

a TOYOTA ADVANCED LOGISTICS company



BASTIANSOLUTIONS.COM





Automated Storage and Retrieval Systems

Automated Storage and Retrieval Systems (ASRS or AS/RS) thrive in applications where high volumes of inventory move in-and-out of manufacturing or distribution operations. Upgrading to an automated storage system improves throughput and efficiency with reliable, secure storage that eliminates damage to products and equipment while providing safer, more ergonomic working conditions.

Our experts work with you to integrate the appropriate level of flexibility and functions to support current labor availability, security of goods, throughput and efficiency, and maximize your vertical space for reduced facility expansion costs.

Large Loads

These AS/RS are typically used in warehouses, distribution centers, or manufacturing facilities with high pallet load handling requirements, especially where storage density is critical and it is difficult to maintain manual labor. Often used to transport pallets, gaylords, bulk containers, or large loads like automobile or boat frames.

Unit Load AS/RS Crane System

Unit Load AS/RS crane systems provide efficient, reliable, and cost-effective transport of pallets and other large loads in and out of high-density storage. Sturdy yet light-weight stacker cranes ensure the fastest speeds possible while maintaining stability and quiet operation.

Modular construction makes these customizable systems fast and easy to assemble in any facility, including existing buildings, without the need for costly or time-consuming modifications. With dependable 24/7 operation and the ability to work in temperatures down to -22°F (-30°C), unit load AS/RS systems are the best way to upgrade and automate your distribution, manufacturing and warehouse storage systems.

Small and Mid-Sized Loads

Often used in picking applications where there is a high number of mid-range moving small-to-medium-sized SKUs, mini load AS/RS utilize boxes, bins, cartons or totes to safely transport products. These systems consist of aisle-based storage and retrieval machines (SRM) or cranes and static racks or shelves.

Mini Load AS/RS Crane System

Storing products doesn't have to mean compromising floor space — mini load AS/RS are designed to store cartons, totes, and trays in less space with faster, more reliable performance. This AS/RS system is designed with strong, lightweight alloys making the mini load less expensive to install, operate, and maintain. With modular design and thoughtful engineering, installation and maintenance are fast and easy.

Often paired with a hybrid combination of flow lanes and static racks or shelves, mini load systems provide the best solution for SKUs with mid-range activity.

Lightweight Goods

Smaller goods or products can be stored individually in small totes or bins and these systems can be used to bring storage. Vertical lift modules (VLMs) are often used for slower-moving items. Applications include spare parts storage, kitting or part assembly, order fulfillment, and more.

Vertical Lift Modules

Vertical lift modules (VLMs) and vertical carousels are types of automated storage and retrieval (AS/RS) systems for small to medium sized products and parts. Although they operate differently, both systems provide high-density, high-throughput, minimal-footprint solutions for order picking, buffering, and kitting. The ergonomically design workstations minimize walk time and eliminate bending while increasing operator efficiency and accuracy.

VLMs store columns of trays against the front and back walls inside the machine. Between these two columns, in the middle of the machine, is space for the mechanical inserter/extractor or crane to travel up and down to access the trays. Trays are retrieved from their storage location and delivered to the operator access area where items can be picked or replenished as needed. VLMs can reach heights up to 98 feet.

Learn more about Automated Storage and Retrieval Systems solutions and view customer success stories at bastiansolutions.com.



Goods To Person

Looking for a technology to help meet the challenges of a growing fulfillment or warehouse operation? Increased product flow and more customer demands are difficult challenges for manual processes to overcome, which is where order fulfillment technologies such as voice, pick to light or goods to person solutions can help.

Increased efficiency, reduced picking errors and improved customer service are just a few of the benefits that an automated solution can offer.

AUTOSTORE™

AutoStore is an innovative goods to person grid-based storage solution that allows complete configurability and flexibility. Its unique design allows for easy and quick scalability through the addition of robots or bins, with no operational downtime. Bins are stacked vertically in a grid and retrieved by robots that travel on the top layer of the system. This makes it possible for the grid to be placed around columns, on mezzanines, and on multiple levels.

