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704-846-1617

***Shape-It™ Bulk Bag Unloaders  
Vacuum Conveying System  
Product – Powder Coatings  
Case History 3S-1205***

**Background:**

A Texas based OEM provides systems for the powder coat application industry. Powder coatings, essentially 'powdered paint', is a fine, dusty powder. These two powders needed to be unloaded and pneumatically conveyed to the pipe coating line, dust free. The customer was unsatisfied with his previous bulk bag unloaders and their lack of dust control. He found 3Sigma on the web and a conversation ensued regarding 3Sigma's system solutions.

**Customer Needs:**

- Proper discharging of each product
- Minimize airborne dusts
- Minimize maintenance items and expense
- Properly convey from two unloaders to three filter receivers without dust.

**Solution:**

- Two Shape-It™ bulk bag unloaders (one pictured) use vertical vibration to shape the bag, prior to unloading, and discharge the two materials into their hoppers
- The oversized square bulk bag dish maximizes the bulk bag's contact and thus minimizes leakage
- The large Contain-It™ bag access chambers contains all product spills, makes bag handling easy, and is designed with the operator in mind
- The Tube-It™ spout seals to the bulk bag on the inside of the chamber and connects to the downstream equipment, creating one seamless system
- 3Sigma designed the system so that the vacuum conveying line is also used for dust collection on each Contain-It™ chamber, minimizing airborne dust and conserving product
- From the Tube-It™ spout product flows into a hopper and then a rotary airlock valve, which feeds the vacuum conveying line



## Filter Receiver with Rotary Valves



Material is then conveyed three large filter receivers with storage capacity

The outlet of each storage hopper is fitted with a rotary airlock valve with 8 vane rotors to conform to NFPA specifications



- Each filter receiver is also fitted with rupture discs and are vented through the roof of the building, creating a safe working environment – even in the case of an explosion
- An Allen-Bradley PLC was provided to operate the system

**Filter Receiver with Rupture Discs**

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