

# Installation, Operation and Maintenance Instructions



**TUBE  
MAGNETS,  
GRATE  
MAGNETS &  
GRATE-IN-  
HOUSINGS**

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

---

# Introduction

This manual applies to Eriez Tube Magnets, Grate Magnets and Grate-in-Housings. The installation and maintenance procedures for these magnets are detailed in the text.

A careful reading of these Installation, Operation and Maintenance Instructions will assure your magnet's most efficient and dependable performance.

If there are any questions or comments about the manual, please call Eriez at 814-835-6000 for 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 nearby steel or iron objects.
- 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 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.

---

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

---

# Table of Contents

## TUBE MAGNETS, GRATE MAGNETS & GRATE-IN-HOUSINGS

GENERAL DESCRIPTION .....	4
FACTORS THAT AFFECT MAGNET PERFORMANCE .....	4
REPAIR & ALTERATION .....	4
WARNING .....	4
<b>TUBE MAGNETS</b>	
DIMENSIONS .....	5
<b>GRATE MAGNETS</b>	
INSTALLATION .....	5
MODEL P .....	5
MODEL S-1 AND S-2 .....	5
MODEL D-1 AND D-2 .....	6
MODEL BA .....	6
OPERATION & MAINTENANCE .....	6
<b>GRATE-IN-HOUSINGS</b>	
INSTALLATION .....	7
OPERATION & MAINTENANCE .....	7

## General Description

The Eriez permanent magnetic grate is a series of parallel thin-walled stainless steel tubes that contain a powerful magnet circuit. The tubes are spaced and held rigidly in position.

The grate will operate efficiently on almost any free-flowing material whose maximum size does not exceed 3/8" to 1/2" (10-12 mm) in diameter for the tramp iron models and 3/16" to 1/4" (5-6 mm) diameter for fine iron models. Tramp iron models have 2" (51 mm) tube spacing and fine iron have 1-1/2" (38 mm) magnet tube spacing.

Standard magnet circuits are suitable for temperatures below 150 degrees Fahrenheit (65°C). Special circuits are required for higher temperatures depending upon the application. Please review the Eriez order acknowledgment or contact your local salesperson if you have questions about the circuit provided and its temperature limitations.

## Factors that Negatively Affect Magnet Performance

### 1. Direct Current

Using welding equipment on or in close proximity to permanent magnet circuits can result in demagnetization.

### 2. Moisture

Liquids breaching the magnet's stainless steel enclosure.

### 3. Physical Abuse

Beating or dropping the magnet castings will cause them to shatter and crack tubes. Over time, the magnetic field will decrease.

## Repair & Alteration

Alteration or disassembly of the unit would disturb a carefully engineered magnetic circuit which could only be restored by returning the unit to Eriez for rebuilding and recharging.

Repair, alteration or disassembly of this equipment in the field without written authorization and instructions from Eriez will void the warranty.

## Warning

If your product is abrasive to the point of wearing through the stainless steel cover tubing, it will be exposed to the magnet material. This could be harmful to the quality of your product. If necessary, abrasion resistant coatings or wear plate options may be available for your magnet.

Examine each magnet tube for wear during your cleaning operation.



