

Remote Monitoring of Mixer Gearboxes & Motors via Accelerometers

Accelerometers may be a benefit to remote monitoring systems.

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In the contemporary industrial landscape, the importance of predictive maintenance cannot be overstated. Companies are increasingly turning to advanced technologies to monitor the health of their machinery and prevent costly downtimes. Among these technologies, remote monitoring of mixer gearboxes and motors via accelerometers stands out as a particularly effective strategy. This article delves into the specifics of how accelerometer-based remote monitoring is transforming maintenance practices in industrial settings.

The Critical Role of Mixers in Industry

Mixers are indispensable in various industries, including pharmaceuticals, food processing, chemicals and construction. These machines, responsible for blending materials to precise

specifications, depend heavily on the flawless operation of their gearboxes and motors. Traditionally, maintaining these components involved scheduled inspections and reactive maintenance, a practice that often leads to unexpected breakdowns and financial losses. However, with the advent of remote monitoring, industries now have the tools to preemptively address potential issues, thereby enhancing operational efficiency and reliability.

How Accelerometer-Based Remote Monitoring Works

Accelerometers are sensors that measure the acceleration forces acting on an object. When installed on mixer gearboxes and motors, they can detect vibrations and movements, providing valuable data about the machine's condition. Here is a step-by-step breakdown of how this technology works in an industrial setting.

- 1. Sensor installation:** Accelerometers are strategically mounted on critical points of the mixer's gearboxes and motors, such as bearing housings and motor casings. Proper placement is crucial to ensure accurate data capture.
- 2. Data collection:** These sensors continuously collect vibration data, capturing changes in frequency, amplitude and velocity. This data reflects the operational state of the machinery, including normal functioning and potential issues.
- 3. Data transmission:** The collected data is transmitted to a central monitoring system. This can be done via wired connections or, increasingly, through wireless networks, which offer greater flexibility and ease of installation.
- 4. Data analysis:** Advanced software tools analyze the incoming data in real-time. By applying sophisticated



IMAGE 1: Powering efficiency in water and wastewater treatment with gearboxes (Images courtesy of Mills-Winfield)



IMAGE 2: Handling water and wastewater management with industrial mixers



IMAGE 3: Industrial gearboxes help improve the overall efficiency, reliability and cost-effectiveness of water and wastewater treatment operations.