Eriez’ SE Series 7000 Suspended Electromagnets are specifically engineered for conveyor belt widths up to 84 inches wide to remove large, unwanted tramp metal objects to protect processing equipment and improve product purity.

**Features and Benefits**

- **EriezXpress™** EriezXpress products are always in stock and ready for next day shipped from Erie USA.
- **SE SERIES 7000** Suspended Electromagnets are specifically engineered for conveyor belt widths up to 84 inches wide to remove large, unwanted tramp metal objects to protect processing equipment and improve product purity.
- **Upgrades and Service** Eriez’ 5-Star Service Center, located in Erie, PA, utilizes Eriez’ internal technical staff to perform state-of-the-art on-site field testing, equipment re-manufacturing and full “as new” warranties.
- **Global Presence** Eriez’ 5-Star Service Center, located in Erie, PA, utilizes Eriez’ internal technical staff to perform state-of-the-art on-site field testing, equipment re-manufacturing and full “as new” warranties.
- **Manual Clean SE 7000 Electromagnets** When shipped in 10 days, Next fast ship program guarantees shipment of six different MC models in SE 7000 series equipped with respective power supplies. A variety of options are available:
  - Adjustable turbulence keys or cable ends
  - CSA, NEMA 685 or EN60034 junction boxes
  - Coil design options
  - Coolant options
  - CSA approved options

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**Eriez History**

- 1941 Orange Fowler Merwin, or “O.F.” as he was known, sold grinding machines. 
- 1941 O.F. Merwin invented a new magnetic alloy called “alnico” (a combination of aluminum, nickel, cobalt and iron), which possess magnetic strength up to 30 times that of cobalt steel.
- 1950 The company moved to its present site in Erie, Pennsylvania. 
- 1960 Erie Manufacturing Company, now Eriez, was acquired by the Pennsylvania State Welfare Trust Fund.

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**Manual Cleaning Models**

- **MC (Manual Cleaning) Models**
  - All MC models are designed to remove non-ferrous material and are recommended when occasional pieces or small amounts of iron may contaminate material flow. Available for 10-Day Quick Ship recommended when occasional pieces or small amounts of iron may contaminate material flow. Available for 10-Day Quick Ship
  - **Available in** SB-323S

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**Ask about ErieXpress™ shipments.**
Eriez’ SE Series 7000 Suspended Electromagnets are specifically engineered for conveyor belt widths up to 84 inches wide to remove large, unwanted tramp metal objects to protect processing equipment and improve product purity.

Features and Benefits
- **Upgrade coil design**: for elevations greater than 3,000 feet above sea level
- **Upgraded coil design for high temperature**: Force-cooled units available for high temperature applications
- **23 magnet sizes**: 69 standard models and hundreds of special designs available for unique applications
- **Special options**:
  - 23 magnet sizes, 69 standard models and hundreds of special designs available for unique applications
  - Lift lugs now include two side-by-side holes to allow for simultaneous hoisting and slotted brackets, allowing the user to rotate the tank so the moisture drain is always on the low side
  - New adjustable oil expansion tank design for any installation angle is mounted with 4-40 screws
  - Five-year warranty on coil assembly
  - All MC models are cleaned of accumulated tramp iron by turning off magnet power periodically. MC models are recommended when occasional pieces or small amounts of iron are present. SC models provide completely automatic iron removal.

Global Presence
Through innovation, organization and diversification, Eriez Magnetics has evolved into a technologically advanced, financially sound international company with manufacturing facilities in Australia, Brazil, Canada, China, Europe, India, Japan, Mexico and South Africa, as well as the Erie, PA, U.S.A. headquarters. Eriez has sales offices across the United States and some 90 international markets on six continents. Eriez’ 5-Star Service Center, located in Erie, PA, U.S.A., helps Eriez’ customers’ equipment is quickly back in operation, functioning at peak performance. Our dedicated and experienced trained technicians are always available to serve you.

Manual Clean SE 7000 Electromagnets
- New FAST ship program guarantees shipment of six different MC models ranging from 42-inch square up to 78-inch square with respective power supplies. A variety of options are available:
  - Adjustable lumbars or cable slings
  - NEMA 4X, NEMA 4, or NEMA 16 junction boxes
  - Coil design options
  - Coated options
  - CSA approved options

The Eriez Technical Center
Erie magnets industry’s largest magnet, eddy-current and inspection system test laboratory at its Technical Center, adjacent to the headquarters plant in Erie, Pennsylvania, U.S.A. More than 100 pieces of specialized test equipment are on hand. New, customer products and their parts are analyzed confidentially for ways to separate or move, screen or detect them more efficiently and economically. Feasibility studies are also conducted.

ErieXpress™
ErieXpress products are always in stock and ready for next day shipment from Erie, USA.

