Overview

Applications

The Smart Watch Vibration Monitoring System is designed to help determine when Yankee assets are at risk and to address machine and process issues earlier. High vibration will result in reduced asset life including potential surface damage incurred by the Yankee with accelerated blade wear, unwanted or unscheduled downtime, and product quality issues.

Features

- Vibration sensors
- Multi-channel acquisition unit
- PC with software configured for the application

Benefits

- Monitor the condition of the tissue machine
- Guide blade changes
- Avoid Yankee damage and learn when it may occur
- Understand influence of process parameters (coating/drying) on the vibration

Measurements

The frequency range of Yankee doctor vibration includes low to high frequency, nominally between 0 to 20,000 Hz. The lower range, below 1,000 Hz, includes impacts from the Yankee dryer suction pressure roll, Yankee drive, doctorback natural frequencies, and felt pass. Higher ranges are dominated by blade tip interaction with the Yankee surface and invoke higher order modes of the blade and holder.

Measurement features

- Frequency spectrum
- Time waveform
- Impact measurements
- Virtual measurements

The Smart Watch Vibration Monitoring System software is simple to launch. An illustration of a typical screen display is shown on the left. As the Smart Watch Vibration Monitoring System processes vibration signals, a table of vibration measurements at each of the four doctor locations is updated. Each entry shows the measurement value and the status of the vibration level which is indicated by color. Green is acceptable, yellow is alert, and red is alarm. An illustration of a creping doctor is shown on the right.
A complete measurement group is created for an application. A measurement trend plot can be viewed by clicking on a measurement within the expanded group. The trend plot on the left shows time waveform measurement within a measurement group. The time waveform measurement on the right indicates the syphon header condition. Green shading is soon after a blade change. Blue shading is just before a blade change.

Expand the vibration monitoring region
The Kadant Smart Watch Vibration Monitoring System can be expanded to include vibration of other assets around the Yankee including the cutoff doctor, SPR bearing and drive, Yankee bearing and drive, and doctor CD oscillation influences.