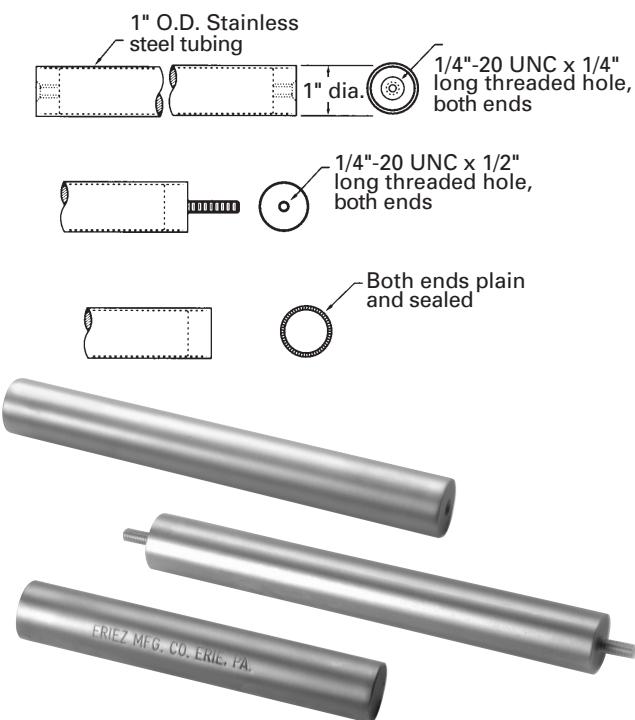
# TUBE MAGNETS

Individual magnetic tubes can be used to remove ferrous contaminants from liquids in tanks, as a quality control check of dry bulk materials and in many other ways where a powerful, portable magnetic power source is needed. All magnetic tubes are available with 1/4-20 UNC drilled and tapped end plugs, 1/4-20 UNC studs, or plain ends.

## Available In:

- Ceramic
- Rare Earth
- Alnico

## Dimensions



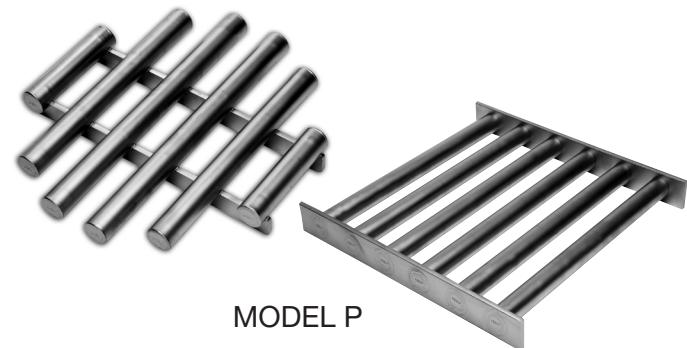
# GRATE MAGNETS

## Installation

### Model P – Grate Style

A magnet of the proper size has been furnished to fit the hopper of your machine. For employee safety and the best separation results, the hopper should be made with a non-ferrous material such as 300 series stainless steel, aluminum or plastic. Place the magnet in the hopper so that it lies flat. Optional deflectors are to be positioned on top of the grate magnet.

If your hopper is steep and the magnet side slips too easily, we suggest that clips or strips be fastened to the sides of the hopper to keep the unit level. The grate should rest on the ends of the magnet tubes.



### Model S-1 and S-2 – Wing Style

The wing type grate is designed for installation in a horizontal position with the angle grid on top. It can be placed in hoppers, closed vertical chutes, openings in floors, etc. The stainless steel wing can be bent if necessary to accommodate small variations in opening sizes. The grate should be in a location where it can be easily lifted out for frequent cleaning.



MODEL S-2  
Showing Optional Deflectors

## **Model D-1 and D-2 – Drawer Style**

The drawer grate is designed for installation in closed vertical chutes. It should be in a location where it can be pulled out for frequent cleaning.

Cut an opening in the chute 2-7/8" (73 mm) high for Model D-1 (single bank) or 4-7/8" (124 mm) high for Model D-2 (double bank) and cut the width wide enough to accommodate the frame of the grate. Mount grate support bars inside the chute even with the bottom of the opening to form a drawer slide. If desired, a latch may be installed by drilling the bolt hole 1-1/2" (38 mm) above the opening and fastening into position with the bolt furnished.



MODEL D-2

## **Model BA – Barrel Adapter Style**

The barrel adapter grate is simply placed onto the barrel with the flat collar resting on top of the barrel. Handles are mounted to the collar for easy transfer from one barrel to another.



