



RETROFITS & SYSTEM ENHANCEMENTS CATALOG



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Dear Valued Customer,

We are pleased to introduce our new System Enhancement catalog to you!

This catalog showcases Columbia/Okura's capabilities to address system enhancements and meet the changing needs of your business. Our customers operate in a dynamic environment, and we understand that your need for flexibility may have been a significant factor in your decision to purchase a robot for your end-of-line palletizing needs! Whether you seek to increase the productivity of your current system, revise production configurations, or handle new load types, Columbia/Okura stands ready and able to assist with your changing requirements.

I look forward to discussing your facility needs to offer advice and guidance on which upgrades or enhancements are available for your palletizing system. Our offerings are not limited to the configurations displayed in the catalog, though it does provide a good overview. Please contact me with further questions related to components or enhancements, and I can advise on how your system can gain efficiencies and improve throughput.

Thank you for your business, and I look forward to serving you with your system enhancement needs in the future!

Sincerely,

Mitch Stalcup
Product Manager - Retrofits
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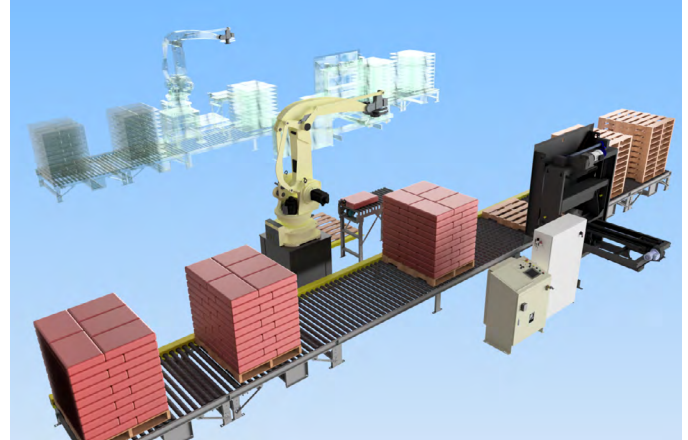
ADDITIONAL LINES

DESCRIPTION:

Additional production lines allow multiple loads with different types of product to be palletized simultaneously.

BENEFITS:

- ✓ Increases system throughput
- ✓ Increases production capacity
- ✓ Improves productivity



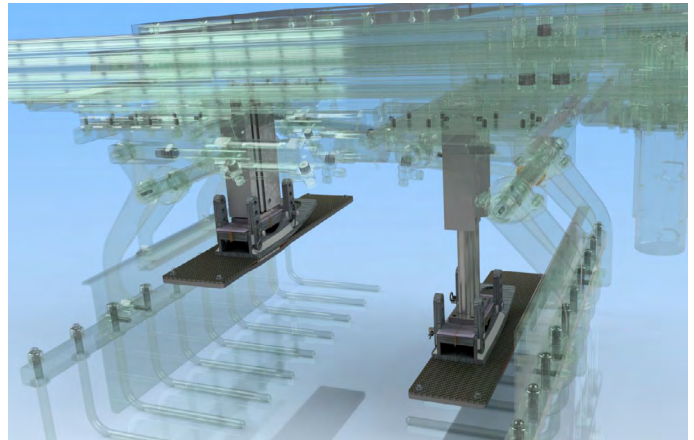
ADJUSTABLE PRODUCT PUSHDOWN

DESCRIPTION:

Adjustable product pushdowns help maintain bag shape while stacking, as well as improving overall load quality.

BENEFITS:

- ✓ Improves load quality



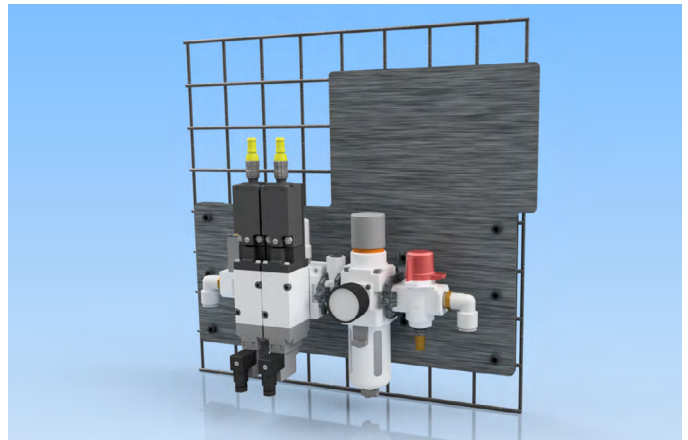
AIR DUMP

DESCRIPTION:

The air dump removes pneumatic potential energy from the system when an emergency stop is pressed, light curtain is blocked or trapped key is removed.

BENEFITS:

- ✓ Improves safety
- ✓ Improves productivity



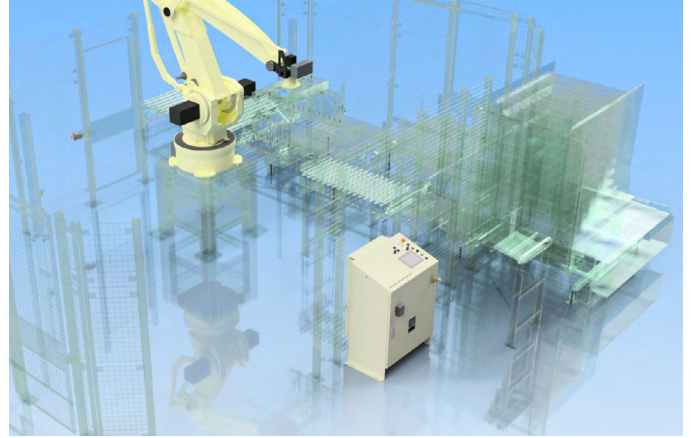
ARM REPLACEMENT

DESCRIPTION:

Replace an obsolete robot arm and control panel with the latest generation. This will allow your facility to continue using existing equipment for years to come with minimal upgrading.

BENEFITS:

- ✓ Improves safety
- ✓ Increases throughput and speed
- ✓ Improves load quality
- ✓ Increases longevity of robot
- ✓ Provides easier maintenance
- ✓ User friendly with touchscreen HMI/POD



BAG CONDITIONING ROLLER

DESCRIPTION:

Bag conditioning rollers shape bags prior to palletizing, removing high spots and creating a more uniform product for stacking.

BENEFITS:

- ✓ Improves load quality
- ✓ Increases system reliability
- ✓ Improves bag shape



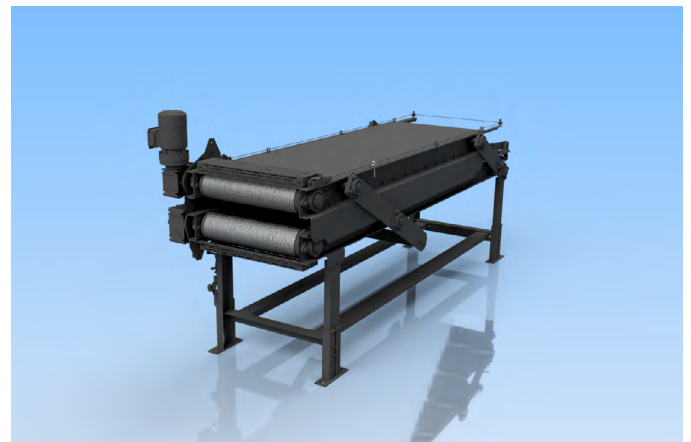
BAG FLATTENER

DESCRIPTION:

Bag flatteners compress and remove excess air from bags, creating a flatter top surface and a more uniform bag consistency.

BENEFITS:

- ✓ Improves load quality
- ✓ Handles difficult products efficiently
- ✓ Improves bag shape
- ✓ Increases system reliability



BARCODE READER

DESCRIPTION:

Industrial barcode scanners store and analyze product data as items are produced or palletized.

BENEFITS:

- ✓ Provides easy product tracking
- ✓ Allows production data to be exported
- ✓ Easily integrates into existing systems



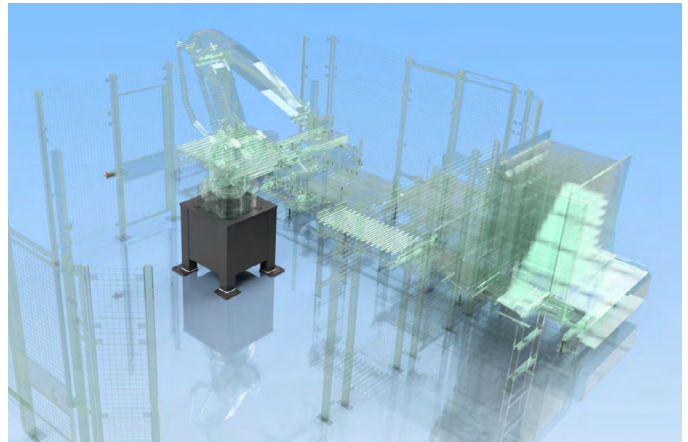
BASE EXTENSION

DESCRIPTION:

Robots can be mounted on base extensions, increasing the arm's reach and the load building height.

