

ERIEZ



MAGCHARGE™

AUTOMATED GRINDING MEDIA CHARGING SYSTEM



ERIEZ
GLOBAL LEADER IN SEPARATION TECHNOLOGIES

About Eriez

Established in 1942, Eriez stands as a pioneering force in separation technologies, embodying a truly global presence. With 12 wholly owned subsidiaries across the globe, we proudly design, manufacture, and support our magnetic separation, flotation, metal detection, and material handling equipment on an international scale.

Our dedicated team of knowledgeable and experienced sales engineers collaborates closely with customers, understanding their unique challenges to deliver dependable, high-performance equipment, systems, and solutions. Whether clients require our standard equipment or custom solutions tailored to their precise specifications, Eriez delivers.

Drawing from more than 80 years of experience across diverse industries, including mining and minerals processing, food, processing, and packaging, aggregates, metals recycling, and many other sectors, Eriez leverages its extensive experience to design and supply products that elevate productivity, efficiency, and product purity.

Eriez remains steadfast in its commitment to setting the global standard for excellence in key technologies, driving innovation and reliability across industries worldwide.

Safe & Automated Grinding Media Handling

Designed for SAG and Ball Mills

The Eriez MagCharge™ Automated Grinding Media Charging System delivers steel grinding media to mills safely and reliably. By eliminating manual handling, the system improves grinding efficiency and supports modern automation initiatives in mining and mineral processing plants.

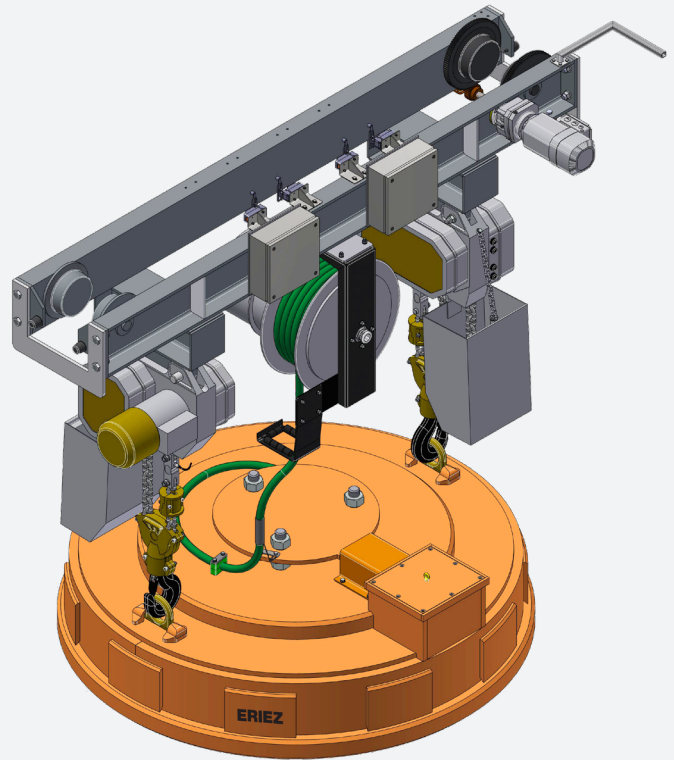
Comminution is a critical stage of mineral beneficiation. Reducing particle size helps to liberate minerals more effectively. Steel grinding media plays a crucial role in this process, facilitating ore breakage in Semi-Autogenous Grinding (SAG) and ball mills.

Maintaining an optimum grinding media charge is essential for efficient mill operation. Inconsistent media addition can reduce throughput, increase energy consumption, and negatively impact downstream recovery.

The Risks of Manual Charging

Traditional ball charging methods often rely on manual handling near operating equipment, exposing personnel to suspended loads and other hazards. The MagCharge Automated Grinding Media Charging System provides a safer alternative by mechanically regulating grinding media transport and delivery, ensuring consistent media addition while removing personnel from hazardous operating risks.

