PROBLEM

Vertellus Specialties Inc. is a specialty chemical manufacturer with a need for customized material handling equipment. Vertellus currently loads their chemical reactors with two manual operators lifting and pouring the chemicals. The chemicals are in a powdered form and are contained in 28 gallon fiber drums. The current loading situation is physically strenuous and an unsafe operation to be carried out.

OBJECTIVE

The objective of the ATLAS|LIFT project is to design and build a low cost machine to safely and efficiently transfer the chemicals from the barrels into chemical reactors.

SOLUTION

The machine that was constructed uses hydraulics and a pivoting frame to lift and pour the contents of the barrel. The system drive components – including a hydraulic cylinder, hydraulic pump, fluid reservoir, electric motor, and electric control components – were salvaged from an old machine at Vertellus. A four way, three position manual control valve was integrated into the hydraulic system to allow for bi-directional control and faster cycle times. A new frame and chute were fabricated which achieve a 40 degree pouring angle for the chemical contents to empty into the reactors.