

DAMAGE MONITOR

mining shovel

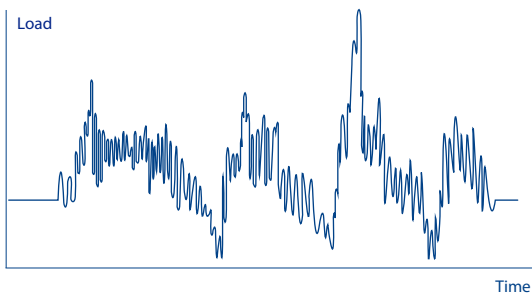
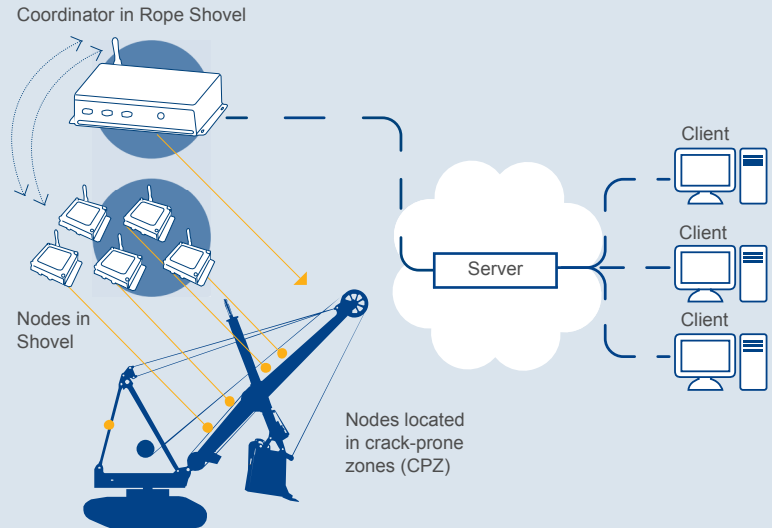


► **Damage Monitor - MS** is a real-time operational condition supervisory system for electromechanical shovels, which logs the structural damage by fatigue due to fluctuating loads.

The system captures, for each crack-prone zone (CPZ), the structure's strain when subjected to real loads. For each CPZ a Damage Monitor node is installed, which calculates damage by fatigue in real time based on measured strain and a finite element model.

When the stress magnitude and/or damage accumulation rate exceed the user defined limits, the Damage Monitor MS system generates an alert indicating the severity of the condition detected.

This tool, for structural integrity management allows to evaluate the effect of the conditions and operational practices, as well as to plan the structure's inspection, repair and part replacement procedures.



Fluctuating loads in Rope Shovels



Damage Monitor Node



Finite element model

Features and benefits:

- Logs the structure's real stress and generated fatigue damage.
- Measures how operational conditions affect the structure.
- Identifies good and bad operational practices.
- It's possible to increase the number of monitoring nodes.
- It's possible to securely access the data from the Internet or clients private network.
- Detects structural and assembling failures.
- Doesn't require structural modification for the installation.
- Avoids catastrophic failures.
- Predicts the need for structure's inspection, repair and part replacement procedures.