



Automotive Factory Achieves Ergonomic Goal with Automatic Guided Vehicle System

Features and Benefits

Engineered safety for the workplace.

Avoided physical strain to workers.

Provided efficiency in handling of materials to boost productivity.

Flexible production allowed straightforward interface between machines and people.

Increased profitability for plant.

Provided accurate product tracking.

Controlled rapid overhead and fire door movements to provide real time status of vehicles.

Industry Group: Automatic Guided Vehicle Systems (AGVS)



Automation Improves Process Flow: When a major automotive manufacturer wanted to build an engine factory that, apart from profitability and efficiency, would be ergonomically designed to avoid back stress and manual lifting of heavy objects, for its assembly line workers. The goal was to track and transport engine parts, using laser-guided robots, to 82 workstation recipients, as needed. In addition, to conveying parts ergonomically to meet specific height requirements for each assembler, safety stipulations required eliminating the use of many manually driven trucks for transport in this plant.

The laser guided vehicle supplier worked closely with the customer and partnered with two companies to produce a cost-effective solution for this work-in-process environment. Automatic laser guided vehicles (AGVs) were ultimately integrated with ergonomic workstations to achieve the desired goal. The solution took into consideration the working height of each worker and the favorite angle of the roller table in which the parts were delivered for further assembly. By creating a new ergonomically correct working position, the strain on the back and shoulders of each worker was avoided. In addition, the work cells were not cluttered with production inventory as completed parts were promptly moved by AGVs to their next assembly point.

Each assembly line worker at the 82 stations could order engine parts at the rate they determined. Communication was made via a VMS control system tied to the customer's material delivery system (MDS.) A total of 12 single load conveyor top AGVs were in continuous use to carry a load weight up to 4,000 lbs. And transport a full range of pallet types and sizes without docking. Because every AGV was equipped with quad steer dual drive, they were able to align neatly to the specific angle determined to be the most ergonomically beneficial for each worker. Additionally, AGVs were used to automate what was once an otherwise strenuous, boring and repetitive task: lifting the loads with precise placement onto chain-driven roller tables, which then conveyed the material to assigned assembly work cells for further assembly.



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