

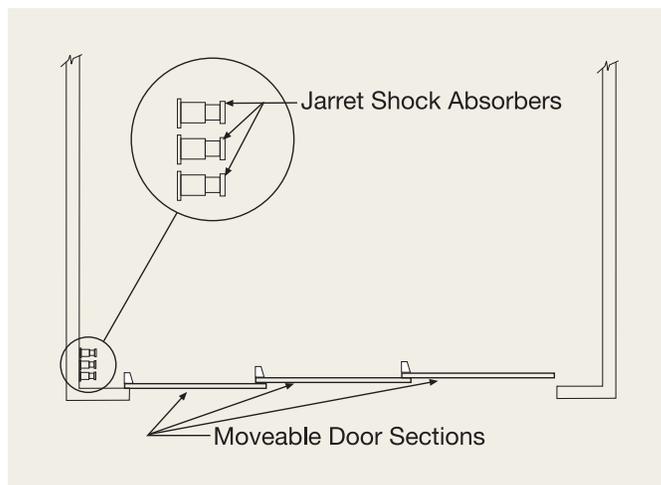
Motor Driven Doors Jarret Shock Absorber Application

Application Overview

Large, motor driven doors, such as those used on aircraft hangers, often employ electric motors with control systems, limit switches, etc. to position them and ensure against overtravel. The doors can consist of one or more moveable sections that meet in the center of the door opening or are fixed at one end with the sections moving sequentially or in an accordion like fashion across the opening.

Problem

If the door control system fails or is incorrectly set, or if the limit switches fail, it is possible for the door to overtravel during the opening or closing and to then impact a fixed end stop. The potential energy resulting from the propelling forces can be very high in this application, often exceeding the kinetic energy. Conventional hydraulic shock absorbers are generally not very effective at low impact speeds and especially when propelling forces are present. Under these conditions, hydraulic units will “bottom out” before dissipating the total energy. The result is that large impact forces are transmitted into the structure. Such impact can cause damage to the end-stop support structure, the building, or to the door itself.



Product Solution

Jarret shock absorbers are ideal for this application because they provide full energy absorbing capability at the low operating speeds common with this type of equipment. Since the reaction of a Jarret shock absorber increases with stroke, they will not “bottom out” when the door is driven into them. As they are stroked, the reaction increases to overbalance the drive forces on the door with enough remaining capacity to remove all of the kinetic energy, thereby assuring a gradual, shock-free stop, without reaching the end of the stroke; ie. bottoming out.

In addition, the Jarret units will maintain full integrity of the seals (and therefore remain functional) when used in this emergency stop application, even if the shock absorber is not stroked for long periods of time. This differs from a hydraulic shock absorber whose seals will dry out and crack, thereby failing to maintain the pressure necessary for energy absorption if it is not stroked regularly to keep the seals moist.

Jarret shock absorbers are normally selected to provide emergency stop capability with low deceleration forces in “power on” impacts to avoid damage to the drive system and the structure. The Jarret units can be mounted on the door to impact against the structure or they can be mounted on the end stop structure that the door impacts. An inventory of standard sizes provides ready availability for most applications. Factory repair is available to recondition worn units if ever required, thus assuring long economical service.