Commonly leveraged in a variety of industries by both large and small operations, Bastian Solutions experts can help you identify the best size and plan for forecasted growth and industry considerations. Whether used in fast-paced ecommerce, managing various SKUs and fulfillment methods at omnichannel or third-party logistics (3PL) facilities, AutoStore introduces speed, accuracy, efficiency and ergonomic work environments for an overall improved customer experience. Combined with Exacta intralogistics software and other picking and conveying solutions, this goods to person solution can easily support a fully automated order fulfillment process.

As a global AutoStore integrator and our ability to integrate material handling systems, large and small, Bastian Solutions looks forward to continued success with our clients on an international scale.

PERFECT PICK®

OPEX * Perfect Pick* is an automated storage and retrieval system (sometimes referred to as "Shuttle and Racking") optimal for goods to person piece picking. Using proven iBOT™ technology to retrieve and putaway goods, Perfect Pick offers a secure, energy-efficient option that expedites the picking process, with 8:1 savings in labor hours.

Perfect Pick's simple yet flexible design allows for complete scalability in both speed and size to support peak season fluctuations and business growth with reliably improved picking accuracy. The system can be easily expanded by adding modules or more aisles, and additional iBOTs can be quickly introduced or removed from the system in a matter of minutes. The Perfect Pick HD version provides even more benefits with twice the storage capacity.

Bastian Solutions experts can help determine the right fit for your needs to ensure that you receive the speed, flexibility, and scalability required for an industry-leading order fulfillment process. Adaptability is more crucial than ever with today's fast-paced and changing market demands in ecommerce and micro-fulfillment operations.

SCALLOG®

Increase storage capacity and picking efficiency while taking advantage of dynamic storage using Scallog's autonomous vehicles that bring inventory to you. This robotic goods-to-person order fulfillment system solution helps ecommerce, retail, and distribution operations organize and streamline order fulfillment for small products.

Scallog's Boby robots pick up and carry mobile shelving from the secure storage area to a series of workstations, eliminating travel time and making pickers three times more productive compared to standard

manual picking. With simple integration, no infrastructure requirements, and ROI reached in less than two years, this automated storage and picking solution is a smart investment.

PICK TO LIGHT

Pick to light systems provide you with an efficient picking process that increases productivity and gives your warehouse the boost it needs. It is a light-directed warehouse picking technology that provides an accurate and efficient method of paperless picking, putting and sorting of products.

A versatile option for numerous order processing and fulfillment applications, pick to light systems are especially effective in zones with high pick volumes and dense pick faces, where operators using paper, RF, or voice picking methods may spend more time manually looking for the correct picking location than actually walking to it.

The Exacta pick to light software can be used on a standalone basis as an order fulfillment software solution or be integrated directly into the Exacta system, your existing WMS or other existing host systems.

Learn more about these Goods to Person technologies and view customer success stories at bastiansolutions.com.



Robotics and Autonomous Vehicles

Industrial robotic systems are used to automate labor-intensive processes within a manufacturing or distribution facility. These systems are reliable, programmable and capable of movement on three or more axis. Often, robots are integrated to perform very specific repetitive actions with a high degree of accuracy, increasing productivity and efficiency while lowering overall production costs.

Safety is our number one priority. Our robotic systems feature advanced cameras, sensors, and automatic shut off to better collaborate with a human labor force.

PALLETIZING & DEPALLETIZING

Robots can be used to palletize and depalletize a multitude of different objects consisting of different shapes, sizes, weights, and materials. Palletizing equipment is available suit a variety of pallet styles, product types, build patterns and applications, as well as multiple infeed and discharge layouts to fit your requirements.

Our internally designed and manufactured end-of-arm tooling is tailored to your application's exact needs to ensure that we handle all of the required products and materials in a gentle and reliable way.