BENEFITS:

- ✓ Increases layer count
- ✓ Increases load capacity



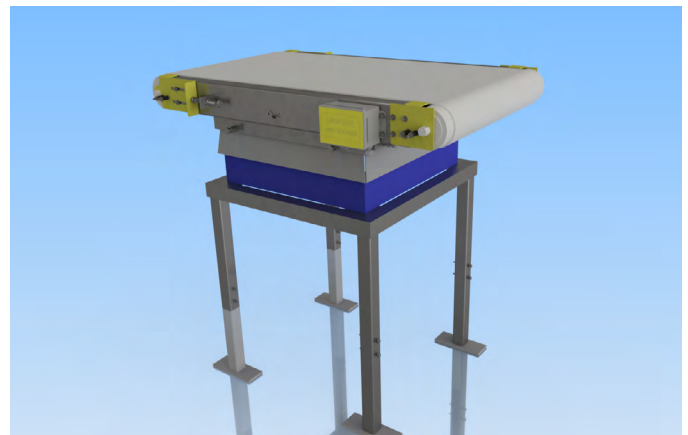
CHECK WEIGHER

DESCRIPTION:

Check weighers display accurate weight measurements of individual products, reducing production waste and saving on material cost.

BENEFITS:

- ✓ Improves quality control
- ✓ Ensures consistent product weights



CONVEYORS

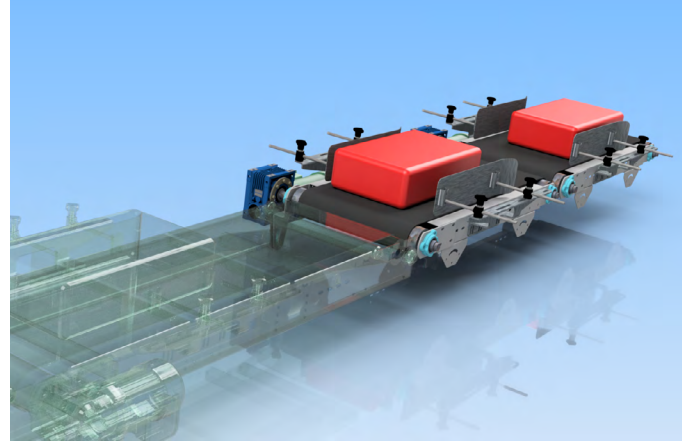
ACCUMULATION POINTS

DESCRIPTION:

Accumulation points properly space product within the system, improving productivity during pallet changeover or discharge.

BENEFITS:

- ✓ Reduces palletizer downtime
- ✓ Improves product handling
- ✓ Reduces possible product damage



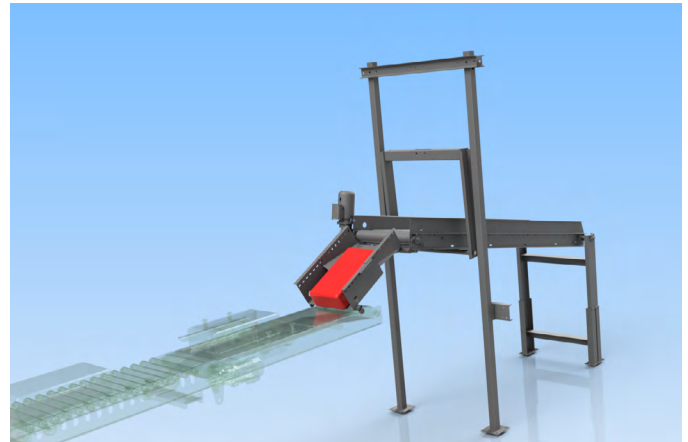
BAG SHAPING

DESCRIPTION:

Bag shaping conveyors can be added to produce uniform bag shape for stacking.

BENEFITS:

- ✓ Minimizes/eliminates pallet overhang
- ✓ Improves product handling
- ✓ Reduces possible product damage
- ✓ Improves load quality



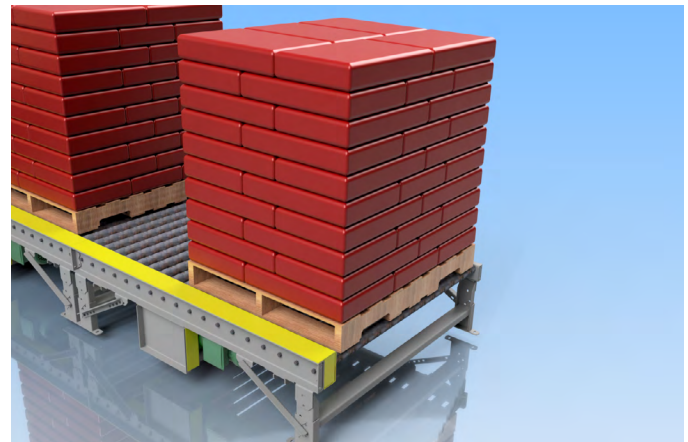
DOWNSTREAM (FULL LOAD ACCUMULATION)

DESCRIPTION:

Downstream conveyors extend discharge conveyors, allowing full loads to accumulate, while the system continues to palletize.

BENEFITS:

- ✓ Increases productivity
- ✓ Allows forklifts more time to remove loads
- ✓ Reduces the chance of backed up loads



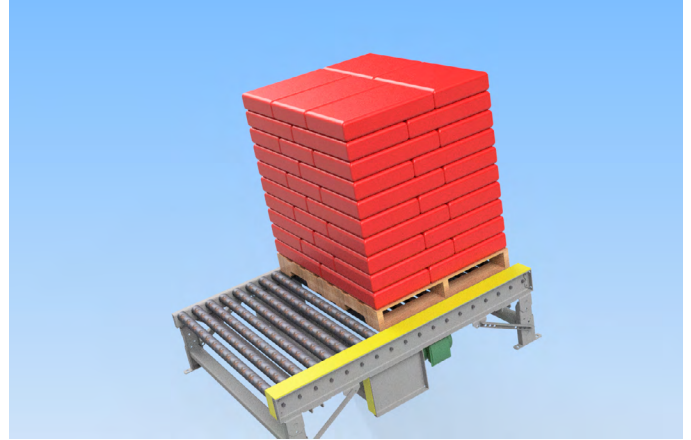
FULL LOAD CONVEYOR (UPSTREAM)

DESCRIPTION:

Full load (upstream) conveyors allow simultaneous load building and discharge by having pallets on stand-by for load building.

BENEFITS:

- ✓ Provides more time for loads to be moved
- ✓ Increases system throughput
- ✓ Reduces downtime



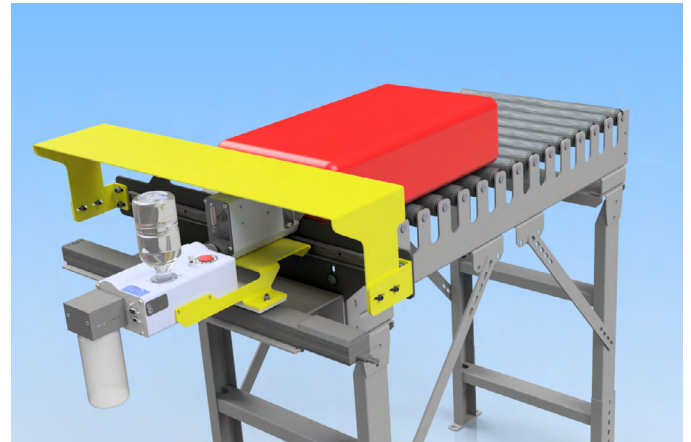
PRINTER

DESCRIPTION:

Printers ensure products are properly labeled prior to being palletized by automatically printing directly on the product.

BENEFITS:

- ✓ Increases productivity
- ✓ Improves quality control



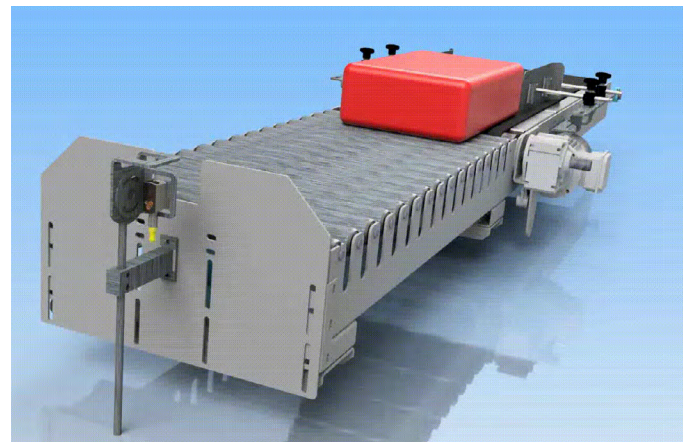
SPEED

DESCRIPTION:

Conveyor speed can be increased by upgrading or modifying existing conveyors, improving overall system speed.

