

Installation, Operation and Maintenance Instructions



PALLETIZER/ DEPALLETIZER MAGNETS

ERIEZ MAGNETICS HEADQUARTERS: 2200 ASBURY ROAD, ERIE, PA 16506-1440 U.S.A.
WORLD AUTHORITY IN ADVANCED TECHNOLOGY FOR MAGNETIC, VIBRATORY and INSPECTION APPLICATIONS

Introduction

This manual details the proper steps for installing, operating and maintaining the Palletizer/Depalletizer Magnets.

Careful attention to these requirements will assure the most efficient and dependable performance of the equipment.

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

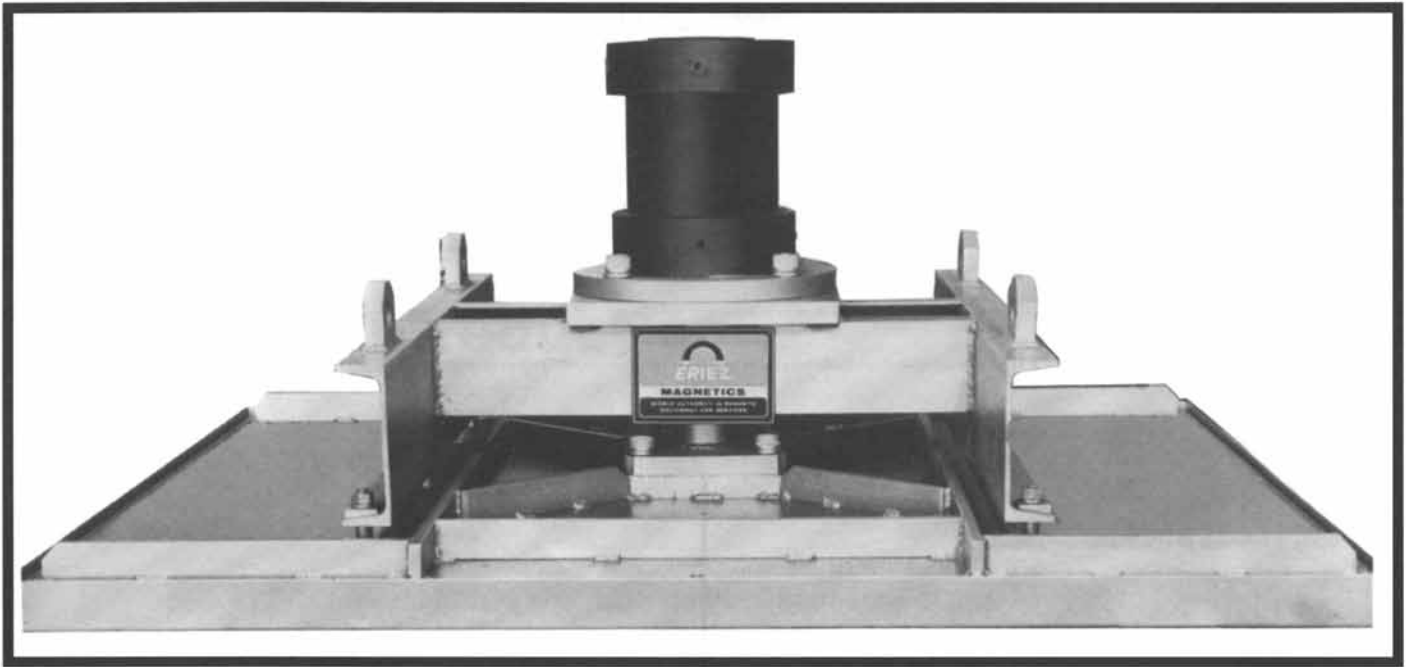
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General Description



The majority of these assemblies are designed to be used with a center air cylinder that has a given stroke of 1-1/2" (37mm). The magnetic head, when in the pick-up position, rests on what is called the stripper pan. The 1-1/2" (37mm) stroke is applied to raise the magnetic head when the cans are to be released (see Fig. 1).

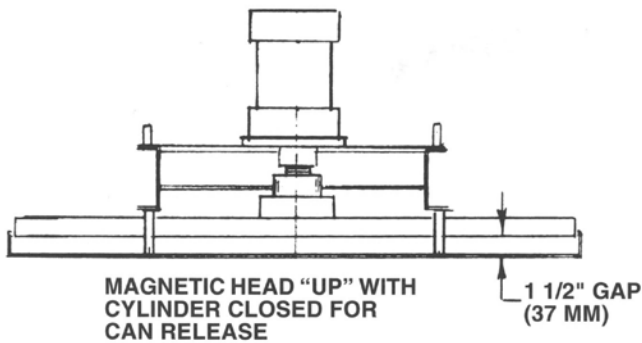
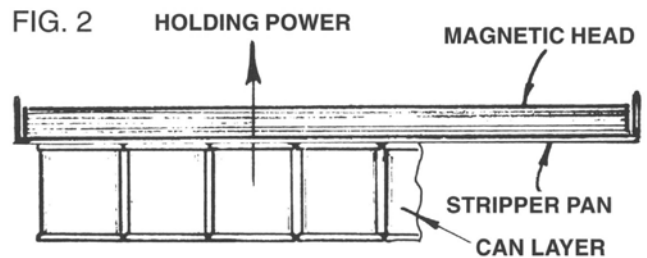


