

# AZITEC CAPABILITY STATEMENT

High-Performance Horizontal Ultrafine  
Grinding Mill Solutions for Modern Mining



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# ABOUT US

Azitec is a process-driven engineering firm focused on improving horizontal fine grinding performance across the global mining sector. Our mission is simple: to deliver measurable, site-proven improvements in recovery, energy efficiency, and operational stability—particularly within ultrafine grinding (UFG) circuits.

## OUR APPROACH

With deep technical roots and a relentless focus on execution, Azitec develops, tests, and installs innovative mill components that directly improve plant economics. Our capabilities span disc design for horizontal stirred mills (including IsaMill™), site diagnostics, and process optimisation—all backed by high-fidelity modelling and operational data.

Azitec's flagship product, the AZIDISC, is an advanced castellated grinding disc for IsaMill™ applications. The inclined vane design has been validated through laboratory testing, SPH-DEM computational modelling, and various industrial installations.

Trials consistently demonstrate over 20% energy savings compared to conventional flat disc designs, improved slurry flow dynamics, reduced media wear, and enhanced operational uptime.

The global demand for critical minerals is creating increasing pressure for more efficient mineral processing solutions. Azitec's technology directly supports miners by improving resource recovery and operational efficiency.

# CORE CAPABILITIES



## DISC TECHNOLOGY & MILL EFFICIENCY

Patented Azitec Disc Technology delivers verified +20% Specific Grinding Energy (SGE) advantage over conventional flat discs. Compatible with IsaMill™ units; independently validated through DEM/SPH modelling and multi-year industrial trials.

Proven ability to deliver:

- Increased mill capacity at target grind size
- Lower energy consumption per tonne of ore processed
- Finer P80s for improved downstream recovery
- Reduced wear and disc failure risk



## PROCESS MODELLING & METALLURGICAL INSIGHTS

- Signature Plot based P80 model development
- Power vs P80 targeting and live circuit optimisation
- Custom analytics on grindability and recovery
- Onsite and remote performance reviews with data-driven diagnostics



## SITE SERVICES & INSTALLATIONS

- Signature Plot based P80 model development
- Power vs P80 targeting and live circuit optimisation
- Custom analytics on grindability and recovery
- Onsite and remote performance reviews with data-driven diagnostics



# PROJECT CASE STUDIES



## UFG MILL UPGRADE

In 2025, Azitec completed an industrial trial and long-term upgrade of an M10,000 IsaMill™ in a hard rock application.

Key outcomes compared to incumbent technology in various tests:

- Finer product size for same power
- 10% higher operating power without premature lining system damage
- 20% higher throughput for same product size and operating power
- Improved disc and shell liner wear at same power and throughput
- Incumbent operation classifier rotor excessive wear due to discharge end media presence totally eliminated

## MAGNETITE GRINDING OPTIMISATION

In 2024–2025, Azitec conducted full-scale field experiments at SIMEC’s M10,000 IsaMill™ to evaluate the performance of Azitec rotor technology in magnetite processing applications.

Key outcomes compared to conventional disc technology in various tests:

- Up to 14.3% reduction in energy requirements through optimised media sizing
  - Demonstrated alignment between laboratory and full-scale IsaMill™ performance
- Improved grinding efficiency in ultrafine magnetite applications  
 Potential for increased throughput and enhanced downstream processing performance  
 Validated performance across challenging, energy-intensive grinding conditions



# INNOVATION BACKED BY DATA

- 200+ design iterations using DEM & SPH modelling
- Signature Plot development for each site and ore type
- 1500+ successful operational days of data across M3000 & M10000 mills
- Numerous campaigns of issues, learnings and ultimately solutions
- Technical collaborations with laboratories
- Hypothesis-driven testing of grind-recovery relationships (e.g., pyrrhotite effect on Bond Work Index)

## WHY AZITEC?

- **Technically Advanced:** Backed by computational modelling, advanced data science, experience and engineering.
- **Proven Performance:** Field-validated gains in throughput, energy efficiency, and recovery — not theory.
- **Flexible & Focused:** Lean delivery, clear communication, and fit-for-purpose scope execution.
- **Built for Operators:** We design, test and install solutions that withstand real-world conditions — not just lab trials.



# CONTACT US

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