ROBOTIC CASE PACKING

Robots can efficiently and accurately pick single or multiple items to pack single or multiple cases per cycle. Robotic packing solutions enable manufacturers to reduce labor and safety costs while increasing throughput, reliability, and accuracy of orders.

A quick change end of arm tooling (EoAT) can prepare the same robot to handle products of varying sizes or shapes. Using a custom EoAT, the product is then picked and placed by the robot to the desired package at a high speed.

MOBILE ROBOTICS

Mobile Robotics is dedicated to modular and flexible warehouse automation. Our robots are designed to improve efficiency while requiring minimal modifications to your infrastructure.

With picking rates of 600+ lines per hour of multiple eaches, mobile robotic automation raises the standard of traditional picking rates. Robotic accuracy means worrying less about picking errors and bottlenecks. Gain throughput with the capability of operating 3-shifts without recharging your fleet. A mobile robotic solution allows your operations to run with ultimate precision and speed, positioning your order fulfillment ahead of the market.

Each robot is wirelessly operated by the a Master Control Program (MCP) that integrates with your facility's Warehouse Management System (WMS) for maximum control and visibility of productivity.

Whether you are replenishing your inventory, picking case items, or delivering completed orders to loading docks, mobile robotics from Bastian Solutions has you covered.

AGVs & AMRs

Industrial automated guided vehicles (AGVs) and autonomous mobile robots (AMRs) excel at safely and consistently transporting products and materials in manufacturing and distribution operations. Our automated and autonomous vehicle systems are a cost-effective solution that increase efficiency, improve working conditions, and easily scale to match your growth.

AGVs and AMRs provide a more flexible and reliable alternative to conventional material transport methods involving fork trucks, static conveyors, and manual transport. They are typically used where high volumes of materials are moved in repetitive paths, where little or no human decision making skill is required. Automated vehicles are especially useful in processes where change is constant, and barriers - such as conveyors - are undesirable.

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This [robotic packing] system will help us serve our customers by improving our margin. Approximately 80% of our set volume will be able to be processed by a robotic cell and will produce a more accurate product to the customer, which is the most important thing.

Jeff Maholic, Production Manager, Rubbermaid®

Learn more about these Robotic and Autonomous Vehicle technologies and view customer success stories at bastiansolutions.com.







Sortation Systems

Sortation solutions can be as simple or complex as you need. They reliably automate manual sifting, categorizing, separating, dividing and distribution tasks for greater efficiency in your distribution center operations, as well as establish flexibility for growth.

Designed to meet growing order demand, increased shipping accuracy and more frequent shipments, there are a variety of options available.

ROBOTIC SORTATION

Tompkins Robotics tSort™ System

The Tompkins Robotics tSort is the world's first portable automated sortation system. This innovative robotic solution offers flexibility to meet seasonal peaks, requires minimal space, and is capable of handling a wide variety of products and parcels.

The tSort Solution is a more flexible, efficient, and cost-effective alternative to a traditional conveyor sortation system. It consists of a raised platform on which independently-moving robots sort goods from an induction station to the designated divert. It's like having a tilt tray sorter without a track, where the trays can move independently along the shortest path to their destination.

The tSort robots come in three sizes to handle a variety of different package and product types, from extremely small items to large, heavy boxes. The standard tSort robot carries goods up to 33 lbs, with two different tilt tray sizes or a crossbelt option. The tSort plus is for larger goods up to 66 lbs, with the option for a tilt tray or two different cross belt sizes. Lastly, the tSort mini handles small items up to 2.25 kg. on its tilt tray.

This modular system can be configured to any unique situation and easily expanded with additional induction stations or diverts added without disrupting operations. It is a great alternative to traditional sorters with faster implementation, lower capital cost, and the flexibility to add robots or induction stations as needed.

HIGH THROUGHPUT SORTERS

Shoe Sorte

Maximize productivity with high-efficiency sortation that isn't a hassle to maintain. Our Shoe Sorter has all-electric diverts for small or large products that operates smoothly and quietly. Gain productivity from minimal downtime with quick release slats, drop-out switches and a ultra high molecular weight polyethylene slat surface for easy cleaning.

