



**UPSTREAM™**  
TECHNOLOGY



# TECHNICAL SERVICES

*Solving complex mining challenges through **advanced technology development & industry specific solutions developed for performance.***

The Technical Services Division partners with clients to provide technical depth and understanding, practical experience, and specialised capabilities required to solve critical diamond mining challenges—both marine and land-based.

Our team integrates advanced technology development, multi-disciplinary engineering, process optimisation, and advanced technology automation to deliver complete, bespoke, fit-for-purpose solutions.

We work across the mining value chain, from early concept to commissioning, helping clients improve efficiency, unlock resource value, and accelerate innovation where conventional solutions fall short.

40+

years of innovation  
and advanced  
capability.

## AREAS OF EXPERTISE

**Technology  
Development**

**Engineering  
Services**

**Metallurgical  
Services**

**Advanced  
Technology &  
Automation**

# BUILT FOR YOUR BOTTOM LINE

GROUNDBREAKING SOLUTIONS PURPOSE BUILT FOR DIAMOND MINING CHALLENGES.

With over four decades of innovation and advanced capability under one roof **ideas are translated into impact quickly, safely, and cost-effectively.**

As part of Upstream Technology, **the Technical Services division offers end-to-end solutions across the mining value chain**, as well as bespoke solutions at various project phases.

We work interdependently from day one to identify the right problem and deliver the right solution proven to perform in your operating environment.

As part of the De Beers Group, **Upstream Technology's Technical Services Team brings operational understanding aligning with your teams, standards and processes and insight into your strategic priorities** – making delivery faster and outcomes more reliable.

Through leading-edge capabilities, the Technical Services Division spearheads step-change innovation in diamond mining by enabling access to new frontiers and unlocking new diamond supply. **Our work supports mine viability and future growth by pushing the boundaries of what's technically and commercially possible.**



## BESPOKE SOLUTIONS THAT EMPOWER YOU TO



*Accelerate project timelines and de-risk delivery.*



*Reduce lifecycle and coordination costs.*



*Unlock new or previously inaccessible ore bodies or extend existing life-of-mine.*



*Optimise diamond recovery and plant performance.*



*Maximise recovery, throughput, and reliability.*



# SERVICES OFFERED

## TECHNOLOGY DEVELOPMENT

We conceptualise and prototype solutions where no blueprint exists, building a smarter, more efficient diamond mining future from the ground up. Our end-to-end development pipeline delivers validated, operation-ready systems tailored to your unique environment.

*We take solutions from idea to implementation faster—because we own the entire development value chain.*

### INTEGRATED CAPABILITIES

- ◆ Remote sensing, survey, sampling, mining, treatment and recovery technologies
- ◆ Simulation: computational fluid dynamics, discrete element method, terramechanics, hydrotransport system modelling, finite element analysis, scale testing
- ◆ Rapid prototyping and concept evaluation
- ◆ Sensor and electronics system design
- ◆ Machine learning, data analytics and operational dashboards
- ◆ In-house testing, feedback loops, and performance validation under real-world conditions



## ENGINEERING SERVICES

Our Engineering Design and Support team delivers practical, multi-disciplinary solutions for marine and land-based recovery operations.

With over 40 specialists across mechanical, electrical, software, control, and structural disciplines, the team operates within a matrix structure to design complete systems and sub-systems.

Exceptional delivery is enabled through seamless workflow processes and the consistent application of good engineering practices.

*Our systems are trusted to power the most complex diamond recovery operations: designed in-house, built to last, with proven delivery.*

### CAPABILITIES

- ◆ Vessel systems and mission-equipment and system design (including launch and recovery systems) for marine operations
- ◆ Treatment plants, and diamond recovery product design and support
- ◆ Engineering support for land-based operations, including design of systems, subsystems, components and treatment plants including, optimisation and integration of plants.
- ◆ Safety, operability and maintainability integrated from design concept
- ◆ **Proprietary Workflow tools:** Engineering Work Package System and Technical Service Requests
- ◆ Design assurance and review for internal and third-party projects

### ENGINEERING DISCIPLINES

- ◆ Naval Architecture
- ◆ Mechanical
- ◆ Structural
- ◆ Electrical
- ◆ Automation and Instrumentation
- ◆ Operational Technology (OT) software engineering

