

# Installation, Operation and Maintenance Instructions



## PERMANENT MAGNETIC FERROUS TRAPS

**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 Ferrous Traps.

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 at 814/835-6000 for Ferrous Traps assistance.

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## **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, 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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### Safety Warning

Do not install traps within several inches of structural steel supports or other magnetically attractive members. In this situation, a hand crushing incident could result when the magnet element is removed for cleaning. These magnets are extremely strong and quick to attract to any ferrous steel. Tools and tool belts should also be kept at a distance.



## Description

Eriez traps are designed to remove tramp iron from wet flowing material in pipelines. A trap consists of a body housing with inlet and outlet piping connections and internal stainless steel tube magnets. On one end of the body is a magnet access opening and cover. Magnetic elements can be Ceramic, Rare Earth, or Xtreme® Rare Earth. Pressure drop through a trap is approximately equal to a 90 degree elbow. Eriez has three models of traps for different pipeline sizes.

## Construction

### Model L

Model L traps are used in 2" pipelines but can be reduced with standard reducers to as small as 1/2" pipelines. The 316 SS housing has a 150 P.S.I. (10 Bar) working pressure. The magnet access cover, and attached magnet, is clamped to the housing.

### Order Option:

- A brass or stainless steel filter to catch and hold non-magnetic fines or lints may be included around the magnetic tube (Ceramic Magnets only).



**FIGURE 1**  
Model L



**FIGURE 2**  
Magnet tubes

### Model B

Model B traps are used in 2, 3, and 4" pipelines. The cast stainless steel body comes with standard pipe threads for installation. The cover/magnet assembly is clamped to the body housing. Working pressure is 150 P.S.I. (10 Bar). Rare Earth and Xtreme Rare Earth Magnets are rated up to 250°F (121°C) temperature. Standard o-ring is Buna-N material.

### Order Options:

- Slide-on steel screens that cover each magnet tube. (Ceramic Only)
- Easy-to-clean cover clamped to the body housing. The magnet cover is released with the cotter pin only after the clamp and easy-to-clean cover are removed from the body housing.
- Sanitary trap can be distinguished by the ACME threaded inlet and outlet.
- Other inlet and outlet options include: ferrule, cherry burrel, tri-clover, victaulic, flanged, and butt ends.



**FIGURE 3**  
Model B



**FIGURE 4**  
Magnet tube elements  
(standard and steel screen option)



### Model T

Model T traps are used in 6" to 36" diameter pipelines. The steel body comes with a bolted cover and 150 lb. pipe flanges on the inlet and outlet designed to be used with ASME B16.5 Class 150. The magnet cover is bolted in place. The magnet element is separate from the cover and is lifted out of the body housing using internal guides. Rare Earth and Xtreme Rare Earth Magnets are rated up to 150°F (65°C) temperature. Higher temperature magnet ratings are available.



**FIGURE 5**  
Model T and magnet element

### Model U

Model U traps are used in 3" and 4" pipelines. The cast stainless steel body comes with ACME threaded ends or ferrule ends. All Model U Traps are sanitary construction and are built to withstand working pressures up to 50 P.S.I. (3.4 Bar). The rare earth high temperature (up to 250°F) (121°C) magnetic element is clamped to the body. Order options include a 300 series SS step, 400 series SS step (has magnetic properties), and a double-thick rare earth magnetic element for the ultimate in ferrous contamination removal.

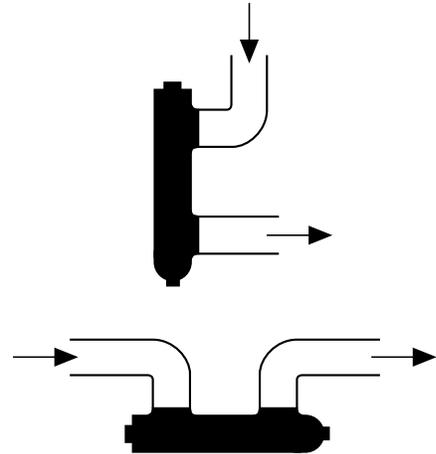


**FIGURE 6**  
Model U and magnet element

## Installation

### Model L

The body has (2) 2" N.P.T. internal ports. The inlet is on the end with the magnet opening cover. Installation requires two elbows and two pipe nipples on a straight line connection or one elbow and nipple on a 90 degree line location. The pipe nipple can be any length. Smaller pipeline reducers can replace the pipe nipples when applicable. Installation can be in any position desired but the two shown below are recommended.



**FIGURE 7**  
Recommended installation positions

### Model B

Unclamp and remove magnet cover, which includes magnets, before installation to reduce housing weight and prevent damage. Install housing by threading, clamping or bolting the ends to the existing pipeline. Flow can be in either direction. Orientation of the magnet access opening can be in any position desired but the top location is recommended on horizontal pipelines.

## Installation (cont.)

### Model T

Do not install in pipeline with working pressure over 75 P.S.I. (5 Bar). Install by bolting the 150 pound flanged inlet and outlet to the mating pipe flanges. Install a gasket between the mating flanges to insure a tight seal. The flow should be into the concave side of the magnetic element arrangement.

### Model U

Unclamp and remove magnetic element before installation to prevent damage. Install housing by threading or clamping supports to an existing pipeline. Flow can be in either direction for the housing but the element should be positioned with the tapered step perpendicular to the flow with the leading edge of the step oriented on the upstream side.

## Operation & Maintenance

There are no moving parts in an Eriez Permanent Magnetic Ferrous Trap. The magnetic elements are the only “working” component. As material flows over the magnetic tube elements, the powerful magnetic field reaches out to attract and hold ferrous contaminants.

The only maintenance required is periodic cleaning of the magnetic elements. **This cleaning is absolutely essential.** A loaded tube magnet will have rings of fine ferrous material approximately 1/8" (3 mm) thick. Overloading the magnetic tube elements with entrapped ferrous material will impair its efficiency and permit the passage of tramp iron. Frequency of cleaning is determined by the amount of ferrous contamination removed from the material.

To clean, unlatch the “over center” clamp and remove the element. Simply wipe the accumulated tramp iron from each tube until clean. Blotting the tube with the sticky side of masking tape will also aid in fine iron removal. Return the element into the trap body and re-latch the over center clamp. The adjusting nut for the clamp should be torqued to 45 in-lbs maximum. Torque beyond this value will deform the latch and render it unusable.

Operation or cleaning temperatures may adversely affect magnet performance or magnet life. Operation or cleaning of magnets above 150°F (65°C) requires special high temperature magnets.

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### WARNING

Do not attempt to clean the element by “beating” it against the floor or table. The element and magnet will be damaged beyond repair.

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### WARNING

If your product is abrasive to the point of wearing through the stainless steel cover tubing, your product will be exposed to the magnet material. This exposure could be harmful to the quality of your product. Examine each magnet tube for wear during your cleaning operation.

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# 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 our factory for rebuilding and recharging.

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

## 1. High Temperature

Standard rare earth circuits should not be subjected to temperatures in excess of 150°F (65°C). Special circuits are available for higher temperatures.

## 2. Direct Current

Welding equipment should not be used on or in close proximity to Eriez Permanent magnet circuits. Demagnetization can result from this.

## 3. Moisture

The raw magnet material should not be exposed to liquids. This would normally only result from breaching the magnet enclosure.

## 4. Physical Abuse

The magnet castings are brittle, and when subjected to repeated abuse such as banging on a table or dropping on the floor, the castings may shatter and the tubes may crack. Over time, abuse will cause the magnetic field will diminish.

*Note: Some safety warning labels or guarding may have been removed before photographing this equipment.*  
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