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Serapid Push/Pull Rigid Chain System to Transfer Nuclear Waste

by Design World Staff

Monday, December 22, 2008

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Serapid recently provided a stainless steel push/pull Rigid Chain system with the unique feature of providing both horizontal and vertical motion using a single motor. This solution proves Serapid's flexibility in delivering linear movement from discrete locations, over great distances, and around corners.



Photo SERAPID

The customer required a mechanical linear actuator for a guided carriage transporting 6000 pounds of nuclear waste. The load moves horizontally through 200 inches of travel, with multiple stop points. At each stop point, the carriage locks in place while the 6000 pound load is lifted using a Serapid Rigid Chain actuator.

The system also has to tolerate a highly corrosive acidic environment in an unmanned chamber. Corrosion protection, safety and accessibility are maximized by locating as much machinery outside the chamber as possible.

Serapid developed a solution with a pressure-sealed, stainless steel push/pull Rigid Chain System positioned outside the chamber. The Rigid Chain acts through a single opening in one wall of the chamber to push or pull the carriage to a precise position.

Serapid supplied a redirection housing, which was integrated into the carriage to redirect the chain from horizontal to vertical motion. At designated points the same chain providing the horizontal motion will then lift and lower the 6000 pound load. The entire Rigid Chain push/pull system retracts into a small package and is powered by a single electric motor.

The Serapid Rigid Chain Technology has provided linear motion solutions for the nuclear industry for over 35 years. The push/pull technology provides limitless stroke, capacities of up to 160kN, and the ability to perform in harsh environments.

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