Upgrades and Service
- Erie’s 5-Star Service Center, located in Erie, PA, U.S.A., offers online or remote equipment diagnosis by analyzing that equipment’s actual performance to determine the most effective ways to eliminate or reduce equipment downtime by ensuring that customers’ equipment is quickly back in operation, functioning at peak performance. Our dedicated and experienced trained technicians are always available to serve you.
- EriezXpress program streamlines the order-to-ship process by simplifying product ordering, modifying inventory control and designating a dedicated team to make it all happen.

Through Eriez’ strong customer-oriented philosophy, Eriez has identified those products most often ordered with fast shipment requirements. The EriezXpress program streamlines the order-to-ship process by simplifying product ordering, modifying inventory control and designating a dedicated team to make it all happen.

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6 MODELS AVAILABLE IN 10 DAYS. Ask about ErieXpress™ shipments.

Removes damaging tramp metal from coal, limestone, sand, gravel, municipal waste, wood products, recycled materials, other ores and almost any conveyed nonferrous material.
The SE magnet, providing tramp metal collection from conveyed materials, is a widely used magnetic separator. The electromagnet is typically mounted or suspended over a conveyor belt to remove large pieces of tramp metal that represent a hazard to downstream crushers, mills, pulverizers and grinders. SE magnets also remove sharp metal that can damage or tear expensive conveyor belts, especially at transfer points. Product purity is enhanced with the separation power of the SE magnet.

**Suspended Electromagnet (SE)**

**The industry workhorse**

The SE magnet, providing tramp metal collection from conveyed materials, is a widely used magnetic separator. The electromagnet is typically mounted or suspended over a conveyor belt to remove large pieces of tramp metal that represent a hazard to downstream crushers, mills, pulverizers and grinders. SE magnets also remove sharp metal that can damage or tear expensive conveyor belts, especially at transfer points. Product purity is enhanced with the separation power of the SE magnet.

**Design**

SE magnets consist of several components to provide the magnetic force necessary to collect large pieces of tramp metal. The coil, core, backbar and steel enclosure provide an efficient and effective magnetic circuit for collecting tramp metal.

**Positioning Suspended Electromagnets**

Suspended electromagnets are typically mounted in one of two positions over a conveyor belt:

- **Position 1:** Magnet mounted just over the stream of material leaving the head pulley. (Note: Stainless steel head pulley is recommended.) This position normally provides the most effective tramp iron removal.
- **Position 2:** Magnet is mounted over the conveyor belt prior to the head pulley.

**Some factors influencing magnetic collection**

- **Belt speed:** As the belt speed increases, it becomes more difficult to remove ferrous components. Larger, stronger SE magnets may be required for faster belt speeds.
- **Burden depth:** As the burden depth on the conveyor belt increases, an increase in the magnetic field strength is needed to pull the tramp iron up through the deeper burden.
- **Size of ferrous component:** Small pieces of tramp metal (e.g., 1/4” hex nut, 1” cube, etc.) may be extremely difficult to remove especially when they are covered by a heavy overburden of material, compared to large items like shovel teeth, rail spikes or rebar.
- **Shape of ferrous component:** Steel plate has a high surface area relative to its weight vs. a sphere which has the lowest surface area relative to its weight. Therefore, flat plates and rod shaped tramp metal are easier to remove than spherical or cube shaped tramp metal.

**Figure 1** Major components of a suspended electromagnet

- **Steel Enclosure**
- **Steel Core**
- **Junction Box**
- **Expansion Tank**

**Figure 2** Manual cleaning suspended magnets

- **Position 1:** Magnet mounted just over the stream of material leaving the head pulley. (Note: Stainless steel head pulley is recommended.) This position normally provides the most effective tramp iron removal.
- **Position 2:** Magnet is mounted over the conveyor belt prior to the head pulley.

**Exclusive external oil expansion tank:** This unique feature has helped prevent damage to the coil by controlling the pressure relief valve as the magnet cools. The oil is always fully immersed in cooling oil. Compared to other devices, which have air space within the magnet housing, moisture may enter through the pressure relief valve as the magnet cools. The expansion tank helps prevent this moisture and keeps it out of the magnet.

**Figure 3** Finite element analysis and modeling of a suspended electromagnet’s magnetic field.

- **Belt speed:** As the belt speed increases, it becomes more difficult to remove ferrous components. Larger, stronger SE magnets may be required for faster belt speeds.
- **Burden depth:** As the burden depth on the conveyor belt increases, an increase in the magnetic field strength is needed to pull the tramp iron up through the deeper burden.
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**Figure 4** Typical magnetic field configuration of an electromagnet suspended over a conveyor belt. The magnetic field extends outward from the center of the magnet. The magnetic field is strongest at the center and diminishes towards the edges.