BENEFITS:

- ✓ Increases conveyor speed
- ✓ Increases system throughput



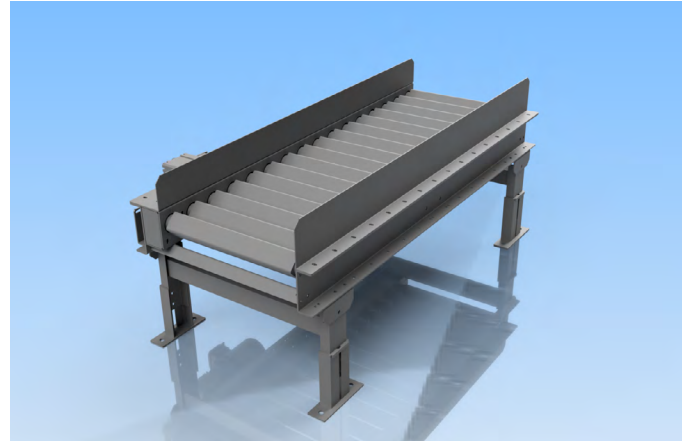
SQUARE ROLL CONVEYOR

DESCRIPTION:

Square rollers bounce bags down the conveyor, compacting and settling product in bags for improved pick-up and load building.

BENEFITS:

- ✓ Improves quality control
 - ✓ Improves load quality
 - ✓ Improves product handling
-



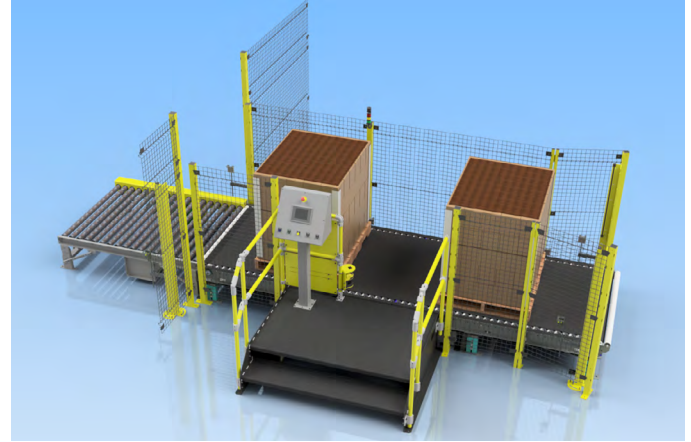
CORNER BOARD APPLICATOR

DESCRIPTION:

Our corner board applicator allows for operators to manually apply corner boards to pallet loads in a safe and effective manner.

BENEFITS:

- ✓ Improves safety
- ✓ Improves productivity
- ✓ Quality control



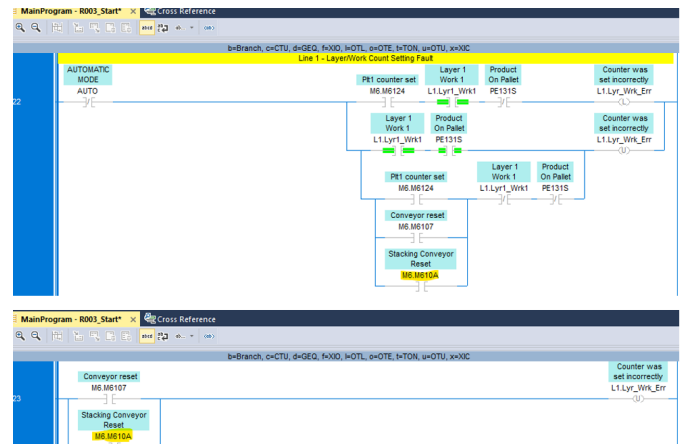
CUSTOM PROGRAMMING

DESCRIPTION:

Custom programming is available for all of our robotic palletizing systems, ensuring systems are as flexible as possible in an instant.

BENEFITS:

- ✓ Increases system flexibility



END EFFECTORS

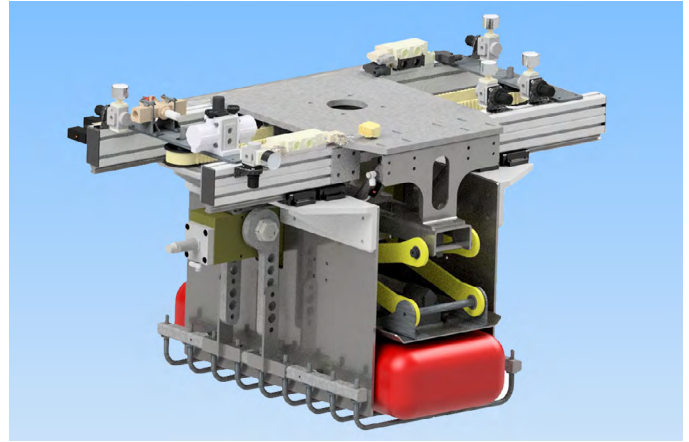
BAG/BOX

DESCRIPTION:

Bag/box end effectors can palletize both bags and boxes, allowing for simultaneous, multi-line load building in a single system.

BENEFITS:

- ✓ Utilizes one tool for two jobs
- ✓ Improves stack quality
- ✓ Functions well with display or box product



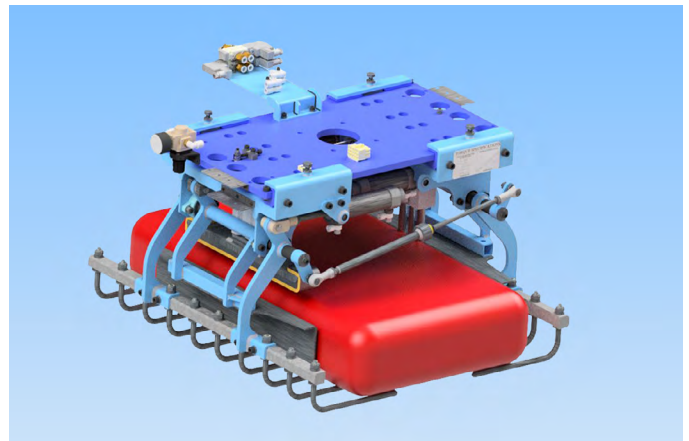
BAG-STYLE

DESCRIPTION:

Bag-style end effectors lift bags of different widths from underneath and gently press down on the bag to retain it within the end effector.

BENEFITS:

- ✓ Improves productivity
- ✓ Increases system flexibility



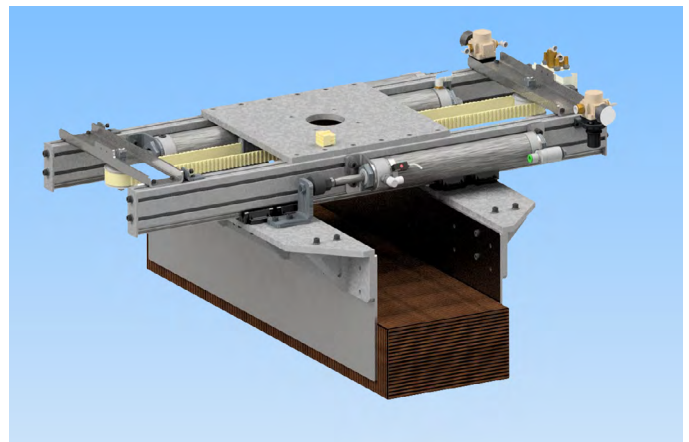
CLAMP-STYLE

DESCRIPTION:

This mechanical clamp-style tool works well on cases in a wide range of palletizing applications. Picking single cases, multiple cases, or rows of products is possible with this tool.

BENEFITS:

- ✓ Increases system flexibility
- ✓ Improves productivity
- ✓ Functions well with display or box products
- ✓ Customized solutions



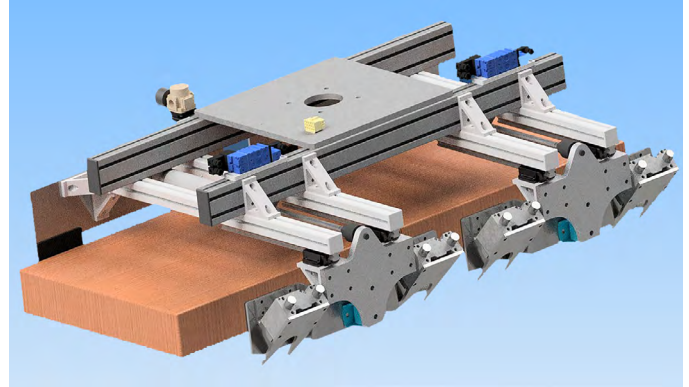
CUSTOM

DESCRIPTION:

Custom end effectors are designed, assembled, and tested in our factory, ensuring a solution for a specific system need.

