CASE STUDIES

Electrical Industry: Vibrator Mount Customization

Chronic pipe flow problems eliminated

Introduction

This facility in eastern Pennsylvania manufactures lead acid batteries. The process is 100% closed loop, meaning all dust, fumes, waste materials, and chemicals generated by the process are contained within the facility and recycled. For example, lead oxide powder drawn from the smelting operation is collected by baghouse filters and ultimately reintroduced into furnaces to be melted with scrap lead and lead ore and ultimately made into a lead ingots.

Problem in More Detail

The lead oxide powder from the smelting operation was frequently plugging the 12” diameter feed pipes leading to the furnaces. These pipes must remain clear of blockages in order to maintain a consistent feed to the furnaces. To facilitate flow at the 24/7, 365-days-per-year operation, the customer had installed vibrators as mechanical flow aids. Yet, blockages were still occurring, a fact that suggested that the vibrators were installed at the wrong locations. Another problem was weld cracking and damage to the pipes, which can lead to oxide dust leaking out of the system.

Solution

The AIRMATIC team reviewed the situation, paying particular attention to the simple C-channel mounts that secured the vibrators in place on the pipes. They recommended a clever new vibrator mounting system specifically designed for vibrating pipes. The AIRMATIC team provided the customer with several different models to choose from and worked closely with them to appropriately customize the model they ultimately chose.

The innovative new vibrator mount is a two-piece, fabricated bolt-together clamp offering multiple benefits:

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- Provides a choice of exactly where on the pipe to induce material flow
- Offers the ability to easily loosen the clamp and slide the vibrator up or down until the optimal location is found
- Avoids the need to weld a C-channel onto the pipe and so eliminates the potential for stress-induced weld failure and pipe cracking
- Provides the ability to use several different types of vibrators—rotary or linear, air or electric

The customer also discovered they could make other improvements to the dust flow by increasing the angle of the pipe and eliminating an elbow.

Conclusion

Pleased with the results, the customer purchased 14 of the new mounting units and installed them on all of their 12” dust pipes. Thanks to this improvement, the customer has virtually eliminated both the recurring blockages and the damage that the constant vibration had been causing to the pipes.