Cross Belt Sorter

Cross belt sorters are usually used to sort parcels, apparel and small items that are often difficult to sort, such as fragile or high friction products. This technology, even with gentle handling, offers tight divert points and high sortation rates in excess of 500 cartons per minute, allowing for fast moving industries to still achieve high performance.

Narrow Belt Sorter

Narrow Belt Sorters are high-speed, highthroughput sortation solution that is well suited for mid-size and mid-weight items. Configuration is flexible with options for 30- or 90-degree angle divert lanes and the ability to divert products off either side of the sorter. Narrow belt sorters can even be reconfigured as your facility evolves.

Split Tray Sorter

Single and Dual Split Tray sorters are a flexible, accurate high-performance high-speed transfer alternative. Split Tray sorters are used by the largest companies in their respective industries, all over the world, for e-commerce, omnichannel fulfillment, returns processing, post and parcel, and cross-docking.

MEDIUM & LOW THROUGHPUT SORTERS

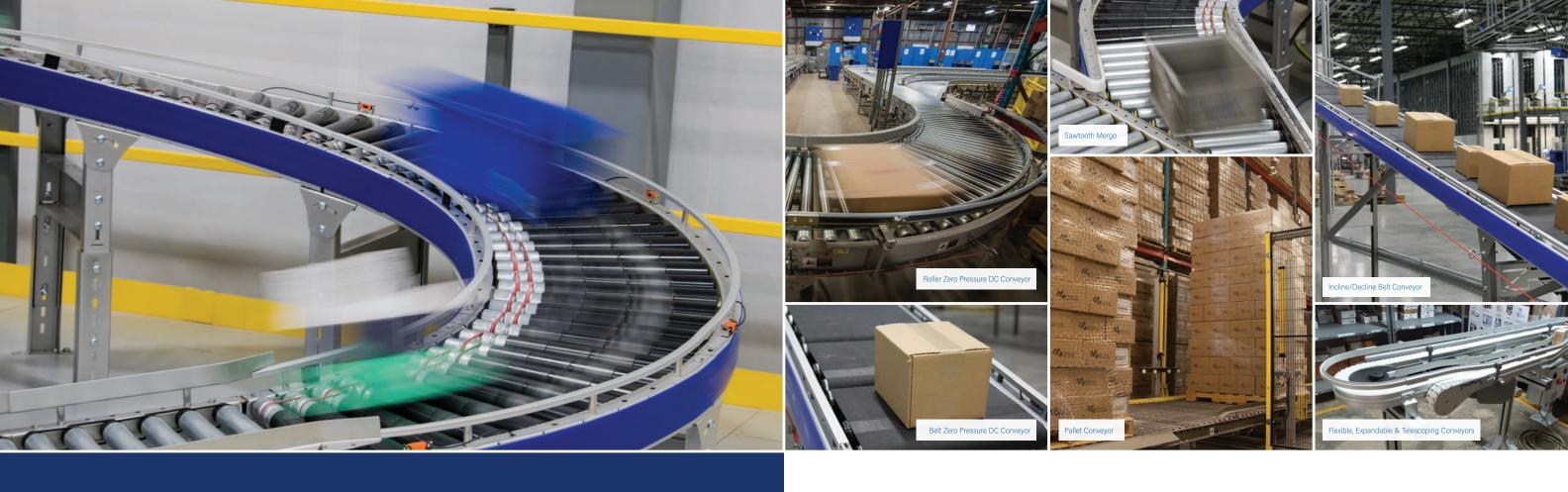
Pivot Wheel Divert Sorter

The Pivot Wheel Divert (PWD) sorter is a cost competitive solution for sorting cases and totes. This is a great solution for conveyors with a single divert or a large distance between diverts. The pivot wheel divert rollers are driven by 48 VDC servo motors.