BENEFITS:

- ✓ In-house design, assembly, and testing
- ✓ Customized solutions



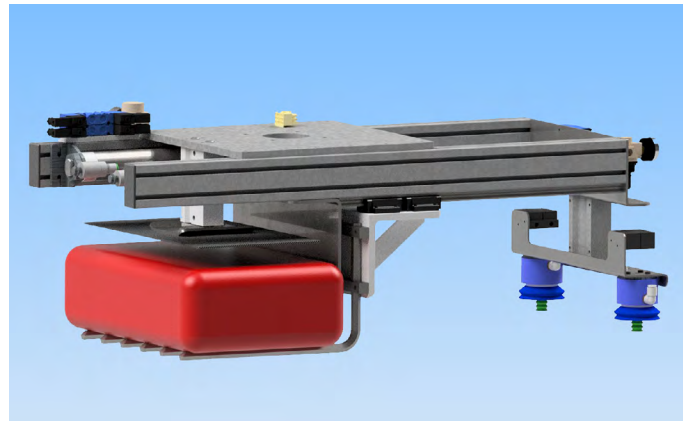
FORK-STYLE

DESCRIPTION:

Fork-style end effectors lift products from underneath without applying any unwanted pressure to the top or sides of the product.

BENEFITS:

- ✓ Eliminates unwanted pressure to the sides of products
- ✓ Increases system flexibility
- ✓ Functions well with display or box product



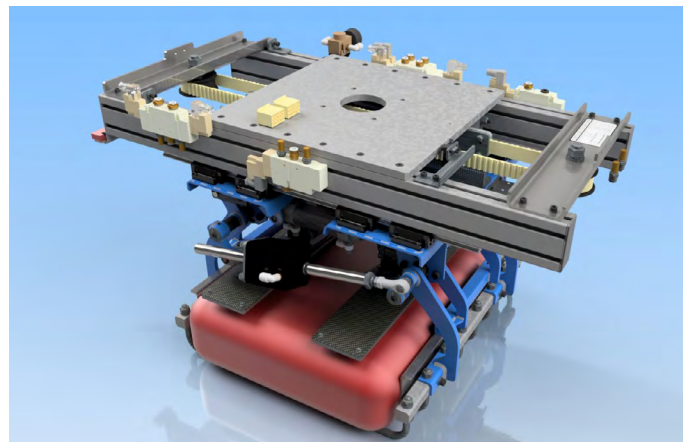
MULTI-POSITION

DESCRIPTION:

Multi-position end effectors use pneumatics to adjust end effector width, allowing a system to handle packages of varying sizes.

BENEFITS:

- ✓ Tool-less end effector changes
- ✓ Improves productivity
- ✓ Minimizes end effector adjustment time



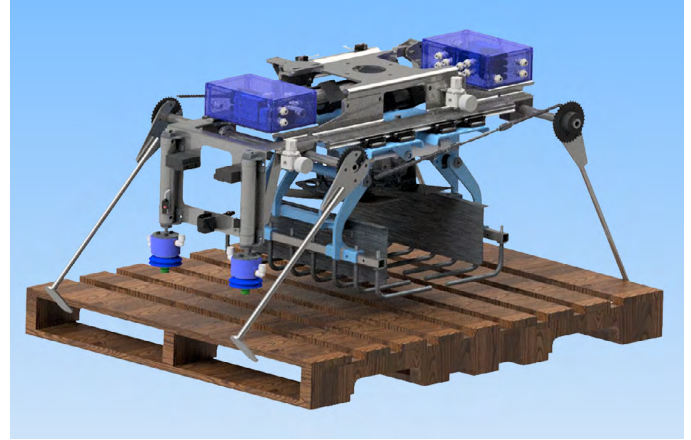
PALLET PLACEMENT

DESCRIPTION:

Through the integration of this end effector add on tool, robots are capable of picking and placing pallets of any size with precision and reliability.

BENEFITS:

- ✓ Increases productivity
- ✓ Increases system reliability
- ✓ Increases system flexibility



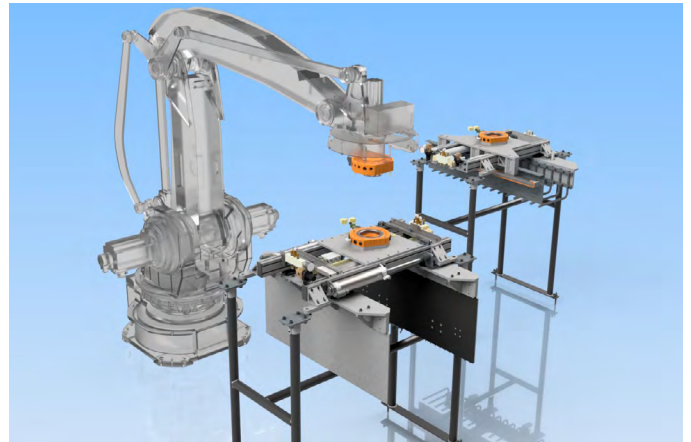
QUICK CHANGE TOOL

DESCRIPTION:

Quick change end effectors automatically swap end effector types in the cell, reducing downtime between product changeover.

BENEFITS:

- ✓ Easy maintenance
- ✓ Increases production flexibility
- ✓ Improves safety



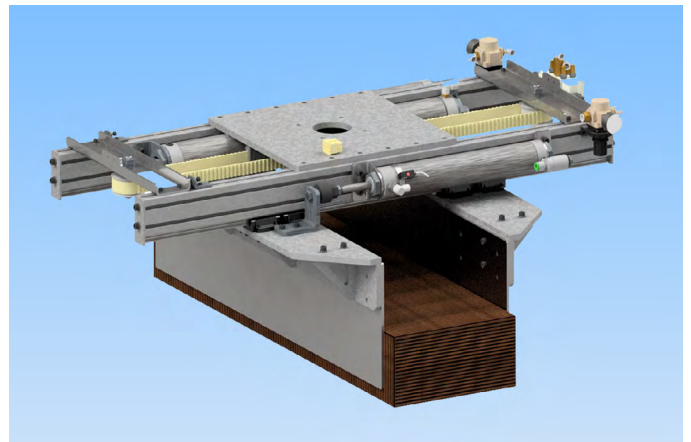
REBUILDS

DESCRIPTION:

End effectors can be rebuilt or modified to meet specific palletizing needs.

BENEFITS:

- ✓ OEM Specifications
- ✓ Improves load quality
- ✓ 6 month warranty against manufacturer and craftsmanship defects



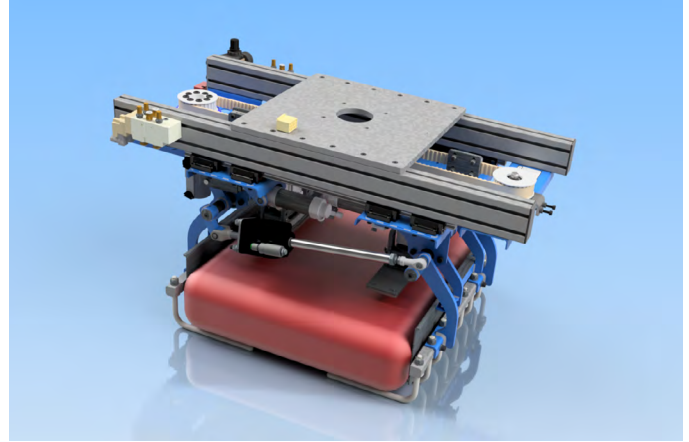
SERVO-CONTROLLED MULTI POSITION

DESCRIPTION:

Servo-controlled end effectors automatically adjust width, easily accommodating various product sizes/product lines instantaneously.

BENEFITS:

- ✓ Provides automated/"tool-less" product adjustment
- ✓ Automated/ Improves system flexibility



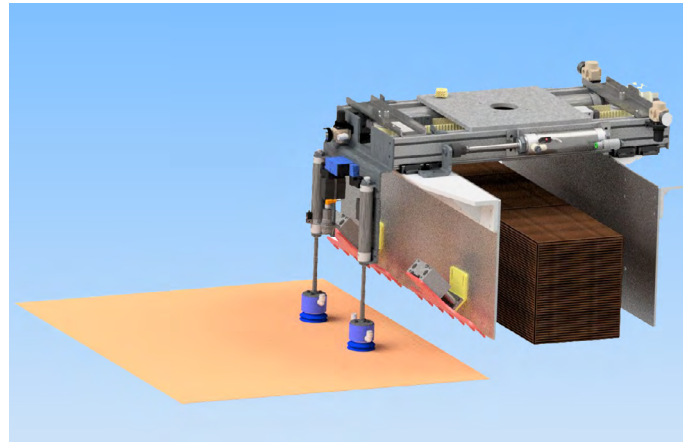
SHEET PLACEMENT(SHEET PICK)

DESCRIPTION:

The application of this end effector add on tool enables the robot to pick and place slip, tie, and cap sheets.

