



Drilling Down

Autonomous mining pioneer reaches new heights in reliability and accuracy





Safety, efficiency and reliability form the bedrock of any successful mining operator and the companies that support them. Flanders Inc., which was founded in 1947 and specializes in electric rotating machines to provide solutions for mining, mills and heavy industry, is no exception. This industry leader is renowned for creating the automation system for mining drills that runs the world's first fully autonomous angle drill fleet.

Flanders' autonomous drilling solution, **ARDVARC**[®], drives reliability, safety and productivity in the field by arming customers with precise positioning that improves safety in mining, a rugged work environment where precise positioning is not just a luxury, but a necessity. By partnering with Trimble[®] four years ago and adopting positioning services with the highest level of GNSS accuracy, Flanders' customers have been able to drill down to centimeter-level accuracy, resulting in improved safety and operational efficiencies.

New solution addresses challenge of reduced accuracy and integration headaches

Prior to incorporating Trimble's positioning solution, Flanders used a number of GNSS providers, allowing their customers the choice of which to use in an attempt to achieve the most accurate corrections for each case. The biggest challenge with these solutions surfaced when working to integrate Flanders' products with the client's GNSS and precise positioning systems.

"By not integrating correctly with the client's current precise positioning systems, we were unable to take full advantage of all constellations, which can result in decreased accuracy and reliability of the GNSS system", says Joshua Goodwin, the director of Flanders' Autonomous Center of Excellence.

Threats of decreased productivity, loss of accuracy and extended troubleshooting

downtime drove the need for easier system integration and a more rugged system that could withstand harsh environments and remote drilling locations worldwide.





Where drilling meets precision: the mother lode

With more than 245 drills running the ARDVARC autonomous solution alone, Flanders needed a reliable partner to secure accuracy and productivity. The harsh work conditions of this industry pose an additional difficulty to GNSS accuracy, but Trimble was up for the challenge.

In order to meet the customer need of increased accuracy through utilization of more constellations, the **Trimble BX992 receiver** and **Trimble Zephyr™3 rugged antennas** were added to their offerings. With these products on board, Flanders is able to meet the strict position criteria related to northing, easting and elevation.

The Trimble receiver and antenna combination was also easily integrated with the drilling equipment, decreasing downtime and eliminating the need for other third-party solutions. "After integrating Trimble into our system from a client request, we found that there were a number of benefits around reliability and ease of configuration and integration," says Goodwin.

By choosing Trimble BX992, Flanders was able to provide their customers with one precise positioning solutions that that took the level of accuracy from **10 cm down to an average of 2 cm.**

Striking it rich

With improved integration, Flanders spends less time managing customer difficulties and more time developing cutting-edge technologies. Having one solution to rely on further solidifies customer's trust in the brand and in the performance they have grown to expect. The ROI speaks for itself: Customers achieve 30% productivity gains with Flanders' full automation solution, compared to manual drilling. It also enables one person to operate eight drills.

www.flandersinc.com/machines/drills/

By standardizing on Trimble's solutions, the reliability of their GNSS offering has increased, reducing the number of inaccurate instances that occur. This combination of reliable precise positioning solutions and precise positioning improves safety in the mine and establishes a drilling and precision product duo that customers have learned to trust and respect.

In addition, Flanders' customers have been reaping the benefits of Trimble's IonoGuard™ technology, which mitigates ionospheric disturbances. Given that solar activity peaks every 11 years with the next maximum predicted in 2025, many companies are turning to this solution. Such solar activity can delay and alter the stability of GNSS signals, having a negative impact on precision positioning. IonoGuard enables customers to operate around the clock, especially around equatorial and high-latitude regions.

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