FIGURE 1

Normally the stripper pan should extend over the edges of the can layer by approximately 1" (25mm) minimum on all four sides. This will insure adequate holding power on the outside can edges (See Fig. 2).



| CAN SIZE | HOLDING POWER | RECOMMENDED MAX. CAN WEIGHT* |
|----------|-------------------|-------------------------------|
| 202 DIA. | 2-1/4 LB. (1 KG.) | 1-1/2 LB. (.7 KG.) |
| 211 DIA. | 4-1/2 LB. (2 KG.) | 3 LB. (1.4 KG.) |
| 400 DIA. | 7 LB. (3.2 KG.) | 5 LB. (2.3 KG.) |
| 403 DIA. | 7 LB. (3.2 KG.) | 5 LB. (2.3 KG.) |
| 603 DIA. | 12 LB. (5.5 KG.) | 9 - 9-1/2 LB. (4.1 - 4.3 KG.) |

* MAXIMUM CAN WEIGHT IS BASED ON APPROXIMATELY 3/4 OF THE MAXIMUM HOLDING POWER

The Eriez Palletizer/Depalletizer Magnet is designed primarily to remove an entire layer of cans at one time from a multi-layer stack of steel cans. The entire layer can be transferred to a take-away belt, a retort, or any other area. The magnet can also be used in reverse order to deposit a layer on a pallet. The operation can be repeated to form a multi-layer stack. The cans may be full or empty.



Installation

In operation the complete assembly can be suspended by conveying wheels on overhead rails or other reciprocating equipment. Normal usage calls for a stripper head that is permanently attached to the stripper pan by means of threaded rod. The stripper head has four lugs to which suspension cables or chain can be attached. The assembly can be supplied with or without a cylinder. Eriez recommends a 6" (150mm) diameter bore air cylinder with oversized rod for use with 80 psi (5 bar) minimum and 150 psi (10 bar) maximum air pressure.

Cleanliness is an important consideration, and cylinders are shipped with the ports plugged to protect them from contaminants entering the ports.

These plugs should not be removed until the piping is to be installed. Before making the connection to the cylinder ports, piping should be thoroughly cleaned to remove all chips or burrs, which might have resulted from threading or flaring operations.

Cylinders operating in an environment where air drying materials are present such as fast-drying chemicals, paint, or weld splatter, or other hazardous conditions such as excessive heat should have shields installed to prevent damage to the piston rod and piston rod seals.

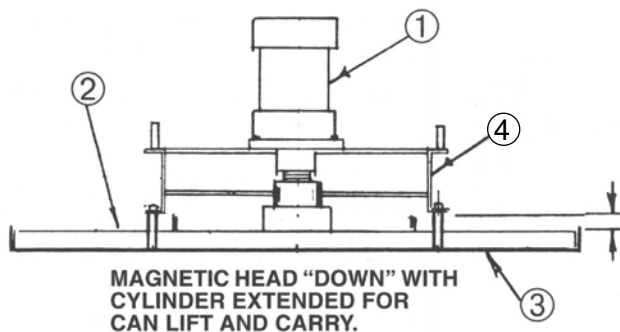
The assembly must be installed level so that the stripper pan contacts all cans to be lifted. The layer to be lifted must also be flush and level.

Operation

The assembly is lowered (or the cans raised) until the stripper pan contacts the cans to be handled. The magnetic head is then lowered to the holding position (Fig. 3).

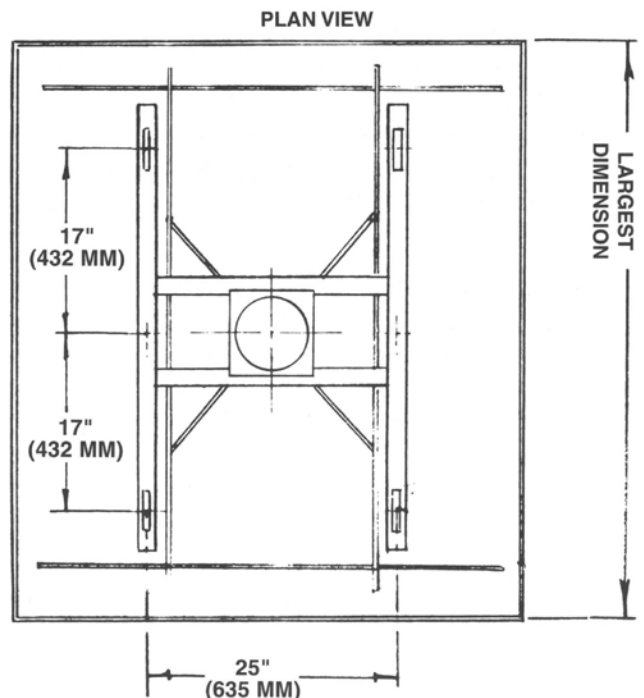
The entire assembly is lifted (or the can layer support lowered) and the depalletizer holds the cans magnetically as they are carried to the desired area. The magnetic head is raised and the cans are released (Fig. 1).

