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STYRUD

> "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 (pictured). Styrud Arctic.**

CASE STUDY: STYRUD ARCTIC

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!

LOCATION: **SWEDISH LAPLAND**

YEAR: **2017**

INDUSTRY: **MINING**

CLIENT: **STYRUD ARCTIC (SA)**

END CLIENT: **LKAB MINING**

FOCUS: **DIAMOND (CORE) DRILLING**

RIG TYPE: **EPIROC, DIAMEC**

SOLUTION: **AZIMUTH ALGINER**

ISSUES ON SITE

The orebody at Kiruna is one of the largest in the world, stretching four kilometres long, 80 metres wide and at least 2,000 metres deep. Underground mining at great depths is cost-intensive, so in order to remain cost competitive, efficient mining methods and processes below ground are vital.

The Kiruna operation covers mining and processing of iron ore products with focus on increasing production, lowering expenses, minimise environmental impacts and ensuring safe and stable processes. However, due to the 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 3-5 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. Being one of the world's leading suppliers of iron ore products, it is important that the mine's productivity is maximised.

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THE SOLUTION

Minnovare's Azimuth Aligner (AA) is the most accurate drill alignment technology in the world (+/-2°);

Minnovare engineers joined a team of sceptical SA geologists and travelled to the most magnetic parts of the mine to survey the AA'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 RESULTS

With setup achieved in minutes and with the re-assurance 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 AA immediately helped increase metres drilled per shift, resulting in higher average revenue per operating rig (ARPOR) and increased profitability to SA. It also delivered a lower cost per drilled metre to the end client, at a faster turnaround - resulting in efficient utilisation of resources for the mine, including downstream processing, personnel and logistics.

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

In every situation the AA performed better than expected – providing the most accurate downhole alignments ever recorded at the mine, despite the highly challenging conditions.

INITIAL RIG SETUPS WERE COMPLETED IN JUST **5 MINS**.

LESS RELIANCE ON SITE SURVEYORS

DECREASED OVERHEAD COSTS.

THE AA PROVIDED THE MOST ACCURATE DOWN-HOLE ALIGNMENTS EVER RECORDED AT THE MINE.

AZIMUTH® ALIGNER

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