BENEFITS:

- ✓ Improves productivity
- ✓ Improves load quality
- ✓ Requires less manual handling



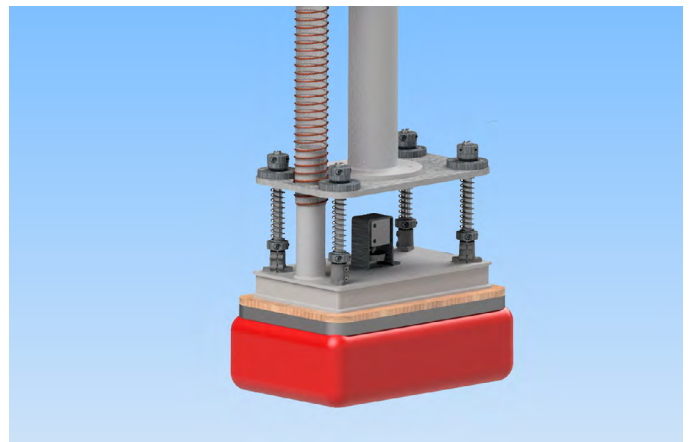
VACUUM

DESCRIPTION:

Vacuum end effectors use compressed air to gently lift and place bags, pails, or cases without applying pressure to the sides.

BENEFITS:

- ✓ Gently handles fragile product
- ✓ Supports "oddly shaped" product
- ✓ Improves system flexibility



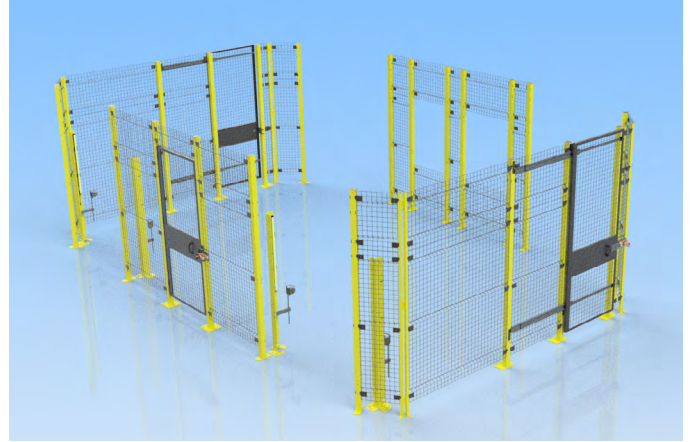
GUARDING

DESCRIPTION:

Category 3 safety-rated guarding surrounds a system, creating a physical barrier around the robotic palletizing cell.

BENEFITS:

- ✓ Improves safety



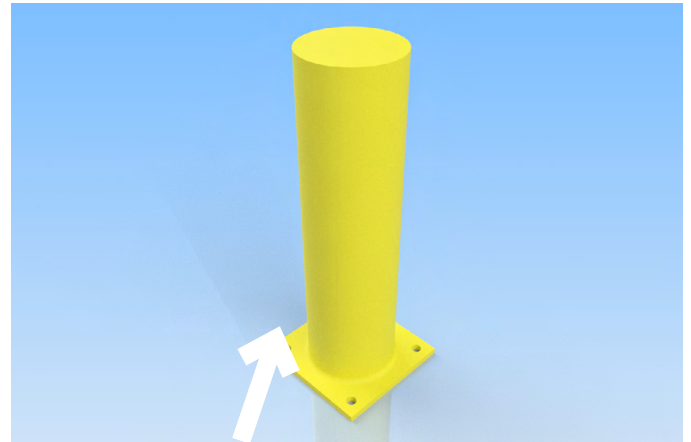
GUARDING BOLLARDS

DESCRIPTION:

Steel safety bollards create a physical barrier between the system and forklifts picking up full loads, preventing dents and scratches.

BENEFITS:

- ✓ Safety bollards help protect warehouse equipment from becoming scratched and dented
- ✓ Improved safety for employees
- ✓ Create a vertical physical barrier from fork trucks



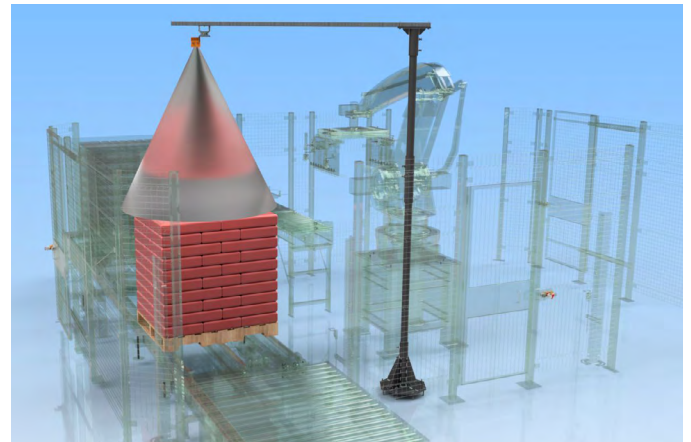
HEIGHT SENSORS

DESCRIPTION:

Height sensors monitor load height, allowing the robot to automatically adjust the bag drop height to account for product density fluctuations.

BENEFITS:

- ✓ Improves load quality
- ✓ Increases system reliability



LAPTOP

DESCRIPTION:

Laptops with programs preloaded and tested streamline pattern creation/editing, as well as remote support.

BENEFITS:

- ✓ Decreases downtime
- ✓ Software comes preinstalled and tested by a certified technician before shipped



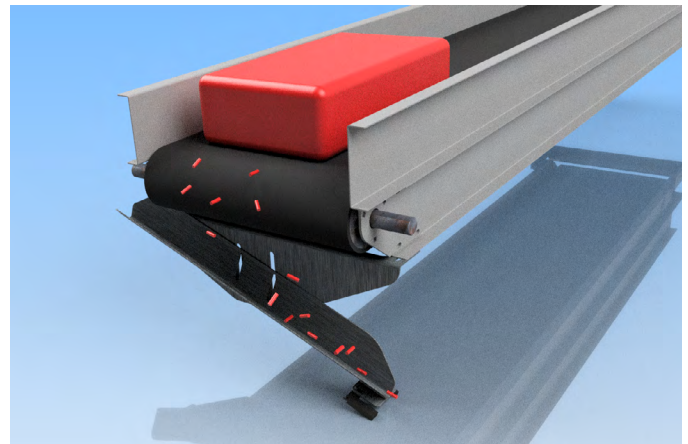
LEAKY BAG DETECT

DESCRIPTION:

This add-on tool monitors the infeed for leaking bags and alerts the operator with the customizable alert system (i.e. automatic bag rejects, conveyor stops, etc.)

BENEFITS:

- ✓ Improves quality control
- ✓ Improves system reliability



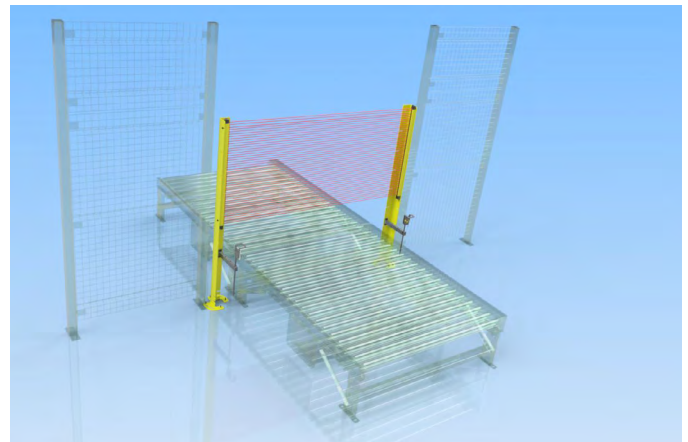
LIGHT CURTAINS

DESCRIPTION:

Category 4 safety rated light curtains monitor vulnerable areas around the cell, improving the systems ability to come to an immediate stop when triggered.

