



PRODUCTS TO SHAPE SMART CHANGE



MINE OPERATIONS

INTEGRATED FLEET MANAGEMENT, PRODUCTION OPTIMIZATION, GPS GUIDANCE AND AUTONOMOUS CONTROL SOLUTIONS

Leica Jigsaw Jfleet FMS, including guidance systems Jtruck, Jdozer, Jshovel, Jdrill, Jaux (Auxiliary Machine Guidance), and JsUPER (Supervisor Guidance)

The Leica Jigsaw Fleet Management System (Jfleet) operates on a distributed database architecture to provide comprehensive fleet management and production optimization. It's a highly intelligent system that is not reliant on a central server, meaning each machine automatically tracks and logs its own current activity, position, and status, so no data is ever lost.



Compared side-by-side with other systems, we had good results with Jigsaw. From that real-time monitoring, you can standardize your mine, which will allow you to standardize repetitive tasks, your future KPIs; it'll allow you to establish what it is you want to achieve in your mine.

**- Ali Yaguas, FMS coordinator
Barrick Gold's Pueblo Viejo mine
Dominican Republic**

JTRUCK

Jtruck monitors the entire haul cycle for maximized efficiency and minimized down time.

JDOZER

Jdozer focuses on the surrounding work area, accurately captures all production time, (including maintenance and delays) and enables the management of operator tasks and activities for wheel and track dozers.

JSHOVEL

For loaders, excavators and shovels, Jshovel is developed specifically to emphasize production optimization by drastically increasing shovel throughput and enabling real-time truck payload.

JDRILL

Jdrill is a production monitoring system that updates pattern progress on the fly, with real-time operator feedback, production monitoring, consumables tracking, and more.

JAUX

Jaux can be implemented across fleet vehicles and a range of auxiliary assets. It provides real-time display of hazards and spillages, offering automatic “best path” routes.

JSUPER

Jsuper transforms data into knowledge, allowing supervisors to see the real-time position of all machines across the entire fleet.

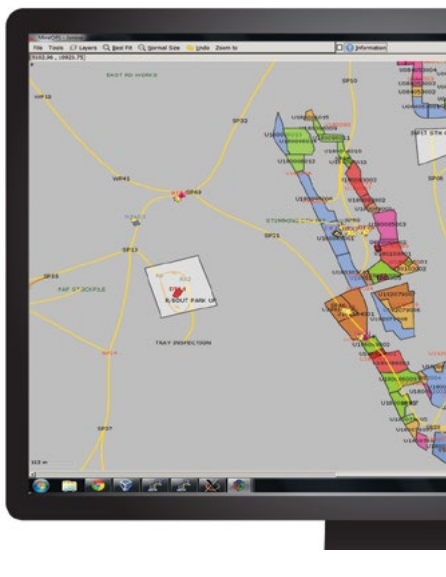
JSOFTWARE

Integrates the Leica Jigsaw solution into a single, powerful reporting system. Jsoftware’s real-time data collection and interchangeable modules deliver the information you need promptly and efficiently. Jsoftware includes Jmineops for fleet management, Joptimizer for optimized dispatching, Jblend for material blending, and Jforecaster for scenario modeling.

JMINEOPS

Jmineops is the software at the heart of the Leica Jigsaw solution. Jmineops is an OEM independent, universal software platform that seamlessly integrates all aspects of mining operations, enabling the configuration and control of your entire fleet. Dispatchers are provided with an interactive mine map that offers visibility on vehicle position, status and alarms. The dispatcher can control what’s happening in the pit and produce accurate data, whether it’s time based information, where the material is being extracted, where it gets dumped, who’s operating the equipment, how fast operators are traveling or the status of the engine. This software solution provides dispatchers with all the information they need to ensure daily operations are efficient and to plan.





JOPTIMIZER

Joptimizer provides precise optimization of all assets via dynamic allocation algorithm.

JBLEND

Jblend is an optional Joptimizer function, allowing for optimized blending of material feed.

JFORECASTER

Jforecaster predicts different productivity scenarios to create a dispatch engineer's tool for the investigation of tactical planning changes and their impact on production.



Leica Jigsaw presented the strongest technical offering, with its flexible and robust software all supported with remote problem solving. So, as far as navigational systems, Leica Jigsaw products are the leader in the field. Therefore, the solutions for the satellite navigation in the high-precision products are the most advanced in the market. This was a decisive part for us.

