

# Installation, Operation and Maintenance Instructions



**MAGNA-RAILS®**

**ERIEZ MAGNETICS** HEADQUARTERS: 2200 ASBURY ROAD, ERIE, PA 16506-1402 U.S.A.  
*WORLD AUTHORITY IN SEPARATION TECHNOLOGIES*

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# Introduction

This manual details the proper steps for installing, operating and maintaining the Eriez Magna-Rail.

Careful attention to these requirements will assure the most efficient and dependable performance of this equipment.

If there are any questions or comments about the manual, please call Eriez Magnetics at 814/835-6000 for Ferrous Traps assistance.



## **CAUTION - STRONG MAGNET**

This equipment includes one or more extremely powerful magnetic circuits. The magnetic field may be much stronger than the Earth's background field at a distance several times the largest dimension of the equipment.

- If you use a heart pacemaker or similar device you must never approach the equipment because your device may malfunction in the magnetic field, with consequences up to and including death.
- To avoid serious pinch-type injuries caused by objects attracted to the magnet, keep all steel and iron objects well away from the equipment. Do not allow hands, fingers, and other body parts to be caught between the equipment and "workpiece" being lifted.
- Keep credit cards, computer disks, and other magnetic storage devices away from the equipment because magnetically stored information may be corrupted by the magnetic field.
- Keep electronic devices, such as computers or monitors, away from the equipment because exposure to the magnetic field may result in malfunction or permanent damage to such devices.

Contact Eriez if you have a question regarding these precautions.

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## **CAUTION**

Safety labels must be affixed to this product. Should the safety label(s) be damaged, dislodged or removed, contact Eriez for replacement.

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# Installation and Operation

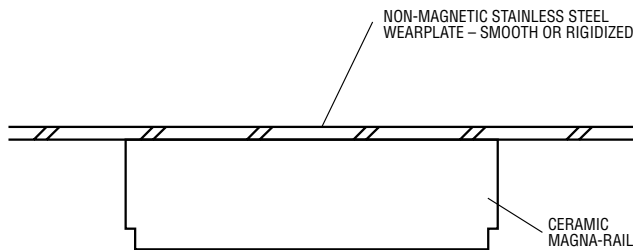
This Eriez Magna-Rail has been furnished to your specifications and with the magnetic strength planned to meet your requirements.

## Handling and Storage

This Magna-Rail should be handled with care and stored individually, preferably in the shipping carton until installed. The Magna-Rail should not be altered and the magnet castings must not be removed, since a loss of magnetic strength will result.

## Wear Plate

If this Magna-Rail has been furnished with a wear plate, the life of the conveyor belt will increase. In the event that this unit has been purchased without a wear plate, a simple nonmagnetic stainless steel (16 gauge) sheet can be applied, typically with appropriate adhesive, to the surface of the Magna-Rail. The wear plate, also referred to as a sliding plate, is to be located between the Magna-Rail and the conveyor belt.

