



CAPABILITY STATEMENT

Low energy, low footprint, mineral processing solutions for the mining industry

Smarter together

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WHY GEKKO

Gekko Systems is a global leader in mineral processing, providing fully integrated solutions to mining companies around the world. Over the past two decades, Gekko has developed strong capabilities in the design, manufacturing, installation and commissioning of energy efficient mineral processing equipment and complete plants for a wide range of minerals including gold, silver and polymetallics.

The company also offers on-site performance consulting services for customers looking to optimise established process plants and achieve the highest operational performance.

With a 'one-stop-shop' approach, Gekko's range of solutions offer particular value for remote and environmentally-sensitive operations with high energy costs.

Gekko's head office is based in the Australian gold-rush city of Ballarat (Victoria) and has offices in Perth (Western Australia), Vancouver (Canada), Moscow (Russia), and Johannesburg (South

Africa). Gekko also counts with exclusive representatives (agents) in West Africa, Central and South America.

MISSION

The team at Gekko strives to make a difference to customers and their communities through world leadership in mineral processing and effective solutions delivery.

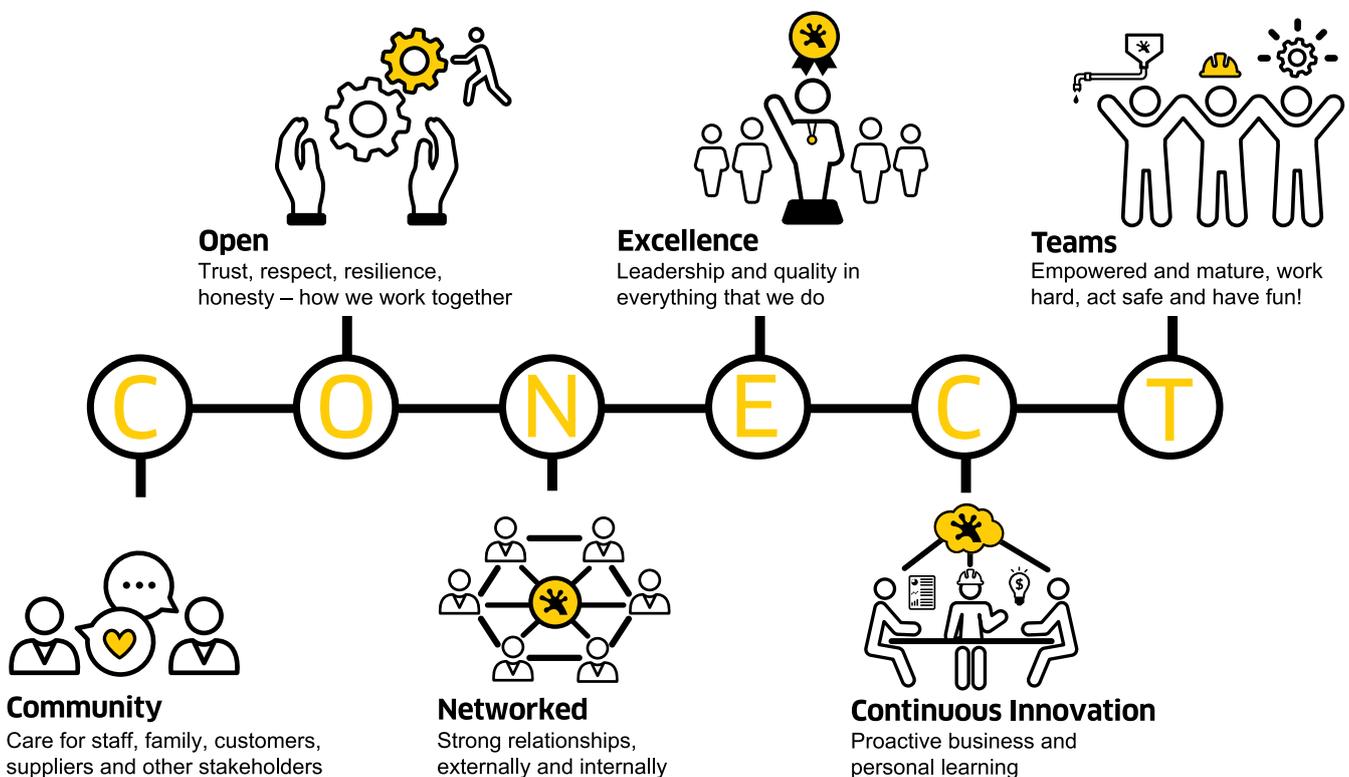
OUR PHILOSOPHY

The company is committed to continue to deliver low energy, small footprint, mineral processing solutions, and to collaborate with organisations to offer optimum solutions to customers.

