

# Magnetic Scrap Drum Separators



ELECTROMAGNETIC AND PERMANENT DRUM MAGNETS

**ERIEZ**



# Magnetic Drum Separator

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Eriez Magnetic Drum Separators dominate the scrap metals recycling markets. The modern P-Rex Permanent Rare Earth Xtreme magnetic drum is the most powerful separator available to recover ferrous steel from other materials.

Eriez drums are used in the auto shedding, scrap metals, municipal solid waste, wood waste, slag, incinerator bottom ash, foundry sand and minerals processing applications. Depending on your application, Eriez offers a choice of agitating field to provide a cleaner ferrous or a radial field for maximum recovery.

## Low Maintenance

The drum shell that contacts the ferrous material is made of heavy manganese steel and is abrasion resistant for extended operating life.

## No Jamming

Eriez drum separators are completely enclosed; there is no possibility of pieces of iron jamming internally and stopping their operation. Outdoor installation with exposure to the weather presents no problems.

## Only Two Bearings

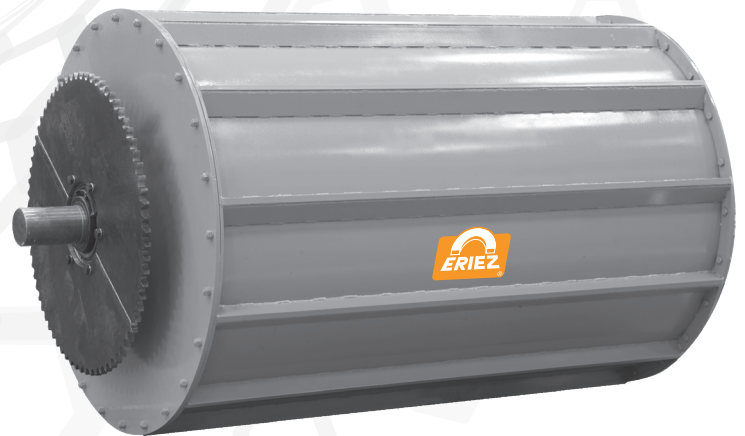
Virtually maintenance-free other than the occasional lubrication of the bearings and the drive chain.

## Easy Installation

The shaft clamp mounting blocks simplifies installation either by suspension or support from below.

## FEATURES:

- **Thick manganese steel shell with 3" (76 mm) vertical cleats**
- **Fabricated heavy duty end flanges with 3" (76 mm) high side skirts**
- **Heavy duty sealed bearings and drive option**
- **Suspension or base mounted support stand options**
- **Optional Traction Plate™ Drum Wrap**



# P-Rex<sup>®</sup> Drum Magnet

## The Evolution of the Scrap Drum Magnet

Eriez' innovative Permanent Rare Earth Xtreme<sup>®</sup> Drum Magnet, P-Rex<sup>®</sup>, is a breakthrough in ferrous separation. P-Rex's powerful permanent magnetic circuit designed using sophisticated modeling techniques is up to 40% stronger than an electro and is capable of recovering large spherical objects at twice the distance.

Current electromagnetic drum technology simply is not capable of sustaining a deep enough magnetic field to attract much of the "heavy spherical" ferrous during scrap metal processing. These heavy spheres, referred to as meatballs and knuckles, often contain valuable nonferrous metals and represent the most difficult type of object to capture magnetically.

While P-Rex maintains a constant strength profile, all electros are subject to significant strength loss due to heat gain.

### A Magnet's Toughest Challenge

Spheres are the most difficult objects to capture magnetically. Add to that in scrap processing many of these objects contain nonferrous metals and wire making magnetic attraction even more difficult. P-Rex is up to the challenge, able to reach into the shredded material and recover even these difficult meatballs.

### Optional Traction Plate<sup>™</sup> Drum Wrap

Eriez' Traction Plate<sup>™</sup> Drum Wrap significantly improves cleaning action by gripping ferrous, allowing it to agitate on the face of the drum and releasing fluff and dirt. The Traction Plate keeps the ferrous from sliding down and "clumping" on the cleat, which entrains more dirt and fluff.

