

Installation, Operation and Maintenance Instructions



Rota-Grate[®] Magnetic Separator

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 the Eriez Rota-Grate®.

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 Rota-Grate 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, 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.

CAUTION

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

Description

The Eriez Rota-Grate consists of a “squirrel–cage” arrangement of 1" (25.4 mm) diameter stainless steel tubes held in place by two stainless steel end plates. Each tube contains an assembly of powerful magnets which, under normal conditions, will retain their magnetic strength indefinitely.

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.

At the center of each end plate is a shaft hub which is bolted to the end plate and keyed to the shaft. The shaft is provided with shaft extensions for bearings, and the drive end is provided with a keyway.

Installation and Operation

The Eriez Rota-Grate is designed for materials that do not flow easily and tend to plug up stationary grate magnets. The rotating magnetic assembly prevents material from packing and plugging up the processing line.

These units may be installed at the discharge of either open or enclosed chutes, or may be enclosed within a housing in either an open or enclosed duct system. They are furnished with adequate shaft extensions for flange type or pillow block type bearings and for a driving pulley. When enclosed within a housing, provision should be made for a clean–out or port for access to clean accumulated ferrous contamination from the magnetic tubes of

the Rota-Grate to assure that all material will pass through the magnetic area.

OPERATING SPEED

The speed of operation should be 30 rpm or less, depending upon the condition of the material being processed. A good average speed for best results is 16.5 rpm.

WARNING: If your product is abrasive to the point of wearing through the non–magnetic magnet tubing, magnet material may enter the product stream. This exposure could be harmful to the quality of your product. Examine each magnet tube for wear during your cleaning operation.

Maintenance

⚠ WARNING: Never attempt to clean the magnets while the unit is in operation. Bodily injury can occur. Lockout - Tagout before cleaning.

Cleaning is accomplished by removing accumulated ferrous material by hand. Should fine ferrous contamination be involved, the tubes can be wiped clean by means of a rag or gloved

hand. Care should be taken to prevent dropping any ferrous particles back into the cleaned material outlet. It is recommended that the tubes be cleaned at the top position so that if any ferrous particles are dropped they may be caught by the lower magnetic tubes.

Blotting the tube with the sticky side of masking tape will also aid in fine iron removal.

Maintenance (cont.)

The necessary frequency of cleaning will be determined by the amount of ferrous contamination in the material being processed. The unit should be cleaned often either to prevent an excessive accumulation of ferrous contamination on the magnetic tubes, as this will reduce the magnetic separation efficiency.

Lubricate bearings on a schedule consistent with other equipment in use with your product and environment. An NGLI No. 2 lithium-based grease is recommended. For motor and gearreducer maintenance, refer to the manufacturer's instructions packed with the equipment.

Repair and Alteration

Alteration or disassembly of the assembly 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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