The stripper pan remains in a fixed horizontal position, as does the remainder of the assembly. Upon release of the cans, the entire assembly is raised and returned to the pick-up point, where the cycle is repeated.



1. AIR CYLINDER - 6" (150 MM) BORE, 1 1/2" (38 MM) STROKE, 2 1/2" (63.5 MM) DIA. OVERSIZED ROD - 2 1/2" (63.5 MM) THREAD
2. MAGNETIC HEAD
3. STRIPPER PAN
4. STRIPPER HEAD (6" (150 MM) CHANNEL)

FIGURE 3



Maintenance

Periodic checking for constant air pressure is important to assure a smooth operation of the cylinder. The cylinder is the only working component that would require maintenance.

Successful operation depends on contact of the magnetic head (Item 2, Fig. 3), with the inside surface of the stripper pan (Item 3). Dirt, tools, etc., must not be allowed to get between these surfaces

or damage to the magnetic head and stripper pan will result.

If damage to the stripper pan occurs because of misuse (see above), it can be reworked or replaced at the installation site.

If damage to the magnetic head occurs because of misuse, the head may or may not be repairable but any repair to it must be done at the factory.

Troubleshooting

EXTERNAL LEAKAGE

Rod seal leakage can generally be traced to worn or damaged seals. Examine the piston rod for dents, gouges or score marks and replace piston rod if surface is rough.

Rod seal leakage could also be traced to gland bearing wear. If clearance is excessive, replace rod gland and seal.

Rod seal leakage can also be traced to seal deterioration. If seals are soft or gummy, check compatibility of seal material with lubricant used if air cylinder, or operating fluid if hydraulic cylinder. Replace with a seal material which is compatible with the lubricant or operating fluid. If the seals are hard or have lost elasticity, it is usually due to exposure to temperatures in excess of 165°F (+74°C). Shield the cylinder from the heat source to limit temperature to 350°F (+177°C) and replace with Viton seals.

Cylinder body seal leak can generally be traced to loose tie rods. Torque the tie rods to manufacturer's recommendation for that bore size.

Excessive pressure can also result in cylinder body seal leak. Determine maximum pressure to rated limits. Replace seals and retorque tie rods as in paragraph above.

Pinched or extruded cylinder body seal will also result in a leak. Replace cylinder body seal and retorque as in paragraph above.

Cylinder body seal leakage due to loss of radial squeeze which shows up in the form of flat spots or due to wear on the O.D. or I.D. - Either of these are symptoms of normal wear due to high cycle rate or length of service. Replace seals as per paragraph above.

Soft or gummy seals are evidence of exposure to fluid with which they are not compatible. Hard seals or seals which have lost their elasticity are a symptom of exposure to excessive temperature. Replace seals as per paragraph above.

INTERNAL LEAKAGE

Piston seal leak (by-pass) 1 to 3 cubic inches per minute leakage is considered normal for piston ring construction. Virtually no leak with lipseal type seals or piston should be expected. Piston seal wear is usual cause of piston seal leakage. Replace seals as required.

With lip seal type piston seals excessive back pressure due to over-adjustment of speed control valves could be a direct cause of rapid seal wear. Contamination in a hydraulic system can result in a scored cylinder bore, resulting in rapid seal wear. In either case, replace piston seals as required.



Troubleshooting (cont.)

What appears to be piston seal leak, evidenced by the fact that the cylinder drifts, is not always traceable to the piston. To make sure, it is suggested that one side of the cylinder piston be pressurized and the fluid line at the opposite port be disconnected. Observe leakage. If none is evident, seek the cause of cylinder drift in other component parts in the circuit.

CYLINDER FAILS TO MOVE THE LOAD

Pneumatic or hydraulic pressure is too low. Check the pressure at the cylinder to make sure it is to circuit requirements.

Piston Seal Leak - Operate the valve to cycle the cylinder and observe fluid flow at valve exhaust ports at end of cylinder stroke. Replace piston seals if flow is excessive.

Cylinder is undersized for the load - Replace cylinder with one of a larger bore size.

Piston rod broken at piston end - Disassemble cylinder and replace piston rod.

ERRATIC OR CHATTER OPERATION

Excessive friction at gland or piston bearing due to load misalignment - Correct cylinder-to-load alignment.

Cylinder sized too close to load requirements - Reduce load or install larger cylinder.

Erratic operation could be traced to the difference between static and kinetic friction. Install speed control valves to provide a back pressure to control the stroke.



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