



ENHANCING DRILL HOLE SURVEY ACCURACY AND BLAST RESULTS WITH SLIMGYRO AT BYRNECUT



MINE/PROJECT LOCATION:

Otjikoto Mine, Namibia

CLIENT:

ByrneCut

ORE TYPE:

Gold

PROJECT YEAR:

2023



PROJECT OBJECTIVE:

To assess and rectify deviations between planned and actual blast ring drillhole orientations by integrating high-precision down-hole survey technology.

CHALLENGES FACED:

- Drill Hole Deviation: Subtle deviations in borehole trajectories were going undetected using conventional tools, causing cumulative drilling inaccuracies.
- Inefficient Blasting: Inaccurate borehole data led to poor blast fragmentation and frequent misfires.
- Increased Rework: Inconsistent surveys required additional drilling, re-surveying, and processing time.
- Operational Delays and Costs: Manual data processing and tool inefficiencies contributed to extended timelines and elevated costs.

SOLUTION IMPLEMENTED:

In late 2023, ByrneCut adopted the SlimGyro, a compact (25 mm diameter), IP67-rated, non-magnetic gyroscopic survey tool designed for both up-hole and down-hole applications in complex underground environments.

RESULTS ACHIEVED:

- Improved Survey Accuracy: Azimuth and inclination accuracy increased to $\pm 0.1^\circ$. Drill hole deviation errors reduced by over 35%.
- Enhanced Blast Outcomes: Improved convergence, 15% better particle size distribution, reduced misfires and unbroken toes.
- Increased Operational Efficiency: Surveying time per hole reduced by 40%. Rework decreased by 25%.
- Greater Data Confidence: Enabled tighter blast tolerances and more predictable outcomes, reducing crusher wear.

HIGHLIGHTS:

- ✓ Integrated into standard drill-and-blast workflows.
- ✓ Lightweight fiber reel allowed for efficient deployment and retrieval.
- ✓ Eliminated need for heavy rod assemblies used in legacy systems.
- ✓ Simple to learn and operate, facilitating quick operator adoption.

CONCLUSION:

The deployment of SlimGyro has transformed ByrneCut's underground drilling operations by delivering enhanced accuracy, reduced operational rework, and improved blast quality and safety.