BENEFITS:

- ✓ Improves safety
- ✓ Full height protection



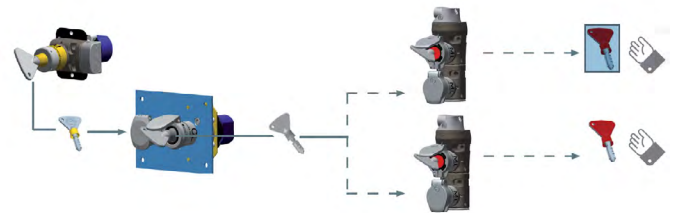
MECHANICAL DISCONNECT

DESCRIPTION:

When a category 4 safety-rated trapped key is removed from the control panel, the system shuts down. This mechanical disconnect ensures the system is safe to enter for minor servicing.

BENEFITS:

- ✓ Improves safety
- ✓ Improved productivity



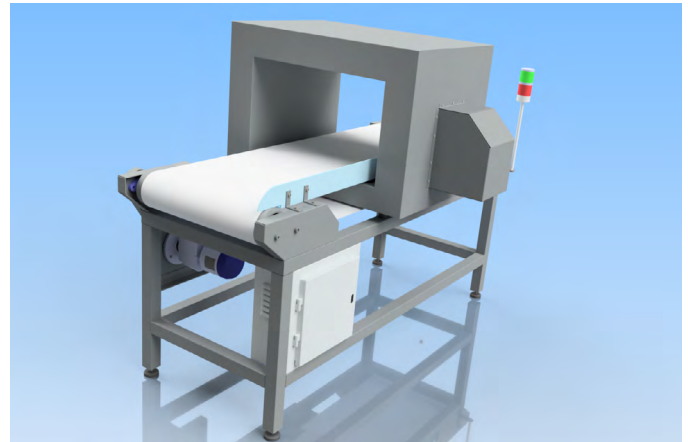
METAL DETECTOR

DESCRIPTION:

Metal detectors identify product containing metal and stop the conveyor ensuring the product does not get palletized.

BENEFITS:

- ✓ Improves quality control
- ✓ Maintains product safety
- ✓ Provides economic quality improvements



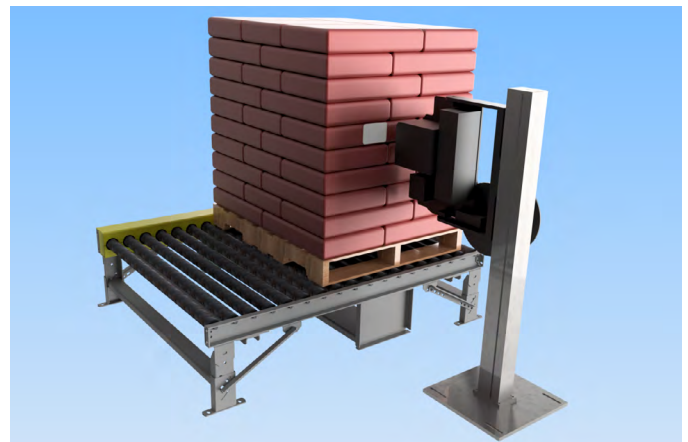
PALLET LABELER

DESCRIPTION:

We offer a number of pallet labeling solutions for your pallet.

BENEFITS:

- ✓ Improves productivity
- ✓ Quality control



PALLET DISPENSERS

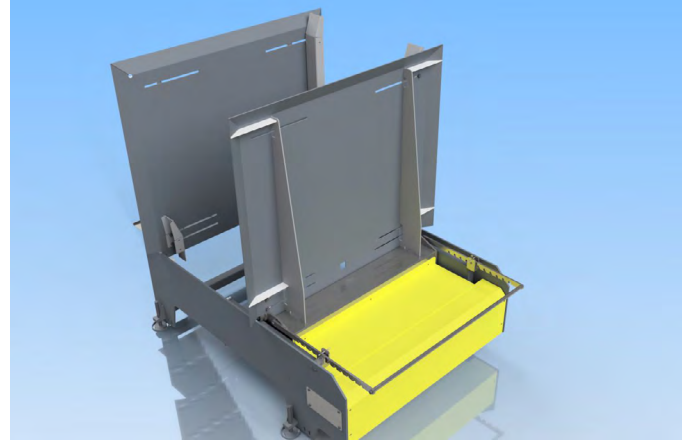
ADJUSTABLE WALLS

DESCRIPTION:

Adjustable wall pallet dispensers allow operators to adjust width and depth of the hopper to accommodate multiple pallet sizes.

BENEFITS:

- ✓ Tool-less adjustable walls
- ✓ Improves system flexibility



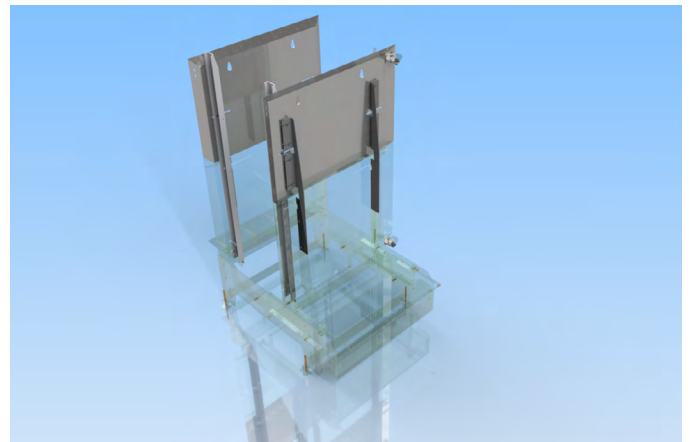
EXTENDED HOPPER WALLS

DESCRIPTION:

Extended hopper walls can be added to increase pallet hopper capacity.

BENEFITS:

- ✓ Improves forklift load handling logistics
- ✓ Reduces downtime



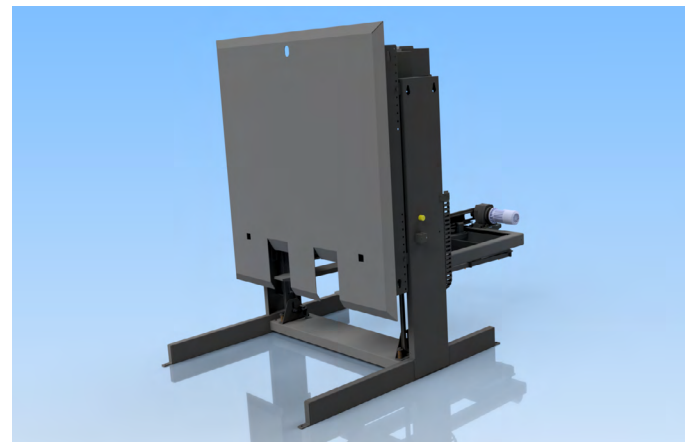
FORK-STYLE

DESCRIPTION:

Fork-style pallet dispensers lift loaded stacks of pallets, allowing the bottom pallet to separate and move into the load building area.

BENEFITS:

- ✓ Stores additional pallet stacks
- ✓ Requires less manual handling
- ✓ Supports variable pallet sizes



PANEL OPTIONS

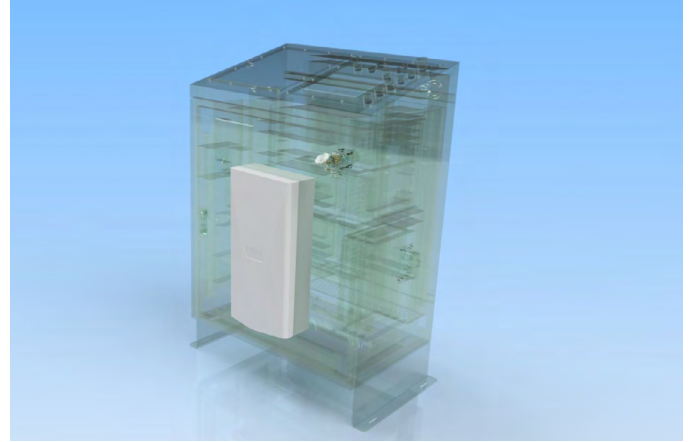
AIR CONDITIONER

DESCRIPTION:

Air conditioners are installed in the robot control panels when ambient temperature frequently exceeds 105° F (40° C).

BENEFITS:

- ✓ Reduces the chance of downtime
- ✓ Improves safety
- ✓ Reduces maintenance



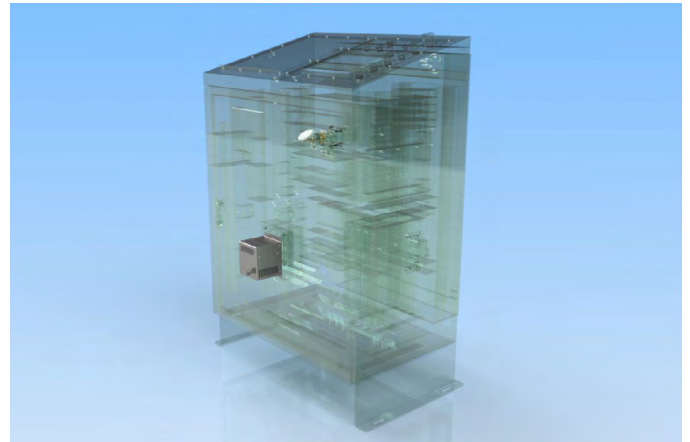
HEATER

DESCRIPTION:

Heaters are installed in robot control panels when ambient temperature is frequently lower than 20°F (-6° C).

