

Success Story

Quarry Rock - Magnetic Separation



Kinder Australia Product:	K-Magnetic Separator Pulley
Product Category:	Conveyor Pulleys & Lagging
Location:	New Zealand
Conveyed Materials:	Sand and 7mm Stone
Conveyor Belt Width:	750mm BW - 1.44mps
Installation Date:	August 2025



OVERVIEW

A leading concrete products manufacturer in New Zealand produces a wide range of blocks, bricks, tiles, and pavers. The company is known for delivering durable and visually appealing materials to residential and commercial projects. Maintaining high-quality standards is critical to their success and reputation.

CHALLENGE

Concrete manufacturing relies heavily on raw aggregates such as 6 mm stone and sand. However, these materials are often contaminated with small quantities of iron particles.

The manufacturer previously used a standard head drum pulley, the conveyor system had no means of separating metallic contaminants from the aggregates. This created several significant problems. Iron contamination remained present in the raw materials, allowing tiny metal particles to pass through the production process and become embedded in the final concrete products.

Over time, these metal particles oxidised, leading to visible rust staining on the surface of blocks, tiles, and pavers. This not only affected the appearance but also reduced customer satisfaction, as clients expect clean, uniform finishes that reflect the manufacturer's high-quality standards. The recurring issue of stained or defective products posed a reputational risk for the client, threatening its standing as a trusted and reliable supplier in the concrete manufacturing industry.

In addition, the contamination led to operational inefficiencies. Affected batches often required sorting, disposal, or rework, resulting in wasted materials, production delays, and increased costs.

- Iron contamination in raw materials led to rust staining in finished products.
- Surface rust reduced product appearance and customer satisfaction.
- Quality issues posed reputational risks for company's brand.
- Contamination caused operational inefficiencies and added costs.

SOLUTION

To eliminate the contamination issue, the manufacturer upgraded their conveyor system by installing Kinder's **K-Magnetic Separator Pulley**. This specialised pulley integrates powerful magnets into the head drum, allowing it to continuously capture and remove iron particles from the material stream. As aggregate passes over the pulley, non-magnetic stone and sand flow freely, while metallic contaminants are automatically extracted and separated.

Key features of this solution included:

- **Continuous, in-line removal** of iron particles.
- **Minimal maintenance**, as the system operates automatically during normal conveyor use..
- **High separation efficiency**, even with small, scattered contaminants within 6mm aggregates.



Project Management by Kinder's New Zealand Partner.



Photo: K-Magnetic Separator Pulley and Take Off Rail.

RESULTS

- Elimination of rust staining.
- Improved appearance and durability.
- Improved operational efficiency.
- Enhanced reputation.

The installation of the K-Magnetic Separator Pulley delivered immediate benefits. Iron contaminants are now efficiently removed before the mixing stage, preventing rust formation and ensuring clean, high-quality aggregates. As a result, finished blocks, pavers, and tiles maintain a consistent, stain-free appearance that meets customer expectations.

Operational efficiency has improved through reduced rework, less waste, and minimal downtime, as separation occurs automatically during conveying. This enhancement has strengthened the company's reputation for quality and reliability, reinforcing customer confidence and competitive advantage in the market.

The case demonstrates that magnetic separation technology is an essential investment for aggregate and concrete product manufacturers seeking to safeguard product integrity, customer satisfaction, and long-term market reputation.



Photo: K-Magnetic Separator Pulley installed at the head drum.

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