

Smooth Transition Dok System by Rite-Hite

Problem: *The repeated vibrations experienced by loading dock workers can cause musculoskeletal injury.*

Solution: *A two-component system can minimize loading dock vibrations and keep trailer beds in place.*

The safety of occupants is a constant and important issue in the workplace. In addition to employee well-being, safety issues are central to productivity rates and potential financial liabilities for the organization. Facility managers who oversee buildings with loading docks should be aware of the potential threats this setting hold to be able to address these issues effectively.

A new series of products from Rite-Hite Corporation, based in Milwaukee, WI, is designed to address the physical demands exerted on a person working in a loading dock environment. The National Institute of Occupational Safety and Health (NIOSH) reports that shock, such as jarring and jolting, causes 36% of all head, neck, and back injuries associated with mobile equipment operators. Rite-Hite's Smooth Transition Dok System consists of a line of loading dock levelers and a vehicle restraint, the STR-4000 Dok-Lok®. Each item can be purchased and installed separately, if desired.

Dock levelers reduce the vibrations that occur when a lift truck (stand-up walkie or forklift) crosses between a warehouse floor and a trailer bed. Such jarring movements can pose a health safety risk to a worker who is exposed repeatedly to this situation. Rite-Hite uses the term "dock shock" to describe this event.

The new line of dock levelers from Rite-Hite features a rear hinge to create a smooth transition between the warehouse floor and the leveler. On the other end of the leveler, a two-point crown control provides a smooth transition from the leveler to the trailer bed. The levelers are available in hydraulic, air powered, and mechanical models.

When tested against the International Organization for Standardization (ISO) 2631-1 Standard and the Directive 2002/44/EC of the European Parliament and Council of the European Union, the new leveler design was found to reduce dock shock by 50% compared with standard levelers under

The STR-4000 Dok-Lok vehicle restraint is designed to keep a truck trailer bed from jarring up and down as people and machines move in and out of the space.



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the same conditions. The ISO 2631-1 Standard outlines acceptable standards for vibration. Directive 2002/44/EC was issued to provide minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents such as vibration.

The other component in the Smooth Transition Dok System—the STR-4000 Dok-Lok vehicle restraint—is designed to address the occurrence of "trailer drop." In developing the product, Rite-Hite analyzed how trailer beds move vertically (or "drop") due to the weight of lift trucks moving in and out of unstable trailers. The problem was found to be more severe with trailers with air ride suspension systems.

The STR-4000 vertically supports the rear of a trailer during loading and unloading into the facility. Through testing on this equipment, Rite-Hite found the vehicle restraint could reduce trailer drop by up to 300% compared to when no restraint is used. This figure was derived from testing that used a Linear Velocity Displacement Transducer (LVDT) measurement device to measure the deflection of trailer bed height from its center. When a vehicle restraint product was not used, the LVDT recorded an average deflection of 6" up and 6" down from trailer bed height center when a lift truck traveled in and out of a trailer. With the STR-4000 Dok-Lok in place, the average deflection from trailer bed height center was limited to no more than 2" up and no more than 2", equating to a 300% reduction in trailer drop.

Further safety measures are addressed with the STR-4000's rotating hook design, which engages the rear impact guard of a trailer in a two-point entrapment to prevent trailer separation, which can lead to an accident.

Having safety guidelines in place for loading docks complements the use of safety equipment like the Smooth Transition Dok System. Joe Manone, vice president, marketing at Rite-Hite, advises facility managers to develop a best practices procedure for operating dock equipment and loading/unloading a trailer.

"The policy should be enforced and safety products should be used to reduce the risk of accidents," he says. "Facility managers can also protect workers with proper dock seal and shelter applications to prevent water intrusion at the dock. Water creates an unsafe environment."

Safety and productivity are key issues in many aspects of a facility, and warehouse and loading dock areas are no exception. The products in the Smooth Transition Dok System offer a way for facility managers to create a safer environment for the people who work in those areas of the building. □

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