- Innovative deep recessed pattern
- Made of 1/4" (6 mm) thick stainless steel

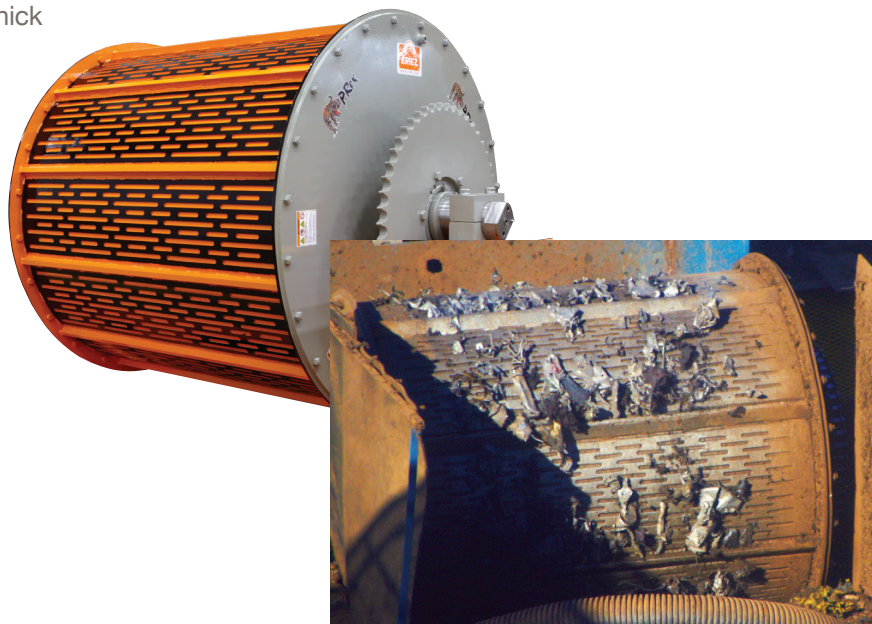


### BENEFITS:

- **40% Stronger during operation**
- **Significantly wider pick-up zone**
- **Edge-to-Edge performance**
- **No heat induced strength loss**
- **Agitates and flips material for cleaner ferrous**



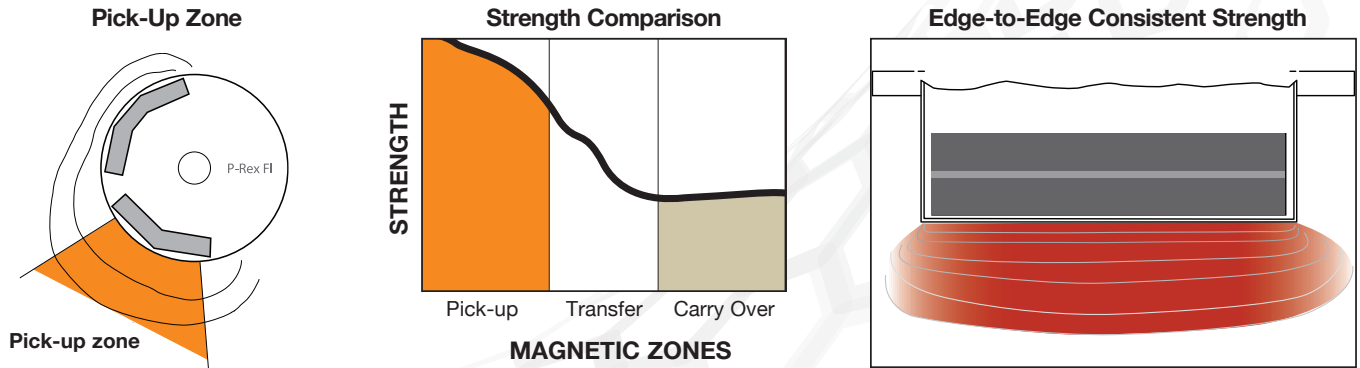
Deep magnetic reach and edge to-edge pick-up is common to P-Rex.