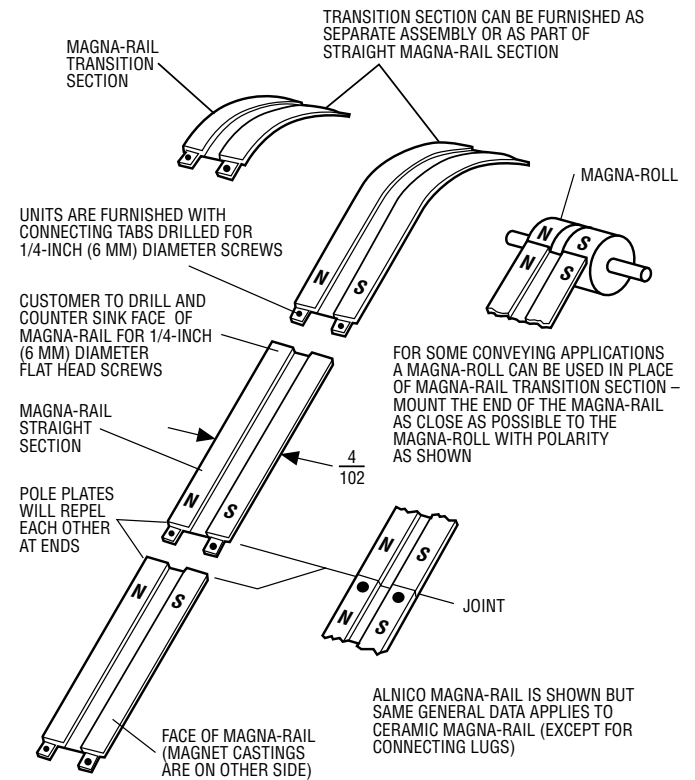


IF WEARPLATE IS TO BE ADDED TO CERAMIC MAGNA-RAIL, IT MUST BE DONE BY ERIEZ

**FIGURE 1**  
Wear Plate

## Long Multiple Section Magna-Rails

Magna-Rails longer than 10 feet (3 m) are usually constructed of two or more sections. The ends of these rails should contact each other with a repelling force. Mounting tabs or identifications are provided to prevent incorrect installation.

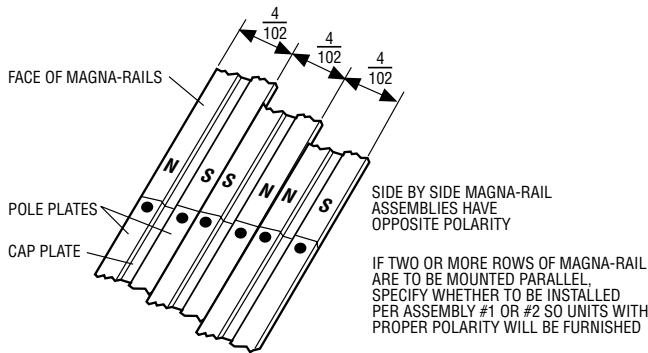


**FIGURE 2**  
Alnico Magna-Rail Sections in Tandem



### Multiple Row Magna-Rails

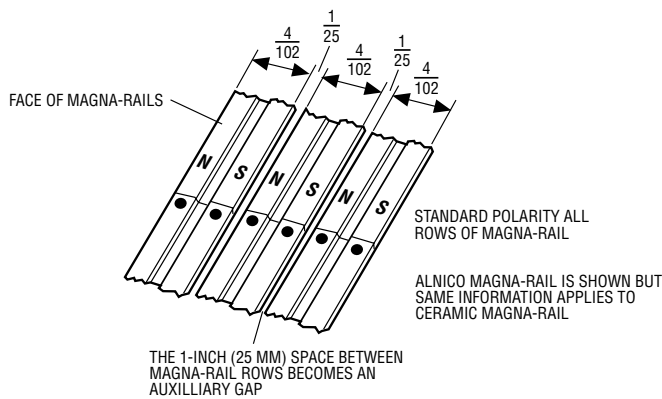
This installation may require two or more rails, placed so they contact one another (side by side for use on a wide conveyor belt). In this case, each Magna-Rail is to be positioned so that each unit repels the other (south polarity against south polarity, etc). The rails are marked with their polarity.



**FIGURE 3**  
Assembly 1

If a space between the Magna-Rails is desired, place the rails to have attracting polarity (south to north, etc).

**CAUTION - STRONG MAGNET!**  
Handle with care to avoid injury.



**FIGURE 4**  
Assembly 2

### Conveyor Belts

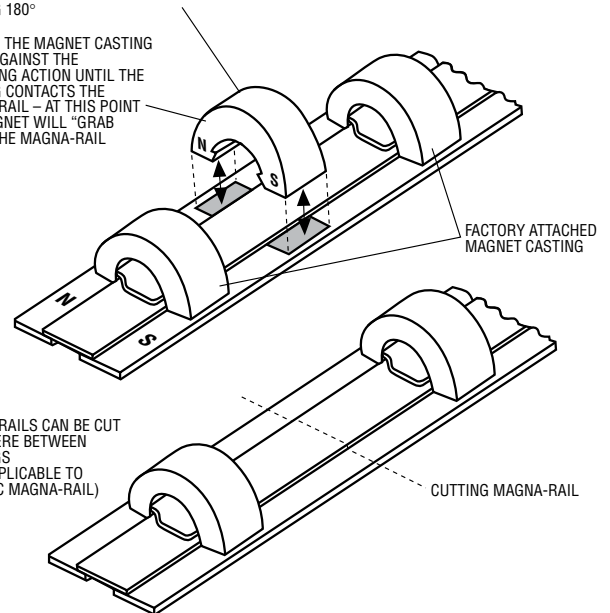
The conveyor belt used on all magnetic conveyors should be as thin as possible and of a nonmagnetic material. Ribbed type, cushion type, and cleated belting are often used for vertical conveying.

