

# Installation, Operation and Maintenance Instructions



## ELECTRO- MAGNETIC PULLEY

**ERIEZ MAGNETICS** HEADQUARTERS: 2200 ASBURY ROAD, P.O. BOX 10608, ERIE, PA 16514-0608 U.S.A.  
WORLD AUTHORITY IN ADVANCED TECHNOLOGY FOR MAGNETIC, VIBRATORY and METAL DETECTION APPLICATIONS

# Introduction

This manual details the proper steps for installing, operating and maintaining the Eriez Electromagnetic Pulley.

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 Electromagnetic Pulley assistance.

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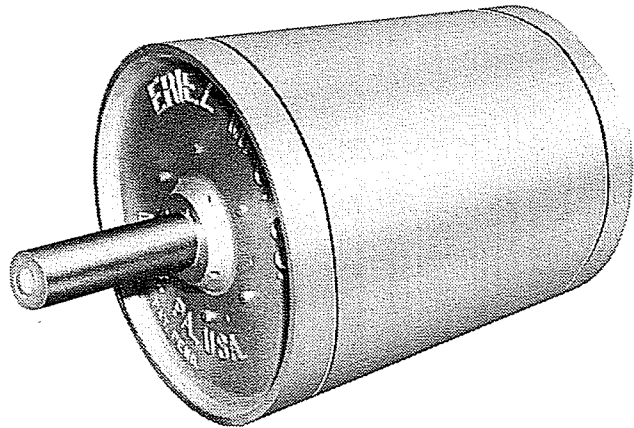
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# General Description

Your ERIEZ Electromagnetic Pulley has been engineered and manufactured to exacting specifications and tolerances and will give you long and excellent service when operated within the limits of its design and providing proper maintenance procedures are observed. The magnetic polarity of this unit is radial (i.e., the pole plates are perpendicular to the shaft). This design provides a strong magnetic gap or gaps across the face of the pulley and tramp iron will tend to bridge the gap and be firmly held until discharged into the tramp iron collection area. When employed for special applications such as slag reclamation or ore cobbing, the same basic design is used except that construction is modified to provide more magnetic poles closer together. This gives a stronger though shallower field necessary for these applications. These installation, operation and maintenance instructions also apply to such special electromagnetic pulleys.



Typical Eriez Electromagnetic Pulley

# Installation

## ELECTRICAL

If the pulley is to operate from an existing DC power source, it will have been wound to your specifications to use available DC. An energy absorbing DC switch will be included with shipment to control the counter EMF when the pulley is turned off. Always turn the pulley off when it is not in use. Be sure that the "bullseye" pilot light in the switch box functions properly and replace it when it is burned out. Open and close the switch quickly and firmly to minimize arcing. Some arcing may occur, but this is not normally harmful.

If the pulley is to operate from rectified AC current, no DC switch is needed. To turn the pulley on and off, make or break the AC current circuit supplying the rectifier.

Electrical connections are very simple. See diagrams at right and wiring instructions with equipment supplied.

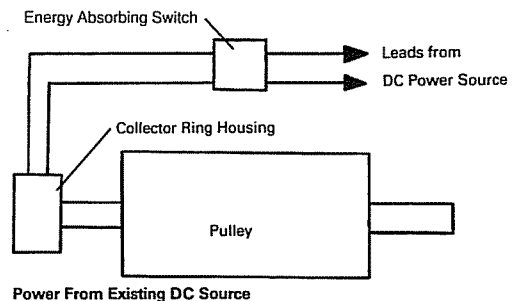


Figure 1

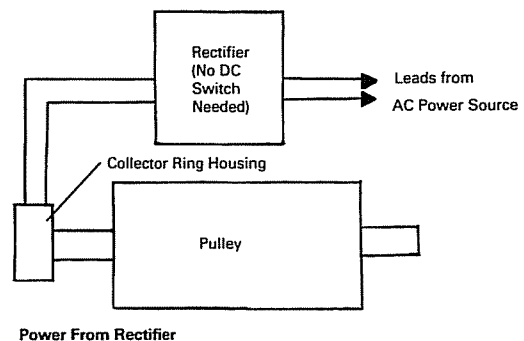


Figure 2

# Installation (cont.)

Electric current is introduced to the coils through a collector ring assembly to permit rotation of the pulley. The collector ring is supplied loose with the Electro Pulley. Its function is to transfer electrical power from an outside source to the electromagnet inside the pulley. There are wires that run through the center of the shaft and connect to the rotating hub. The power is transferred from the rotating hub to the carbon brushes. The DC power source connection is made through the housing and to standard carbon brushes.

Refer to Figures 3 and 4.

1. Remove the housing cover. The rotating hub, located inside the housing should be removed and set aside.
2. Working at the shaft end with the exposed wires, slide the housing carefully onto the shaft. Avoid damaging the lip seal, located in the housing. Push the housing to within 1/2" (12 mm) of the shaft shoulder.
3. Now slide the rotating hub onto the shaft. Position the hub so that the brass rings, are centered over the carbon brushes. Tighten the hub set screws securely.
4. Fasten the housing to a stationary frame. Install shims between the frame and the housing. Shim up to the mounting holes. Do not distort the housing by over torquing the mounting bolts.
5. Attach the two leads coming out of the shaft to the rotating hub. There are two 1/4-20 UNC tapped holes around the ID of the hub. Either wire can be attached to either hole, but they must be separate. Use brass screws with brass washers.
6. Bring the DC power source in through the 1" NPT hole in the side of the housing. Use a suitable connector.
7. Attach the incoming power to the two brass screws at the tail of the carbon brushes. Either wire can go to either terminal.



