

# ENIDINE By Design

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*Enidine Energy Absorption Application.*

## **HD Shock Absorbers Provide Added Drop Ride Safety**

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### **Application Overview**

A major amusement rides manufacturer (SIC 3599/ NAICS 333319) needed to develop a redundant safety stop for its drop ride. In normal operation, a carriage load of passengers is raised to the top of a 35-meter (115-ft) tower, then dropped in a simulated free fall. An elaborate braking system safely decelerates the load, with a secondary device needed to absorb any runaway drive forces.

This secondary stopping element was critical to ensuring passenger safety, as the carriage would still be moving at a high rate of speed. An acceptable product solution would require maximum energy absorption to protect passengers. It would also need to be reliable upon demand in case of emergency, even months or years after initial installation.

This long-time Enidine customer knew that the use of certain energy absorption devices, such as rubber bumpers or springs, could result in dangerous rebound forces, potentially causing passenger injury. Having had success with Enidine products on other rides, the customer approached us for an optimal safeguarding solution.

### **Product Solution**

Enidine recommended the installation of two HD 2.0 x 32 shock absorbers, mounted beneath the platform stopping point. The units' stroke was required to minimize G-load forces and maintain a safe rate of deceleration at a fraction of the design speed.

Under normal operation, the braking system would still provide enough deceleration to stop the ride. Nonetheless, Enidine HD shock absorbers could now offer an additional safety stop. Since they are not affected by power failure or cable breakage, the units formed the "insurance policy" needed as a final safety precaution. Other systems, such as a secondary braking system, could have also been employed, but would have been much more costly and not as reliable.

### **Application Opportunity**

Once the system was implemented, the end result was an amusement ride with a self-contained safety device that met all applicable safety codes, and Enidine HD shock absorbers were implemented worldwide for standard safety stops. As a result of this opportunity, Enidine was led into the forefront of global amusement ride development, allowing us to add new customers. It is estimated that there are 20-25 major ride manufacturers in the US, all of which would benefit from the use of this Enidine product.



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