

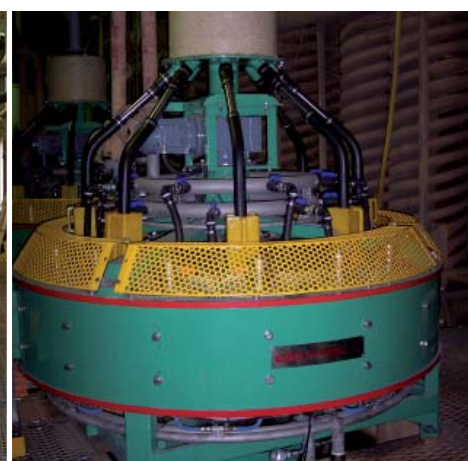
Gravity Tales

Technology Designed to Last

Roche (MT) has developed a reputation for supplying robust equipment that is designed to last decades, investing in refurbishment you can ensure you get even more mileage out of your machines.



Before



After

Refurbishment programs are carried out to meet client specific requirements and in some instances may even improve the overall operation of the process.

Consolidated Rutile Limited (CRL) has successfully operated Reading WHIMS on Stradbroke Island since 1978. After more than 25 years full time service, the WHIMS were in need of some attention.

The three original 'narrow rotor' WHIMS installed on each plant have now been refurbished and converted to two 'wide rotor' WHIMS. This refurbishment program has not only increased the overall concentrate throughput capacity of the plant by 25%, but has also reduced the operating costs of the WHIMS circuit by up to 33%.

The WHIMS were given a full cosmetic 'face lift' along with the more important upgrading to offer the latest PLC monitoring and operating features. Roche (MT)'s operations team coordinated the complete refurbishment programme, including removal and installation of the WHIMS units from the floating concentrators.

Ready for many more years of faithful service!

Roche Mining (MT) is also undertaking an equipment refurbishment program for Richards Bay Minerals (RBM) in South Africa, on machines originally supplied when the mine was first established 28 years ago.

RBM initially operated its Mineral Separation Plant (MSP) with 26 Readings WHIMS units and over time expanded its production capability, installing 17 additional units.

Roche (MT) has been engaged to refurbish 12 of the older Readings Wet High Intensity Magnetic Separator (WHIMS) machines, restoring them to the original operational parameters and incorporating recent component upgrades and some specific client requests.

This contract illustrates the value that RBM places on this equipment in its operation and signals their commitment for its continuing use. It also demonstrates the longevity of both Roche (MT)'s technological performance and reputation in mineral sands separation.

The 8-month rebuild program will be undertaken in Roche (MT)'s Alton factory in Richards Bay, South Africa, where labour skills and many components will be sourced locally. Technical support and speciality components will be

obtained from Roche (MT)'s Australian operation.

This refurbishment contract follows a number of orders awarded to Roche (MT) by RBM over the last 12 months including the supply of 13 Carrara electrostatic separators and maintenance work on existing machines.

Pictured above: A Reading WHIMS machine at the CRL project before and after refurbishment. Roche MT worked to meet the client specific requirements to deliver favourable operational efficiencies.

INSIDE THIS ISSUE

Jigs go in at Narngulu	2
Roche (MT)'s Business Smarts	2
\$2.5 million in orders signed in US	3
First turnkey project signed in India	3
Charity Splash	4
Transworld Garnet Commissioning	4

Roche (MT)'s Business Smarts

Roche Mining (MT) was acknowledged as one of the State's most innovative businesses with a win at the prestigious Premier of Queensland's Smart Awards in the category of 'Manufacturing'.

Glen Zille, General Manager of Roche (MT), said the company was recognised for its use of innovation in the development of two recently launched technologies set to revolutionise the way heavy mineral separation plants are designed in the future.

"Roche (MT)'s new high capacity (HC) spiral technology, which uses gravity to extract the valuable heavy mineral in a wet slurry, enables producers to double their plant capacity in the existing plant size, minimising the number of processing stages, and providing clients with greater plant efficiency," said Glen.

"The new generation Carrara High Tension electrostatic roll separator builds on the strengths of previous technology to include a revolutionary insulated electrode plate, which significantly enhances separation performance, with results not seen in over 50 years," he said.

These new technologies afford mining operators increased productivity and efficiency without the often-prohibitive capital outlay traditionally required to increase plant capacity, as well as providing ongoing operational efficiencies.

"While these particular technologies may not be applicable in all processing environments, Roche (MT) will continue to strive to find more creative, more productive and more efficient ways of getting the job done for the world's mineral producers," said Glen.

Jigs go in at Narngulu



Roche (MT) recently completed the installation and commissioning of a modular Kelsey centrifugal jig plant at Iluka's Narngulu mineral separation plant in Geraldton, Western Australia.

Dale Henderson, Roche (MT)'s Business Development Manager – Eurasia, said The J1800 Kelsey Jig plant has been designed to extract zircon and other high specific gravity minerals from tailings stockpiles, rejected over years of dry mill processing utilising conventional separation techniques.