Figure 3

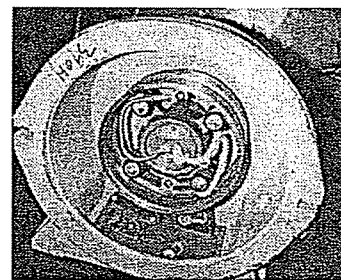
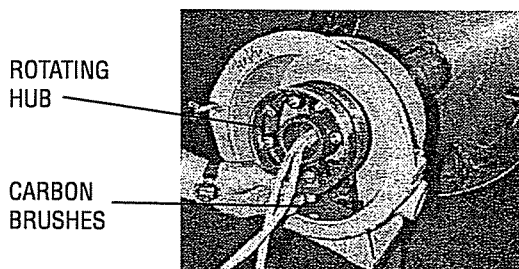
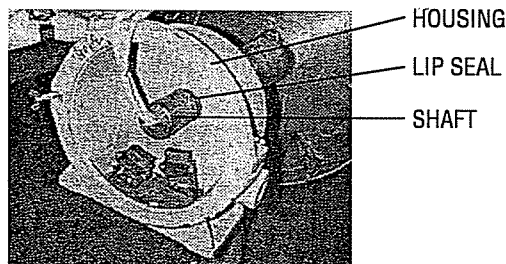


Figure 4

8. Replace the cover.
9. The power can now be turned on. The magnet should have a magnetic field across the entire width.

# Installation (cont.)

The voltage for which the pulley is wound is shown on the name plate. Voltage more than 110% or lower than 90% of normal will affect the operation or life of the pulley. Over-voltage may cause the coils to burn out. The pulley will not function at full strength when voltage is low.

## MECHANICAL

The pulley has been furnished with shaft to our standard dimensions or to your specifications. It is usually to be installed as a head pulley, taking care to align shaft and bearings.

See Figure 5. An adjustable divider made of non-magnetic material should be positioned just behind the natural trajectory of the non-magnetic material, allowing a minimum distance from the pulley to permit tramp iron passage. Properly positioned, the divider will often deflect heavy spherical tramp iron (ordinarily difficult to remove) into the tramp iron chute. If material is sticky or damp, it

may have a tendency to carryover into the tramp iron side. By moving the divider this carryover often can be minimized.

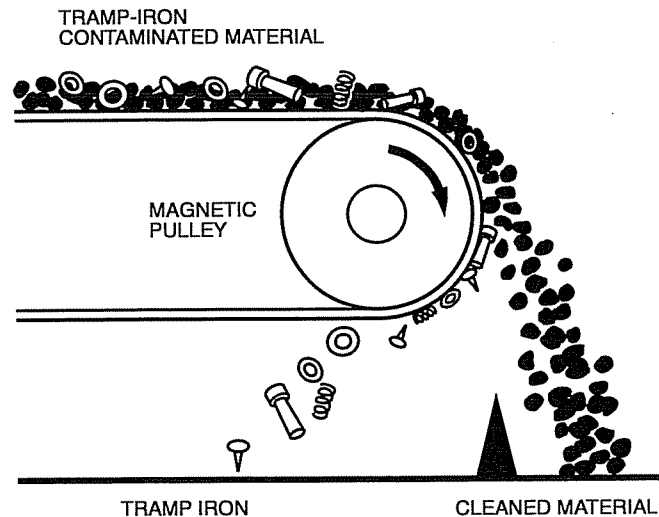


Figure 5

# Operation

For maximum efficiency operate the pulley at or less than the speed given in Table 1.

Table 1. Maximum RPM

PULLEY DIAMETER (in.)	SPEED
18	50
20	50
24	45
30	42
36	40
42	38
48	35

Capacities in descriptive literature are based on free flowing material. When processing wet, sticky or entangled material, reduce the usual depth of material for best results.

Heavy surges of material should be avoided since the thinner the flow, the better the separation. A plow or spreader bar positioned ahead of the pulley to level the burden ensures that tramp iron will enter the intense magnetic field close to the pulley face.

The belt should be as thin as possible while still being able to carry the material load. The closer ferrous material comes to the face of the pulley, the more effective will be the separation. Application of pulley lagging should be kept as thin as possible for this reason.

# Maintenance

Remove at once any stray iron that accidentally becomes entrapped between the pulley face and belt, to prevent damage to the belt and pulley. Also remove fine iron which will gradually collect on the pulley face. By occasionally brushing the pulley face, this source of belt wear can be eliminated. It is advisable to seal splices and patch holes in the belt to prevent fine iron from penetrating to the pulley face.

The belt should be adjusted to track properly and eliminate weaving. This will help prevent tramp iron from getting under the belt and causing damage.

Lubricate bearings monthly to prevent wear and premature failure.

The collector ring brushes should be replaced when worn and the collector rings cleaned and polished when necessary. Replacement components or the complete collector ring assembly are available from Eriez' factory.

**CAUTION: 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.**

**If further information or advice is required, consult our sales representative in your territory who is an expert on magnets and their application.**

## Spare Parts List

DESCRIPTION	PART NUMBER	QUANTITY
Fibre Base w/Brush Assembly	109973	1
Brush	181112	2
Spring	181110	2
Oil Seal	226018	1
Collector Ring Assembly	109982	1
Series 2100 Collector (Rings, Brushes & Housing)	109980	1

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