POWERSMART

SELF AIR COOLED BELT MAGNETS

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INDEX

POWERSMART SELF AIR-COOLED ELECTROMAGNETS EFFICIENT TRAMP METAL REMOVAL FOR BULK MATERIAL HANDLING

The MAGQUIP **POWERSMART** range of Self Air-Cooled Belt Electromagnets (ANS Series) is engineered for efficient and reliable removal of "tramp metal" from troughed conveyor belts. These powerful, circular-core electromagnets are installed above conveyors to protect downstream equipment such as crushers, screens, and mills from metal damage. Ideal for demanding applications in mining, quarrying, recycling, power generation, and more, **POWERSMART** belt magnets are designed to meet the highest standards of performance, energy efficiency, and environmental responsibility.

HIGH PERFORMANCE, NATURALLY COOLED

POWERSMART magnets utilise a "disc-wound" anodised aluminium strip coil, housed in a fully welded high-permeability steel casing. This design generates high coil amp-turns, producing a powerful, diverging magnetic field with exceptional flux density and gradient - critical for deep extraction of ferrous metals on wide, fast-moving belts at operating gaps of up to 850 mm (conveyors 450 - 3200 mm). Unlike traditional oil- or fan-cooled electromagnets, **POWERSMART** is 100% self-air-cooled. No fans, pumps, or oil are required - making it energy-efficient, low-maintenance, and environmentally superior.

OIL COOLED		SELF AIR COOLED
High (oil checks, leaks)	MAINTENANCE NEEDS	Low (no fluids)
Oil spills, fire hazard	ENVIRONMENTAL RISK	Minimal
Heavy & bulky	WEIGHT	Lighter & compact
Complicated (bund required)	INSTALLATION COMPLEXITY	Simple plug-and-play
High	DOWNTIME RISK	Low

THE POWERSMART ADVANTAGE COMPARED TO OIL-FILLED OR FAN-COOLED DRY MAGNETS, POWERSMART OFFERS CLEAR BENEFITS:

- No oil management - top-ups, disposal, or bunding not required
- Zero risk of oil leakage or spillage
- 10-year coil guarantee
- Certified safe for hazardous environments [Zone 1 flameproof / DIP 21/22]
- Lower energy consumption - up to 50% less kW draw than oil filled equivalent
- Reduced total cost of ownership [TCO]
- Lightweight design without oil mass and steel reduction
- Stable high amp-turn performance even in hot climates, no coil de-rating required
- Lower inter-turn voltages (foil vs wire)
- Highest coil fill factor in its class
- Superior thermal management - no hotspots

READY FOR THE FUTURE

As industries move toward sustainable, low-maintenance technologies, self-air-cooled electromagnets like POWERSMART are rapidly becoming the standard - outperforming and outlasting oil-cooled legacy systems.

