

**HAVER & BOECKER**



NIAGARA

## **PULSE DIAGNOSTICS**



# PULSE DIAGNOSTICS

## WHAT ARE PULSE DIAGNOSTICS?

Pulse diagnostic tools have been engineered to optimize the health of vibrating screens — regardless of the brand. Each system detects irregularities that could translate into diminished performance, decreased efficiency, increased operating costs and imminent breakdowns.



## WHAT MAKES PULSE DIFFERENT?

While there are other options on the market, the data points analyzed by Pulse diagnostics are specific to vibrating screens to provide producers with better insight into their operation. This allows any pain points to be addressed before they cause unplanned downtime or catastrophic failure.

## HOW DOES PULSE WORK?

Pulse helps you achieve production targets, minimize unscheduled downtime, and demonstrate sustainable improvements through online asset management.



## PULSE IMPACT TEST



The Pulse Impact Test ensures each machine is properly calibrated to avoid operating in resonance for efficient

operation. Operating in resonance can diminish productivity, incur damage to vibrating screens and pose safety risks.

### HOW DOES IT WORK?

1. Pulse sensors are placed on the vibrating screen in key locations prior to testing.
2. Impact testing involves striking the machine at key points with a dead blow hammer while the machine is off.
3. Collected data is analyzed to identify the machine's individual natural frequency. Based on results, engineers can adjust machine parameters to avoid resonance during operation.
4. Integration into the Pulse software provides opportunities for easier on-site impact testing. Natural frequency can shift over time as components are repaired or replaced, resulting in irregularities.

## PULSE VIBRATION ANALYSIS



Pulse Vibration Analysis (Pulse VA) is designed to capture a moment in time in a vibrating screen's performance, so

that it can be compared to the machine's past performance as well as OEM specifications.

### HOW DOES IT WORK?

1. Pulse VA wireless sensors are placed at dedicated positions on the body of the vibrating screen.
2. The sensors measure the speed, stroke and amplitude of the machine.
3. A service technician completes a vibrating screen inspection.
4. A Pulse Diagnostic Report is then generated, complete with the technician's recommendations.
5. The Pulse Diagnostic Report is available in the Pulse Web Portal, where users can access each vibrating screen's service and performance history.

## PULSE CONDITION MONITORING



Pulse Condition Monitoring (Pulse CM) is the next level in the Pulse portfolio, accompanying Pulse VA. Similar to Pulse

VA, the Pulse CM system analyzes data to help ensure the health of the vibrating screen. Unlike Pulse VA, Pulse CM uses permanently installed sensors to monitor your equipment 24/7.

### HOW DOES IT WORK?

1. Pulse CM wireless bearing sensors and screen body sensors are installed at dedicated positions on the body and bearings of the vibrating screen.
2. The bearing sensors acquire data every minute, while the screen body sensors acquire data every five minutes.
3. The bearing sensors monitor RMS acceleration and velocity on the X, Y and Z axes, temperature, power bands, peak-to-peak acceleration and crest factor.
4. The screen body sensors monitor acceleration and displacement on the X, Y and Z axes, global acceleration and amplitude, frequency and orbit motion.
5. All data is saved to the web-based application.

## WHAT PROBLEMS CAN PULSE HELP TO SOLVE?

- Machine Balancing
  - Structural
  - Vibrating Behavior
- Resonance
  - Bearings
- Feeding
  - Trends

## CHOOSING BETWEEN PULSE VIBRATION ANALYSIS AND PULSE CONDITION MONITORING

When implementing a diagnostic tool, there are key considerations to keep in mind to determine which option offers the monitoring information required.

PULSE VIBRATION ANALYSIS	PULSE CONDITION MONITORING
Measures momentary machine condition	Continuous monitoring
Troubleshooting	Trending as a main focus
Periodic testing	Bearing condition monitoring
Impact test	Customized alarm settings

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