BENEFITS:

- ✓ Increases system reliability
- ✓ Reduces maintenance and downtime



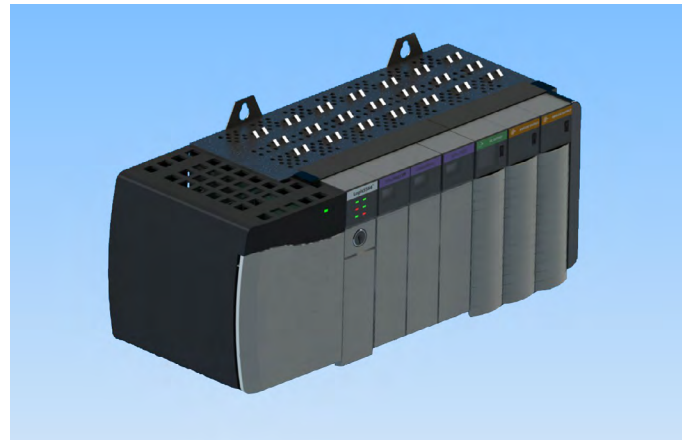
PLC UPGRADE

DESCRIPTION:

Upgrading the PLC increases a system's memory and provides system expansion through Ethernet connectivity.

BENEFITS:

- ✓ Improves system reliability
- ✓ Improves system flexibility



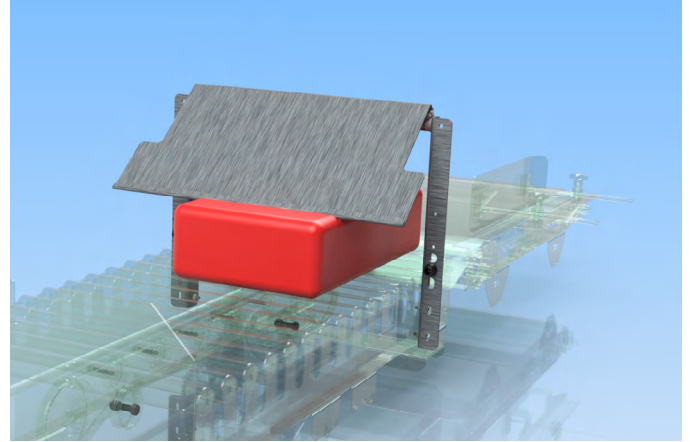
PIVOT BACKSTOP

DESCRIPTION:

Pivoting Backstops are metal flaps on the infeed that product passes through, where it then reverses and is properly positioned for pick and load building.

BENEFITS:

- ✓ Improves load quality
- ✓ Increases system reliability
- ✓ Improves product handling



PRODUCT GUIDES

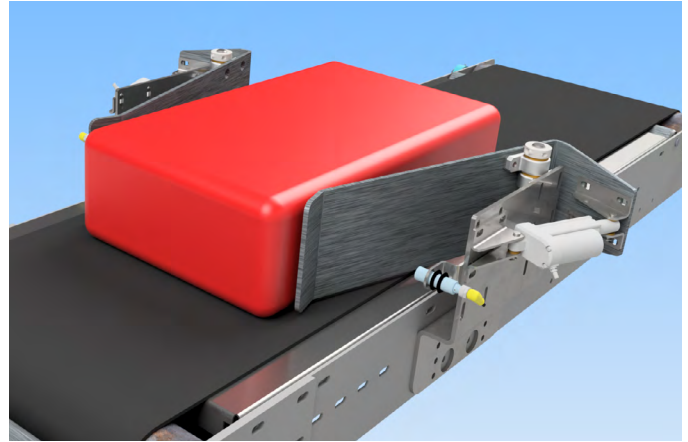
AUTOMATED PRODUCT GUIDES

DESCRIPTION:

Automated product guides keep bags/boxes properly positioned on the infeed for consistent pick-up with no downtime during product changeover.

BENEFITS:

- ✓ No downtime between product changeover
- ✓ Increases system reliability
- ✓ Tool-less adjustment



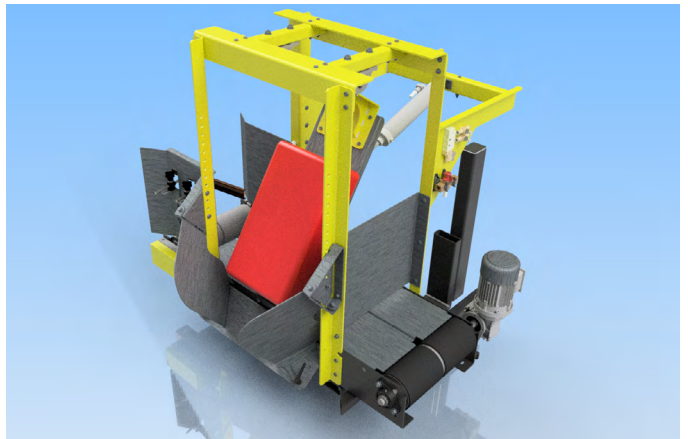
BAG KICKER

DESCRIPTION:

Receives bags in an upright position and “kicks” them to horizontally 90 degrees to the conveyor.

BENEFITS:

- ✓ Improves load quality
- ✓ Requires less manual handling
- ✓ Increases system reliability



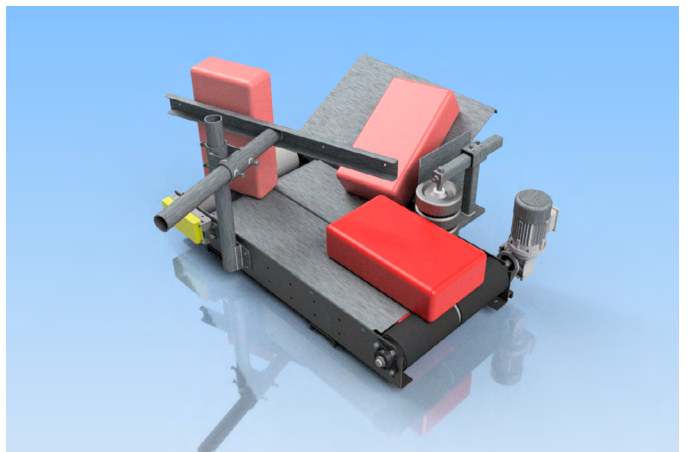
BAG TURNER

DESCRIPTION:

Bag turners gently shift bags from upright to flat on the infeed conveyor to properly orient bags for pick-up and stacking.

BENEFITS:

- ✓ Improves load quality
- ✓ Requires less manual handling
- ✓ Improves system reliability



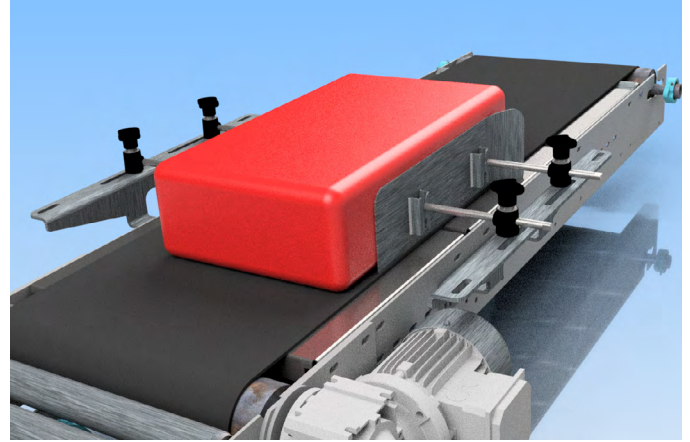
PRODUCT GUIDES

DESCRIPTION:

Product guides keep bags/boxes properly positioned on the infeed for consistent end effector pick-up mechanically adjustable.

BENEFITS:

- ✓ Increases productivity
 - ✓ Increases system reliability
-



REMOTE OPERATOR STATION

DESCRIPTION:

Remote operator stations allows for safe cell entry for minor servicing, error resets, and system start/stops remotely for ease of operation.