POWERSMART: **CLEANER. SMARTER. STRONGER.**

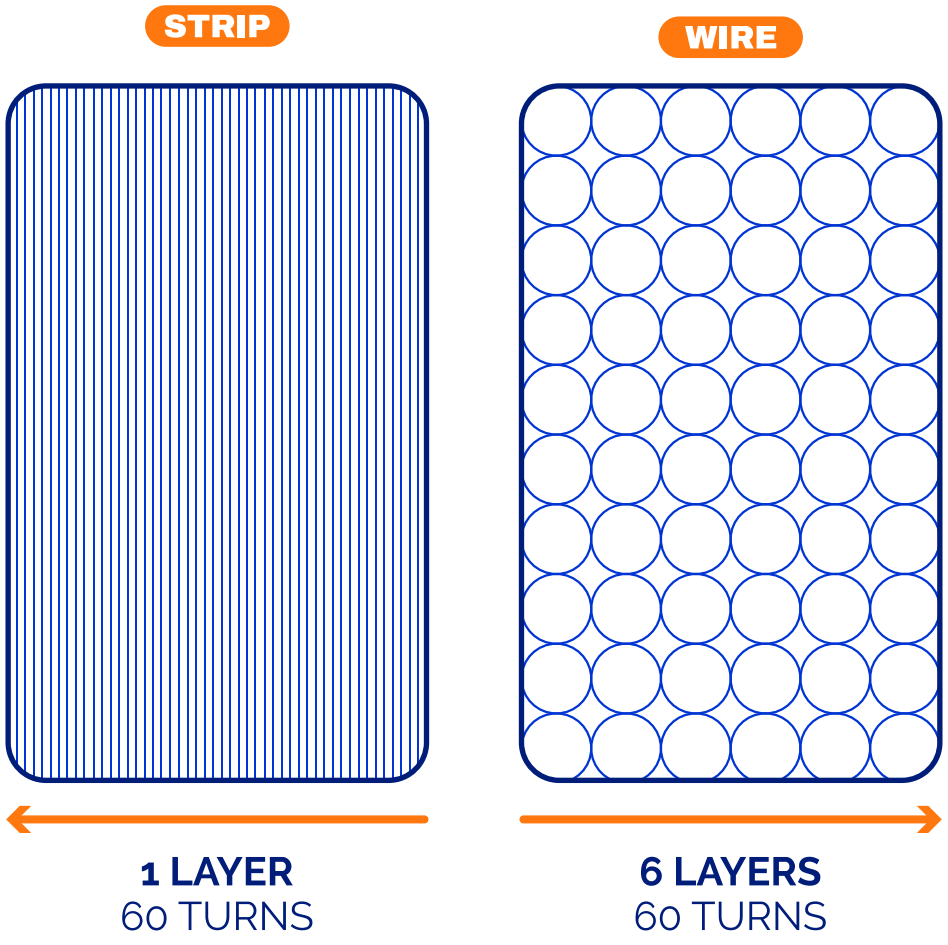
WHY ANODISED ALUMINIUM STRIP?

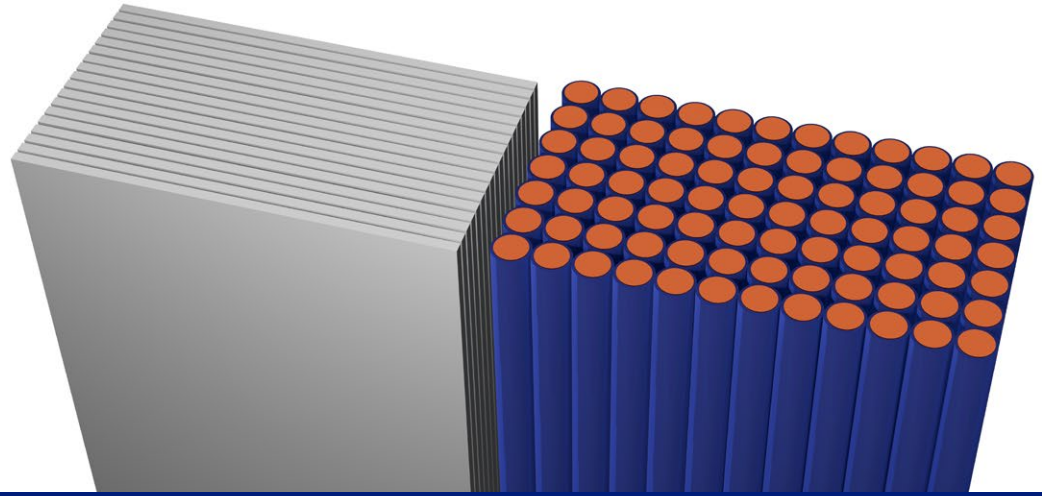
Thermally Stable: Handles temps up to 500˚C; oxide insulation remains stable well beyond copper's oxidation point.

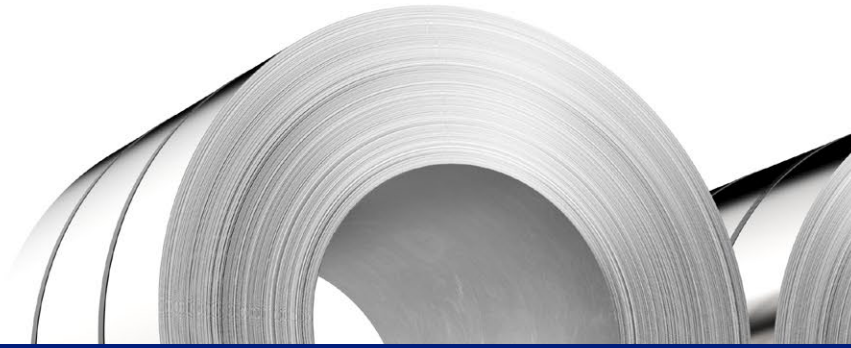
Lightweight: Up to 50% lighter than copper, reducing load on structures and easing installation.