Paddle & Pusher Sorter

Paddle sorters and pusher sorters are good, low to medium-throughput options for sorting irregularly shaped, difficult-to-convey items, and small items like polybags, cosmetics, or pharmaceuticals. These sorters have been in use for decades, and have a long history of reliable, accurate performance.

Learn more about these Sortation Systems and technologies, as well as view customer success stories, at bastiansolutions.com.



Conveyor Systems

Experienced in automating processes for a wide array of industrial markets, Bastian Solutions experts have access to a variety of automated conveyor system technologies and design tools to help identify the best solution to support your goals. Whether you are conveying individual products, full cases or pallets, we can recommend the right equipment, technology and material flow layout

ROLLER ZERO PRESSURE DC CONVEYOR

The Roller Zero Pressure DC Conveyor (RZPDC) is very quiet, low profile, and modular for system flexibility.

This conveyor is often used to accumulate cartons and totes. Each zone has adjustable speed to pull gaps. The brushless 24 VDC motor provides dynamic breaking to keep heavier loads within a zone.

BELTED ZERO PRESSURE DC CONVEYOR

The Belted Zero Pressure DC Conveyor (BZPDC) is a zoned belt conveyor that provides zero pressure accumulation of products.

A brushless 24 VDC motor is provided in each zone which drives the full width belt. This model works exceptionally well in conveying small cartons due to the small transition gaps between belted zones. The model is useful for incline and decline conveyors.

SAWTOOTH MERGE

Sawtooth merges can be used to merge conveyors that intersect at an angle. Since belt conveyors cannot have angled ends, a small triangular section of roller conveyor is needed to bridge the gap between the straight end of the infeed conveyor and the angle it meets up with the outfeed conveyor.

Together, a row of these metal triangleshaped sections look like the teeth of a saw blade, which is how they get their name.

AUTOMATED PALLET LIFT CONVEYOR

Ideal for automotive manufacturing, this custom-engineered system automatically unloads pallets for fork truck retrieval. An autonomous tugger vehicle traveling at 3 mph moves past the conveyor system. Pallets are pulled from the tugger cart onto the conveyor line where they travel to one of several pallet staging lanes.

The system allows for increased staging capacity, improved productivity and is easily scalable as operations grow.

PALLET CONVEYOR

Designed for moving and handling heavy loads, pallet conveyors optimize handling operations for manufacturing, warehouse and distribution centers. Bastian Solutions integrates first-class technology that fits the unique requirements of your process to get operations running smoothly and efficiently.

Helping to increase throughput and flexibility in transporting and maneuvering heavy loads, pallet conveyors also help lower the overall costs of operations. This high-performance technology introduces a more ergonomic process that removes the heavy lifting for operators. Bastian Solutions' engineers work with you to ensure that an optimal solution is integrated, whether it's a stand-alone conveyor piece or as part of a fully integrated automated material handling system.

INCLINE/DECLINE BELT CONVEYOR

Featuring a simple, yet versatile design, belt conveyors are an economical conveyor used to move products over long distances, at high speeds or for incline or decline applications. Powered belt conveyors move a continuous belt loop to transport items from one point to another. They're often leveraged to move light to moderate weight items of varied shape, bagged items or fragile products, that may require more reliable control during load handling.

FLEXIBLE, EXPANDABLE & TELESCOPING CONVEYORS

Flexible conveyor is ideal for ergonomically loading and unloading trucks or shipping and receiving areas of the warehouse. The conveyor can come in a range of sizes and materials which can be custom fitted to streamline your operations.

Learn more about these sortation systems and technologies, as well as view customer success stories, at bastiansolutions.com.







Wheel and Tyre Handling Solutions

Tire and wheel manufacturers face unique challenges when sourcing material handling solutions to move, handle and store product efficiently without unnecessary risk or waste. To create a reliable competitive edge, smart companies are modernizing operations with scalable, advanced automated technologies that support growth and provide flexibility. Bastian Solutions' custom automation engineers design, validate and manufacture technical components and whole system solutions for effective tyre and wheel manufacturing, handling, and distribution.

