



**INDUSTRIAL  
MAGNETICS.**

## DYNAMIC LIFT™ - RARE EARTH LIFT MAGNET OPERATION MANUAL

Conforms ASME B30.20 standards Bth:1 Design Category B Service Class 3

### INTRODUCTION

#### READ AND UNDERSTAND THIS MANUAL BEFORE INSTALLATION AND OPERATION OF YOUR DYNAMICLIFT™ PRODUCT.

If used unsafely or improperly, there is a possibility that property damage or personal injury can result. The responsibility for safe operation ultimately rests with you, the operator.

#### WORKING LOAD LIMIT (WLL):

Your DynamicLift™ Magnet carries a WLL lifting value, which you will find stated on the magnet. This value is obtained by pulling a new magnet in a perpendicular motion off of a newly machined, thick piece of steel. This type of test is conducted under what we term "ideal conditions". The pounds of pull it takes to break the magnet away from the steel surface is the "maximum" lifting value. Design factor is then determined by taking this maximum lifting value and dividing by three (33%) or 3:1. Design factor values are what we refer to as the WLL of the magnet.

This WLL is stated for the benefit and safety of the user, due to the fact that ideal conditions rarely exist in the field. The steel that you are holding or lifting may have

scale, rust, dirt, or coatings on its surface; or the surface of the magnet itself may be worn. Any of these condition will cause lower lifting values for your DynamicLift™ Magnet.

**LOSS OF MAGNETISM:** Under normal use conditions, a permanent magnet can experience a decrease in its original holding value. The most common factors which can cause a loss of strength include:

- » Everyday wear and tear on the magnet face such as: fine metal buildup on or between the magnet's poles, nicks or gouges in the magnet's poles, rust buildup, etc.
- » Exposure to Extreme Temperatures - OPERATING TEMPERATURES No lower than -10°F (-22°C) and no higher than 180°F (82°C).
- » Severe blow or shock to the magnet
- » Exposure to electrical current

### GENERAL INSTRUCTIONS

Installation and start-up are very simple and safe provided that the load limits and the applicable standards of the DynamicLift™ are observed for handling suspended loads.

1. Remove lifter from packaging and set on clean solid surface. This operation is to be done with a bridge or other crane of appropriate capacity by hooking the hoist of adequate size to the bracket on top of the DynamicLift™. Check magnet for missing parts or loose bolts. Tighten where necessary or contact the manufacturer.
2. With a hoist and hook of appropriate size, lift the DynamicLift™ and position it on the load to be moved - clean area where magnet will touch. Be careful to make sure that the load to be lifted is within the prescribed range of the lift magnet's holding capabilities. Check the name plate on the lifter or the performance sheet to make sure your load is within this range.
3. Make sure the DynamicLift™ magnetic poles are in full contact with the load. DynamicLift™ needs to be on thick steel to engage the magnet to the ON position.
4. To engage, rotate the handle completely to the magnetized ON position. Make sure the lever system is in its lever-stop position. See Diagrams below.

5. Move the load observing all applicable standards for safely handling any suspended load. **NO ONE SHOULD BE IN THE OPERATING AREA. NEVER STAND UNDER A LOAD BEING LIFTED OR LIFT THE LOAD OVER PEOPLE. ALWAYS USE EXTRA CAUTION. ONLY USE ON MATERIAL THAT DOES NOT FLEX OR BEND.**

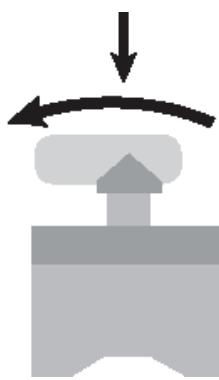
6. Set the load on the floor or support before releasing it. Be careful that the load is perfectly settled on the floor or support and that the support is adequate for the load.
7. When turning OFF the magnet, be sure to hold the lever as firmly as possible to safely release the load. Once you have a firm grasp on the lever push down on the handle grip and rotate the handle to the OFF position.