Superior Heat Dissipation: Flat strip geometry transfers heat efficiently, minimising hotspots and thermal fatigue.

Compact & Efficient: Achieves >98% coil fill factor vs. 66% with round wire; lower inter-turn voltages mean less insulation.





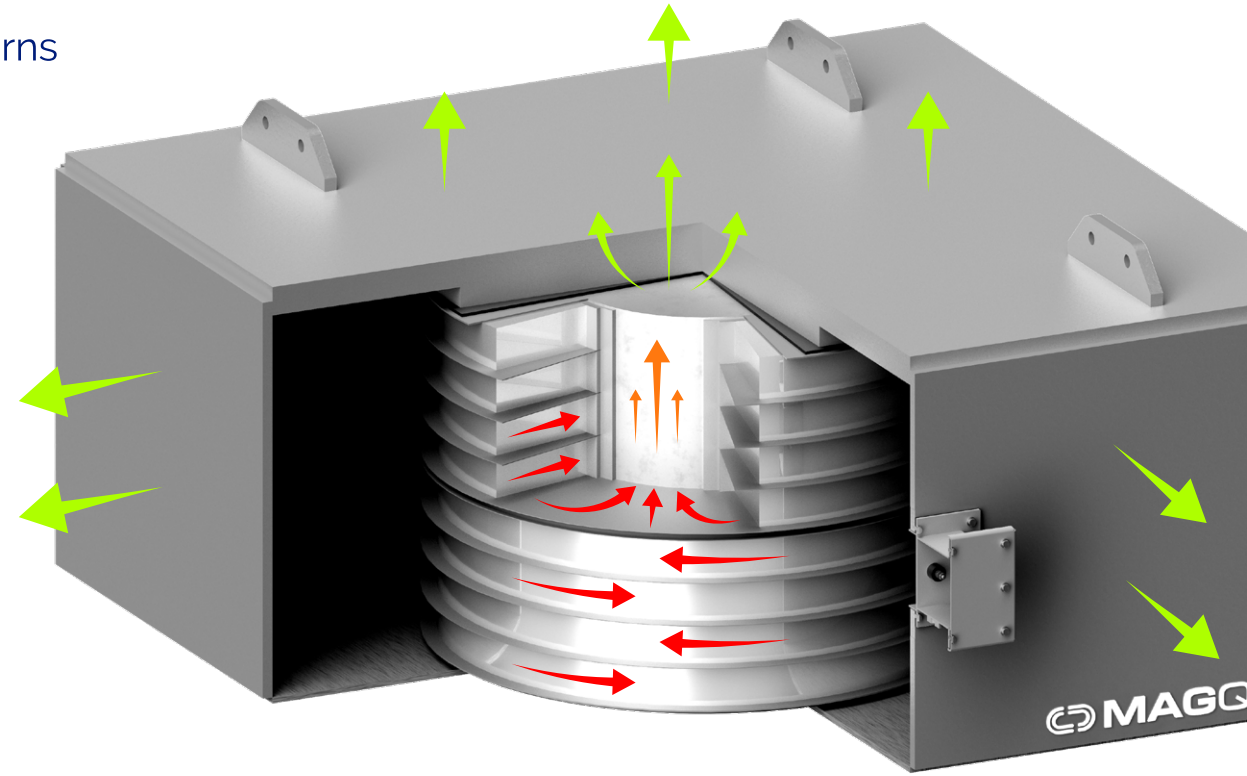


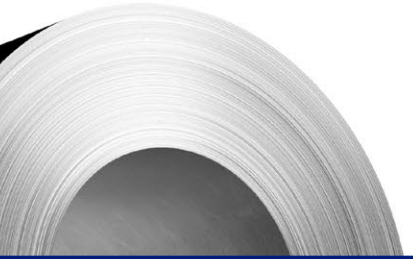
HOW IT WORKS

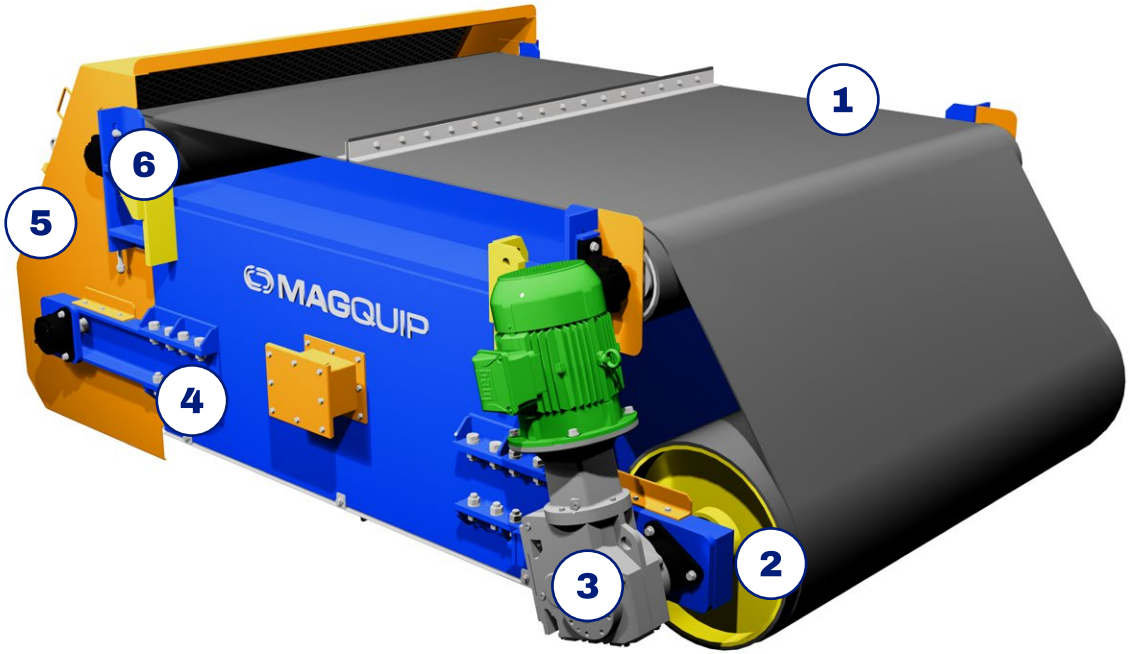
The magnet's coil is wound directly onto a circular steel core using anodised aluminium foil, a conductor with an integrated ceramic oxide insulation layer. This allows for:

- **Superior heat transfer** via the core and backbar (no hotspots)
- **Exceptional coil fill factor** (>98%) vs. 66% typical in wire-wound coils
- **Low inter-turn voltage** and excellent dielectric performance
- **Reduced power consumption** due to higher turns and lower current (fewer Joule losses)

This unique build allows the core itself to act as a heat sink, radiating heat naturally through the enclosure - eliminating the need for oil baths, fans, or sealed cooling systems.