## PROCESS OPTIMISATION & METALLURGICAL SERVICES

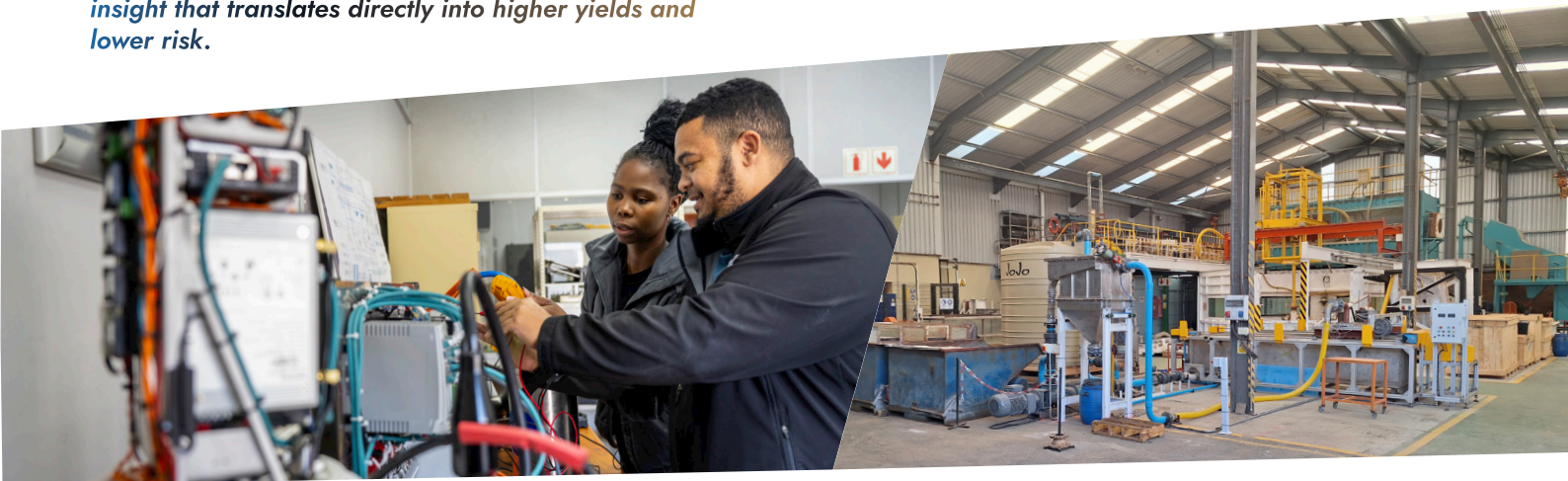
Our Metallurgical Services team delivers data-driven insights and practical solutions to improve diamond recovery performance at operations.

We bring deep diamond-specific process expertise to help clients maximise recovery, improve efficiency, and validate deployed diamond recovery technology. Our work supports both ongoing optimisation and long-term planning.

*With over 40 years in diamond processing, we offer insight that translates directly into higher yields and lower risk.*

### CAPABILITIES

- ◆ Annual plant audits and operational performance reviews
- ◆ Ore dressing studies and geo-metallurgical mapping
- ◆ Exploration sample treatment and lab-based characterisation
- ◆ Material property testing (e.g. SFD, RhoVol, XRT, MagSus, Raven)
- ◆ Product suitability analysis and technology validation
- ◆ Flowsheet design consulting and metallurgical advisory



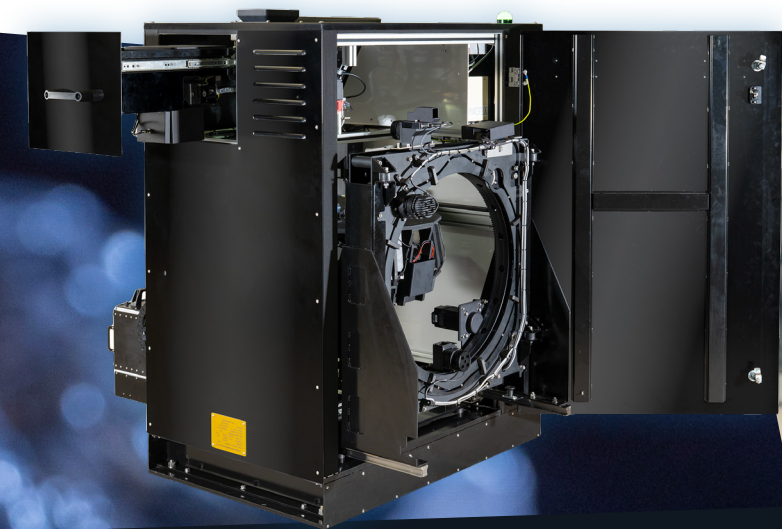
## ADVANCED TECHNOLOGY & AUTOMATION

The ATA team leverages over 40 years of diamond-specific development experience to deliver high-performance, digitally enabled technologies

*Our IP underpins some of the world's most advanced recovery systems—built, owned, and operated by Upstream Technology, a De Beers Group company.*

### CAPABILITIES

- ◆ Mechanical design, control systems and software development
- ◆ Precision feed presentation and ejection systems
- ◆ Sensor fusion, 3D particle matching, X-ray and laser-based detection
- ◆ Machine learning and AI-driven recovery logic
- ◆ Smart interfaces, cloud systems and IoT platforms
- ◆ End-to-end product lifecycle and technology portfolio management



## WHY PARTNER WITH UPSTREAM TECHNOLOGY?

We don't just deliver solutions. We deliver certainty. As an internal capability, we bring institutional knowledge, proven systems, and a track record of delivery which is not replicable by others. When you partner with us, you gain a solutions team that knows your world, shares your goals, and has the depth to deliver lasting value.

**Partnering for our future.  
Let's solve the hard diamond mining problems together.**

### CONTACT US

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