*Note: The above operations must be performed while applying the applicable shop standards and other standards for suspended load handling.*

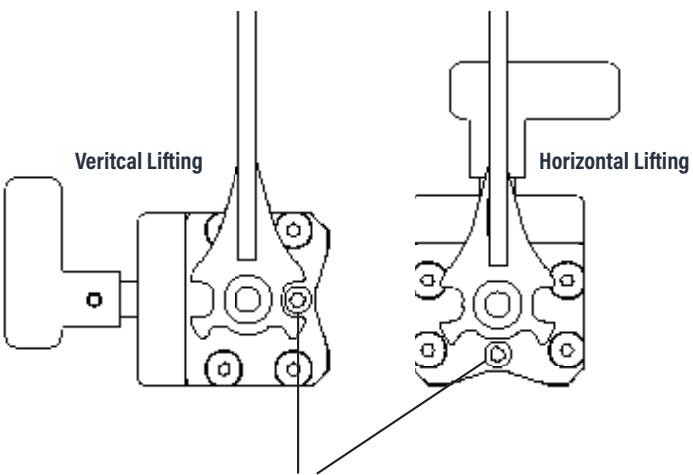
### DL0150 & DL0334



ENGAGE: Rotate handle 180 degrees clockwise until it stops and locks in place.



DISENGAGE: Push handle down and rotate 180 degrees counter-clockwise until it stops.



LIFT LUG POSITIONING BOLT: Keeps lift lug from flopping in either horizontal or vertical lifting. Remove bolt for easy lift lug rotation from horizontal to vertical and vice versa.



## SAFETY PRECAUTIONS

Even though a magnet works through non-magnetic bodies such as dirt and non-ferrous materials in general the best efficiency of any magnetic lift is achieved when the poles (the areas or surfaces of the magnetic lift which make contact with the load) make complete contact with the load. It is therefore recommended to:

1. Never stand under load being lifted or lift over any people. Always use extra caution. Only use on thick material that does not flex or bend.
2. Clear any foreign material from the load as much as possible before setting the magnetic lift on it. Avoid as much as possible setting down the lifter in places on the load that are very dirty or deformed.
3. Occasionally check the surface condition of the magnetic poles to make sure they are flat and not damaged or corroded during its time in use.
4. Thin or large sheets that sag may cause the sheet to peel off the face of the magnet. (See chart below)
5. Keep the surface of the DynamicLift™ and materials clean and free of chips, oil, slag, welding-beads, dirt, etc. This can be done by wiping the surface of the magnet off frequently with a wire brush, or shop rag.
6. After a period of time the pole faces may become somewhat rounded, reducing the magnets effectiveness. Poles can be resurfaced up to 0.80" maximum.

### EFFECTS OF UNBALANCED LOADS

Maximum lift force achieved by a magnet is when the direction of force is perpendicular (90°) to the metal surface. If a load is tipped at an angle shear forces, slide forces, friction, peeling forces associated with moments, cantilevers, impact forces associated with bumping the load as it is conveyed can cause the lift to fail.

- **Check magnet/load balance by raising the load off the ground by a few 2" - 3" only.**
- **Never lift a load at an angle in excess of 5° from horizontal.**
- **If unbalanced: Lower load, reposition magnet and test the magnet/load again.**

### Percentage Of Stated Lifting Power By Material

CARBON CONTENT	Low Carbon 0.05 - 0.29%	100%
SURFACE FINISH	▼▼▼ Ground Surface	100%
Moderate Carbon 0.30 - 0.59%	85%	
High Carbon 0.60 - 0.99%	75%	
Higher Carbon = Higher Residual**		

### Percentage Of Stated Lifting Power By Surface Finish

SURFACE FINISH	▼▼▼ Ground Surface	100%
SURFACE FINISH	▼▼ Rough Machined	100%
▼ Foundry Finish		85%
~ Rough Cast		65%

\*\* High Carbon steel (Tool Steel) will absorb magnetism and may magnetically stick to steel surface, such as the magnet or attract ferrous particles.