### Adding Additional Magnet Castings to Alnico Magna-Rails

Additional magnet castings can be installed in the field by inserting charged magnet castings on the steel pole plates. Position each added magnet casting so that the casting is repelled as it is placed on the Magna-Rail.

TO ADD MAGNET CASTING:  
1. DETERMINE POLARITY OF LOOSE MAGNET CASTING BY HOLDING IT FIRMLY OVER THE MAGNA-RAIL AS SHOWN - IF THERE IS A REPELING ACTION BETWEEN MAGNET CASTING AND MAGNA-RAIL THEN THE POLARITY IS AS MARKED ON THIS FIGURE AND IS CORRECT. IF THERE IS AN ATTRACTING ACTION THEN REVOLVE THE MAGNET CASTING 180°

2. PUSH THE MAGNET CASTING POLES AGAINST THE REPELLING ACTION UNTIL THE CASTING CONTACTS THE MAGNA-RAIL - AT THIS POINT THE MAGNET WILL "GRAB ONTO" THE MAGNA-RAIL



**FIGURE 5**  
Adding charged magnet casting to charged Magna-Rail

### Magna-Rail Mounting (Alnico)

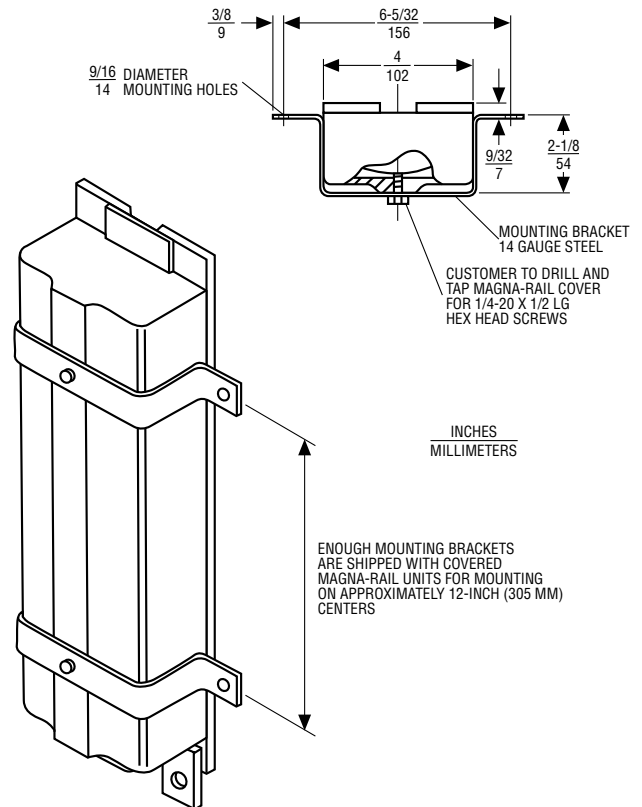
Mounting brackets contacting Alnico Magna-Rails are to be of nonmagnetic material. Mounting holes in the steel pole plates 1/4" X 1-1/2" (6 mm X 38 mm) can be supplied to your specifications or can be drilled at installation to suit your application.

Use 1/4" - 20 flat head machine bolts, countersinking the face of the Magna-Rail to keep the face or the top surface smooth. The nonmagnetic mounting brackets should span the Magna-Rail at approximately 24 inch (600 mm) centers, between the powerful Alnico V magnet castings. Allow a minimum distance of 3 inches (75 mm) between the sides of the Magna-Rail and any magnetic material.

