Hexagon precision for safer, more productive mines

Digital transformation has helped to increase production and efficiency levels within the global mining industry. The focus on tons mined and trucks running is shifting to the next question: How do we mine safer and more efficiently? Hexagon's Mining division is helping mines to address this question with its high-precision guidance solutions.

In many mines, surveyors risk dangerous conditions to mark ore boundaries, patterns, and special dozer projects. Operators must keep daily logs of work completed during their shift, hoping to avoid errors. It can be hard to keep track of assigned tasks with handwritten logs.

As a result, numerous hours of rework are sometimes necessary to ensure level benches. High-grade material can end up at the

wrong dump location. And poorly constructed roads, dumps, and ramps cause extra wear and tear on haulage equipment.

Hexagon created HxGN MineOperate OP Pro HP to help. MineOperate OP Pro HP is a high-precision guidance solution providing centimeter-precision for drills, dozers, and loading equipment.

OP Pro HP's drill functionality improves fleet production and efficiency by ensuring data accuracy and continuance by automating the entire drilling process. Through sensors and integrations, OP Pro HP automatically cycles from one action to the next, providing a true account of all drilling activities.

It saves money, increases drilling production, and improves

fragmentation by empowering operators to drill to the right position and elevation the first time, every time.

A customer in the Dominican Republic used the solution to achieve the following:
- Reduced over-drilling time by 4%,
- Reduced OPEX-related drilling costs by 28% (over $60 per hour in savings)
- Increased drilling time by 18%
- Improved fragmentation

For dozers, OP Pro HP provides centimetre accuracy for blade, vertical and horizontal cut/fill guides, and support for multiple surfaces. Operators can minimize rework while increasing speed and accuracy. Engineering teams can use the solution to remotely load project files, which provides operators clear

instructions to get the job done. Advanced features include on-the-fly ramp, benches, and road project creations with the ability to set slope, cross-slope, and/or offset centerlines for guidance.

OP Pro HP is the only solution on the market providing production and construction functionality for shovels. It's fully integrated with MineOperate's OP Pro fleet management suite and enables loading equipment to improve bench elevations, reduce dilution, and decrease rework.

Using high-precision guidance, loading equipment operators can detect the material polygon and track elevation without the need of survey or a spotter. This increases the productivity of the fleet and the accuracy of the shovel operator. Operations can report material movement and ensure that the quality of material leaving the mine matches the mine plan.

Besides material recognition and elevation reassurance, OP Pro HP provides the shovel operator with to-the-teeth precision for bucket position. This allows the mine to record actual bucket digging positions and the ability to project high wall toe and crest lines.

Operations can export the dig points and toe/crest lines, so the data is loaded to the mine planning software. Mine planners can update their day-to-day plans after accounting for what occurred in the pit the day before, thus closing the feedback loop.

OP Pro HP is also integrated with Hexagon's HxGN MineProtect safety portfolio, providing mine operations with a one-stop shop for all reporting needs. It delivers accuracy and instantaneous feedback, meaning improved loading times across the fleet, less misrouted material, fewer hours of rework on ramps, roads, and benches, and fewer over- and under-drilled holes. It can improve the quality of material produced and enhance fragmentation with precise drillhole placement and depth.