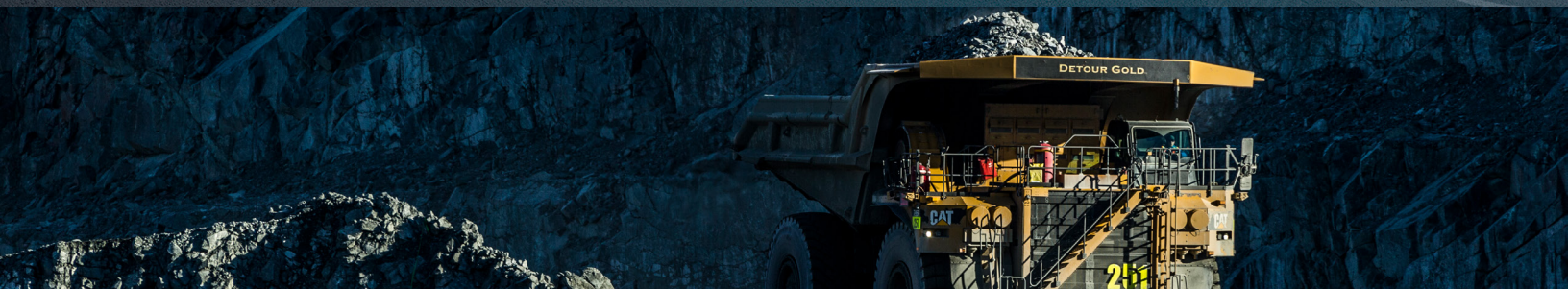




MINESTAR PAYLOAD — OPTIMIZED PAYLOAD. EMPOWERED OPERATORS. GREATER PRODUCTIVITY.



Poor shovel utilization has a direct impact on mine production. Truck overloads result in higher maintenance costs, premature tire failure and rejected truck loads. Excess fatigue damage to shovel structures causes an increase in maintenance costs and downtime. The end result of these activities is significant production losses over time.

Payload is a new Cat® MineStar™ Solutions offering that optimizes shovel productivity by giving personnel the insights they need to help loader operators work more efficiently — increasing productivity of the loading operation and lowering overall costs.

In addition to a payload system that provides consistent measuring to all trucks, Payload provides structural health and production monitoring solutions.

MineStar Payload, a solution for electric rope shovels and draglines, delivers:

- Proven payload accuracy
- Optimum truck loading
- Machine positioning and mine plan compliance
- Reliable diggability tracking
- Quick and easy calibration
- Dispatch integration
- Continuous performance feedback

Compared to competitive solutions, Payload delivers a faster return on investment and is more consistent about 95% of the time. It features state-of-the-art graphics and can be fully integrated with the MineStar Terrain for loading solution.

KEY FEATURES

Payload

Payload functionality is a load-cell-based solution that provides a superior alternative to truck-based payload systems.

- Delivers the highest accuracy — within 5%, 95% of the time
- Includes carryback in the payload calculation, which significantly reduces errors
- Provides fast payload value stabilization
- Requires less overall maintenance
- Measures payload site-wide, regardless of equipment manufacturer

Diggability

Payload's diggability calculation provides feedback on the effectiveness of the drill-and-blast operation. This is calculated via real-time analysis of the dig stress to provide a diggability index.

- Lowers variability in fragmentation, enabling higher productivity
- Provides direct feedback on digging conditions
- Enables optimization to drill-and-blast operations

Health Monitoring

Payload's health monitoring feature optimizes structural life through a strain-gauge-based solution. A "flight data recorder" captures events about every 10 seconds. The system is triggered by pre-programmed events and provides operator views recorded with machine conditions overlaid. An optional smart camera is available.



Highly accurate

Operations using Payload experience a consistent payload across the truck fleet regardless of brand and model. The system has a higher average consistency in measurement — 95% consistent to within 5% of scale — for better management of material movement. This accuracy and consistency are common to both draglines and electric rope shovels.

Optimizes structural life

Payload incorporates strategically placed strain gauges to monitor and record the stress to which main structures are exposed. The events are logged to monitor the cumulative impact they have on these structures. They're also displayed in the operator's dashboard to guide them in the use of best practices that optimize structural life. Continuous monitoring of extreme events allows the mine to regulate maintenance intervals and maximize shovel availability.

Proven and supported

While Payload is a new offering from Caterpillar, the solution is the result of an acquisition of Intellectual Property for BMT's Pulse Terra Metrix (PTM) systems for both electric rope shovels and dragline systems. Similar to all other Cat products, Payload is supported by the global Cat dealer network and comes with a robust training and support program.

EMPOWERING OPERATORS WITH ACCURATE, CONSISTENT PAYLOAD DATA

Payload provides accurate real-time indication of dipper and truck payload, which empowers operators to optimize truck loads and consistently achieve targets with fewer overloads. State-of-the-art graphics display this important data directly to the in-cab dashboard, giving operators the information they need to perform efficiently, effectively and productively. This information also helps ensure their activities are not negatively impacting structural life.

The solution offers operator log-on capability and delay code functionality if not already provided by the truck fleet dispatch system.

Key KPIs available in the dashboard display include:

- Payload statistics: average pass load, truck load and number of passes per truck
- Cycle times and cycle component times: dig, swing, dump, return, waiting, delay, propel and shovel-down time
- Swing angles
- Accurate shovel time usage and utilization tracking
- Diggability calculation and analysis
- Cumulative fatigue damage and equivalent stress range calculations identifying operator practice or changing digging/blasting conditions
- Accurate discard load identification and discard load tonnage

For more information, visit www.cat.com/minestar or contact your local dealer.