

Predictive Maintenance: Ultrasonic Update

Written by Terry Wireman, C.P.M.M. Editorial Director
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Based on a fairly simple principle, this PdM tool has a number of valuable applications. It often can alert you to equipment problems well before other technologies can.



Terry Wireman, C.P.M.M. Editorial Director Ultrasonic tools are used primarily in leak detection, in determining the thickness of materials and in inspection of electrical equipment.

The principle of ultrasonics is simple. For example, when used for leak detection, the leak will emit a range of sonic signals. These sonic signals, when properly detected and measured, provide technicians with the severity and the location of the leak.

Leak detection applications

Common applications for ultrasonics in leak detection include pneumatic and other gas systems, vacuum systems, gaskets and seals and steam traps. Ultrasonics also can be used to detect value blow-through.

Since many small leaks are impossible to hear with the human ear, ultrasonics will allow technicians to detect very small leaks that will add up to significant losses over time. Any type of leak can be expensive, so using ultrasonics can achieve a quick return on investment in the detection equipment.

Material thickness applications

Ultrasonics also can be used to measure the thickness of materials. This is extremely useful in hazardous environments, where entry into the area is unsafe, unless time-consuming procedures are utilized. With ultrasonics, a sensor and transmitter can be employed to measure the signal and provide a thickness reading for the material. Pressure vessels, piping and tanks are all candidates for ultrasonic measurement.

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Electrical system applications

Ultrasonics also can be used in a variety of ways for electrical systems. Loose connections in junction boxes or on bus bars can be monitored for the sounds of arcing, which will be detected by the ultrasonic equipment long before other measuring devices pick them up. This techniques is useful in power distribution centers and motor control rooms.

Ultrasonics also is useful for monitoring electrical switchgear and overhead transmission lines, where routine inspections are time-consuming and hazardous. These areas are monitored for corona discharge. When the discharge is detected, the technicians can quickly find the problem with little wasted time or effort. Thus the technicians find the problems while they are small, before they can cause a failure and subsequent equipment downtime.

Are you looking for more information on ultrasonics? The vendors, distributors and contractors on the following page should be consulted for additional details. **MT**