximize your efficiency, throughput and capacity while maintaining flexibility? You seek out innovative, reliable, proven and economic solutions, delivered by an experienced company.

Recognized around the globe as the leading manufacturer and integrator of robotic gantry systems for the tire industry, RMT Robotics combines over 25 years of experience and the largest installation base in the world.

Our focus is large-scale automated storage and retrieval systems that utilize RMT's large and fast robotic gantries to perform the task. Automating processes such as order picking, work-in-process (WIP) storage and retrieval help our customers streamline and gain a competitive advantage over their competition.

Founded in 1981 near Toronto, Canada, RMT has successfully designed and integrated over 200 systems in warehouses and distribution centres worldwide. Our clients include many Fortune 1000 companies, spanning tire manufacturing, paper, food and beverage, and plastics.



Benefit from RMT's Unique Tire Technology

RMT Robotics designs, manufactures and integrates robotic gantry-based storage and retrieval systems for work-in-process and warehousing of passenger and truck tires. From green tire handling to cured tire distribution, our innovative, flexible robotic gantry technology is tailored to meet your distinct system needs.

Count on RMT

- **Over 25 years of experience**
- **The largest installation base in the world**
 - **20+ facility installations**
 - **550,000 tires/day handled by our systems**
- **Clients that include some of the top tire manufacturers in the world**

Contact RMT today to learn how we can help you with your specific tire automation needs.

Automate your Final Finish Operation with RMT's Space-Saving Production Sequencing System

RMT's Production Sequencing System (PSS) provides temporary storage and sequential retrieval and release of work-in-process tires. In final finish, the PSS gantry robot sorts incoming tires and temporarily stacks them beneath the structure for later selection and release. After the TUO (Tire Uniformity Operation), tires can be automatically palletized or streamed into RMT's gantry-based cured tire distribution system.

- Full automation
- 100% robotic inventory management, sortation and product grouping
- A simple storage grid
- Random inventory access
- Sequential product release

Reduce Labour Costs with RMT's Tire Stacker/Palletizer

This RMT Palletizing System automatically sorts, stacks and palletizes finished PCR (Passenger Car Radial) and TBR (Truck and Bus Radial) tires. Tires stream into the gantry robots from final finish. Infeed volume is distributed between robots based on individual gantry workload and storage capacity. When a particular tire SKU volume is equal to a pallet quantity, the gantry releases the tire stacks to the outbound conveyer belt for labelling (automatic or manual). Once labelled the tires are conveyed into the palletizer gantry for stacking on the logistics pallet.

- Automated sortation and product grouping
- Efficient temporary storage of tires in stacker
- Modular and redundant – expandable and operationally flexible
- Convenient labelling prior to pallet loading
- Chimney stack on pallets with or without stacking bars

Direct Ship with RMT's Cured Tire Distribution System

Automated distribution of cured tires improves efficiency and reduces warehouse infrastructure. The RMT Cured Tire Distribution System streams tires towards a bank of large, fast gantry robots. The gantries are capable of sorting hundreds of concurrent codes and storing thousands of tires. Inventory is stored "on the floor" under the gantry, in product groups, for later sequential release via conveyor (in stacks or singles) to the loading dock. For longer-term storage, the stacker gantries are also able to palletize on demand; completed pallets are removed by fork trucks for put-away in the warehouse.

- Electronic inventory management
- Full automation from final finish to dock
- Scalable picking – in single or multiple tire quantities
- Configuration possibilities that allow you to direct ship or palletize
- A simple, durable pallet station

Conveniently and Economically Retrofit your Existing Manual Sortation/Palletizing Operation

RMT's Modular Stacker parachutes into existing final finish operations and completes the automation of sorting and final palletizing. The gantry is tailored to fit between the down lines of an existing conveyor sorter. Tires are picked, sorted and stacked by the gantry, then subsequently released in stacks to a pallet position for fork truck removal.

- The ability to expand as modules are needed
- A simple, durable pallet station
- The option to retrofit into your existing layout without extensive modifications

Reduce Space, Automate Handling and Improve GT Quality with our Green Tire Curing Buffer

RMT's Green Tire Curing Buffer identifies, sorts, stacks and temporarily stores beneath the gantry robot, a dynamic inventory (or "buffer") of green tires in specially designed green tire totes. Tire totes are vertically stacked, coded and time-stamped to ensure a FIFO product flow. When signalled by the press, the automation selects the tire to the outfeed and removes it from the tote for delivery to the waiting press delivery system (Manual, EMS or AGV).

- Improved GT quality prior to curing
- Full automation
- 100% robotic inventory management and First In First Out release
- A simple storage grid
- Zero requirements for extra space
- Random inventory access

Nothing Gets in the Way of RMT's Automated Press Delivery System

To fully automate the press delivery process in your facility, RMT Robotics uses its proprietary *i*-AGV (*i*ntelligent-Automated Guided Vehicle) called ADAM™ to transfer tires from the RMT Green Tire Curing Buffer to the press loading arms.

In new or existing facilities, with passenger or truck tires, the nimble and self-sufficient *i*-AGV completes the pressroom automation loop with minimal disruption to the existing operation or infrastructure.

Reduce Defect Rates and Spoilage with RMT's Green Tire Tote

The green tire tote's unique design holds a single tire horizontally by the sidewall, allowing the beads to extend or collapse normally. This distinctive design offers such benefits as:

- Reduced deformation in storage
- Increased quality
- Decreased rates of spoilage





Transforming Press Delivery with the Next Generation of AGV

From a materials handling perspective, the pressroom in most facilities remains the least automated portion of a tire plant. Understandably, this area of the plant is a highly-charged, dynamic environment that is short on space, complicated in behaviour and relentless in throughput. Although a number of conventional GT storage and press delivery systems exist in the marketplace, expense, disruption and an underlying lack of flexibility limit their practicality.

Building on the success of its gantry-based automated storage and retrieval system (AS/RS) for the tire industry, RMT developed a remarkable automation solution for press delivery. Since 2003, ADAM (Autonomous Delivery and Manipulation) has been employed in the tire manufacturing facilities of some of the largest players in the industry, and has been attracting interest around the world.

Proven. Autonomous. Intelligent.

Designed for complex manufacturing environments, ADAM's navigational software and laser range finding system allow it to plot independent paths from start position (load point) to destination (press cavity). Without wires, laser targets or transponders, ADAM navigates dynamically around obstacles – planned and unplanned.

ADAM delivers seamless, intelligent transportation of product that includes:

- Compact design – ADAM can position itself beneath the press load arm
- Capable of delivering both passenger and truck tires
- Accommodation of multi-style presses
- No external guide path network or sensors
- Onboard navigation that dynamically manages the delivery route, even around obstructions



ADAM's Vital Information:

- Operates at 1.5 m/s (4.9 ft/s) maximum speed
- Zero turning radius
- Height of 510 mm (20 in), diameter of 1020 mm (40 in)
- 150 kg (330 lb) payload
- Laser range finding system for vehicle location and obstacle avoidance
- Onboard PC for mapping, navigation and drive control
- Two independent servo-motors (each with integrated gear reducers) for vehicle drive
- Smart battery technology with opportunity charging capability
- User-friendly, PC-based interface allowing easy operation by plant personnel





To find out more about RMT Robotics
and how we can help you, contact us.

Phone: +1 905 643 9700

Fax: +1 905 643 9666

www.rmtrobotics.com

RMT Robotics

635 South Service Road

Grimsby, Ontario

Canada L3M 4E8