"Only through embracing smart ideas together can we transform our world"

VALUES

The CONECT acronym represent the values that guide Gekko's business, product development and brand. As Gekko continues to evolve and grow, these six values remain constant.



OUR PEOPLE



Since its beginnings in 1996, Gekko has attracted and developed some of the most passionate and talented professionals in the mining industry. Every person working at Gekko reflects the values and philosophies of the organisation as they interact with trusted partners, clients and collaborators.

The Gekko team consists of experienced metallurgists, process engineers, project managers, electrical engineers, mechanical engineers, electricians, chemists, technicians, as well as administration and customer support personnel.

CORPORATE RESPONSIBILITY

HEALTH, SAFETY AND ENVIRONMENT (HSE)

Gekko believes responsible Health, Safety and Environment (HSE) compliance is crucial to maintaining strong physical, emotional, and mental health as well as resilience and wellbeing for all personnel.

The company abides by all statutory acts and regulations and utilises 'step back' as a tool to assess risk prior to commencing a task. This is based on the concept of STOP, THINK, ACT, and REVIEW and has assisted in maintaining incidents and accidents to a minimum.

Gekko provides sufficient resources to ensure that all operations are conducted in a safe manner while continuously updating and implementing activities and procedures.

ENVIRONMENTAL FOCUS

Gekko designs, operates, consults, and educates - with a clear focus on delivering positive environmental impacts and world technical leadership.

The company believes in focusing on the core environmental principles of having the lowest energy consumption, lowest resource use and smallest footprint possible.





As part of the continuous improvement cycle, Gekko provides regular opportunities for staff members to undertake specialised training. This ensures staff are up to date with the latest industry and technological trends.

The company also offers employment opportunities to university graduates through Gekko's Graduate Program which has been designed to give participants experience across all aspects of the mining industry.

COMMUNITY INVOLVEMENT

Gekko provides support for human causes including cancer research, supporting young families, young mothers and children, and at-risk adolescents. Many staff members are actively involved in these causes and support Gekko's philanthropic investments in their own time.



INDUSTRY SPONSORSHIPS

Gekko proudly supports the following organisations and initiatives:



INDUSTRY RECOGNITION

Gekko Systems has been recognised for its performance across many organisational areas. Some of the diverse awards include:

- Professional Excellence Award, The AusIMM, Alexander (Sandy) Gray, 2017
- Australian Export Award for Minerals, Energy and Related Services, 2016
- Governor of Victoria Export Award, Minerals, Energy and Related Services, 2016
- International Mining Technology Hall of Fame, Concentration, Alexander (Sandy) Gray, 2015
- Coalition for Energy Efficient Comminution Medal, Pre-concentration, Nigel Grigg and Georges Delemontex, 2015
- Mining Magazine Award, Environmental Excellence, 2013
- Australian Premier's Award, Premier's Design Award for the Python low-height modular plant, 2010
- Highly Commended Australian Mining Prospects Awards, Minerals Processing Plant of the Year, 2008
- Winner Warren Centre for Advanced Engineering, Innovation Heroes Award, Elizabeth Lewis-Gray and Alexander (Sandy) Gray, 2007
- Highly Commended Australian Mining Prospects Awards, Minerals Processing Plant of the Year, 2006
- Winner Mining Magazine Award, Beneficiation, 2005
- The Ernst & Young Entrepreneur of the Year Award, 2005
- Inducted into the Manufacturing Hall of Fame, 2004
- Winner Clunies Ross National Science and Technology Award, Alexander (Sandy) Gray, 2002
- Winner Governor of Victoria Export Award, Minerals Section, 2000
- Winner AusIMM Mineral Operating Technique Award, Alexander (Sandy) Gray, 1998

KEY GEKKO PARTNERSHIPS

As part of our innovation and development program, Gekko maintains active partnerships across several industries to ensure access to the cutting edge of new technological development.





METALLURGICAL SOLUTIONS

Gekko develops advanced solutions that deliver increasingly more energy efficient and environmentally friendly ways of extracting valuable minerals.

MINERAL LIBERATION

Optimising mineral liberation is at the heart of Gekko's process design philosophy. Recovering minerals at the point of liberation is one of the key steps in maximising pre-concentration and gangue rejection, as well as minimising energy consumption.

PRE-CONCENTRATION

Pre-concentration is a valuable step that Gekko applies and advocates, to design and deliver world-leading energy-efficient flowsheets.

Pre-concentration flowsheets are a Gekko speciality and significantly reduces the ore mass that reports to intensive downstream processing. By using gravity combined with flotation to recover mineral-bearing particles into a much smaller concentrate volume, significant savings in energy, and operational expenses are achieved.

GRAVITY CONCENTRATION

Optimised gravity concentration circuits enhance valuable mineral recoveries and financial returns.

The resurgence of gravity concentration in mining has come about due to its simplicity and low environmental impact. Gekko has repeatedly proven that optimal liberation of mineral at the coarsest particle size reduces energy expenditure across the whole plant.

INTENSIVE LEACHING

Gekko's intensive cyanide leaching flowsheet supercharges the process for the highest leach rates in the industry. Combining higher concentrations of gold or silver with high cyanide and high oxidant concentration intensifies the chemical leaching reaction to maximise metal recoveries.

This type of leaching widely used for gravity concentrates, such as from the InLine Pressure Jigs, Python plant, or centrifugal concentrators and flotation concentrates.

PREGNANT SOLUTION RECOVERY

There are a variety of pregnant solution recovery methods available to upgrade precious metals. Choosing the most appropriate is essential for maximising mineral recovery. The conditions used in upstream processing, to generate the pregnant solution, assist in determining the best mineral recovery technique.

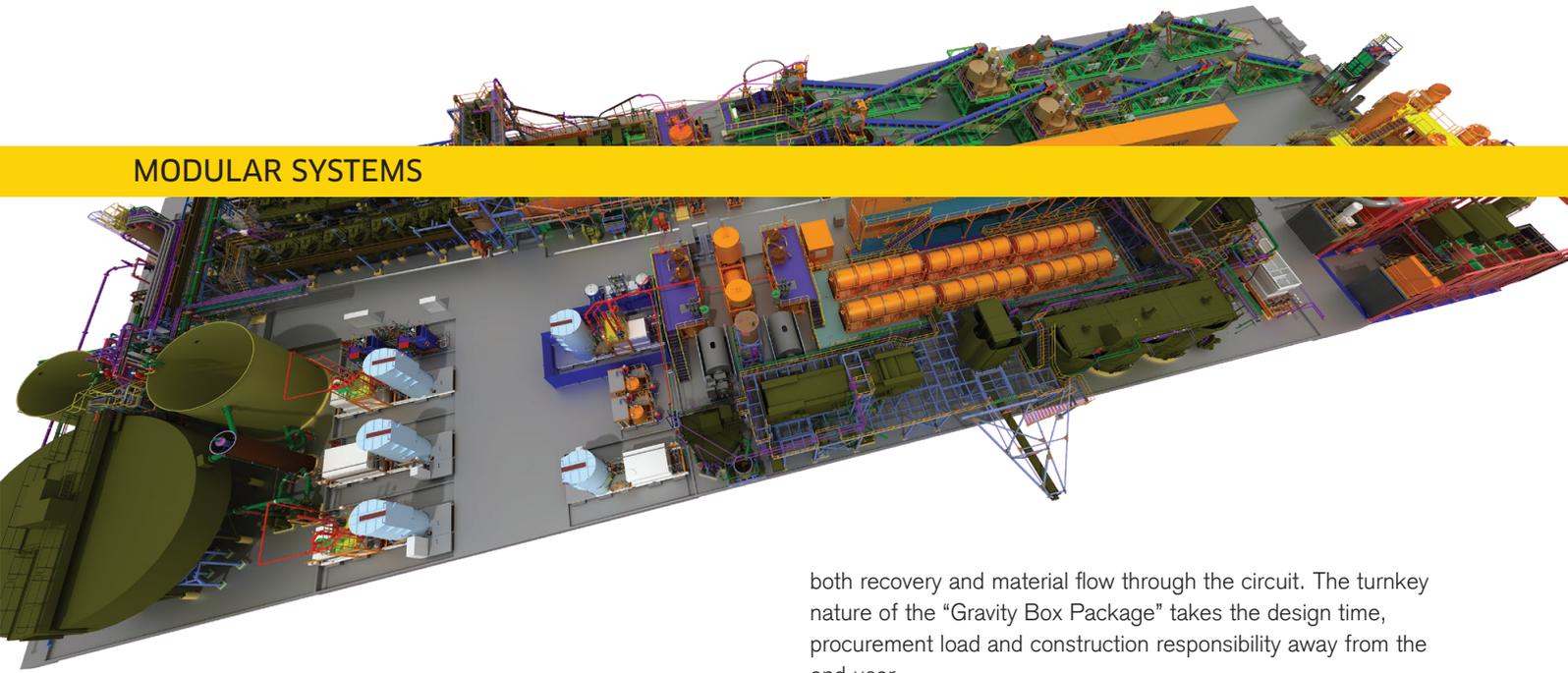
Gekko designs pregnant solution recovery circuits as part of an overall energy-efficient mineral processing flowsheet.

