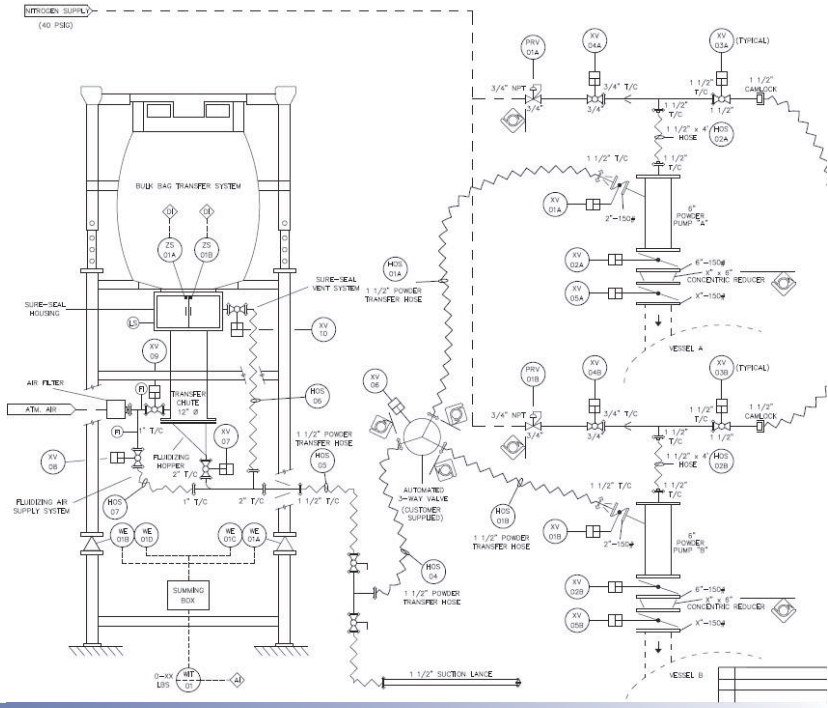
DDPS Powder Pump Keeps Operators Safe:

Achieving Process Improvement through Contained, Automated Transfer



Overview

No company ever wants an employee to be injured on the job, so when this did occur at a chemical manufacturer's plant in Texas, they contacted De Dietrich Process Systems to provide a more automated and contained method of charging solids into reactors to prevent operator injury and exposure to hazardous materials.

A site trial was initially conducted with a Powder Pump rental unit to ensure our system could effectively transfer the powder the required distance. After confirming the product could be transferred with the Powder Pump system, DDPS supplied a bulk bag unloading station with two Powder Pumps and a PLC control system capable of charging specific batch weights at controlled transfer rates.

About

The customer referenced is a chemical manufacturer in Texas, known for providing safe, sustainable chemistry programs and services to the upstream and midstream oil and gas industry, refineries and petrochemical operations.

CASE STUDY

POWDER HANDLING SOLUTIONS

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CASE STUDY

Contained Transfer

Challenges

Many chemical manufacturers around the world still introduce solids into their reactor vessels manually. This creates multiple hazards for their operators, including: manual bulk material handling, breach of reactor containment and possible exposure to hazardous vapors and dust. In this case, manual material handling while charging powder into an open manway resulted in physical injury to an operator.

As a result, the customer decided to find a solution capable of:

- Eliminating manual material handling
- Automating the transfer process to reduce labor
- Delivering product to two locations
- Preventing future operator injuries

Solution

Once the customer's needs were understood, the first step was to prove the Powder Pump would effectively transfer their product the distance required. Based on site trials that were conducted using DDPS test equipment, we were able to confirm that the Powder Pump would transfer the material in a safe and contained manner, and meet the customer's objectives.

The customer was able to get first-hand experience by using the rental equipment. After conducting successful trials, the customer was confident the Powder Pump technology was the right choice for them. With the data received from testing, we were able to size the Powder Pumps according to their process specifications and develop a system that would minimize risk of operator injury and greatly increase the level of containment.

The final design consisted of three parts: a bulk bag unloading system to handle the super sacks of product, two 6" Powder Pumps to be mounted on the customer's reactors, and an explosion proof PLC control panel designed to communicate with the customer's DCS system.

Results

The customer quickly noticed multiple benefits of their new powder handling system. Operators were no longer emptying products directly into the reactor and their chances for having any direct contact with the product was greatly decreased. Another added advantage of their customized system was minimizing operator involvement. Since the process was semi-automatic, an operator now had more time to focus on other tasks, increasing overall productivity.

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