BENEFITS:

- ✓ Increases safety
- ✓ Increases system flexibility



SHEET PLACEMENT

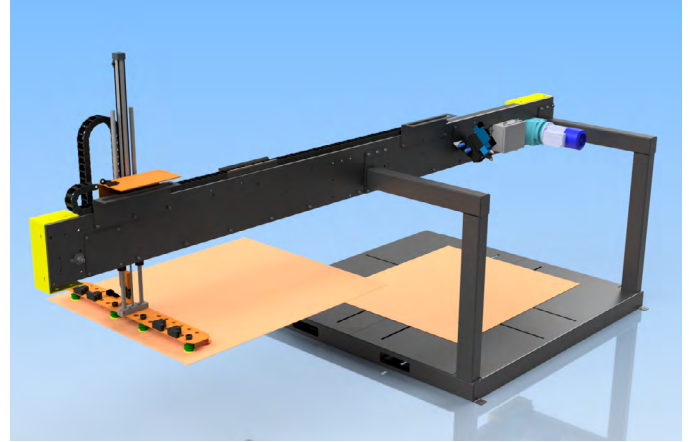
SHEET DISPENSER-FREESTANDING

DESCRIPTION:

Freestanding sheet dispensers integrate sheet placement into existing systems without needing to upgrade other system components.

BENEFITS:

- ✓ Increases system throughput
- ✓ Increases system flexibility



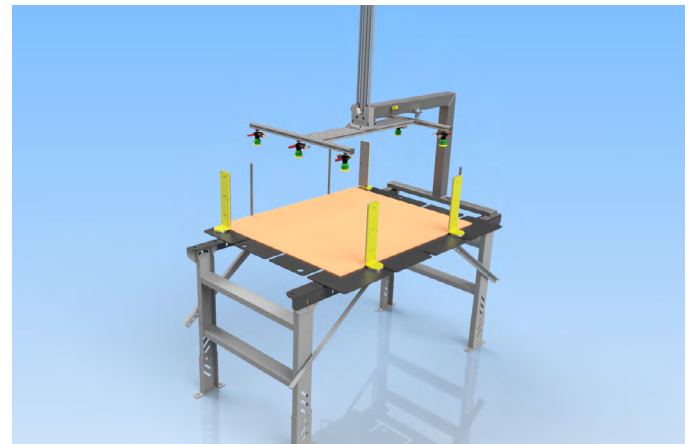
SHEET PRESENTER

DESCRIPTION:

Sheet presenters work with sheet tables to pick precisely one slip, tie, or cap sheet for the end effector to pick and place more efficiently.

BENEFITS:

- ✓ Improves load quality
- ✓ Increases system flexibility
- ✓ Increases throughput



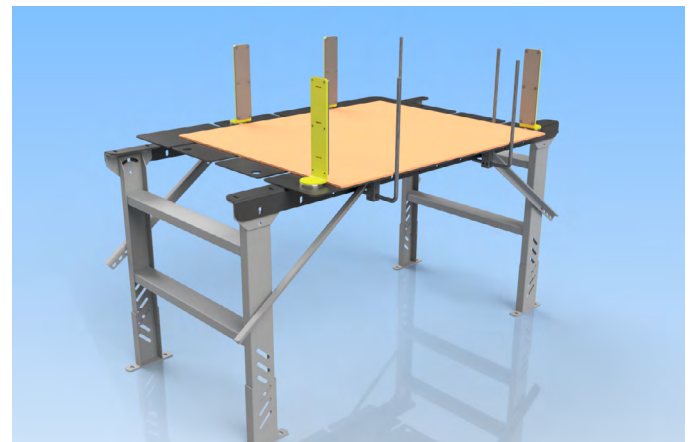
SHEET TABLE

DESCRIPTION:

Sheet tables are raised hoppers that easily integrate into existing systems, improving the ease and efficiency of sheet picks.

BENEFITS:

- ✓ Requires less manual handling
- ✓ Increases throughput



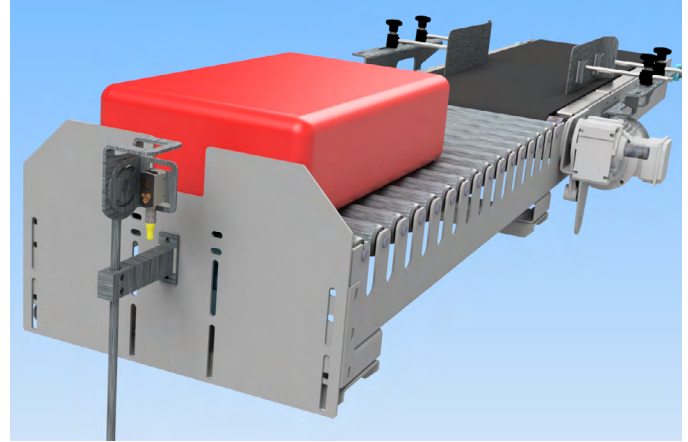
SOFT HANDLING

DESCRIPTION:

Soft handling brings product to a slow and even stop before being picked, ensuring reliable product distribution, bag placement, and product quality.

BENEFITS:

- ✓ Increases system reliability
- ✓ Improves product handling



STRETCH WRAPPER

DESCRIPTION:

Stretch wrappers integrate downstream of the load building area, where full loads are wrapped and sent further downstream for discharge.

BENEFITS:

- ✓ Increases production rates
- ✓ Improves product handling
- ✓ Easy integration



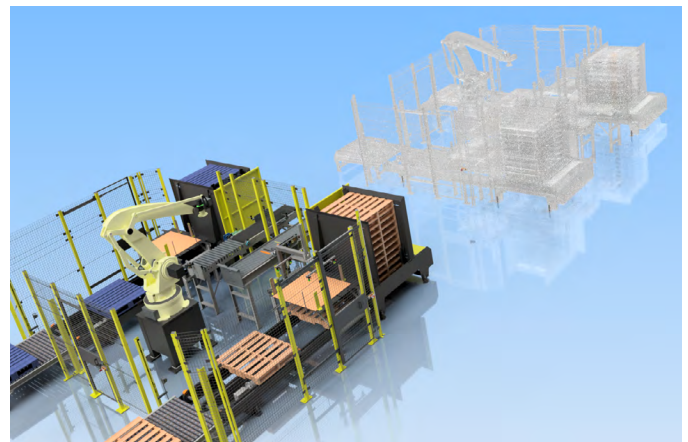
SYSTEM RELOCATION

DESCRIPTION:

Our team can help with the relocation of new and used systems to optimize your facility's production.

BENEFITS:

- ✓ Optimizes facility/system space
- ✓ Assists in production expansion



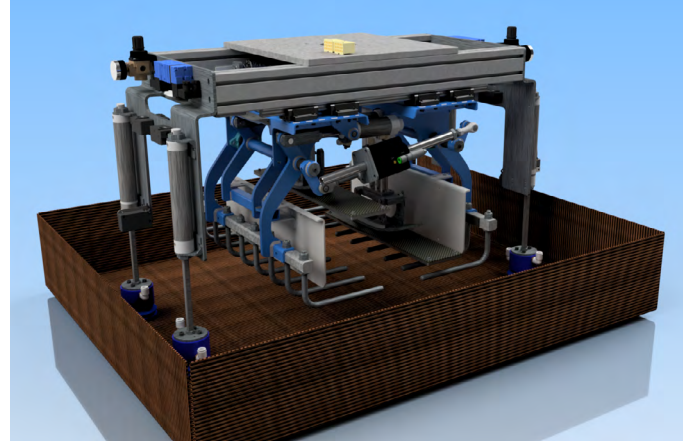
TRAY PLACEMENT

DESCRIPTION:

Assembled trays are picked and placed by the robot onto pallets, ensuring more neat load building, easy transportation, and possible use in retailers.

BENEFITS:

- ✓ Improves quality control
- ✓ Decreases manual handling
- ✓ Improves load quality



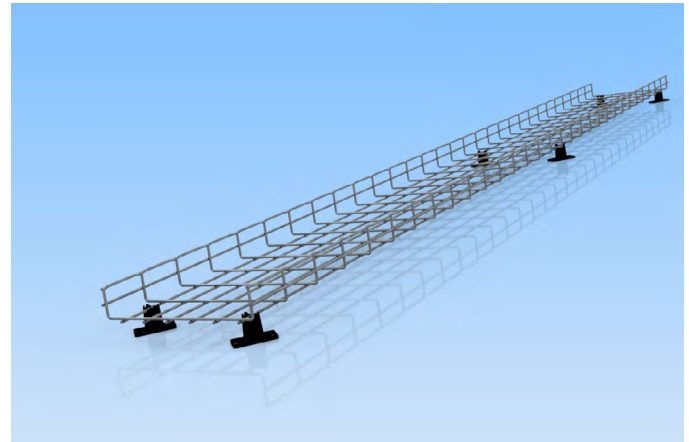
WIREWAY

DESCRIPTION:

Wireway is a mesh cable management system, ensuring the robotic palletizing cell is both safe and organized.

BENEFITS:

- ✓ Improves safety
- ✓ Provides easier maintenance/organization
- ✓ Minimizes rodent infestations



NOTES:



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