



Redesigned Feeder Screw for Metering Powdered Gypsum at Georgia Pacific Mill in McQueeney, TX

General Description of the Application

The Georgia-Pacific (GP) mill in McQueeney, TX is part of Georgia Pacific's Building Products division and makes DensGlass® Sheathing for commercial construction. DensGlass® Sheathing is the leading architecturally specified fiberglass mat gypsum sheathing in the industry and provides superior moisture and mold resistance. It is a preferred substrate under brick, stone or stucco due to its ability to protect a structure against moisture damage.

Natural gypsum occurs in sedimentary rock formations and is mined at a nearby quarry. It comes into the mill in rock form where it is crushed and ground into a fine powder. In a process called calcining, the gypsum powder is heated to approximately 350-degrees F, which drives off 75-percent of the chemically combined water. The calcined gypsum, or hemihydrate, then becomes the base material for gypsum board.

Screw feeders and conveyors are used throughout the gypsum board making process because of their reliability and completely enclosed design. Motion Industries and KWS have been partners for over 40 years and have solved many problems together.

Design Parameters of Application

Product Type: Calcined Powdered Gypsum

Material Density: 60 to 80 Lbs. per Cubic Foot

Conveyor Capacity: 545 Cubic Feet per Hour

Moisture Content: 20 to 30-Percent

Duty: 24 Hours per Day, 7 Days per Week

Advantages Provided by KWS

The Mill Manager at the GP McQueeney mill contacted the local Motion Industries Account Representative to discuss a problem with an existing screw feeder. The flights on the existing Calcined Gypsum Screw Feeder would rust and corrode due to moisture and chemical reaction with the gypsum. Also, the center pipe of the screw would deflect under load. As the screw weakened over time it would fail, causing an interruption to production. The Mill Manager needed a permanent, long-term solution to the screw feeder problem.

Motion Industries and KWS visited the mill to review the application, determine the exact needs of the plant and make recommendations to improve the performance and life of the screw feeder. While onsite, the team gathered dimensional information and recommended a new design that would resolve the problems.



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Special Features of KWS Design

After analysis of the application and discussions with the Mill Manager, it was determined that the existing Calcined Gypsum Screw Feeder needed to be manufactured from 304 stainless steel to eliminate the corrosion issues. A new replacement screw was designed using larger diameter heavy-wall pipe to provide a stiffer assembly and resist deflection under load. The screw flights were also made thicker to increase service life. The screw flights were continuously welded to the center pipe to also increase stiffness and provide a failure-proof assembly.

The GP Mill Manager advised Motion Industries that the screw feeder was in danger of failing at any time and that the new redesigned replacement screw was needed immediately. KWS understood the urgency of GP's request and manufactured, shipped and delivered the replacement screw in three working days at NO Extra Charge to either GP or Motion Industries. Having the new replacement screw on site was one less worry for the GP Mill Manager.

Testimonial

*"Thanks for the quick response. The quality looks great!
We enjoy working with KWS."*

-Sonny Gutierrez, Account Manager – Motion Industries



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Manufacturing**

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