TELEDYNE FLIR

APPLICATION SPOTLIGHT
Condition Monitoring in the Tire Industry

PUMPING UP EFFICIENCY IN TIRE MANUFACTURING: ACOUSTIC IMAGING CAMERAS FOR COMPRESSED AIR LEAKS

CHALLENGE

Tire manufacturing is a complex and intricate process, consisting of multiple stages such as chemical mixing, calendaring, extruding, bead making, tire building, and curing. These stages heavily depend on compressed air systems, which are crucial to the operation of tire manufacturing plants. Regrettably, air, steam, and gas leaks are prevalent in tire manufacturing process lines, where they contribute to increased expenses, energy waste, and production interruptions if left undetected.

SOLUTION

The FLIR Si124 acoustic imaging camera, an advanced ultrasonic solution for air leak detection, finds even minor leaks effortlessly and from a distance, making inspections safer to conduct. The lightweight, portable device is easy to use with only one hand and provides real-time leak size and cost estimates using AI-driven analytics, which make determining the urgency of repair actions easy.

The addition of FLIR Thermal Studio Suite desktop software can help tire companies gain a further advantage by integrating thermal and acoustic imaging in a single report. This dual functionality enhances maintenance decision-making while eliminating the need to learn multiple software platforms.

Furthermore, the complimentary FLIR Acoustic Camera Viewer web-based reporting software enables rapid image uploads via Wi-Fi for immediate analysis. This service provides users with valuable insights, such as the dimensions and energy costs of compressed air, enabling maintenance departments to prioritize repairs. In addition, the ingenious software generates ISO 50001-compatible reports that automatically present in-depth information on the problem and suggestion for how to proceed with repairs and maintenance.

RESULTS

Equipped with 124 microphones, the Si124 enables exceptional sensitivity and accuracy in finding even small leaks in noisy industrial settings, such as tire manufacturing plants.

Compressed air systems are used throughout the entire tire-making process and require regular inspections

Compressed air leak detection with FLIR Si124 acoustic imaging camera

By deploying the FLIR Si124 acoustic imaging camera, mills can locate pressurized leaks in compressed air systems up to 10 times faster than point scanning methods.

The FLIR Si124 can also save tire plants money. To estimate the potential energy a plant could save from detecting and repairing air leaks, in relation to the cost of the camera itself, the Si124-LD ROI Calculator can be used.

Additionally, the added benefits of report generation and cloud storage offered by the ultrasonic camera helps tire companies keep records of planned repairs and maintenance work for the tire plant machinery, ensuring cost-efficient operational continuity in the future.

The benefits of using an acoustic imaging camera for air leak detection in tire manufacturing include the following:

- Automatically detects leaks by the sound they emit, even in loud industrial environments.
- Allows for leak detection in a wide field of view and from an extended range, thanks to its 124 microphones.
- Locates leaks up to 10 times faster than traditional methods for greater efficiency.
- Analyzes leaks in real time, utilizing the processing power of its built-in AI.
- Saves up to 20–40% of all energy used for compressed air.
- Saves inspection time and costs.
- Provides safe and easy usage in industrial settings.
- Delivers ISO 50001-compatible reporting.

FLIR Si124 Acoustic Imaging Camera

FLIR Thermal Studio Suite with the Si-Series Plugin

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