UNIQUE CHALLENGES REQUIRE CUSTOM AUTOMATION

The manufacturing industry faces specialized operational standards to stay up to date with the latest technology, trends and safety standards. Some of those challenges include:

- Varying tyre and wheel diameters
- Trends toward smaller, faster orders
- Accurate inventory management Efficient and fast product stacking
- Assembly and manufacturing process support
- Complex visibility to the whole operation product identification
- QA/QC Product quality control Operator ergonomics and safety

SPACE SAVING, EFFICIENT STORAGE

Whether you are organizing inbound or outbound tyres, before or after processing, tyre stackers and de-stackers are custom designed to arrange tyres efficiently, quickly, and safely. They can accommodate:

- Up to four tyres at a time
- Various tyre diameters
- In-line designs that integrate infeed and takeaway conveyors
- Safety measures for proper product centering
- Turn-key controls

ERGONOMIC TYRE & WHEEL HANDLING

Inspection station

Automated or manual inspection stations are designed to ensure ergonomic tyre or wheel handling when reviewing products to ensure they meet or exceed the quality standards set by the manufacturer.

Vertical L

These lifts are generally used to easily get tyres in and out of manufacturing processes such as tyre building, machining, shot blasting, and buffer storage. Our vertical lifts are designed to ensure high reliability and minimal downtime. They can be specified to lift one or multiple tyres.

Wheel Flipper

Wheels are subjected to a shot blast process during manufacturing. Through this process, some of the fine shot becomes trapped in the recesses of the wheels. To remove the shot efficiently, a rotary wheel flipper can be used to invert the wheels 180 degrees to dump out the shot.

Tyre Centering

In order to center wheels of different diameters and weights on the same conveyor line, our centering device utilizes basic mechanical principles. It's simple yet effective design bolts to the bottom flange of the conveyor and can be easily added to existing systems.

Tyre Flipper

Rotating, flipping and lifting of tyres is a heavy and unwieldy job. A customdesigned, automated tyre flipper takes care of that process creating safer processes and time efficiencies.

ACCURATE AND SECURE PRODUCT TRANSPORT

Custom conveyors

Standardized conveyors can be customized for specific facility layouts and product routing. They are designed with product and environment in mind with considerations for appropriate use of belts, rollers, and orange polyurethane coating, for example, for protection of tyres and wheels from marring and damage.

HMI Controls

When barcode scanning isn't an efficient option, HMI controls can be implemented and custom designed to track product efficiently and accurately as it moves through your operation. From inbound to storage and outbound fulfillment, added controls give a real-time view of product type, process status and location.

Learn more about wheel and tyre handling solutions, as well as view customer success stories, at bastiansolutions.com.



Software & Controls

As an independent integrator, we offer hardware-agnostic, modular software solutions that connect material handling automation and provide insight to your entire integrated system. Exacta® intralogistics software can interface with other systems as well as be implemented as a complete solution to your business needs. As a result, Exacta reduces inefficiencies in the warehouse and the need for you to have additional resources to monitor and support additional applications.

From new to existing equipment and simple to complex material handling solutions let the expertise and experience of our engineers give you full control of your system. Our solutions include motion control, assembly, process control, material handling, furnace control, data collection and reporting.

EXACTA WAREHOUSE EXECUTION SYSTEM

A WES synchronizes automation equipment with other warehouse processes using real-time integration. It provides the primary interface between the WMS or host system and the control subsystems of the various islands of material handling equipment, providing real-time visibility to the system as a whole.

EXACTA WAREHOUSE CONTROL SYSTEM

The Exacta WCS orchestrates material and information flow to order fulfillment technology and material handling equipment. The modular design of the Exacta software suite allows additional functionality to be easily added as the needs of your facility evolve..

EXACTABEV

Designed for the beverage industry, ExactaBev provides route-waving tools that are flexible, rules-driven, and easy to use. ExactaBev organizes picks into waves of work that maximize picker efficiency while keeping picks for a single stop together.