Model No.	Lifting Value in lbs (kg) & *Maximum Sheet Length Due To Sag For Material Thickness For Single Magnet Use							Round Lifting Applications			Magnet Weight
	1/4" (6' Length)	3/8" (8' Length)	1/2" (8' Length)	3/4" (8' Length)	1" (10' Length)	2" (10' Length)	3" (10' Length)	Max. Lift - lbs (kg)	Min. Dia. (in)	Min. Th. (in)	
DL0150	150 (68.04)	150 (68.04)	150 (68.04)	150 (68.04)	150 (68.04)	150 (68.04)	150 (68.04)	75 (34.02)	2	1/4	6.1 lbs
DL0334	275 (124.73)	320 (145.15)	334 (151.49)	334 (151.49)	334 (151.49)	334 (151.49)	334 (151.49)	167 (75.75)	5	1/4	13.3 lbs

**NOTE:** Holding Values for the DynamicLift™ Magnets are stated at 33% of the actual value. We recommend when lifting sheets over 8', use 2 or more lifts on a spreader bar to prevent sheet flexing, sagging or peel-off. Thin material is susceptible to magnetic bleed through, resulting in two sheets being lifted at once. Round Holding Values are based on ideal conditions. Consult the factory before specifying these magnets for use on round materials. \*Maximum sheet lengths are selected due to sag characteristics of specified sheet. The item to be lifted must cover the entire length and width of the magnetic poles to properly engage and release the part. \*\*Lifting at some of the stated thicknesses on the chart above may result in magnetic bleed through, resulting in two sheets being lifted at once, which could result in a sheet falling.

## SAFETY MEASURES

**DO NOT** attempt to engage the magnetic lift before resting it on the steel to be lifted.

**DO NOT** hoist the load before locking the handle in the ON position.

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

**DO NOT** hoist a load if it is flexing and/or unbalanced. Magnet peel-off may occur and the load may fall.

**DO NOT** hoist a load before ensuring perfect magnetic contact. First make a TEST lift of 2" or 3" (10 cm).

**DO NOT** disengage the lift before firmly setting down the load on the floor or support & making sure the load is steadied.

**DO NOT** weld in close proximity to the magnet or use the magnet as a part of the ground circuit during a welding operation

**DO NOT** place the magnet directly onto a grounded floor. Use a non-conductive spacer

**DO NOT** lift people or loads with people on them

**DO NOT** leave suspended loads unattended

**DO NOT** operate lift magnet with missing parts, damaged or malfunction lift magnet

**DO NOT** alter/disassemble product or remove/obscure product labeling

**DO NOT** lift loads higher than necessary

**DO NOT** position center of lift on work load by pounding on the sides of the lift with a hammer.

**ALWAYS** use the entire lift pole surface. Curved stock should be inline with groove.

**ALWAYS** keep contact pole areas perfectly flat & parallel on the surface of the load.

**ALWAYS** keep contact pole areas & surface of the load clean and free of debris.

**ALWAYS** protect pole surfaces from rust after use by treating with some oil.

**ALWAYS** store magnet in a dry environment.

## ANNUAL DESIGN FACTOR BREAKAWAY TEST

To ensure that your DynamicLift™ Rare Earth Lift Magnet is performing to its optimal level, an annual breakaway test is recommended. Under an "Ideal Conditions" environment, our state of the art equipment will perform a series of tests to determine the current WLL value of your magnet. This WLL value must meet or exceed the value stated on your DynamicLift™ Rare Earth Lift Magnet.

If the stated WLL value is met, and you do not require any additional maintenance, we will return the magnet to you along with written documentation of the test results.

If the stated WLL value is not met, we will contact you with the results of the test and our recommendations for returning the magnet to its original condition. Options may include; the resurfacing of the magnet's poles or the repair of any broken components.

Instructions: Please contact our customer service department at (888) 582-0822 to obtain

your Customer Supplied Material (CSM) number. At this time, you will be required to supply a P.O.# for the test procedure described under "Annual Breakaway". Current fees for this procedure can be obtained by contacting the number listed above. Please include your contact information and shipping address with your DynamicLift™ Rare Earth Lift Magnet and send to: **Industrial Magnetics, Inc.**

**1385 M-75 South**  
**Boyne City, MI 49712**  
**CSM#\_\_\_\_\_**, Attn: Quality Assurance, Breakaway

**Note:** Customer is responsible for shipping to and from Industrial Magnetics, Inc., and any authorized repairs to the DynamicLift™ Rare Earth Lift Magnet.

## LIMITED WARRANTY

These products are covered by a One Year Limited Warranty on Material and Workmanship. Warranty is Non-Transferable. We reserve the right to inspect all product claims under warranty. Any alteration of the device voids this warranty. User assumes all risk for the proper use of this device and for ensuring product suitability for intended application. This warranty shall not cover any incidental or consequential damages due to the improper use or failure of this device.