



HEXAGON

## Azimuth Aligner

Case Study



Underground



### Customer

Styrud Arctic (SA) is a renowned European drilling contractor working for state-owned LKAB Mining in Sweden. LKAB's Kiruna mine is the world's largest underground iron ore mine, located in some of the most challenging conditions on the planet—some 400 miles north of the Arctic Circle.

### Challenge

The orebody at Kiruna is one of the largest in the world, stretching 4 kilometres long, 80 metres wide and at least 2,000 metres deep. Underground mining at great depths is cost-intensive, so for the resource to be economically viable, efficient mining methods and processes below ground are especially crucial.

The Kiruna operation covers mining and processing of iron ore products with focus on increasing production, lowering expenses, minimising environmental impacts and ensuring safe and stable processes. However, due to the mine's close proximity to the North Pole, high magnetism coupled with freezing cold temperatures meant that SA had historically found it extremely difficult to gain accurate readings from traditional gyroscopic-based rig alignment measurement devices. The lack of reliable drill alignment techniques, together with the overall size of the mine (over 330km of underground roads), meant that rig down-time was unacceptably long whenever holes had to be re-located. Surveyors were not able to arrive on-site for between 3 and 5 hours to recalibrate the rigs. Meanwhile, the mine was forced to wait overtime for core samples, leading to delays further down the track into production.

### Solution

Hexagon's Azimuth Aligner is the most accurate drill alignment technology in the world ( $\pm 2^\circ$ ). Hexagon engineers joined a team of skeptical SA geologists and travelled to the most magnetic parts of the mine to survey the Azimuth Aligner's accuracy.

Initial drill rig setups were completed in just five minutes, with no assistance required from surveyors—all thanks to the Azimuth Aligner.



**The Azimuth Aligner saved us a lot of time. It performed exactly as promised, which is not always the case with equipment suppliers!"**

Joakim Kemi, CEO/Managing Director, Styrud Arctic



## Results

With setup achieved in minutes and with the reassurance of achieving minimal deviation from the drill plan, the threat of extended down-time was eliminated, and the gains for Styrud Arctic have been dramatic. The Azimuth Aligner immediately helped increase metres drilled per shift, resulting in higher average revenue per operating rig and increased profitability to Styrud Arctic. It also delivered a lower cost per drilled metre to their end client, at a faster turnaround, resulting in efficient resource utilisation for the mine, including downstream processing, personnel and logistics.

In summary, the Azimuth Aligner has delivered a significant bottom line increase for both the contractor and their end client.

IN EVERY SITUATION THE AZIMUTH ALIGNER PERFORMED BETTER THAN EXPECTED – PROVIDING THE MOST ACCURATE DOWNHOLE ALIGNMENTS EVER RECORDED AT THE MINE, DESPITE THE HIGHLY CHALLENGING CONDITIONS.

REDUCED RELIANCE ON SURVEYORS

DECREASED OVERHEAD COST

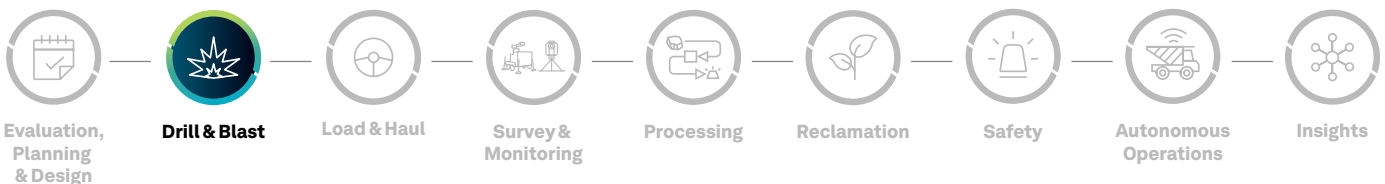
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## Integrated life-of-mine solutions

Having one technology partner for the life of your mine is a superpower in the face of modern mining challenges. Our integrated, data-driven solutions help eliminate the need for disparate products across workflows within mine planning, fleet management, monitoring, safety and beyond. With Hexagon, you gain a trusted partner backed by over 50 years of expertise who remains focussed on an autonomous future both above and underground.

This offering includes solutions to support:



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