

Special Shock Absorber Improves Performance of Tanker Cars

Enidine Shock Absorber Application

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Application Overview

A manufacturer of transportation tankers, used on highways and railways to transport petroleum and other chemicals, must always be concerned with accidents and the potential of hazardous spills.

The application required a shock absorber to control the force applied to a pressure relief valve located in the tank. The force is developed during an over-pressure condition, caused either by over filling or accidental overturn of the tanker. The valve is held closed by a coil spring. When an over-pressure condition occurs and the spring is compressed, the shock absorber controls the spring compression rate, which determines the relief valve opening speed. This relieves pressure in the tanker and controls the leak rate.



Product Solution

The shock absorber was located inside the tanker, exposing it to petrochemical products such as gasoline or other corrosive chemicals. Nickel plating on the exterior components provided the necessary corrosion protection. In addition, the customer's mounting configuration required a threaded body with wrench flats. Since the shock absorber needed to control the rate that the valve opened, the piston rod end needed to be in constant contact with the valve.

This required the shock absorber to withstand a load in tension. A through-hole was incorporated into the rod end, so that the unit would be clevis-mounted to the valve. The piston head was threaded to the piston rod to sustain the tensile load.



Application Opportunity

In this application for tanker cars (SIC 3743), ITT Enidine Inc.'s custom shock absorber design capability provided a winning solution.