

# ToothMetrics™

An Automatic Missing Tooth/Adapter Detection System



Detect missing shovel teeth



Prevent teeth from reaching the crusher



Compatible with hydraulic and rope shovels



A missing tooth caught on Apr. 12, 2011

## AUTOMATIC MISSING TOOTH DETECTION

Missing shovel teeth that go undetected can get stuck in a crusher or processing plant resulting in significant production downtime and possible damage to the equipment. The ToothMetrics™ solution uses a rugged camera system and custom-designed image processing and artificial intelligence algorithms to constantly monitor the status of each tooth on the shovel bucket or dipper and alerts the equipment operator when the system decides a tooth is missing. A real-time view of the shovel bucket is displayed on a rugged, touch-screen LCD monitor to allow visual confirmation of the missing tooth by the shovel operator.

## REDUCING DOWNTIME AND INCREASING PRODUCTIVITY

When a broken tooth is jammed in a crusher, the crusher can be out-of-service for hours or days at a time causing unexpected interruptions to production. ToothMetrics™ detects when a tooth is missing and alerts the shovel operator, thus, preventing the tooth from reaching the crusher and reducing production downtime.

## ACCIDENT PREVENTION

Removing a jammed tooth from a crusher is a very dangerous procedure and can lead to injuries and fatalities if not performed properly. There have been incidents where the tooth has flown out of the crusher, due to the immense pressure, damaging nearby equipment and injuring personnel. Broken teeth are a serious safety concern and everything possible should be done to prevent the broken teeth from reaching the crusher.

## PROVEN RELIABILITY

The ToothMetrics™ system has been designed to the highest shock and vibration standards and has proven its reliability in over 30 mines all over the world, in all types of mining environments, and on all types of mining shovels including P&H, Bucyrus, and various hydraulic shovels. A shock-mounted, high-intensity LED flood light is used to maintain optimal performance during night time operation.



ToothMetrics™ System

[www.MotionMetrics.com](http://www.MotionMetrics.com)

Advanced Monitoring Systems for Open-Pit Mining