Avoiding manual handling near moving equipment lowers the chance of lost time or injury while reducing exposure to hazards associated with working directly under suspended loads. Worker exposure to equipment failure, improper maintenance, inadequate exclusion zones, and poor isolation or lockout procedures is also significantly reduced.



Advantages of Automation

- Eliminates manual handling
- Removes workers from dangerous contact points
- Prevents exposure to falling objects
- Allows continuous, controlled feeding

Applications

Manual or kibble-based charging systems can be replaced by new and retrofit installations.

- Copper
- Gold
- Iron ore
- Base metals



How the System Works

The MagCharge uses an electromagnet to capture, lift, transport, and release steel grinding balls. These ferromagnetic balls are fed from bulk storage, such as ball bins or hoppers, to the lifting magnet, where they attach to the magnet surface.

Charging Sequence

In SAG and ball mills, a drum rotates, carrying the balls upward. When the balls move beyond the effective magnetic field, they release from the magnet and drop into the mill feed chute.

Operational Benefits

Automated charging helps maintain a stable ball charge, which supports consistent grinding performance and efficient mill operation. By reducing variation in ball loading, the system helps improve throughput, particle size distribution, energy efficiency, operator safety, process consistency, and equipment reliability.

System Benefits

Enhanced safety: Eliminate manual handling and reduce exposure to suspended loads

Consistent charging: Maintain accurate feed loads to help increase grinding efficiency.

Precision sorting: Meter grinding media without the need for direct human interaction

Lower operating costs: Reduce labour, downtime, and maintenance requirements

Industry 4.0 ready: Integrate with plant control systems and advanced charging strategies

Key Components

Circular Lifting Magnet

The MagCharge's high-strength circular lifting magnet is designed to capture and transport grinding media.

Trolley & Hoist

The trolley and hoist provide precise horizontal and vertical movement between loading and discharge points.

Cable Reel

The cable reel assembly automatically manages power and control cables as the trolley moves, maintaining proper tension and preventing cable damage.

Cable Management System

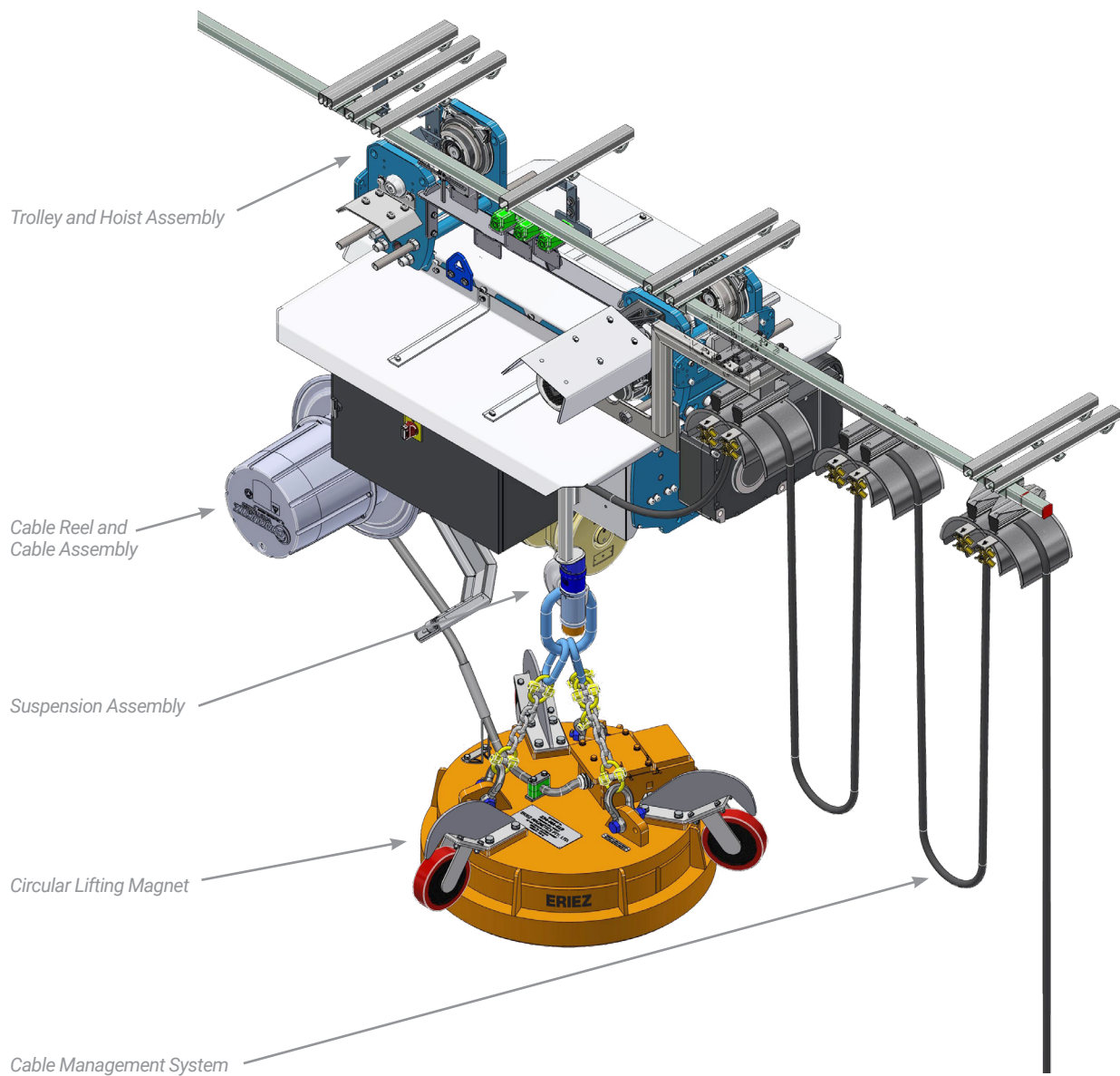
The cable management system provides organized routing and protection of power and control cables throughout the system. Available in cable reel, festoon, or catenary configurations.