CYANIDE DETOXIFICATION

Responsible cyanide waste management is a priority for mining operations. It offers ecological security and financial gains when done effectively and efficiently. Incorporating a specifically designed detox circuit provides robust environmental and business security. Expert design and optimisation of the process conditions, based on laboratory results and on-site tests, is critical to achieving efficient cyanide detoxification.



MODULAR SYSTEMS



PYTHON

The Python is Gekko's award-winning, low-height, modular plant that utilises energy-efficient comminution, gravity separation, and flotation processes to concentrate ore down to 10-30% of the original mass.

With one of the fastest 'purchase to production' turnarounds in the industry, the Python plant allows clients to fast-forward their project through manufacturing, installation and commissioning and obtain an effective operating plant in minimal time.

GRAVITY FLOTATION INTENSIVE LEACH (GFIL) FLOWSHEET

The Gekko GFIL flowsheet is an integrated gold processing system which combines gravity and flotation with intensive cyanide leach of the resulting concentrate. This ensures maximum recovery across the full size distribution of the ore while minimising the cyanide affected material.

The major benefit of GFIL is a significantly reduced capital and operating cost whilst also reducing the environmental footprint.

GRAVITY BOX CIRCUITS

The Gravity Box has benefits for both Greenfield and Brownfield projects. A typical gravity circuit in a CIL/CIP plant requires a significant level of engineering to ensure an optimal outcome for

both recovery and material flow through the circuit. The turnkey nature of the "Gravity Box Package" takes the design time, procurement load and construction responsibility away from the end user.

Gravity Box process design is the end result of intensive gravity recoverable gold (GRG) testwork and modelling using the globally recognised AMIRA P420 model. This process is essential and one that is provided by Gekko through the Gekko Met Lab and expert gravity gold technical team.

CONCENTRATE TREATMENT CIRCUITS

Specialists in the design, supply and installation of precious metal concentrate leaching circuits. The circuits incorporate Gekko's InLine Leach Reactors using intensive cyanidation, OEM thickening and filtering equipment, to produce clean pregnant liquors where metal values are recovered using either Direct Electrowinning, G-Rex resin absorption/stripping system, carbon absorption or Merrill-Crowe circuit.

Gekko's concentrate treatment plants are factory tested to reduce both installation and commissioning at the site.

REAGENT MODULES

Metallurgical processes rely on reliable and effective reagent supply. Gekko's purpose built modules ensure this is done safely and efficiently. Gekko's off the shelf designs address the specific requirements of each reagent.



