

## HI Series Buffers Absorb Large, High-Velocity Impacts of Transport Containers

### Enidine Energy Absorption Application

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#### Product Overview

An ITT Enidine Inc. customer involved in the marine transport of coal containers needed to find a unique, high-capacity product solution for its harbor intake facility. The solution would require effective dampening of a coal barge's 10,000 lb. impact at average speeds of 37 mph. It would have to be corrosion-resistant and maintenance-free to withstand harsh marine environments, as well as meet strict industry safety specifications.

The customer was utilizing other large bore energy absorption devices to absorb forces and moving loads. However, the demands of the application caused buckling or column loading failures, thus requiring frequent unit replacement. Having recently learned of new ITT Enidine Inc. standard products technology that addressed their application requirements, the customer approached us for a more reliable solution.



Heavy Industry Series Buffer

#### Product Solution

ITT Enidine Inc. suggested Heavy Industry (HI Series) buffers, which offered a more favorable piston rod diameter to stroke ratio versus alternative solutions. The larger piston rod diameter prevented buckling under high velocity impacts within a standard package, to safely decelerate large energy loads of up to 4 million inch pounds per cycle. Each HI Series unit features an integral nitrogen charge system that immediately returns the piston rod to the extended position. The buffers are designed to softly dampen moving loads up to 200 in/sec.



Units are designed for stacker, harbor and container crane applications, as well as transportation safety stops. All HI Series buffers come standard with corrosion-resistant epoxy-painted surfaces, allowing them to operate consistently in demanding temperatures or high humidity environments. Since HI Series buffers can also be designed to meet virtually any industry safety specification, including OSHA, AISE, CMMA, DIN and FEM, the product solution was a natural fit for the customer.

#### Application Opportunity

The Series buffers provided a simpler solution with additional safety. Had the customer not properly serviced the former units after impact, it could have meant catastrophic damage to the customer's supporting structure. The units were successfully installed, and have significantly improved the efficiency at which these coal containers are transported across US waterways. Any application requiring safe deceleration of high-velocity impacts would be a good candidate for this new ITT Enidine Inc. product.

