

# Installation, Operation and Maintenance Instructions



## **SELF- CLEANING MAGNETIC HUMP**

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WORLD AUTHORITY IN ADVANCED TECHNOLOGY FOR MAGNETIC, VIBRATORY and INSPECTION APPLICATIONS

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# Introduction

This manual details the proper steps for installing the Eriez Self-Cleaning Magnetic Hump.

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

If there are any questions or comments about the manual, please call the factory at 814/835-6000 for Magnetic Hump assistance.

# Table of Contents

## ERIEZ SELF-CLEANING MAGNETIC HUMP

GENERAL .....	4
INSTALLATION .....	5
OPERATION AND MAINTENANCE .....	6
REPAIR AND ALTERATION .....	6
FACTORS THAT AFFECT MAGNET PERFORMANCE.....	6



# General

The Self-Cleaning Magnetic Hump is designed primarily to remove tramp iron contaminants from free-flowing materials conveyed by gravity in vertical pipes or chutes.

The self-cleaning feature eliminates costly downtime during which the material flow must be shut off and the magnets in the hump body removed to manually remove the trapped iron.

Self-cleaning also eliminates the use of ladders or catwalks necessary to reach certain hump installations.

Two special Erium®-powered magnets are attached to the hump body by means of bearings and shafts. Air cylinders are mounted to the shafts, and when activated move the magnets away from the hump body. With the magnets away from the body, the collected iron drops free from what was the magnetic area.

The released iron falls to a ferrous discharge housing that has an air cylinder-activated diverter panel (or flop-gate) that directs the iron out a discharge leg. The diverter panel moves into the reject position before the magnets swing away to eliminate any iron discharge into the product area. A push button (in-out) station activates the magnets and the diverter panel all at one time. "Out" means the magnets swing away and the diverter sends the iron out the discharge leg. "In" swings the magnets back to the housing and the diverter to

a straight up position allowing material to flow to the next operation.

The three main electrical and air components are attached to a common mounting panel. (This panel is attached to the hump body for shipment.) The panel can be placed at any convenient location simply by removing the two air hoses connected to the solenoid (control valve) and to the air transfer housings on the hump body, and running longer hoses.

Besides the control valve there is an 'air' combo and a two-button (in-out) electrical enclosure (115v-60 Hz).

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

## OPTIONAL FEATURE

A digital setting general purpose automatic reset timer is available in place of the push button station. Normal voltage & frequency is 120/60 with a range of .1 to 999.9 minutes.

The timer is complete in a Nema 112 molded case.



FIGURE 1. OPERATING POSITION



FIGURE 2. CLEANING POSITION



# Installation

## **⚠ 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.

1. Bolt the hump assembly to chute work.
2. Attach maximum 100 psi air line to the filter/regulator/lubricator 'combo'.
3. Run two air hoses from the air control valve to air connections on the hump body (remove present air lines that are on the unit).
4. Wire and plug two-button station to a 115v 60Hz electric line.

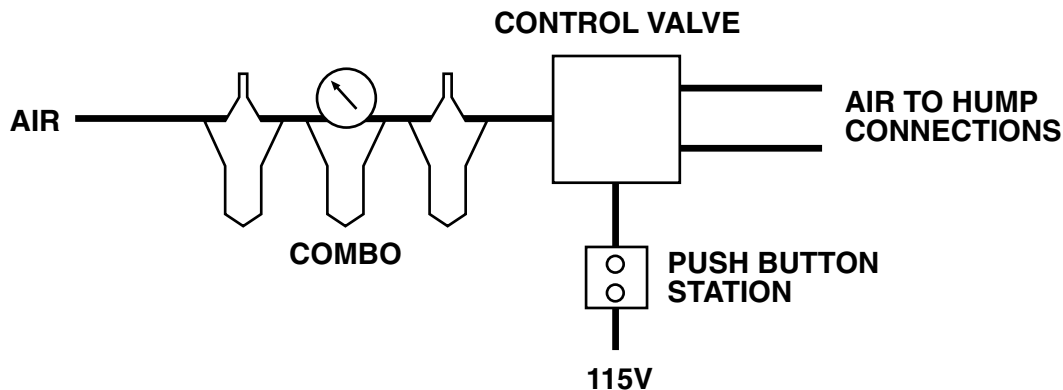


FIGURE 3. AIR AND ELECTRICAL CONNECTIONS

# Operation and Maintenance

All air is pre-adjusted at the factory, and a decal at the air entry will specify at what pressure the unit will operate safely. If the customer finds it necessary to increase the air pressure, this may indicate that the magnets are operating at an unsafe level, meaning that too much iron is being accumulated and the magnet needs more air to break loose from the iron. When this occurs, the customer must increase the cleaning cycle frequency or the equipment may be damaged.

The air filter and lubricator should be inspected and serviced according to manufacturer recommendations. The manufacturer's literature is shipped with this hump.

Otherwise, when properly used, the self-cleaning hump assembly is typically maintenance free.

## Repair and Alteration

Alteration and disassembly of the magnetic grate 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 Manufacturing Company nullifies the responsibility and guarantee of the manufacturer.

## Factors that Affect Magnet Performance

### 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.



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