PRODUCT RANGE

Since 1995, Gekko has been developing technologies to improve cost-to-recovery ratios, enhance operational efficiencies, extend mine life, and protect the environment. Gekko's innovation and development cycle provides clients with clear answers, state-of-the-art concepts, optimised installations, and high yields.

INLINE PRESSURE JIG (IPJ)

The innovative IPJ design rapidly and efficiently pre-concentrates high-value minerals using gravity separation and fluid dynamics. The high-energy cost of fine crushing is eliminated by processing coarse feeds of up to 15mm. The IPJ improves plant capacity and lowers operating costs by rejecting low-value material prior to processing.

INLINE LEACH REACTOR (ILR)

Gekko's ILR offers superior gold recoveries in a highly efficient, low cost system. The innovative 'rolling barrel' reactor design ensures high attrition of surface oxidation products and maximises oxidant delivery which in turns increases the leach rate of coarse gold and silver concentrates under intensive cyanide and oxidant conditions. The ILR is available as a completely automated batch or continuous model. The batch ILR is particularly suitable for

processing small volumes of high grade concentrates from InLine Spinners or other centrifugal concentrators. The continuous InLine Leach Reactor is more suitable for treating high-throughput gold, silver and complex sulphide concentrates from IPJ, other gravity devices and flotation circuits.

INLINE SPINNER (ISP)

A low maintenance, cost-effective centrifugal concentrator which is used to obtain clean, high-grade concentrates of gold through separating coarse and fine particles. It is fully automated and produces a high-grade smelter-ready product.

CARBON SCOUT

The Carbon Scout is an automated, self-contained device that sequentially collects slurry samples from carbon in pulp (CIP) tanks and accurately determines the concentration of the activated carbon in the pulp for each tank. Developed to replace traditional manual techniques with an automated measuring technology, the ground-based system enhances operator safety by reducing their exposure to cyanide solutions and allows for the collection of additional data, such as pH and dissolved oxygen.





G-REX RESIN COLUMN

An efficient ion-exchange column specifically designed for extracting gold and silver from leach solutions. An alternative to carbon-based extraction, the G-Rex's resin beads absorb gold while other metals stay in the solution. The gold is easily stripped from the resin with a single stage strip system using hot caustic solution and then recovered by conventional electrowinning.

MAG-SCREEN

The Mag-Screen prepares ore feeds by removing oversize and magnetic material with very low gold entrapment. Oversize material is removed using a low wear static screen. An alternating tapered magnet creates a rotating magnetic field, trapping and releasing magnetics from the undersize material.

VIKING CONE

A dense media separator designed to separate metalliferous ores from waste material. This device is primarily used as a testing unit for small capacity loads. Like Gekko's IPJ, the Viking Cone separates materials with dissimilar specific gravity characteristics and is an ideal method for testing the separation characteristics of ore samples.

ELECTROWINNING CELLS (EWC)

Designed specifically for high volume silver recovery, Gekko's Electrowinning Cell achieves high efficiency gold and silver extraction from leach and other gold-bearing solutions with minimal operator intervention. The stainless steel cathodes are cleaned in situ and metallic sludge filtered directly without taking the cell offline, reducing handling and streamlining operations.



SERVICES

Gekko provides world-class technical services to support its innovative technologies and energy efficient flowsheet designs. The service packages offer a direct and effective way to access and integrate Gekko's technical expertise while offering genuine value to clients and whole-of-mine efficiencies which are critical for optimal recoveries.

ENGINEERING, PROCUREMENT AND CONSTRUCTION

After laboratory tests identify the most efficient process to recover the minerals in the ore, Gekko's in house engineering and metallurgical teams work together to design flowsheet concepts that address the client's operational and financial requirements.

Once approved by the client, Gekko leverages its global network of suppliers and contractors to manufacture and factory commission the equipment.

The high-performance manufacturing facility is located on four hectares of land and includes an 88m by 20m construction building able to accommodate multiple projects at any given time. The facility incorporates a high roof bay for large construction projects as well as a wet floor for wet commissioning and factory testing.