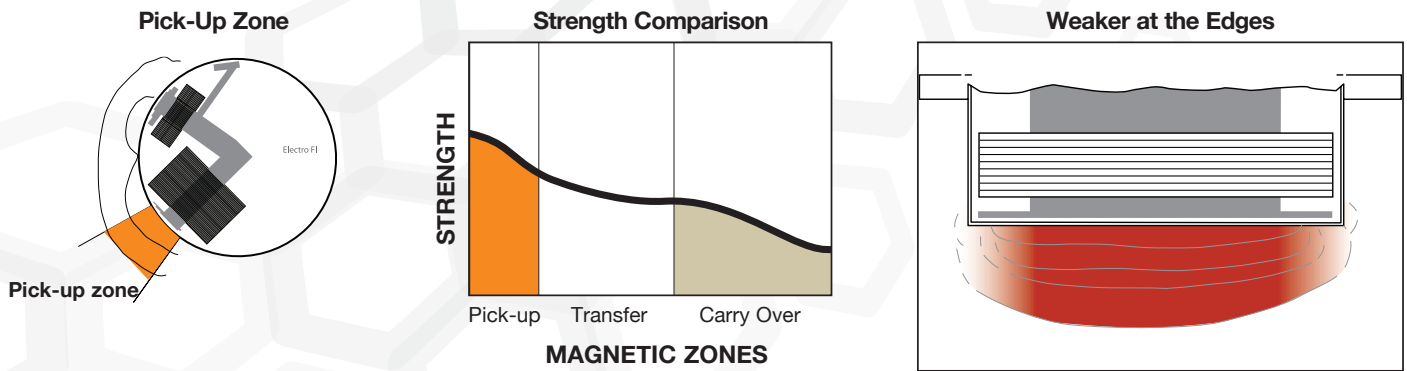
## P-Rex Permanent vs. Electro Magnetic Comparison

The magnetic profiles shown below provide a graphic illustration of the magnet's ability to extract ferrous and carry it to recovery. Large meatballs and knuckles require maximum strength to separate from the shred.

**P-Rex Magnetic Profile** – Exceptionally strong, wide pick-up zone for maximum ferrous recovery



**Electro - Hot Magnetic Profile** – Degraded magnetic strength curve over time diminishes recovery rates



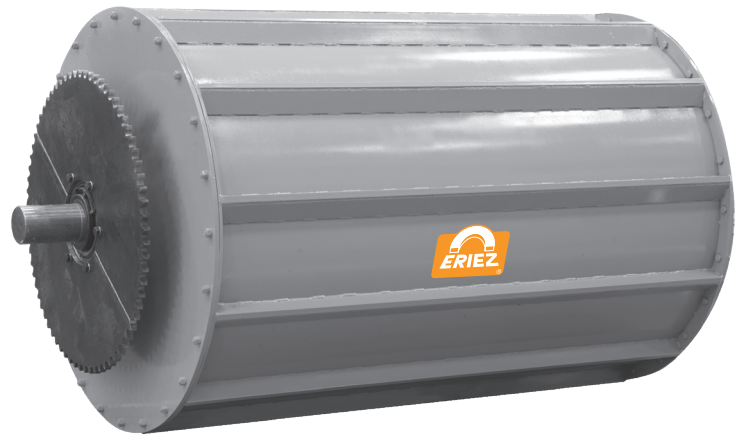
# Electro Magnetic Drums

All Electro Agitator type drums use a deep field rectangular-core pickup magnet to reach out and grab the ferrous, and a second rectangular-core agitator magnet to flip or agitate the ferrous, cleaning it of non-ferrous metals, fluff and trash. A double drum scheme with counter rotation (see Figure 1) will provide maximum cleaning.

Eriez non-agitating transfer design uses a deep field radial pickup magnet and pole shoes to convey or transfer the ferrous around the drum shell to the discharge area. When used in top feed schemes (see Figure 3) these drums will provide maximum recovery. Eriez scrap drums also have wider magnetic fields to handle increased tonnages.

## Options to Fit Special Applications

- Eriez-built rectifiers to convert AC power to 230 VDC. Units utilize avalanche diodes and the cabinet is available in NEMA 1, 3, 3R, 4, 4X, 12, or 9 construction.
- Replaceable shell wear wrap. Available in both multipiece, weld-on or bolt-on styles. This makes shell replacement easy in highly abrasive applications.
- Box type support frame with heavy steel channels and four turnbuckle suspension; this allows the drum to be supported over conveyors, oscillators and feeders.
- Optional Traction Plate™ Drum Wrap improves cleaning action by gripping ferrous, allowing it to agitate on the face of the drum and releasing fluff and dirt.
- Drive packages complete with TEFC gearmotor, chain, drive sprocket and chainguard.
- Zero speed switches to monitor drum shell RPM.



