



PERMANENT MAGNET LIFT ASSEMBLY INSTALLATION & OPERATION MANUAL

Pneumatically actuated VERSIONS WITH OR without controls

**THIS IS A GENERIC USAGE AND SAFETY MANUAL.
SEE EQUIPMENT DRAWING FOR SPECIFIC MAGNET INFORMATION.
IF UNAVAILABLE, CALL THE NUMBER ABOVE.**

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PRECAUTIONS & SAFETY MEASURES



PRECAUTIONS: Although a magnet can provide adequate holding through small amounts of non-ferrous materials such as dirt; in general, the greatest effectiveness of any magnetic lift is achieved when the magnet face makes complete contact with the load. Therefore, it is recommended to:



- » Clear any foreign material from the part before setting the magnetic lift on it. Avoid setting the lift down in places that are very dirty or where the part is deformed.
- » Periodically check the condition of the magnetic contact face(s) to ensure that it is flat and has not been accidentally damaged during its time in use.
- » Keep the contact surface of the magnets and material to be lifted clean and free of chips, oil, slag, welding beads, dirt, etc. This can be accomplished by frequently wiping the surface of the magnet with a wire brush or shop rag with the magnet in the release mode.
- » Only store magnet on non-magnetic surfaces.



Beware of pinch points from sudden attraction and unexpected movement between magnets and ferrous metal equipment components or tools.

Keep feet and other extremities out from beneath a lifted load.



PRECAUTIONS & SAFETY MEASURES (CONTINUED)



DO NOT hoist a load weighing more than the lift's holding capacity.

DO NOT hoist a load if it is unbalanced.

DO NOT hoist a load before ensuring perfect magnet contact. First, make a test lift of 2 to 3 inches above the stack or table.

DO NOT release the load before ensuring that the load is rigidly supported on the floor or other adequate support.

DO ensure load has steadied before lowering.

DO ensure that load is centered.



DO NOT lift people or loads with people on them.

DO NOT leave suspended loads unattended.

DO NOT operate the lift system with missing parts or damaged or malfunctioning lift magnet(s).

DO NOT remove or obscure any product labeling.

DO NOT lift loads higher than necessary.

ALWAYS keep magnet contact face perfectly flat and parallel to the surface of the load.



Please be advised that in and around the application of magnetic equipment, there are potential safety concerns that can arise with sensitive medical devices:



- » Pacemaker behavior can be affected when they are near strong magnetic fields.
- » Medical implants and external fixation systems can be influenced by magnetic fields.
- » Hearing aid behavior may be affected when exposed to strong magnetic fields.

Any individual that carries the above equipment or other sensitive medical devices should contact their physician and/or the medical device manufacturer.

PRODUCT DESCRIPTION

The Industrial Magneticon Lifting System (referred to as "System" in remainder of manual) consists of the following:

- » **Magnet Lifting Pod** consisting of a magnet, housing & release cylinder(s). The cylinder(s), upon receiving an air signal from a control valve moves the magnet within the housing. By stroking the cylinder(s) out, the cylinder(s) moves the magnet toward the housing face and into the grip position. By stroking the cylinder(s) in, the cylinder(s) moves the magnet away from the housing face and into the release position.
- » **Lifting bale** for interface with customer's crane hook. *See equipment drawing for actual interface.*
- » **Load sensor** valve (some models) wired or plumbed into magnet release circuit. Prevents part release unless magnet and attached part are supported from below.
- » **Controls** (Some Models) wired or plumbed to provide grip and release functions of magnet.



INSTALLATION INSTRUCTIONS

MECHANICAL

- » Attach hoist hook to the System lift bale or stud. Ensure hoist and hook are capable of supporting the magnet and the heaviest part. When using a Gorbel G-Force or similar Intelligent Lift Device consult the equipment drawing to determine the type of attachment that is necessary.

PNEUMATIC

- » The magnet will require a control valve (supplied by IMI or others) to actuate the release cylinder. The valve should be a 4-way, 2 position unit with a Coefficient of Flow (Cv) of .7 or greater. The valve can be solenoid or air pilot operated or manually actuated, dependent upon the control scheme chosen by the user. The valve cylinder ports are to be plumbed to the cylinder inlets using adequately sized tubing or hard piping.
- » Note that most systems will have the air supplied via a coil-hose wound around the lift cable or chain. The valve can then be supplied from this hose.
- » Any switches or pilot valves used to operate the control valve may be furnished by others.

