

End User and Location
Activated Carbon Plant
Wickliffe, KY

Ceramic Lined Screw Conveyor Troughs for Activated Carbon Plant in Wickliffe, KY

General Description of the Application

Activated carbon is a filter media used in many applications including automotive emission systems, water treatment and food and beverage. The final product begins its life as wood chips or sawdust and is first processed into charcoal, then further modified to provide a very high surface area to volume ratio. Microscopic pores trap contaminants while allowing the media, such as water or air, to pass through freely. Activated carbon has small, low-volume pores that increase the surface area available for adsorption or chemical reactions.

KWS has provided high quality screw conveyors to the activated carbon industry for over 40 years and understands the challenges of conveying abrasive and corrosive bulk materials such as charcoal and wood char.

Design Parameters of Application

Product Type: Wood Char
Material Density: 19 Lbs. per Cubic Foot
Capacity: 1,885 Cubic Feet per Hour
Duty: 24 Hours per Day, 7 Days per Week

Advantages Provided by KWS

While conveying the wood char between processing points, the plant found that the screw conveyor troughs experienced excessive wear. Typically, the screw flights should be the item to fail first, since the rotating flights convey and tumble the bulk material. However, the troughs at the Wickliffe plant were developing holes and wood char was leaking out in a number of places. The holes in the screw conveyor troughs were due to the abrasive nature of the wood char in conjunction with corrosion due to steam from surrounding systems. This long time Customer relied on the engineering and problem solving capabilities of KWS to provide a long-term solution.

KWS is the leader in the screw conveyor industry when it comes to providing effective solutions. After a careful review of the application, the final design utilized a ceramic trough liner to significantly lengthen the life of the screw conveyors.

Special Features of KWS Design

KWS researched and chose the most abrasion and corrosion resistant ceramic liner material for the application. The ceramic trough liners were formed by manually applying a composite material filled with ceramic beads that were specifically designed to resist severe abrasion and corrosion. KWS also designed the screw conveyors with pedestal trough ends to support the screw with pillow block bearings that are located away from the material being conveyed, increasing the life of the bearings and reducing the chance for contamination. Weighted overflow doors were placed over each discharge so that the bulk material would have a way to exit the conveyor if there is a plug or failure in the downstream equipment. With superior experience and unmatched quality, KWS provides solutions to the most difficult applications.



**Design
Engineering
Manufacturing**

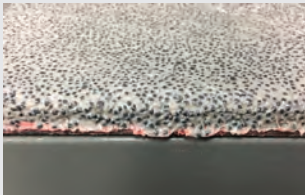
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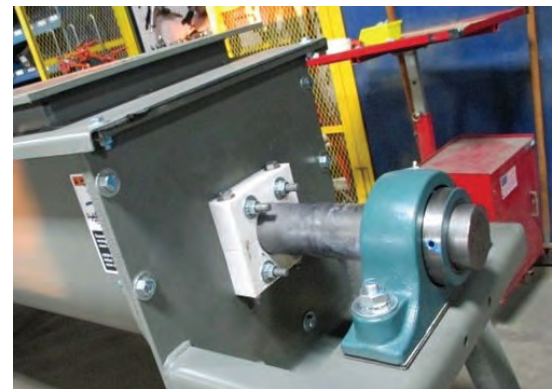
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Testimonial

"We've had no issues with KWS equipment over the years and expect this liner to solve a recurring maintenance issue. We appreciate the help!"

- Steve Roberts – Reliability Engineer

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