The new plant is configured as a semi-permanent structure to enable relocation to different sites with minimal effort and is self-contained requiring only a clean water supply, electricity and feed slurry.

The plant comprises two 40 foot-long structural modules bolted together with each Jig module containing a J1802 Kelsey centrifugal Jig, a 4 deck sizer screen, hydrocyclones, feed distributors, sumps, pumps, piping, launders and instrumentation on flow, density and pressure. There is also a separate MCC module.

"Roche (MT) engineers have built on the existing relationship with Iluka, and worked in close consultation with their Group Technology

and Narngulu teams for the past 12 months to develop the right solution for the operation," said Mr Henderson.

"Evaluation of Iluka's Narngulu project revealed that, in addition to the three existing Kelsey J1300 jigs operating in the mineral separation plant, the Kelsey technology could indeed provide an economically favourable way to recover valuable zircon from the tailings," he said.

"Roche (MT) has assisted Iluka to maximise the performance of these units, sending the technology's inventor, Chris Kelsey and his son Simon, to the site for commissioning of the modular plant," he said.

Roche (MT) will also provide training to the Iluka operators, ensuring the optimum performance of the plant is achieved in a short period.

Pictured above: The J1800 Kelsey jig insitu at the Narngulu mineral separation plant.



First turnkey project signed in India

In February, Roche Mining (MT) signed its first Indian turnkey project with Indian Rare Earths Ltd (IREL) for the expansion of its Chavara Plant.

Tony Reading, Roche (MT)'s Business Development Manager for the Indian sub-continent, said the \$15.0 million contract involves increasing the throughput capacity of the existing operation in the most cost effective manner and providing specified plant process guarantees.

"Roche (MT) has accepted responsibility for the complete implementation and commissioning activities associated with the plant upgrade," said Tony.

"Our team has developed a comprehensive process flowsheet that will not only increase the overall capacity of the existing mill it will also improve the recoveries and grades of the ilmenite, rutile and zircon products mined there," he said.

Roche (MT) was selected as the preferred contractor for the project implementation based on its patented READING magnetics and KELSEY jig technologies.

"Our flowsheet uses much of the existing process and materials handling equipment on site, however, does also incorporate several new Roche (MT) proprietary process equipment," said Tony.

"An additional 190 MD spirals, 2 READING Wet High Intensity Magnetic Separators (WHIMS), 6 CARRARA electrostatic separators and 1 KELSEY Centrifugal jig are amongst the imported equipment supplied for the project," he said.

While Roche (MT) will provide the design, equipment supply, commissioning and training of staff for the project, a local sub-contractor, Mecon Limited, has been nominated to carry out the on-site construction activities under Roche supervision. Roche will also fully engage the services of our local staff from the Kochi and Kolkata offices during the implementation.

"The project will take approximately 18 months to complete, with equipment being manufactured at the Carrara facility to be delivered at various stages," said Tony.

Following the commissioning of the project, Roche (MT) will remain on site to operate the plant for a month to demonstrate the performance guarantee parameters.

\$2.5 million equipment orders secured in US and Brazil

Roche (MT) has recently won a number of significant equipment and servicing orders in the USA and Brazil valued at over \$2.5 million.

Bill Weldon, Roche (MT)'s Regional Manager Americas, said the orders, from seven sites across both continents, for Roche (MT)'s proprietary MD Fine Mineral Spirals and Coal Spirals demonstrates the international competitiveness of the technology, and its ever-evolving applications in mineral separation.

"These sales include the first of the new MD LD7RC two-stage spiral to four sites in North America. These sales will further strengthen Roche (MT)'s position as a premier supplier of coal spirals rivalling competitors in the US and Mexico," said Bill.

"The LD7RC compound spiral has been developed to offer clients a two-stage process that can be implemented without the need for inter-stage pumping or redistribution, resulting in a product with ash levels closer to the theoretical ash for a given cut-point d50," he said.

The Brazilian sales represent a growing market for Roche (MT)'s product, providing a technology solution for clients including process flowsheet recommendations and engineering design for their unique processing needs.

"We are particularly pleased as this is our first opportunity to supply equipment to junior iron ore miner Minerita in Brazil, who is already talking about opportunities for Roche (MT) technologies at other sites," said Bill.

"It is also our first opportunity to work with Herculano supplying equipment and developing an innovative technology package, combining process flow sheet design, structural, civil, and electrical engineering design, commissioning and process guarantees on the project," he said.

"The orders for the Pitinga mine were also significant wins, as for the past several years they had been using a product produced by a domestic competitor.

Roche (MT)'s presence is growing in Brazil based on its range of innovative proprietary technology and the manufacturing quality, as well as the valuable technical field support we offer combining both process solution development and problem solving ability.



THE NEW LD7RC SPIRAL

The LD7RC compound spiral has been developed to offer clients a two-stage process that can be implemented without the need for inter-stage pumping or redistribution.

