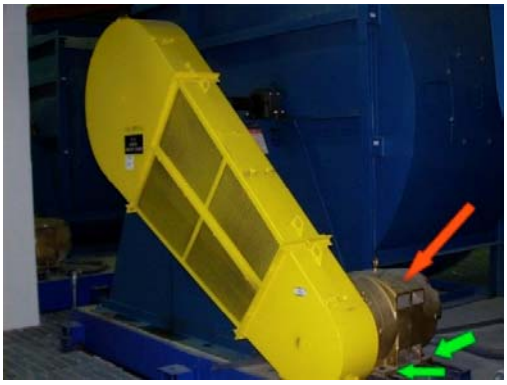
Machinery Reliability through Applied Technologies

Vibration Analysis pinpoints sources of machine imbalance, misalignment, and bearing problems.

The Problem Rotating equipment, such as pumps, motors, fans and compressors make up much of the population of critical components in a typical manufacturing environment. Inevitably, maintenance of these machines becomes a focal point of providing reliable and uninterrupted production capacity. Some organizations chose to develop maintenance departments where machine rebuilds, part replacement and frequent PMs are the norm. While this strategy can reduce downtime, there are still unexpected failures. And the overall cost for such a program can be quite high. Parts that are not broken are replaced on a time-based schedule, parts and whole machines are sometimes replaced, only to find the same failure occurring, and machines that had been running okay fail suddenly after being disturbed by a PM activity.

The Solution Progressive manufacturers are turning to the proven technologies that have aided maintenance managers in industries such as Aerospace and Power Generation to prevent failures and reduce maintenance and production costs. Condition-Based Maintenance has replaced the PM approach, and maintenance is performed only on those machines where diagnostic monitoring has indicated the early stages of equipment degradation. By not disturbing good running machines, the chance of introducing problems that could lead to failure is eliminated. Maintenance costs are lowered, and equipment reliability is increased.

A proven technology for monitoring rotating equipment is Vibration Analysis. Vibration Analysis uses transducer probes and analysis software to measure minute vibrations of equipment bearing locations, and gives an overall indication of machine health. Much like an electrocardiogram is used to monitor the rhythm of the heart (pump) and determine abnormal characteristics, the vibration spectrum reads like a health chart of a motor, fan or gearbox, and pinpoints the nature and root causes of any abnormal vibration.



Armed with that information, maintenance managers can make informed decisions about equipment repairs, and can ensure that machines that have been worked are being returned to production in peak operating condition. When a vibration analysis program is coupled with timely maintenance repairs and equipment condition improvement, it is common for the return on investment to be on the order of **6 times** the program cost.

To find out how to get a vibration analysis program established for your facility, contact Maintenance Reliability Group at 717-927-9721, and look at our website at http://www.mrgcorp.com for more case studies and examples of our capabilities.