

Maintenance 304

Mechanical equipment

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Overview

I thought PlantWeb was all about instruments and valves. How can it improve maintenance of pumps, motors, and other mechanical equipment?

Improving maintenance of mechanical equipment can significantly increase plant availability — and profits.

Most of the principles used to streamline valve and instrument maintenance using PlantWeb architecture with AMS Suite software also apply to mechanical-equipment maintenance.

This course outlines how **AMS Suite: Machinery Health Manager** and **AMS Suite: Equipment Performance Monitor** help streamline maintenance of mechanical equipment.

Hint: As you go through the topics in this course, watch for answers to these questions:

- *What is reliability-based maintenance?*
- *What diagnostic techniques aid in maintenance of rotating equipment?*
- *How do I get information about this equipment into my maintenance systems?*

Reliability-based maintenance

Reliability-based maintenance is a comprehensive strategy to cut costs by balancing preventive, predictive, and proactive maintenance. It identifies critical equipment assets, then uses monitoring and diagnostic technologies to reduce failures and increase availability.

Emerson offers a complete range of reliability-based maintenance solutions that include online and route-based equipment monitoring, data management, data analysis, and reporting for maintenance of electric motors, pumps, fans, compressors, turbines, gear boxes, and other mechanical equipment.

These solutions include AMS Machinery Health Manager, which supports predictive maintenance through diagnostic technologies such as vibration analysis, infrared thermography, oil analysis, ultrasonic scanning, and motor diagnostics. It also helps provide longer operational life through support for maintenance tools such as equipment balancing and laser alignment. Together, these technologies provide a complete picture of mechanical equipment health in a plant.

AMS Equipment Monitor complements these capabilities by providing Internet access to information on the operating performance of gas turbines, steam turbines, compressors, pumps, and other mechanical and process equipment. It provides early notification of deteriorating performance, enabling timely preventive and corrective action. It also helps determine *when* maintenance should be scheduled to extend run times and maximize throughput.

Data acquisition

AMS Machinery Manager enables users to "watch" all monitored equipment using permanently mounted and wired data acquisition sensors, or permanently or temporarily mounted wireless sensors with radio or infrared communications.

AMS Equipment Monitor uses mathematical models, including manufacturers' or acceptance data, to characterize how the equipment should perform. Process data is uploaded periodically, conditioned, and then applied to the calculation engine (the model) to generate performance indicators and provide monitoring results within a secure web browser.

By capturing essential information relating to key pieces of equipment and by managing that information, these software applications can warn you about deteriorating equipment condition — enabling you to establish a predictive maintenance environment so process reliability can be maximized.

Information integration

If you have multiple specialized systems for monitoring and diagnostics of different equipment types, you face the challenge of information integration — not just for record-keeping, but also for "bigger picture" analysis and diagnostics of related but different equipment.

For example, speed and bandwidth for machine monitoring are vastly different from what's needed for field-device monitoring. In addition, most machine monitoring is not done online.

The AMS Suite: Asset Portal application specifically addresses this information-integration challenge. AMS Asset Portal consolidates the flow of information from mechanical equipment, process equipment, instruments, and valves so that the right data – from active alerts to current and historical asset details -- is available to the right people at the right time.