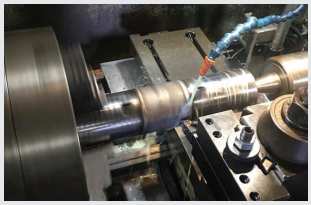

Screw Conveyors Utilizing Coupling Shafts and Hanger Bearings with Stellite Sleeves for Conveying Extremely Abrasive Fly Ash

Question

I am using a screw conveyor to convey fly ash at 250-degrees F from multiple cyclones at a waste-to-energy facility. The cyclones and screw conveyor are part of the air pollution control system. We are changing out coupling shafts and hanger bearings in the screw conveyor every two months due to the extreme abrasiveness of the fly ash. We need a better solution! What can you recommend?

Answer

Fly ash is extremely abrasive, especially at elevated temperatures and will collect in the contact surfaces between the coupling shaft and hanger bearing. The fly ash acts like a grinding media and will wear out both the coupling shaft and hanger bearing in a very short period of time.

KWS recommends using coupling shafts and hanger bearings that have Stellite sleeves. Stellite is a cobalt-based alloy with outstanding abrasion resistance and toughness. The Stellite surfaces on the coupling shaft wear directly on the Stellite sleeves of the hanger bearing. Stellite is resistant to seizing and galling, even at elevated temperatures. Lubrication is not required or recommended for coupling shafts and hanger bearings with Stellite sleeves. Stellite wear components are commonly used in heavy industries such as rock crushing as well as cement and steel making.

The coupling shafts and hanger bearings are machined to accept the Stellite sleeves. The sleeves are then TIG welded in place and machined to the required finished dimensions. Please refer to the photos below.

The use of hanger bearings in abrasive applications has always presented challenges for KWS, as well as the owner and maintenance crew. In order to eliminate the problem, KWS recommends design changes that will eliminate the use of hanger bearings by "piggy-backing" several shorter screw conveyors together that do not have hanger bearings. Another option is to use longer screw sections and reduce the number of hanger bearings. Maintenance of the coupling shafts and hanger bearings will still be required, but you will have fewer to maintain. We also recommend to slow the rotational speed of the screw conveyor down to 20-rpm maximum, if possible. The slower rotational speed will reduce the wear on the coupling shafts and hanger bearings.

Qualified KWS engineering personnel are available to review your application at any time. We will make a site visit to look over the equipment in operation and meet with the maintenance staff to understand the challenges with the existing screw conveyor. Once we gather information, we will be able to offer cost-effective and long-terms solutions. KWS will significantly reduce or even eliminate your screw conveyor maintenance problems.

Design
Engineering
Manufacturing

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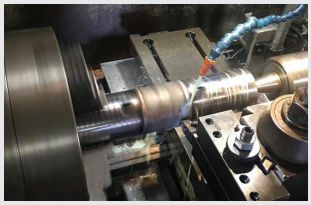
More on Next Page >>

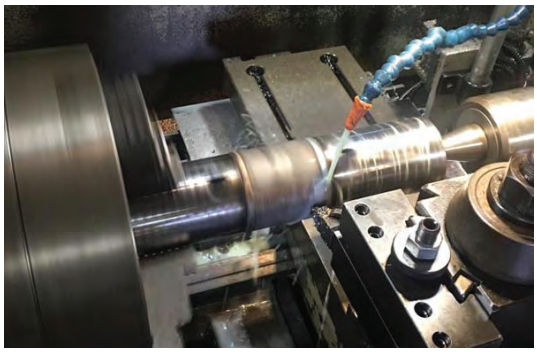


Screw Conveyors Utilizing Coupling Shafts and Hanger Bearings with Stellite Sleeves for Conveying Extremely Abrasive Fly Ash

Style 216 Hanger Bearing with Stellite Sleeves (Before Welding)

Style 216 Hanger Bearing with Stellite Sleeves (After Welding)

Coupling Shaft with Stellite Sleeve (Before Machining)



Coupling Shaft with Stellite Sleeve (During Machining)

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