**Note:** Non-magnetic idlers recommended for beneath the magnet.
The SE magnet, providing tramp metal collection from conveyed materials, is a widely used magnetic separator. The electromagnet is typically mounted or suspended over a conveyor belt to remove large pieces of tramp metal that represent a hazard to downstream crushers, mills, pulverizers and grinders. SE magnets also remove sharp metal that can damage or tear expensive conveyor belts, especially at transfer points. Product purity is enhanced with the separation power of the SE magnet.

**Suspended Electromagnet (SE)**

The industry workhorse

**Design**

SE magnets consist of several components to provide the magnetic force necessary to collect large pieces of tramp metal. The coil, core, backbar and steel enclosure provide an efficient and effective magnetic circuit for collecting tramp metal.

Exclusive external oil expansion tank: This unique feature has helped prevent coil burnout on thousands of Eriez oil-cooled electromagnets. Heat and moisture, the greatest enemies of electromagnets, are effectively controlled by the expansion tank which ensures that the coils are always fully immersed in cooling oil. Competitive units provide air space within the magnet housing where damaging condensation forms when moist air seeps in through the pressure relief valve as the magnet cools. Eriez' expansion tank traps this moisture and keeps it out of the magnet.

- Belt speed: As the belt speed increases, it becomes more difficult to remove ferrous components. Larger, stronger SE magnets may be required for faster belt speeds.
- Burden depth: As the burden depth on the conveyor belt increases, an increase in the magnetic field strength is needed to pull the tramp iron up through the deeper burden.
- Size of ferrous component: Small pieces of tramp metal (e.g., 1/2" hex nut, 1" cube, etc.) may be extremely difficult to remove especially when they are covered by a heavy overburden of material, compared to large items like shovel teeth, rail spikes or rebar.
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Suspended electromagnets are typically mounted in one of two positions over a conveyor belt.

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- **Position 2**: Magnet is mounted over the conveyor belt prior to the head pulley.

**Some factors influencing magnetic collection**

- Belt speed: As the belt speed increases, it becomes more difficult to remove ferrous components. Larger, stronger SE magnets may be required for faster belt speeds.
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SE magnets consist of several components to provide the magnetic force necessary to collect large pieces of tramp metal. The coil, core, backbar and steel enclosure provide an efficient and effective magnetic circuit for collecting tramp metal.

Exclusive external oil expansion tank: This unique feature has helped prevent oil burnout on thousands of Eriez oil-cooled electromagnets. Properly designed, the greater expansion of the oil is effectively controlled by the expansion tank, which ensures that the coils are always fully immersed in cooling oil. Compared to other air space within the magnet housing, the expansion tank allows air escape through the pressure relief valve as the magnet cools. Condensation is trapped in this expansion tank, and kept out of the magnet.

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Eriez' SE Series 7000 Suspended Electromagnets are specifically engineered for conveyor belt widths up to 84 inches wide.

Features and Benefits

- **5-Star Service Center for Equipment Upgrades and Service**
  - Eriez' 5-Star Service Center, located in Erie, PA, allows customers to receive equipment upgrade assistance that meets their unique needs, streamlining of peak performance. Our dedicated and experienced technical service team is available through our hotline: 1-888-300-ERIEZ. We utilize original OEM parts and offer an on-site field testing, equipment re-manufacturing and full “no-seam” warranties.

- **Global Presence**
  - Though innovation, technology, and diversification, Eriez Magnetics has evolved into a technologically advanced, financially sound international company, manufacturing facilities in Australia, Brazil, Canada, China, Europe, India, Japan, Mexico and South Africa, as well as the Erie, PA, USA headquarters. Eriez has sales offices across the United States and some 80 international markets on six continents. Customer service is available 24/7, and we have our own independent product quality and lab test equipment. To ensure our products are of the highest quality and best meets our customer’s needs.

Eriez Model SE 7000 suspended electromagnets have several new design elements:

- **Features and models**

  **SC (Self Cleaning) Models**
  - SC models provide completely automated iron removal and can be installed on a “lop-ease” or “screw-down” position (see inside). Both SC models have a short belt conveyor built around the electromagnet to effect continuous removal of trapped iron from the magnet face.

  This system features a standard conveyor belt length, rugged but simple continuous channel frame, adjustable tautness, and dual-wound inducer with V-belt coupling to the VTC motor.

  **Eriez History**
  - In 1941, Orange Fowler Merwin, or “O.F.” as he was known, sold assembled equipment for his customers. Among the most common products sold for his customers were large "tramp iron" - strip doors of metal, such as oil-of-vine, sold to farmers and ranchers, that sometimes found their way into the grain the farmers bought for the mills. Eriez in 1948 investigated a new magnetic alloy called "alnico" (a combination of aluminum, nickel, cobalt, and iron), which possessed remarkable magnetic qualities, including peak magnetic strength up to 30 times that of cobalt steel. He devised a permanent magnet assembly in 1952 and sold it to a grain miller, this company was off and running.

  The Eriez Model SE 7000 suspended electromagnet has several new design elements: