



Special Cantilever Lime Mud Screw Conveyor

General Description of the Application

End user needed a solution for conveying very wet lime mud into a rotary kiln at a pulp mill. Lime mud is a by-product of the chemical process for making white liquor. White liquor is used in the digesting process for converting wood chips to paper pulp. The lime mud is calcined in the rotary kiln at very high temperatures and converted to lime. KWS worked closely with Andritz to design a unique cantilevered screw conveyor for the application.

Design Parameters of Application

Product Type: Lime Mud

Material Density: 43 to 55 Lbs. per Cubic Foot

Conveyor System Capacity: 1,500 Cubic feet per Hour

Duty: 124 Hours per Day, 7 Days per Week

Advantages Provided by KWS

Engineers from Andritz and KWS worked together to design a special cantilevered screw conveyor for the application. Since the screw conveyor was conveying wet lime mud directly into the rotary kiln, the screw had to be supported from one end, or cantilevered. Hanger and end bearings were not an option due to the extremely hot temperatures inside the kiln and discharge end of the screw conveyor. Using our extensive engineering experience, Mechanical Engineers from KWS designed the unit based on the input parameters and modeled the system using finite element analysis (FEA) and 3D parametric design software.

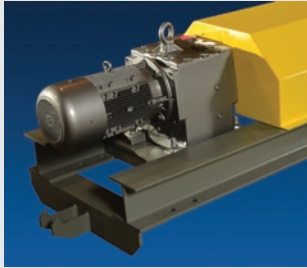
Special Features of KWS Design

The screw was mounted on large diameter pipe in order to withstand the deflection and high bending loads. The 14 foot long cantilevered screw is supported by a double roller bearing configuration. The drive shaft and twin-bearing supports were designed to handle the high axial and thrust loads. The screw flights have special carbide cutting inserts welded to the periphery of the flights which cut through the lime mud that adheres to the inside of the housing. The conveyor is mounted to a trolley structural frame with special v-groove wheels which roll on a track to move the screw assembly in and out of the kiln. Anchor bolts lock the trolley in place when the conveyor is moved outside the kiln.



"It was a pleasure working with KWS on this project. KWS responded to the Customer's needs and worked with us to meet an extremely tight delivery schedule."

Todd Lewick, Product Engineer – Andritz Inc. (2013)



Plant Name and Location

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