

Oxygen Blowing Lance Carriage Jarret Shock Absorber Application

Application Overview

In the Basic Oxygen Process of steel making, an Oxygen Blowing Lance is employed to provide the necessary oxygen for the Basic Oxygen Furnace. The lance is lowered into the furnace and raised out of the furnace by an overhead carriage mounted in a vertical support frame. The carriage is suspended within the frame by a system of cables and pulleys.

Problem

The Blowing Lance Carriage and Frame are designed so that, in the event of a failure in the cable system, the lance will not fall more than one and one-half to two feet. This is accomplished by having a series of evenly spaced windows in the vertical frame. A pair of latches (also called dogs) are engaged in the event of a cable failure. The latches extend out from the carriage and through the windows in the frame. To protect the carriage, carriage frame, blowing lance and other sections of the facility from damage; shock absorbers are used in the carriage to absorb the energy of the short drop. This protects not only the equipment, but also the personnel, since without the shock absorbers the loads might be so high that the safety mechanism might fail sending the carriage crashing down to the bottom of the frame and simultaneously dropping the blowing lance into the furnace filled with molten steel.

Product Solution

The incorporation of Jarret elastomeric shock absorbers in the Blowing Lance Carriage can smoothly decelerate the Blowing Lance and Lance Carriage preventing damage to, or failure of the safety system.

The unique characteristics of the Jarret elastomeric shock absorber will counterbalance the driving force developed by the combined weights of the lance and the lance carriage falling vertically with enough additional capacity to absorb the kinetic energy of the fall. This results in a smooth, progressive stop before the full stroke of the Jarret shock absorber is used up.

An inventory of standard sizes provides ready availability for most applications. Factory repair is available to recondition worn units if required, thus assuring long economical service.