This new arrangement minimizes the installation height required, by incorporating a patented refuse rejection and re-mixing system halfway down the spiral. This device ensures that the slurry is presented to the cleaner section of the spiral in a condition that allows maximum release of entrained refuse.

The result is a product with ash levels closer to the theoretical ash for a given cut-point d50. With re-circulation of the final middling, spiral circuit efficiency will be greatly enhanced and this flowsheet option is highly recommended.

This spiral is most suited to coal seam with high levels of entrained refuse, typically 20% and greater or where the seam has a higher level of near gravity material typically between SG 1.5 to 1.9.

Coal Prep 2005

Bill Weldon, Roche (MT)'s Regional Manager Americas, attended Coal Prep 2005, catching up with many clients in the region.

"The exhibition was very successful with excellent attendance from coal producers across the US continents," said Bill.

"The US coal market is expecting consistent high-level activity over the next 5 years, something Roche (MT) is well positioned to assist with, particularly in the form of technology packages that are able to offer innovative solutions to our client's unique metallurgical separation challenges.

Pictured below: Roche (MT)'s Bill Weldon (right) was able to catch up with many clients at Coal Prep 2005, one of which was Evandro from CVRD's Belo Horizonte project in Brazil.



European Trial in Iron Ore

Roche (MT) recently supplied an FM1 Fine Mineral Spiral for client trials at an existing iron ore operation in Europe.

Dale Henderson, Roche (MT)'s Business Development Manager – Eurasia, said our local agent has been working with the producer for some time highlighting the benefits of Roche (MT)'s technology to recover valuable ore from tailings.

"In this instance, the bulk of the iron ore is present as magnetite and is recovered using Low Intensity Magnetic Separators (LIMS), losing the haemetite component in the tailings, as further refinement was deemed uneconomical," said Dale.

"Our agent felt that Roche (MT)'s Fine Mineral Spirals would offer the client an economical outcome to recover the lost iron ore components, and provide a high grade saleable concentrate, so they approached the client with a proposal" he said.

"Preliminary evaluation of a tailings sample at Roche (MT)'s Carrara facility provided sufficiently encouraging results to warrant onsite trials of the Fine Mineral Spiral technology. The initial results from the inplant testing have confirmed our lab results," he said.

Following the exceptional field results the client is now looking at further flowsheet development testwork by operations personnel, and also considering other Roche (MT) technology including WHIMS machines and flotation to achieve their grade and recovery requirements.

Austmine 2005

Roche (MT)'s General Manager, Glen Zille, attended Austmine's "Mining Innovation from Down Under" conference in July to deliver a paper to 300 participants from all over the globe.

"The conference was the largest ever held in Australia expressly for potential buyers of Australian mining equipment and technology, which was a perfect arena for Roche (MT) to discuss recent technological breakthroughs of the new MD high capacity spiral and the new generation Carrara high Tension Electrostatic Roll Separator," said Glen.

"Feedback from the conference has been very positive and Roche (MT) was proud to support the global Austrade network at this conference," he said.

Charity Splash

Roche Mining (MT) recently supported the WIN Television Skywest Variety Splash, a charity sailing event travelling up the West Australian coast from Perth to Darwin.

Glen Zille, Roche (MT)'s General Manager, said Roche (MT) sponsored 'Momentum', one of the 14 yachts that participated in the event that raised over \$180,000.

"The Variety Club does such a great job to raise awareness and funds for the sick, disabled and disadvantaged children in Australia each year, something that Roche (MT) is very pleased to be able to support," said Glen.

"The funds raised by the Variety Splash is granted back to local organisations and individuals in the regions visited, something that is particularly important in these geographically remote locations," he said.

The fleet, departed Freemantle on 30 April and

journeyed up the coast of Western Australia visiting the many coastal communities including Geraldton, Carnavon, Exmouth, Dampier, and Broome, before arriving in Darwin on 19 June.

Pictured below: The Roche (MT) sponsored "Momentum".



Transworld Garnet India commissioning

Roche (MT) successfully completed the commissioning of Transworld Garnet's first wet gravity processing facility in Andra Pradesh, India.

Tony Reading, Business Development Manager for the Indian sub-continent, said the commissioning was the final step in Roche (MT)'s involvement in the project.

"Our involvement began with the initial testwork on a 8 tonne bulk sample of raw sand in November 2002. The client soon recognised our experience and professional approach by entrusting us to develop the complete detailed plant design, as well as equipment recommendations and supply," said Tony.

"This project demonstrates our ability to assist clients in all stages of project development, with all the performance guarantee parameters either met or exceeded," he said.

"Roche (MT)'s patented MD Spiral separator technology has provided an unrivalled recovery and upgrade of the somewhat difficult to process heavy mineral sands found at this site," said Tony.

The incorporation of this new technology was supported by Roche (MT), providing technical support and staff training on site to integrate with the existing cultural and operational requirements.

"It is particularly satisfying to be involved in a project from its inception and to arrive at this point knowing this new plant will greatly enhance the efficiency of Transworld Garnet's Indian operations," he said.