EXACTA SENTINEL

Exacta Sentinel is a standalone conveyor routing software package for our clients to install, configure, and implement faster and easier than ever before. Maximum visibility into warehouse operations is available through a convenient web application that provides real-time statistics, reporting and routing data.

SOFTWARE TRAINING & SUPPORT

We provide customers with essential support functions, including around-theclock access to technical specialists and an Online support portal for reporting, tracking and resolving issues.

We offer comprehensive training so that employees that can successfully leverage the Exacta suite within the warehouse.

HUMAN MACHINE INTERFACE (HMI)

Bastian Solutions' HMI solution keeps you connected with your material handling and automation system. Designed to be an intuitive and user-friendly graphical interface, the multiple 3D screens provide a detailed view of how the system is operating.

The HMI gives you real-time access to vital operational information. Mobile viewing options on phones or tablets means greater mobility within the facility.

ENGINEERING SYSTEM DESIGN

We offer custom control system design and integration, along with full system service and support to give you peace of mind in your improved operations.

By establishing and encouraging communication with our customers throughout the entire system design and implementation process, we are confident that our customer's desires and needs will be addressed and valued.

INDUSTRIAL CONTROLS

Bastian Solutions' controls services and offerings bring you open, non-proprietary solutions. We are experienced with most major brands of PLCs and are a licensed Rockwell Machine Builder, which is a classification only a handful of controls integrators hold.

Utilizing an "Open Controls Architecture" means that at the end of the project, you own all our PLC code complete with design comments.

PANEL SHOP

Our panel shop capabilities include control panel design, fabrication, testing and quality control, and installation capabilities that extends to the details of power supplies, field boxes and electrical components. Keeping fabrication in house and working directly with suppliers allows us to pass along a savings directly to you.

Learn more about our software and control solutions, as well as view customer success stories, at bastiansolutions.com.

Meet Some of our Renowned Clients

Customers from IMEA & Southeast Asia

Consumer Durables

- Asian - Essilor **Paints** - Kohler
- Samsung - Jaquar

Retail

- Bestseller
- Rabia Leather

Food and Beverage

- -ITC - Nestle
- Cargill - Cadbury
- Pepsi

Third Party Logistics (3PL)

- -DHL
- Future Supply Chain

Fast-Moving Consumer Goods (FMCG)

- Reckitt Benckiser
- Colgate Palmolive
- Procter & Gamble - Unilever

Ecommerce Fulfillment

- Amazon

- Axiom Telecom

- Flipkart

Pharmaceuticals

- Abbott Laboratories
- Vitalac - Datwyler
- Intas Pharmaceuticals

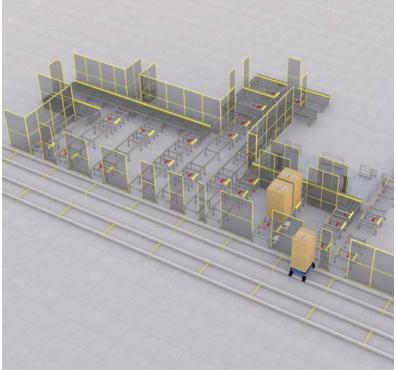
Automotive

- Cipla

- Toyota Motor Corporation
- Tata Motors
- Mahindra Group
- TVS Motor Company
- Bajaj Auto
- Catterpillar

Benefits to Customer

- Automate manual, repetitive storage and retrieval tasks
- Maximize efficiency and accuracy
- Improve product handling and safety













a TOYOTA ADVANCED LOGISTICS company



CONTACT US

Learn how we can engineer your competitive edge today!

ONLINE: bastiansolutions.com

PHONE: +91-8951395602

EMAIL: info@bastiansolutions.com

ADDRESS:

Salarpuria Magnificia Phoenix № 78, 1st floor, Tin Factory, Doorvaninagar, Old Madras Road, BANGALORE - 560016, India

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