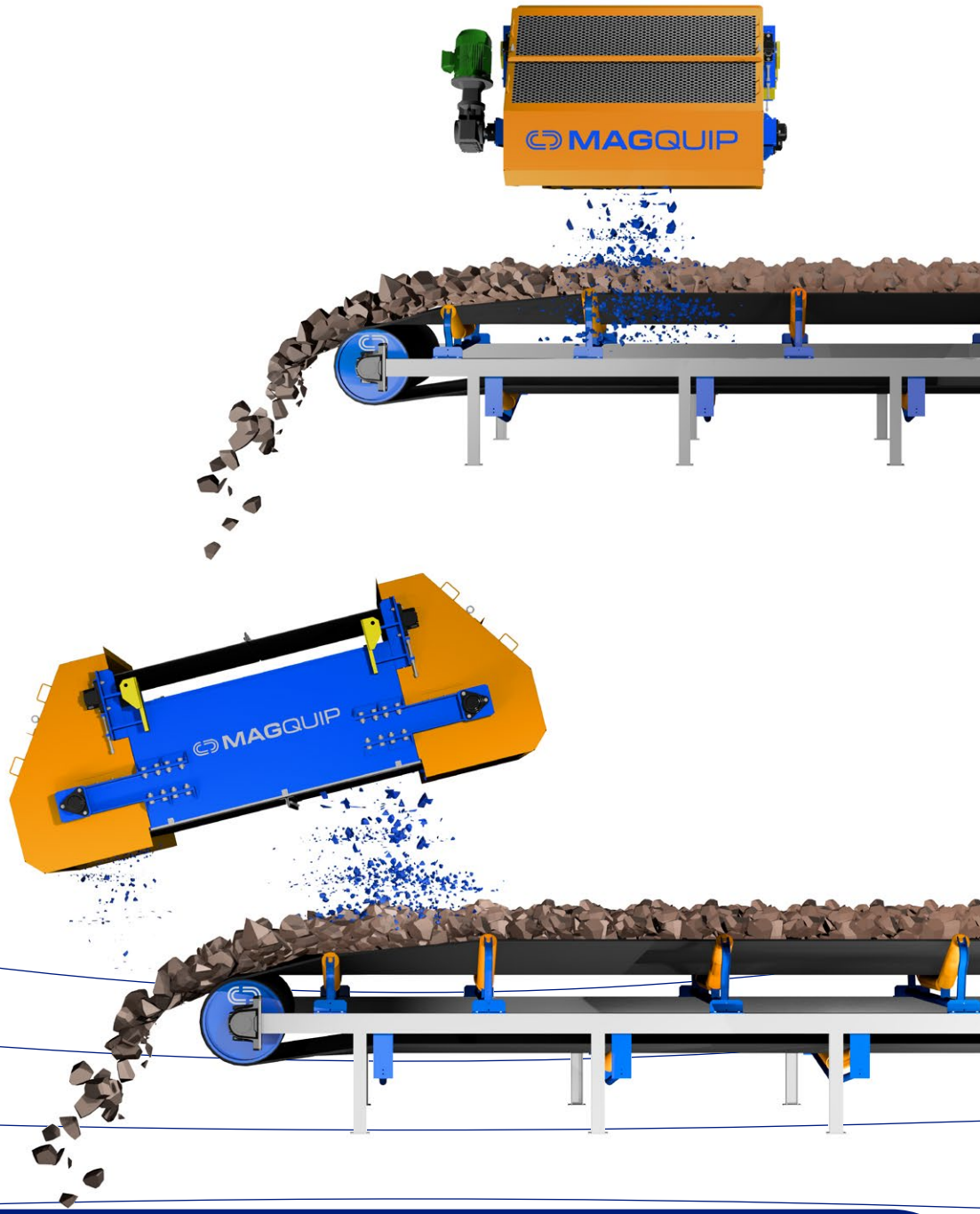


1. Rubber & Polyester cleaning belt with stainless steel cleaning strips.
   Optional armour-clad belt available
2. Diamond back rubber lined pulleys with crowning for automatic belt tracking
3. Direct Drive system
   Helical bevel gear unit with IE3 premium efficiency electric motor IP66
4. Removable bolt on pulley support channel for easy maintenance and for conversion of MC type magnet to SC
5. Pulley guarding for safety.
   Fully enclosed guarding available as option
6. Vertically adjustable idler pulleys for onsite belt tracking

SELF CLEANING BELT MAGNETS

Advantages SC

- Continuous automatic removal of tramp metal, reducing manual intervention and downtime
- Ideal for high tramp iron loads in heavy-duty conveyor applications
- Maximises plant efficiency by maintaining consistent magnetic separation performance
- Preferred solution when performance and automation take priority over upfront cost

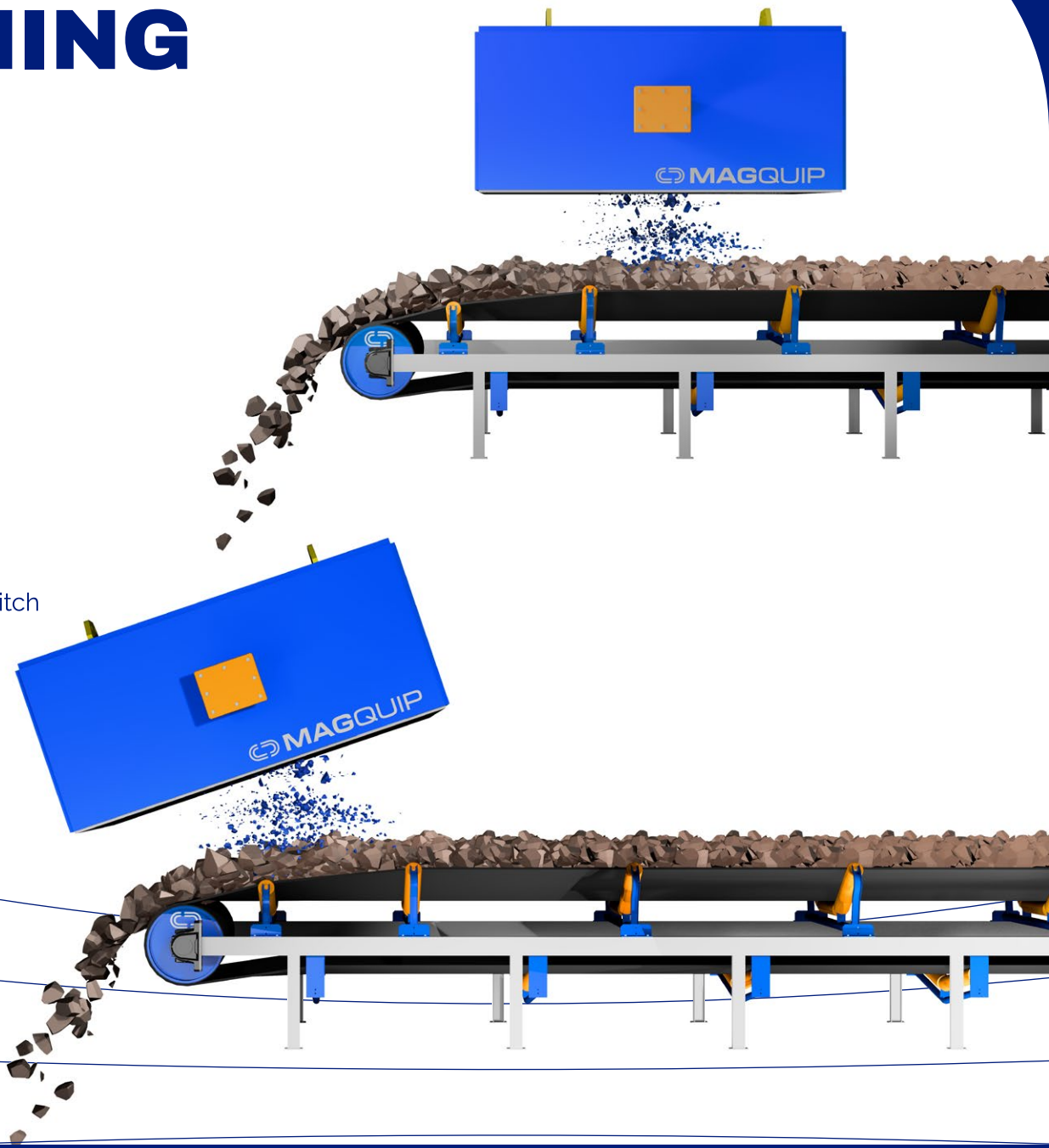


ATEX version available

MANUAL CLEANING BELT MAGNETS

Advantages MC

- Cost-effective solution for applications with low tramp iron volumes
- Minimal maintenance requirements with no moving parts
- Lightweight and easy to install, ideal for space-limited areas
- Smaller operating gap improves magnetic performance as no cleaning belt is present
- Tolerant of steeper conveyor angles, with less sensitivity to pitch
- Simplified design with fewer wear components and lower long-term upkeep



ATEX version available

APPLICATIONS

- Bulk materials handling conveyors
- Mining & quarrying belt systems
- Ore processing plants
- Cement, coal, aggregate operations
- Metal recycling

GET IN TOUCH

Discover how **POWERSMART** can reduce your maintenance load, lower your energy use, and enhance equipment safety - without compromising magnetic separation performance.

www.magquip.com

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MAGQUIP GLOBAL REACH

INTERNATIONAL PRESENCE

At Magquip, we pride ourselves on being a trusted supplier of magnetic separation and material handling equipment to clients around the world. Our commitment to engineering excellence, durability, and innovation has positioned us as a preferred partner for industries operating in demanding environments across Africa and beyond. Whether it's through our robust self air-cooled electromagnets or custom-engineered solutions, we consistently deliver internationally compliant products that meet the highest performance standards - ensuring reliability, efficiency, and long-term value wherever our equipment is used.

OUR BASE OF OPERATIONS

1202 Beitel Road, Robertville, Johannesburg,
Gauteng, South Africa
1700