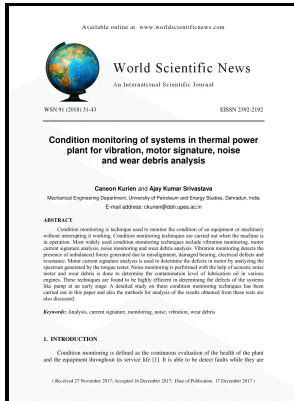


Vibration monitoring and diagnosis - techniques for cost-effective plant maintenance

G. Godwin - Ultrasonic: A New Method for Condition Monitoring

Description: -

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Aeronautics, Commercial -- Law and legislation -- United States.
United States -- Politics and government -- 1981-1989 -- Public opinion.
United States -- Religion -- Public opinion.
United States -- Moral conditions -- Public opinion.
Public opinion -- United States.
Gross national product -- Netherlands.
National income -- Netherlands.
Architecture, Domestic -- United States -- Designs and plans.
Architecture, Colonial -- United States -- Designs and plans.
Vibration. Vibration monitoring and diagnosis - techniques for cost-effective plant maintenance
-Vibration monitoring and diagnosis - techniques for cost-effective plant maintenance
Notes: Includes bibliographical references and index.
This edition was published in 1979



Filesize: 20.84 MB

Tags: #The #10 #Most #Important #Vibration #Analysis #Tips #You #Need #to #know

Benefits of vibration monitoringPLANT

By isolating the sound with the advantage of the shortwave nature of ultrasound, it is possible to listen to and view the sounds of these noisy valves in real time and to determine a leaking valve. The amount of required data depends on the complexity of the problem and similarity to previous use-cases.

Handbook of Condition Monitoring

This is mainly due to the fact that the stiffer the sensor, the higher its natural frequency of operation, which is why accelerometers are very stable in the higher frequency regions. Statistical process analysis — use of statistical techniques to identify deviations from the norm. The aim is to automate the data analysis previously undertaken by CM specialists.

Benefits of vibration monitoringPLANT

Particle count as part of a standard oil analysis is quite different from the wear particle analysis offered as a separate, specialized service see following section.

How monitoring advances are aiding maintenance today

Figure 3 shows the simple vibration relationship between velocity, acceleration and displacement over frequency. The wheel lathe drive wheel diameter was 215mm, giving a rotational speed of 148. Figure 13 shows the bearing outer ring raceway, where multiple areas of damage are present in the centre.

How monitoring advances are aiding maintenance today

Hence, the proper trending of measured vibration data is of immense value when trying to discover sharp deviations from the normal operating conditions of machines — which could be due to improper maintenance activities e. Since the mass of the rolling elements is generally small

compared to that of the machine the velocities generated are generally small and result in even smaller movements of the bearing housing, making it difficult for the vibration sensor to detect. Secondary, the analyzer calculates all predefined parameters and then stores this signal.

Benefits of vibration monitoringPLANT

Depending on the particular machine, these gear mesh frequencies can range from 100 Hz to over 10,000 Hz.

Handbook of Condition Monitoring

Not only the bearing itself but also the quality of the associated components can also affect bearing vibration, and any geometrical errors on the outside diameter of the shaft or bore of the housing can be reflected on the bearing raceways with the associated increase in vibration.

How monitoring advances are aiding maintenance today

It is not necessary to take readings of the bearing from several points of contact along different axes and send the readings away for analysis. The more complex equipment, the more failure modes it can have.

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