

APPLICATION NOTE

7 money-saving tools for your team

While some assets fail due to aging, most fail at random. Routine maintenance with an array of test tools improves uptime and asset longevity, reduces energy waste, production line downtime cost, machinery replacement costs, and outsourcing to 3rd party contractors. With vibration, thermal imaging, and other test and measurement tools, your team nets more uptime.

In industrial and manufacturing environments, some 90% of the equipment are in the category of “rotating” machines, including motors, pumps, fans, compressors, blowers, gears, belts, and other components. Running machinery until failure, an all-to typical strategy, often results in lost production, expensive repairs, overtime, and forced purchases. Studies over 25 years have documented the savings that results from a vibration testing program. Indeed, the savings show a 20:1 benefit-to-cost ratio for vibration testing programs. If you spot early warnings of impending machine failure, your maintenance staff can schedule repairs before the problems extend to other parts of the machine or down the line. That improves equipment lifespan and return on assets (ROA). Here are seven Fluke tools to bolster your team’s problem-solving prowess, which can empower them to get to root cause faster, correct the fault, and return the machine to action.



The 810 Vibration Tester monitors an operational motor.

MAIN AREAS OF SAVINGS

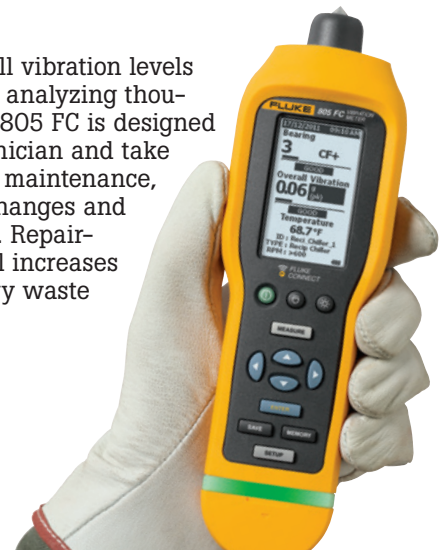
- Production line downtime costs
- Energy waste (overworked motors)
- Machinery replacement cost
- Maintenance and labor costs
- Outsourcing (3rd party consultants)

1

Fluke 805 FC Vibration Meter

The 805 FC enables technicians to confidently track bearing impacting, bearing health, overall vibration level, overall machine health, and bearing surface temperature. Its proprietary algorithm known as “Crest Factor Plus” identifies bearing flaws much earlier than simpler vibration meters, and the option to share the results with others in your maintenance team using Fluke Connect® or download the results to an Excel spreadsheet for tracking and trending. It’s a tool you can trust, as

its built-in database of overall vibration levels was developed from years of analyzing thousands of real machines. The 805 FC is designed to be used by any level technician and take readings during route-based maintenance, which can be screened for changes and potential problems over time. Repairing machines before they fail increases uptime while reducing energy waste and maintenance costs.



2

Fluke 810 Vibration Tester

Most rotating machine failures come from four common faults: imbalance, misalignment, bearings, and looseness. The 810 has an auto diagnostic program—based on 30 years of machine baselines analyzed by vibration experts from real machines—that helps your team return to work even faster. Extensive setup, trending, analysis and on-site experts are not needed. It is ideal for in-house vibration programs, as it diagnoses the problem without special expertise or years of training, saving money by finding faults before failure and lost production. Many customers feel that replacing bearings and other components is a part of maintenance but you could be losing thousands of dollars a year in replacement bearings, unnecessary preventative maintenance sessions, and repair time. Seeing early warnings of impending machine failure empowers maintenance staff with time to schedule repairs. Use the vibration tester to troubleshoot the root cause to fix the problem (misalignment) instead of fixing the symptom (bearings) again and again.



3

Fluke 830 Laser Shaft Alignment Tool

50% of damage to rotating machinery is directly related to misalignment – most customers ignore it and just replace the bearings, seals and couplings. Precision alignment can provide up to 65% reduction in seal repairs, up to 50% longer bearing life, and up to 10% reduction in energy waste. The 830 is essentially a kit that simplifies precision shaft alignment, as it does not require in-depth shaft alignment education to operate. It employs an intuitive guided user interface through the steps that walks the mechanic through the steps and performs complicated alignment calculations for your team. This means you'll have the answers you need to quickly align most (not just a few) of your machines and get your plant up and running fast.



Benefits of proactive maintenance

- **Safety.** Having information about machine health enables operators to take faulty equipment offline before a hazardous condition occurs.
- **Predictability.** Studies have shown that vibration testing and thermography can provide early warnings of impending machine failure, giving maintenance staff time to schedule required repairs and acquire needed parts. (One customer saved thousands a year on eliminating unneeded PM on one machine and no failures in over three years)
- **Revenue.** Well-maintained machines have fewer unexpected and serious failures, helping to prevent production stoppages that cut into the bottom line. (One customer increased annual production by four days, adding millions to the company's bottom line)
- **Increased maintenance intervals.** When machine health is being tracked, maintenance can be scheduled by need, not just by accumulated hours of operation. (One customer increased intervals by almost three years on hundreds of pumps)
- **Reliability.** Monitored machinery has fewer unexpected or catastrophic failures. (One customer reduced almost daily out-ages to near zero)
- **Cost savings.** Running machinery until failure often results in more expensive repairs, overtime, and forced purchases. (One customer dropped the annual maintenance budget on a large group of critical pumps in half – saving hundreds of thousands)
- **Peace of mind.** A better understanding of machine health builds confidence in maintenance schedules, budgeting, and productivity estimates.

4



Fluke 820-2 LED Stroboscope

The 820-2 LED Stroboscope can be used in a variety of industrial environments. This compact, rugged LED stroboscope lets teams inspect machines—including identifying the rotational speed of moving components, belt-driven machines like HVAC fans or pumps—without physical contact, halting production, or shutting down the line. When your technicians add this tool to their tool bag, they can apply it to hundreds of uses: observe work processes, control synchronization of components, find errors in manufacturing work process, control the movement of systems, check movements and vibrations, assess print quality, perform movement studies, and more.

5



Fluke Ti450 Infrared Camera

Technicians can use the thermal imaging capabilities of the handheld Ti450 Infrared Camera to discover and diagnose various issues, including cooling problems and impeded airflow, bearing issues on motors, and many mechanical problems. The Ti450 captures clear and accurate images with advanced focus technologies, helping technicians confidently diagnose potential causes of downtime.

6



Fluke TiS60 Infrared Camera

Fluke infrared cameras blend high quality visible light and infrared images using patented IR Fusion® technology to easily troubleshoot equipment. Using infrared inspection reduces the cost of maintenance, as efforts are directed to corrective measures. The TiS60, with its image blended capabilities, is an easy to use high performance infrared camera that helps your team avoid incorrect readings and quickly identify small surface temperature details that could indicate a big problem.

7

Fluke 438-II Power Quality and Motor Analyzer

The Fluke 438-II empowers technicians and engineers to discover energy savings opportunities. It helps maintain profitability by providing a streamlined, cost-effective method for troubleshooting power quality issues and measuring motor mechanical output performance. The tool eliminates the need for external mechanical sensors and costly downtime, analyzing motors while on-line. It minimizes the number of components and tools necessary to make critical maintenance decisions. The Fluke 438-II provides electrical power and mechanical measurements in one package. The data it collects can be viewed in real time locally on the instrument or via the Fluke Connect mobile app. Downloaded and recorded data may be accessed via PowerLog 430-II desktop software.



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