**- Victor Rodriguez, Dispatch Manager
Cobre del Mayo**



Leica J²guidance is the high-precision guidance solution for dozers, drills, shovels, and draglines. Leica J²guidance delivers high-precision guidance for precise navigation that is seamlessly integrated with the Leica fleet management system, Jfleet.

LEICA J²SHOVEL

Leica J²shovel is a high precision GPS navigation system for loaders, excavators, and shovels. With accurate navigation (to the bucket teeth) J²shovel improves bench elevation control, reduces dilution and decreases labor and rework.

LEICA J²DOZER

Leica J²dozer optimizes productivity by providing operators with an easy-to-visualize design plan and instantaneous feedback on a range of parameters. J²dozer eliminates the need for grade staking and survey crew; reduces machine hours by reducing re-handle, and minimizes operation costs.

LEICA J²DRILL

Leica J²drill can measure what the human eye can't, enabling operators to drill accurately in the right position and to the correct RL the first time, every time.

LEICA J²DRAGLINE

Leica J²dragline provides three-dimensional, high-precision navigation for less re-handling, less stripping

and more coal. It seamlessly integrates with the Jfleet, fleet management solution.

Optimize production and improve work-flow with Leica Jassist modules - specifically designed to extend the capability of existing mine management applications, including fleet management and high precision guidance.

LEICA JIGSAW POSITIONING SYSTEM (JPS)

The Leica Jigsaw Positioning System (Jps) is powered by the revolutionary Locata technology. Jps is the world's first and only fully non-GPS-reliant alternative positioning network. It can augment GPS or work as a standalone solution.

LEICA JASSET

Leica Jasset monitors all of a mine's assets to ensure efficiency and increased operational productivity. Leica Jasset is designed to track the location and important operational parameters of each asset - light vehicles, fixed and semi-mobile assets such as generators, lighting plants, water pumps, portable toilets, communication trailers and more.



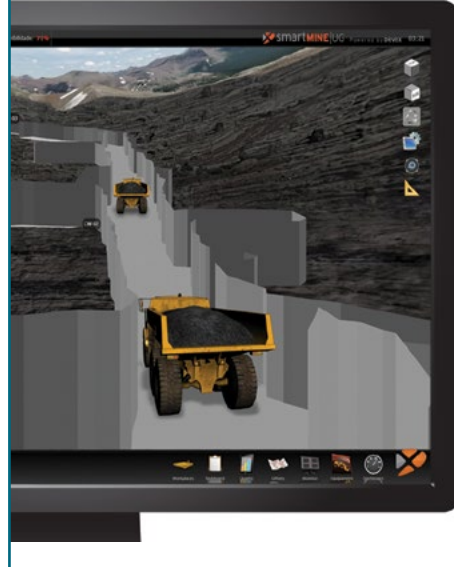
UG MINE OPERATIONS

THE UNDERGROUND SOLUTION FOR FLEET AND PRODUCTION OPTIMIZATION, PROCESS AUTOMATION, MACHINE MAINTENANCE, BUSINESS INTELLIGENCE AND ANALYTICS, AND AUTONOMOUS CONTROL



SMARTMINE UG

Developed after four years of collaboration with AngloGold Ashanti Brazil's Lamego Mine in Minas Gerais, SmartMine UG was unveiled in 2014. SmartMine UG addresses underground essentials, such as process control logic, data communication challenges, safety standards, and environmental issues. Enjoy complete and centralized mine management in 3D and in real time. The versatile system is configured to meet mine necessities, and can be adapted to address unique conditions.



Today, SmartMine UG allows us to control our fleet. We know what activity an operator is executing, where he is located and people are getting feedback for that activity, which is practically in real-time.

**-Renato Castro, General Operations Manager
AngloGold Ashanti**

GLOBAL COVERAGE



A TRADITION OF INNOVATION

Fluctuations in mining are guaranteed. Hexagon Mining aims to be the industry's other, more positive constant, the dependable foundation on which mines can build productive futures. Integration and automation across the entire mining chain are the goal. Representing more than 100 years of innovation and experience, the company has all the ingredients necessary to realize that goal. And with it, the digital mine of the future.

Driven by professionals for professionals, our solutions are tailored to your needs and delivered on your terms – short term, long term, for the life of your mine.

Hexagon Mining is part of Hexagon (Nasdaq Stockholm: HEXA B; www.hexagon.com), a leading global provider of information technologies that drive quality and productivity improvements across geospatial and industrial enterprise applications.

For more information, visit;

➤ hexagonmining.com

🐦 [@HexagonMining](https://twitter.com/HexagonMining)

✉ contactus@hexagonmining.com