GEKKO METALLURGICAL LABORATORY

Gekko's Metallurgical Laboratory (MET Lab) delivers high-quality, reliable results using state-of-the-art practices and procedures and

quality-control methods. In consultation with mine operators, the MET Lab runs a range of metallurgical tests, including propriety product specific procedures, on ore samples to collect information and recommend the best process route to achieve desired outcomes across a variety of precious and base metal ores.

GEKKO ASSAY LABORATORY

Gekko's world-class Assay Laboratory is accredited by the National Association of Testing Authorities (NATA, Australia) to ISO/ IEC 17025 Standard. As such Gekko is able to offer its clients a wide range of testing services, including:

- High throughput sample preparation of mining core and face samples to 75µm @ 85% passing grind size
- Cyanide leaches (Leachwell) up to 2.5kg, a proven cyanide based leaching technique for the analysis of coarse gold ore samples.
- Fire Assays for quantifying the analysis of gold in non-coarse gold ore samples.
- Atomic Absorption Spectrum Spectroscopy (AAS) to determine the level of key metals such as Au and Ag Gold and Silver in solution; and therefore is used to finish Leachwell and Fire Assay methods of analysis.
- Inductively Coupled Plasma Optical Emission Spectrometry Spectroscopy (ICP-OES) is an analytical technique used for the



detection of chemical elements within ores after undergoing acid digestion.

- Gekko has a LECO® combustion analyser to quantifying levels of Carbon and Sulphur in materials such mineral ores and soil.
- The determination of Weak Acid Dissociable (WAD cyanide) by gas diffusion amperometric detection and free cyanide by silver nitrate titration and total dissolvable solids.
- Gekko is able to supply Chemist, Metallurgist and laboratory technicians for onsite analysis, method development, quality and safety audits.

PERFORMANCE CONSULTING

Gekko's global leadership in Performance Consulting offers mining operations a deeper understanding of how unit operations can be optimised for better outcomes in mineral processing.

By conducting surveys and data analysis, the team can quickly develop a strategy to optimise recoveries based on the ore characteristics, site constraints and the client's goals.

The Performance Consulting team also provides scheduled site visits and on-site training to ensure long-term optimal operations.

INSTALLATION AND COMMISSIONING

Gekko offers install and commissioning services for all its equipment, ranging from a single stand-alone product to full process plants. Gekko's leading team of experienced engineers oversees every aspect of these processes to ensure that all equipment performs as expected.

Every piece of Gekko equipment goes through a thorough factory commissioning process to minimise any potential challenges arising on site.

AFTER SALES SUPPORT

Even the most robust mining equipment requires scheduled maintenance for optimal performance. Gekko stocks spare parts for all its proprietary equipment and OEM suppliers, ready for immediate shipping.

With each piece of equipment, Gekko's Spare Parts team offers recommendations on operational and critical parts required on site to minimise plant down time.

Gekko offers a single source procurement service allowing clients to source their purchasing requirements through one point of contact and at the best available price, quality and delivery times.



CONSUMABLES

GOLDILOX

Gekko's advanced leach accelerant is able to increase gold recovery while shortening intensive cyanidation times, making gold production a faster and more effective process.

Increasingly, GoldiLOX is being introduced into ore leaching as well as its traditional role in concentrate leaching. The potential is to significantly reduce the footprint of all leach circuits including CIP/CIL circuits.

Gekko can supply GoldiLOX in 10 kg buckets or in bulk bags to be used routinely or as a back up to oxygen or peroxide.

RAGGING

Maximising the performance of any jigging circuit is dependent on using the correct ragging for the application. Gekko supply a wide range of ragging sizes, materials and densities to ensure best performance.

Gekko can deliver ragging packaged in small containers to 200 L drums, to suit the client's requirements.

G-RESIN

Gekko's G-Resin is a weak base ion exchange resin specifically designed for gold and silver absorption from cyanide solution. It is used in Gekko's G-Rex column to maximise recovery and minimise impurities.

The major advantages of high gold loading, easy stripping, abrasion resistance and chemical stability have been proven in over 15 years of commercial application in G-Rex columns.

The G-Resin has particular advantages when treating flotation concentrates because it is unaffected by most flotation reagents unlike carbon.



Ragging



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