



Case study

Tritton Copper Operations doubles wear life with Metso mill discharge pump

Background

Tritton Copper Operations is a long-life copper mine in central New South Wales, Australia. Commencing production in 2005, Tritton is one hundred per cent owned and operated by Aeris Resources.

The site processes up to 1.4 million tonnes of new feed per annum and is looking to ramp this up to 1.8 million tonnes per annum.

The pump setup from another supplier was showing signs of wear-related limitations. Wet ends required replacement every 1,200 hours — approximately every seven to eight weeks. Progressive wear in the case liners and throat bush areas was consistent with pumps operating outside their optimal range, leading to slurry recirculation and accelerated component degradation. As a result, the site experienced seven pump rebuilds per year, increased maintenance demands, and higher capital tied up in spare parts.

Following a review of site's comminution circuit by Metso experts, the optimal pump size and material were determined to maximize wear life and operational efficiency. The Metso mill discharge pump MDM250 was selected for its hydraulic design, which limits inlet velocity and enables operation at the best efficiency point. Its high-performance materials provide resistance against abrasive, corrosive and erosive slurries. The pump upgrade aimed to extend wear life to 2,184 hours (13 weeks), reduce rebuilds to four per year, and improve overall efficiency and reliability.

Challenge

- Frequent rebuilds due to rapid wear
- Safety risks from repeated changeouts

Solution

- Comminution circuit review
- Metso mill discharge pump (MDM250)
- Customized design for easy installation
- Digitally enabled pump

Benefits

- Wear life doubled
- Rebuilds reduced from 7 to 4 per year
- Improved reliability
- Improved hydraulic efficiency by 20%
- Decreased seal water by ~ 74%
- Reduction in site total cost of ownership

Customized design for seamless integration

The MDM250 was installed in 2023, with Metso delivering a complete package including the pump, a customized base to match the existing centre line height, spool pieces, drive components, and full on-site installation. The pump was engineered to fit within the existing footprint and accommodate the current motor, minimizing modification costs and simplifying integration.

A key advantage of the MDM design is its adjustable inlet liner, which allows internal clearances to be fine-tuned while the pump is operating. This capability reduces slurry recirculation, minimizes wear on the throat bush and liners, and directly contributes to the extended wear life achieved at Tritton.

Performance and reliability

Since commissioning, the MDM250 has matched — and in some areas exceeded — the reliability and efficiency of the previous pump. The HI chrome casing, impeller, and rubber liners have shown a significant increase in durability, with wear life effectively doubling from 1,200 to an average of 2,400 hours.

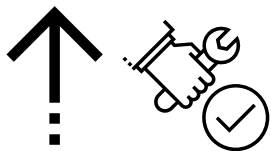
Pump efficiency has improved from 60.2% to 74.8%, delivering a 20% gain in hydraulic performance. Power consumption has dropped from 78.9 kW to 63.5 kW, helping reduce energy costs.

Seal water usage has also decreased significantly — from 0.67 l/s to just 0.17 l/s — lowering both operational costs and environmental impact.

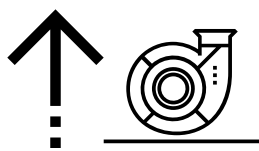
"The wear life has doubled, and we've gone from seven rebuilds a year to just four — it has made a real difference."

Maintenance Supervisor,
Tritton Copper Operations

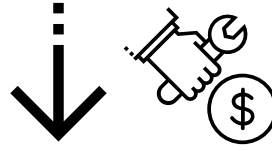
Maintenance, safety and cost



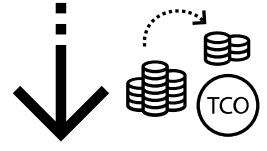
Maintenance and Reliability



Pump Availability



Labor Requirements



Total Cost of Ownership

Following installation of the MDM250, Tritton reduced rebuilds from seven to four per year. Achieving this target has eased the maintenance burden, improved planning flexibility, and enhanced safety by reducing man-hours required for changeouts.

Metso's digitally enabled pump has further improved maintenance and reliability performance. The reduction in labor requirements and downtime, along with the availability of critical spares, has improved operational efficiency and pump availability while lowering total cost of ownership (TCO).

Tritton and Metso – technical support and partnership

Tritton's partnership with Metso has been marked by strong technical engagement and responsive support. According to the site's maintenance supervisor, "The local team was responsive, knowledgeable, and proactive."



Newly installed MD pump ready for commissioning

Results

The MDM250 pump delivered strong results, successfully meeting the primary objectives of reducing rebuild frequency and extending wear life. In addition to these planned outcomes, Tritton also realized notable improvements in operational efficiency, energy consumption, and water usage.

The pump's reliability exceeded expectations, enabling more predictable maintenance planning and enhancing site safety. These performance gains have translated into measurable benefits across Tritton's operations.

Based on this positive experience, Tritton has identified potential value in deploying similar solutions across other high-wear, high-throughput applications. Building on this success, Tritton has recently awarded Metso the supply of a second mill discharge pump for the standby location. These outcomes were supported by the partnership with Metso, underpinned by close collaboration, technical expertise, and a shared commitment to Tritton's operational objectives.

Metso is a frontrunner in providing sustainable technologies, end-to-end solutions and services for the aggregates, minerals processing and metals refining industries globally. By helping our customers increase their productivity, improve their energy and water efficiency and environmental performance with our process and product expertise, we are the **partner for positive change**.

Metso

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