MODEL BA

## **Operation & Maintenance**

The Eriez Permanent Magnetic Grate requires no maintenance other than periodic removal of accumulated tramp iron. The tramp iron must be removed as often as is practical, otherwise the magnetic field will short circuit and will not be as efficient until the iron is removed. To clean the magnets, simply lift or pull the grate out of the unit and wipe the tramp iron from the tubes with a wiping cloth wearing heavy duty gloves.

### **⚠ WARNING**

**Protect eyes, hands, other exposed parts of the body, and surrounding equipment to avoid injury or damage that might be caused by flying debris during the cleaning operation.**

Further cleaning can be obtained by using the sticky side of masking tape and blotting off the remaining ferrous material. Replace the grates in the unit.

Do not attempt to physically remove ferrous material from the magnet by beating the magnet against the floor or table. This type of handling will damage the magnetic circuit and possibly break the tubes away from the assembly.



# GRATE-IN-HOUSINGS

## Installation

Attach the housing firmly to your existing ductwork or supporting structure, making use of the flanges provided at top and bottom. If possible, position the grate section at a height above the floor that makes removing the magnets for cleaning convenient. When positioning and supporting the housing, keep in mind that a strong pull may be required to remove the grates for cleaning if they are heavily loaded with tramp iron.

## Operation & Maintenance

The Eriez Permanent Magnetic Grate-in-Housing is designed to operate in a line of vertical product flow. It requires no maintenance other than periodic removal of accumulated tramp iron. The tramp iron must be removed as often as is practical. Prolonged operation without cleaning will cause the magnets to magnetically short circuit and the grate will not be fully efficient until the iron has been removed. To clean the magnets, simply slide the grates out of the housing one grate at a time and wipe the tramp iron from the tubes with a wiping cloth wearing heavy duty gloves.

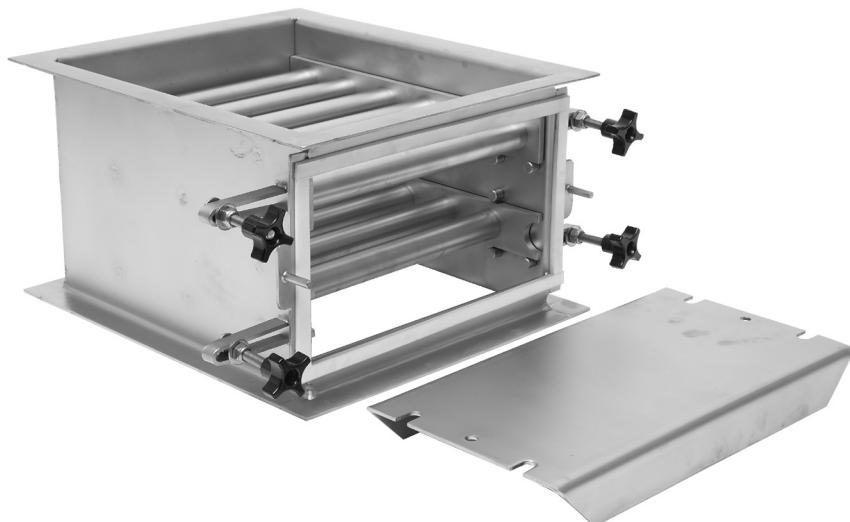
### **! WARNING**

Keep one grate in the housing while the other one is cleaned for safety reasons as these grates will violently attract to one another if both are removed at the same time.

Using the sticky side of masking tape will achieve close to 100% iron removal from the tube after wiping with a rag. Then replace the grate in the housing.

### **! WARNING**

Do not attempt to clean the magnets by “beating” it against the floor or table. The magnet will be damaged beyond repair. This will void the warranty.





**World Authority in Separation Technologies**

2200 Asbury Road, Erie, PA 16506-1402 U.S.A.  
Telephone: 814-835-6000 • Fax: 814-838-4960  
[www.eriez.com](http://www.eriez.com) e-mail: [eriez@eriez.com](mailto:eriez@eriez.com)

