



Loss-in-Weight Feeder

Manufacturer – 3Sigma

Product – Glass Beads

Case History #113

Background:

A Midwestern Fortune 100 firm is in need of a portable, dust free, and accurate dry material feeding system to properly batch their product to numerous mixers. After the product is loaded at waist level, the entire system is manually moved to a mixer, where it is raised to approximately a 6' discharge height and then batched into the mixers in the necessary amounts. The environment is rated Class I, Div 1. Based upon previous successful applications with our parent company, Carolina Material Technologies, the company contacted us once again in search of a solution

Existing Problem:

- The customer's product is extremely light and dusty. Airborne dust had become a serious health hazard.
- The customer would manually scoop product from a drum into a plastic bag while weighing it on a platform scale creating the airborne dust and potential health hazards. This bag would be sealed until needed.
- The bag would then be opened, at the appropriate mixer, and manually dumped in, creating the airborne dust and potential health hazards again.

Customer needs:

- Dust tight filling of the product at grade level.
- Easy manual moving of the weighing system, approximately 1,000lbs, the various mixer locations.
- The ability of the operator to input the desired batch weight at the portable station.
- Feeding directly into the mixer 6' off grade.
- Accurate and automatic batching without the need for operator interface.

Solution:

- A fabricated platform, with fork truck pockets. A heavy-duty platform scale is attached to this frame, which supports the feeder and bag dump station. This platform also allows the pallet server to be removed and used at other locations.
- A pallet server to easily move the system from point A to point B and raise the dry material feeding system above the mixers for proper batching. The lifting is completely air operated.
- A filtered bag dump station with ex-proof motor and air operated solenoids to eliminate airborne dust.
- A heavy-duty scale that met the accuracy demands while holding calibration even though being constantly moved.
- A Screw Feeder to properly batch their product, while totally controlling this floodable product. Explosion proof motor.
- A battery operated batching control mounted to the portable system.
- An explosion proof control panel, mounted to the platform.

Dry Material Feeding System At Grade Level for Loading



Filtered Bag
Dump Station

Batch Control

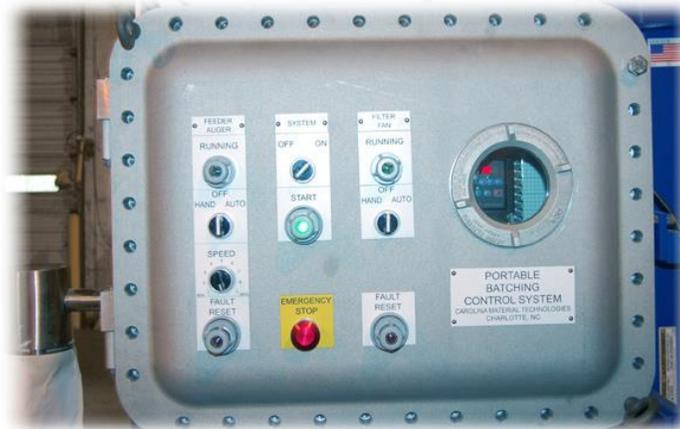
35" off grade to
load system
dust free

Ex-Proof
Control Panel
System raised
3.5' at the lab
for testing

Dry Material Feeding System Raised to Batch to Mixer



Mounted Ex-Proof Panel



Results:

- The system was installed in 2011. To date we have replaced one faulty Mac air valve.
- The system has exceeded their dust control and ergonomic requirements.
- The system repeatedly doses 5 to 70# with an accuracy of ± 0.02 lbs.
- The customer is extremely pleased with the system. We are awaiting their expansion for the addition of a duplicate system.

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