OTHER

- » Crane Controls for up/down functions may be supplied by others.

OPERATING INSTRUCTIONS

There are a wide variety of control packages supplied with magnetic lifters. Please see the manual supplied with the equipment for specifics.

In general, there is a GRIP button and a RELEASE button. The buttons may be inhibited by the Load Sensor or by a third PROOF button. The Load Sensor prevents the operation of the GRIP and/or the RELEASE button unless the load is supported from below. The PROOF button may be used in conjunction with an Anti-Tie Down device.

1. Operator slowly moves system to position magnet pod onto part
2. Operator pushes "GRIP" button. Allow approximately 1/2 second for magnet to grip part.
3. Use UP / DOWN buttons to control hoist.
4. Operator moves the system with part to the unload position or area.
5. Once the part is properly set down, the load sensor (if equipped) will allow the function of the "RELEASE" button.
6. The operator pushes the "RELEASE" button. Allow approximately 1/2 second for magnet to release part.

MAINTENANCE

MECHANICAL

- » Attachment feature should be inspected on a regular schedule. Look for loose fasteners or excessive wear.
- » Inspect magnet pods for damage to magnet housing.
- » Clean magnet faces at least daily with a rag or gloved hand to minimize collected tramp metal.

ELECTRICAL/PNEUMATIC

- » Inspect for wiring and tubing damage (nicks/cuts).
- » Periodically check valves and fittings for wear/leakage.



TROUBLESHOOTING

IF MAGNET WILL NOT CYCLE FROM ONE MODE TO ANOTHER:

- » Check air pressure at source and at inlet to magnet. Pressure must match that shown on equipment drawing (minimum 85 PSI).
- » If proper pressure is present, perform the following check:
 1. Place magnet in Release mode then remove to a service area.
 2. Disconnect air lines from cylinder ports and allow magnet to settle to bottom of housing.
 3. Pass a small piece of scrap steel fastened to a non-ferrous stick or rod under magnet face.
Warning: Do not hold the scrap steel in your hand. Injury may result.
 4. Working magnet will readily attract the scrap. Non-working magnet will not attract scrap.
 5. Inspect each tube-to-fitting connection for proper tube insertion and seal.
 6. Check for proper valve operation and tubing connections.
 7. Remove the non-working magnet(s) for servicing. Consult IMI for replacement parts or disassembly advice.

IF MAGNET WILL NOT RELEASE THE PARTS:

- » Check air pressure to the magnet system (minimum 85 PSI required)
- » Inspect bottom housing for signs of damage. If damage is present, it's likely the housing is rubbing internally and should be repaired or replaced.
- » Remove housing and inspect for signs of wear or items that may be jamming the magnet load.
- » Inspect cylinder rod connection to the magnet load. If broken or otherwise disconnected, contact IMI for repair assistance.
- » Operate the magnet in grip and release modes and observe movement of magnet load. **Extreme caution must be used while operating magnet with housing removed.**
- » Ensure mufflers on the control valve (within valve enclosure) are not blocked with debris.
- » Inspect each tube-to-fitting connection for proper insertion and proper seal.
- » Check for proper valve operation, tubing and cable connections.
- » Verify valves are working correctly.

- » To check air flow from valve to magnet cylinder:
 1. Shut off air supply to magnet system.
 2. Remove grip and release tubing from ports of the magnet cylinder.
 3. Secure tubes to prevent whipping when air flow is restored.
 4. If possible, regulate the air pressure to the air inlet to the system to 20-30 PSI to minimize tube whipping.
 5. Verify air flow through each tube.
 6. If air flow is evident from each tube – that valve is operating normally.
 - If air is not flowing from one or both tubes:
 - a. Check tubing run for kinks or blockages – un-kink or replace tubing run.
 - b. The valve may have failed or is fouled. Remove valve from enclosure and replace or clean per valve manufacturer's instructions.
 7. Remove air supply, replace tubing in proper cylinder port.



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SPARE PARTS

**CONSULT EQUIPMENT AND ACCOMPANYING
SPARE PARTS LIST FOR SPECIFIC MAGNET SYSTEM**

COMMENTS OR CONCERNS?

We believe Industrial Magnetics, Inc. offers the finest Lifting Magnets available today. Great pride has gone into the design and manufacture of this unit. Any comments or concerns should be directed to our Automation Customer Service Department at 1-888-582-0823. **We appreciate the opportunity to serve you!**