## Typical Drum Installations

Four recommended installations of drum separators are illustrated. Each will attain maximum recovery of ferrous material from properly prepared shredded scrap, municipal waste or other materials. A wide variety of diameters, widths and magnetic strengths are available to provide the desired capacity and degree of separation at the lowest possible cost. Consult your Eriez specialist for recommendations.

NOTE: This equipment is intended for use in areas where personnel are not in direct proximity. When personnel are assigned in separator areas, protective guards and/or other safety devices must be used.

### Style 1 - Double Drum

For the cleanest possible recovered metal without secondary shredding or air classification, a two drum installation as shown in Figure 1 is recommended. The first drum, suspended above the primary feed conveyor, picks up ferrous material from the waste and carries it up and over the top to the intermediate conveyor section. The bulk of the non-magnetic material falls to a take-away conveyor located below the primary separator. The drum rotates in a direction opposite to the material flow, insuring no jamming or bridging. Clean metal with only a minimum of non-magnetic material is deposited on the ferrous conveyor.

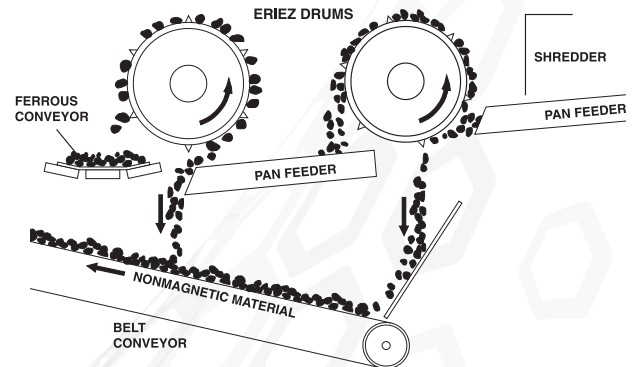


Figure 1

### Style 2 - Suspended Drum

This installation suspends the drum at the discharge end of a conveyor, using the trajectory of the discharged shredded waste to help separate loose non-magnetics and recover the ferrous materials. Feed to the separator can be either by belt conveyor, oscillating conveyor or chute.

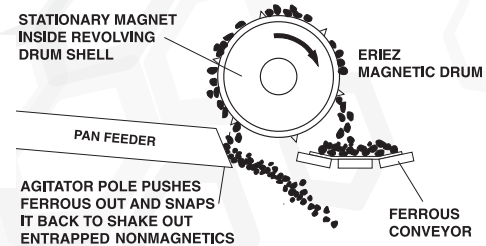


Figure 2

### Style 3 - Top Feed

Material is introduced to the top of the drum rotating in the same direction as the feed. This is recommended only for non-sticky products and large iron. It can be used to remove large liberated ferrous pieces from shredded or unshredded product.

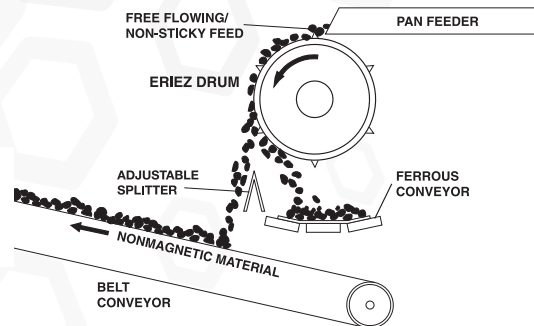


Figure 3

### Style 4 - Side Feed

This type of installation is typically used in foundries to remove large, heavy sprues, gates and risers from shakeout sand. The iron jumps to the magnet and is pushed/pulled over the top discharging on a ferrous take-away conveyor.

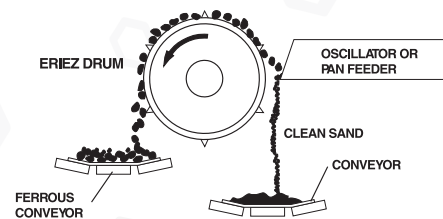


Figure 4



# ERIEZ

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