Automation and Controls

Interfaces with local or plant control systems for automated or semi-automated operation.



Detailed System Features



Operating Principle

Grinding media is attracted to the magnet surface, transported to the discharge location, and released into the mill feed chute.

System Configurations

Available for underslung and top-riding crane arrangements, with manual, semi-automatic, and fully automatic control options.

Applications

Suitable for copper, gold, iron ore, and other mineral concentrators in both greenfield and retrofit installations.

Design Considerations

System selection is based on media size, charging rate, installation space, and plant automation requirements.



Specifications

Standard Sizes

Standard sizing specifications listed. Contact Eriez for custom sizes.

Magnet Diameter	Media Size Range	Application
0.61 m	25–100 mm	Small Mills
1.016 m	50–125 mm	Medium Mills
2.03 m	75–150 mm	Large SAG/Ball Mills

System Specifications

Control Modes:
Manual, Semi-Automatic, Fully Automatic

Crane Type:
Underslung or Top Riding

Power Supply:
Transformer/Rectifier System

Control Integration:
Local HMI or Plant DCS/PLC

Installation:
Indoor or Outdoor

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HEADQUARTERS

2200 Asbury Road • Erie, PA 16506-1402 U.S.A.
+1-814-835-6000 • eriez@eriez.com
www.eriez.com

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Australia
Epping, Victoria
+61 3 8401 7400



Brazil
Belo Horizonte, Minas Gerais
+55 31 3281 9108



Canada
Delta, British Columbia
+1 604-952-2300



Chile
Las Condes, Santiago
+56 2 29523400



China
Qinhuangdao and Tianjin
+86-22-8390-4608



Germany
Ennepetal
+49-2333-9753931



India
Athipet, Chennai
+91-044-2652-5000



Japan
Urayasu, Chiba
+81-47-354-6381



Mexico
Querétaro, Tlalnepantla
+52 555 321 9800



Perú
Surco, Lima
+51 1 719 4150



South Africa
Boksburg, Gauteng
+27-11-444-9160



United Kingdom
Bedwas, Caerphilly
+44-29-2086-8501



United States
Erie, Pennsylvania
+1-814-835-6000