



OPERATION MANUAL

ROUND ELECTRO LIFT MAGNETS (RELM)

MAG-MATE™

TOLL FREE: 888.582.0822

Introduction

READ AND UNDERSTAND THIS MANUAL BEFORE INSTALLATION AND OPERATION OF YOUR ROUND ELECTRO LIFT MAGNET (RELM) 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.

HOLDING VALUES:

Your Round Electro Lift Magnet carries a “useable” holding or 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” holding value. De-rated values are then determined by taking this maximum holding value and cutting it in half (50%). De-rated values are what we refer to as the “useable” value of the magnet.

This “useable” holding value 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. Any of these conditions will cause lower holding values for your Round Electro Lift Magnet.

General Instructions & Precautions

1. Wipe clean the bottom (face) of the lifting magnet and the area of the work piece where the magnet will be located.
2. The coil of the magnet is encapsulated in a strong, rigid epoxy. However, care should be taken to prevent sharp objects from damaging the coil.
3. Care should be taken to avoid dropping, banging, or slamming the magnet into other objects.
4. **LOAD CHARACTERISTICS OTHER THAN WEIGHT MUST BE CONSIDERED IN ORDER TO DETERMINE THE SAFE WEIGHT THAT ANY MAGNET CAN LIFT. See “Load Characteristics”**
5. Do not re-energize magnet until it has been placed in contact with the next piece to be lifted.

Operating Instructions

1. Wipe any debris the bottom of the lifting magnet and the area of the work piece where the magnet will be located.
2. The magnet should be centered on the work piece.
3. After positioning the magnet, turn switch to “on”
4. Lift the piece slightly and jar the load to insure positive holding power is available.
5. Move the piece smoothly to the desired location. Avoid severe jarring and swinging of the load.
6. Position load on a solid surface then move the load switch past “OFF” to “DROP” and hold for 2-3 seconds.
7. **CAUTION: DO NOT RE-ENERGIZE MAGNET UNTIL IT HAS BEEN PLACED IN CONTACT WITH THE NEXT PIECE TO BE LIFTED.**

Load Characteristics

Magnetic power is often pictured as lines of magnetic force flowing from North Pole to South Pole. Anything that limits the flow of these magnetic lines of force obviously reduces the magnet's lifting ability. There are four important factors that limit the flow of these lines of force:

1. Load Surface Conditions

Magnetic lines of force do not flow easily through air; they need steel in order to flow freely. Therefore, anything that creates an air gap between a magnet and the load limits the flow of magnetic force and thus reduces the lifting capacity of a magnet. Paper, dirt, rust, paint and scale act the same as air. Also, a rough surface finish is the same as dirt because it creates an air gap between the magnet and the load.

2. Load Length or Width

When the length or width of a load increases, it ceases to lie flat and the load begins to droop at the edges. The drooping or sagging of the load can create an air gap between the load and the magnet. If this occurs, the lifting capacity of the magnet is greatly reduced.

3. Load Thickness

Magnetic lines of force are more effective when they flow through steel instead of air. The thicker the load, the more lines of magnetic force are able to flow. After a certain thickness of load no more lines of force will flow because the magnet has reached its full capacity.

Thin material (load) means less steel available and thus fewer lines of magnetic force are able to flow from the magnet into the load. Therefore the lifting ability of the magnet is reduced.

Every magnet should be rated to tell the user what minimum thickness of load, is required to reach full lifting capacity. Below such thickness of load the user knows he must de-rate the lifting capacity of the magnet.

4. Load Alloy

Low carbon steels, such as 1020 steel, are nearly as good conductors of magnetic lines of force as pure iron. However, many other alloys contain non-magnetic materials that reduce the ability of magnetic lines of force to flow into the load. An alloy such as 300 series of stainless steel is almost as poor a conductor of magnetic force as air.

Type 416 stainless steel is considered magnetic, but it contains enough chromium so that it can only conduct one half as much magnetic force as 1020 steel. The carbon content of cast iron reduces the flow to one half of the magnetic force of 1020 steel.

Comments or Concerns?

We believe Industrial Magnetix, Inc. offers the finest line of Lift Magnets available today. Great pride has gone into the design and manufacture of this unit. Any comments or concerns should be directed to our Customer Service Department at 1-888-582-0822. We appreciate the opportunity to serve you!

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