

Speeding Delivery and Ensuring Safety Enidine Custom Shock Absorber Application

By: Dave Broderick

Situation Overview

A large OEM of material handling systems in the Eastern USA needed to increase the speed and efficiency of their horizontal carousel system. Due to the increased speeds of the system, the customer needed to protect the equipment and ensure the safety of workers in the event of a run away condition.

Application Data

The OEM manufactures a horizontal carousel, which is a series of bins mounted on an oval shaped track. The bins are mounted vertically on the oval track. The shelf heights of the bins can be adjusted to the height of the carton that is being stored.

The carousel moves around the track and presents a carton on one of the shelves to the inserter/extractor. The inserter/extractor moves in the vertical plane to the height of the shelf and either removes or places a carton on the shelf of the carousel. If the carton is being removed from the carousel, it is either raised or lowered to a conveyor system or robotic device to be taken away. Otherwise, the conveyor system brings the carton from another area of the plant to be stored on the carousel shelves.

The original design used air cylinders to control the motion of the inserter/extractor. The manufacturer wanted to increase the speed and improve the operating efficiencies of the system through the use of computer controls.

During initial set-up of the new design, engineers encountered run away conditions that destroyed the robotic inserter/extractor mechanism due to the increased speed of operation. They needed to absorb the energy of the moving inserter/extractor when they encountered the run away conditions.

Product Solutions

When the equipment was originally designed, the use of shock absorbers was not considered. ITT Enidine Inc. had to adapt its standard shock absorber to the existing equipment because the standard shock absorber was in the way of the inserter/extractor when it accessed the lower shelf of the carousel. ITT Enidine Inc. developed a CBOEM 2.0M x 6 to be used at the bottom of the two vertical uprights that control the inserter/extractor. The company also incorporated four SPM 50IF-1B to be used on the carriage for the pass through inserter/extractor platform.

Product Results

The computer controlled electronic system is able to operate at ten times the speed of the air cylinder controlled design. The equipment can now operate at 81 inches per second with weights of 100-200 pounds. The carousel operates safely at higher speeds, making the system more attractive to its customers.

ITT Enidine Inc. was matched against another shock competitor to develop a solution for this OEM. At the end of the evaluation, ITT Enidine Inc. was selected because of the quick response that the customer received and the competitive pricing of the units. ITT Enidine Inc. now supplies all of the shock and accessories for the production of these units.

