Stainless Inclined Screw Feeders for Metering Specialty Phosphates at Innophos Nutrition in North Salt Lake, UT

General Description of the Application

At the Innophos Nutrition facility in North Salt Lake, UT, specialty phosphate products are manufactured for use in the food, pharmaceutical and industrial markets. Innophos strives to be the most successful, most competitive, and first choice specialty phosphate company. Phosphate salts are transformed into several different blends and mixes to be used in multiple industries from food, to asphalt, fertilizer salts, and even phosphoric acid.

The different phosphate ingredients were stored in large barrels, taking up floor space at the facility. The large barrels were also a big expense for the company. Innophos needed a more cost-effective solution for storing the phosphate ingredients that would not require as much space. KWS partnered with Conveyors & Equipment based out of Salt Lake City to provide a long term solution to the storage problem and eliminate the use of expensive barrels.

Screw feeders and conveyors were not used widely in the facility and this project was one of the first. The large barrels were being replaced by super sacks for bulk material storage. Innophos needed a method to unload the phosphate ingredients from the barrels and into super sacks. Together, Conveyors & Equipment and KWS designed a super sack loading system that was compact and cost-effective.

Design Parameters of Application

Product Type: Phosphate Mixes
Material Density: 20 to 95 Lbs. per Cubic Foot
Capacity: 875 Cubic Feet per Hour
Duty: 16 Hours per Day, 5 Days per Week

Advantages Provided by KWS

KWS worked with Conveyors & Equipment to design a super sack loading system that would allow Innophos to move the entire process from barrels to sacks. The super sacks are very cost effective and take up a lot less storage space than the barrels. KWS designed an inclined screw feeder for the application and provided Conveyors & Equipment with detailed drawings of the proposed solution prior to ordering. Since multiple units would be purchased after the first unit was tested and approved, KWS provided discounted pricing to Conveyors & Equipment and Innophos.

With the wide range of bulk densities of the various phosphate products, it was difficult to design a single, inclined screw feeder that could meet Innophos Nutrition's needs. Through product testing and previous experience, KWS was able to design a screw feeder that would allow Innophos Nutrition to meter the various phosphate products at the desired flow rates.

Design
Engineering
Manufacturing

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Special Features of KWS Design

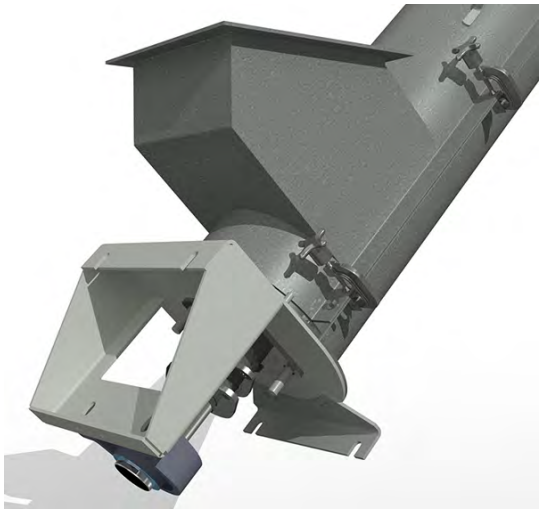
KWS designed the screw feeder on a 45-degree incline to allow for the smallest space to be used. The unit was designed with a small hopper on the inlet section for dumping the various phosphate products from the barrels. The product was then elevated and discharged to meet the opening of the super sacks.

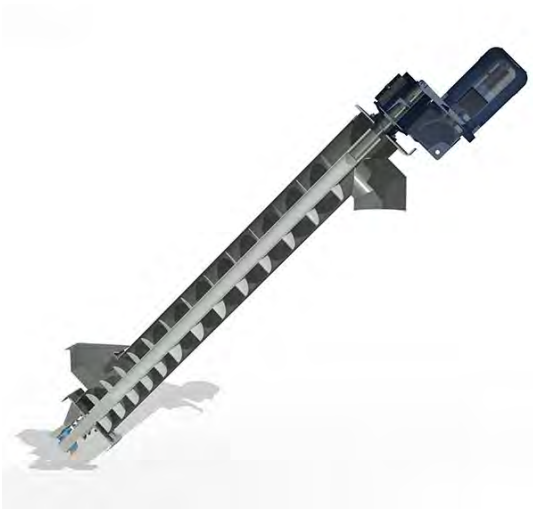
Because the various phosphate products are dry and free-flowing, the tail end of the inclined screw feeder was designed with an adjustable flanged gland seal and outboard pillow block bearing. The application required wash down of the internal surfaces of the screw feeder. The screw feeder covers were removable with safety bolts and clamps, allowing Innophos maintenance personnel access to completely clean in the inside before changing to another phosphate mixture. OSHA mandated Log Out/Tag Out procedures were always followed before removing covers.

Testimonial

"Innophos Nutrition has called this project "THE DEATH OF THE BARREL" since the large barrels were expensive and took up too much floor space. The KWS screw feeder looks and operates great! We are ready to order seven more!"

- Brian Jolley, Outside Sales - Conveyors & Equipment





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