### Magna-Rail Mounting (With Cover)

A smooth and sturdy aluminum cover is furnished for easy installation, protection against pilferage of magnet castings, and protection against loss of magnetic energy. With this covered Magna-Rail, Eriez supplies channel type brackets which can be mounted to the cover in any desired position. Each bracket is to be mounted with a 1/4"- 20 X 1/2" hex head machine bolt to the top of center boss of the cover. The end flanges of the bracket are in turn mounted to structural members of the conveyer assembly which run parallel with the Magna-Rail.

Use one bracket on each end of the rail, and space additional brackets at 24 inch (600 mm) intervals (maximum).

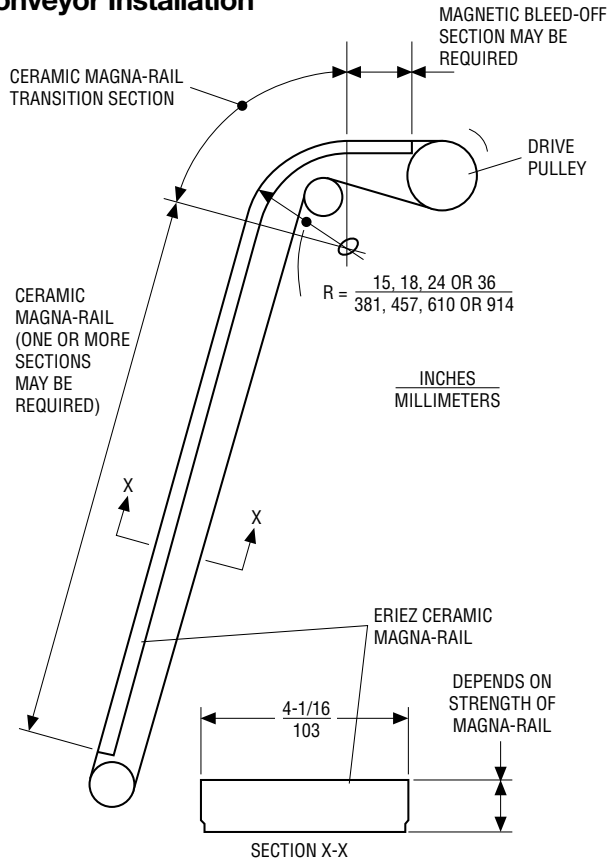


**FIGURE 6**  
Mounting covered Magna-Rails

## Ceramic Model CM Rail

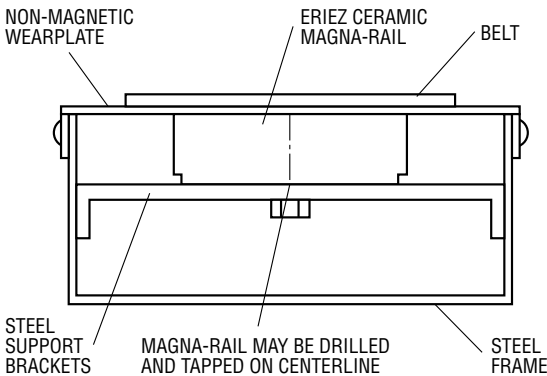
Mounting brackets may be bolted or welded to the back of the Magna-Rail in the designated mounting area along center of rail. Such brackets do not have to be of nonmagnetic material.

## Conveyor Installation



**FIGURE 7**

Basic magnetic elevator construction  
(using ceramic Magna-Rail)



**FIGURE 8**

Cross section showing typical mounting of  
Eriez Ceramic Magna-Rail in conveyor frame by user

## Alteration

Repair, alteration or disassembly of this magnetic equipment in the field without written authorization and instructions by Eriez Manufacturing Co., except as above described, nullifies the responsibility and guarantee of the manufacturer

## Welding

Contact Eriez before any welding is performed on Magna-Rails to avoid demagnetization.

*Note: Some safety warning labels or guarding may have been removed before photographing this equipment.*  
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**World Authority in Separation Technologies**

Headquarters: 2200 Asbury Road, Erie, PA 16506-1402 U.S.A.

Telephone: 814-835-6000 • 800-345-4946 • Fax: 814-838-4960 • International Fax: 814-833-3348

Web Site: <http://www.eriez.com> e-mail: [eriez@eriez.com](mailto:eriez@eriez.com)

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