

AGVs DRIVE PRODUCTIVITY



Honda equips distribution center with automatic guided vehicles to improve transport and handling of spare parts.

By Lorie King Rogers,
Associate Editor

In 1963, Honda opened its first overseas factory to manufacture motorcycles. Over the years, the company's business model has evolved to become an OEM supplier and spare parts company. Parts are manufactured at various Honda plants then shipped to one centralized location for storage and distribution before going out to Honda dealers in the network. While consolidating storage and distribution into one centralized DC was a strategic business move, moving the parts presented a materials handling challenge.

Honda parts arrive at the distribution facility on a variety of carriers such

as pallets, crates, trolleys and box pallets all with different dimensions. To handle the diversity, Honda chose a versatile automatic guided vehicle (AGV; Egemin Automation, www.egeminusa.com) system to transport product containers across inbound and outbound locations, and to intermediate storage locations.

Since the AGV system was installed, Honda has a more orderly transport of goods throughout the distribution center and a significant reduction in damaged goods due to the precision fork placement and controlled travel speeds.

The automated process starts when

the inbound operator scans the load type and the load's position. Then the system determines the zone to which the load must arrive. This triggers the AGV control system to send an AGV to the designated location.

The control system also sends the correct parameters to the AGV for accu-

rate fork positioning. The AGV forks can be individually adjusted to fit the various fork pockets of the carriers so it efficiently moves product, regardless of whether the carrier is a pallet, crate, trolley or box pallet.

Honda has also experienced improvements to personnel productivity. Prior to

the AGV system, lift truck drivers delivered racks of products, which were large and required a number moves per hour to keep up. Since installing the AGVs, Honda has been able to reassign drivers to new positions and let the AGVs handle the long distance transport of goods. □

VISION-GUIDED ROBOT LENDS HAND



In manufacturing, a weak link can decrease productivity and increase cost. For a large coffee roaster processing 650,000 bags of beans each year, that weak link was a robot used to unload pallets stacked with bags of raw beans to a conveyor that feeds the roaster. The robot's gripper arm was tearing the burlap bags and spilling coffee beans on the floor. This caused safety issues, wasted about 100,000 pounds of beans every year and directed expensive

labor to clean up duty.

So plant managers turned to an advanced vision-guided robotic in-feed system (Concept Systems, www.conceptsystemsinc.com) for a helping robotic hand. The new system uses two cameras, two lasers and software to scan the bags, calculate the contours and create a 3D profile of the pallets, which are each loaded with twenty 150-pound bags in four five-bag layers. A computer model is constructed for

Coffee roaster uses robotic solution to solve in-feed problems and double throughput.

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every tier of bags then run through an algorithm that identifies its unique features and determines the precise position and orientation of each bag.

This information determines the optimal pickup point on the bags and is used to dispatch the robot to each bag for pickup. The robot's end effector pierces the bags and picks them up using pneumatically operated tines to push the burlap out of the way and penetrate the bag without tearing it.

As each layer is removed, the 3D model is updated for the next layer. To determine which bag to pick up first when presented with a new pallet or a full tier of bags on a partial pallet, the software directs the robot arm to the highest bag.

The vision-guided robotic in-feed system has helped the coffee roasters double its green bean in-feed rate. And, by keeping the coffee beans from spilling all over the floor, the company has cleaned up waste and safety issues and significantly reduced labor costs. □