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MAGNETICS®**

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YEARS**
**WALKER
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An Industrial Magnetics, Inc. Company

TOLL FREE **1.800.662.4638**
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CER ELECTROMAGNETIC LIFTING MAGNET - 115VAC OPERATION OPERATIONS MANUAL

Models CER05 through CER20

P.O. #:

Order #:

Part #:

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INTRODUCTION

Thank you for purchasing this Walker Magnetics Product. If used and maintained properly, it should serve for many years. Thousands of Walker Magnetics lift magnets are in service today performing safe, fast, and efficient magnetic material handling applications. It is often the only way for one person to load, transport, and unload material.

Walker Magnetics Products have proven to be among the best designed and safest in the industry. Note that if used improperly, any CER magnet can be rendered inefficient and unsafe. It is absolutely essential that anyone who uses this lifting magnet and is responsible for its application be trained on how to use it correctly.

READ THIS MANUAL CAREFULLY TO LEARN HOW TO OPERATE AND MAINTAIN THE MAGNET. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY TO YOURSELF AND PEOPLE IN THE AREA.

THIS MANUAL SHOULD BE CONSIDERED A PERMANENT PART OF THE MAGNET AND SHOULD ALWAYS BE AVAILABLE TO ALL OPERATORS AND REMAIN WITH THE MAGNET IF IT IS RE-SOLD.

To request additional copies of this manual, call 1-800-662-4638..



SAFETY INSTRUCTIONS



RECOGNIZE SAFETY INFORMATION

The following indications are provided as alerts to special considerations:

DANGER	DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.	<i>These Hazard Signal Words Deserve your Full Attention</i>
WARNING	WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.	
CAUTION	CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.	
Red Background, White Letters		
Orange Background, Black Letters		
Yellow Background, Black Letters		

Follow these simple rules to avoid lifting incidents:



Never attempt to use this magnet until this manual has been reviewed and understood.

Always make sure that the supporting structure and load attaching devices (i.e. crane, chains and hook) are rated to support the weight of the magnet and load.

Always make sure that the load's weight and dimensions are within the Magnet's Lifting Guidelines. These Guidelines are located in this Manual.



Never use this magnet to lift or transport people.
Never lift more than one workpiece at a time with this magnet.



Never lift loads over people or in close proximity to people.
Never leave any lifted load unattended.



Always stay clear of the load.
Always let those nearby know that a lift is to begin.



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 use caution when they are around or handling magnets. For more specific information the wearer should contact their physician.



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



SAFETY INSTRUCTIONS (continued)

Danger always exists when loads are transported by lifting devices, especially when the equipment is not being used properly or is poorly maintained. Special safety precautions apply to the operation, inspection, and maintenance of the Walker Lift Magnets.

Proper lifting knowledge and techniques are the responsibility of the operator. Be sure to read and understand the instructions and safety warnings contained in this manual before using the magnet.

UNSAFE LIFTING APPLICATIONS FOR CER MAGNETS



! DANGER

- » **Never** lift any pipe, solid round or structural shapes with this magnet.
- » **Never** lift any castings that do not have a machined flat lifting surface for the magnet. The location of the lifting surface should be such to permit the load to remain level when lifted.

Walker Magnetics can provide other type magnets for these applications. For Model CER type magnets see Lifting Guidelines on Page 13 & 14.



! DANGER


- » **Never** lift a load by its narrowest dimension.

! WARNING If there is any difficulty lifting a load, DO NOT LIFT IT! Call Walker for advice at 1-800-WMAGNET



SAFETY INSTRUCTIONS CONTINUED


TO AVOID A REDUCTION OF LIFTING CAPACITY

 **DANGER**


To Avoid any Reduction of Lifting Capacity:

- » The lifting surfaces of the magnet and the area of the load where the magnet will be located must be clean, smooth, flat and free of nicks and burrs.
- » The full area of the magnet's lifting surface must be in contact with the load.
- » The load must be at least 1.0" (24.5 mm) thick for CER05, 1.5" (38.1 mm) for CER07, 2" (51 mm) for models CER09 through CER12 and at least 2.5" (63 mm) for models CER16 and CER20.
- » The load must be low carbon steel such as SAE 1020.
- » The magnet's lifting surface must stay level and the contacting surface of the load remain flat.
- » The temperature of the magnet and/or the load must not be greater than 110°F (43°C).
- » Repair of this magnet should only be performed by Walker Magnetics or a Qualified (Designated) Person.**
- » Do not exceed the magnet duty cycle. Exceeding the duty cycle will result in reduced lifting capacity.
- » If there is any difficulty lifting a load, DO NOT LIFT IT! Call Walker Magnetics for advice at 1-800-WMAGNET.

ADDITIONAL WARNINGS

 **WARNING**

- » Never lift loads with any dimension greater than those shown in the LIFTING GUIDELINES.
- » Never operate damaged or malfunctioning magnets.
- » Never remove or damage Operating and Warning labels.
- » Persons using pacemakers or other medical devices should not use this magnet until they have consulted with their physician.
- » If the magnet was provided with a remote control unit, NEVER place the control unit in a position where the switch could be accidentally activated to "RELEASE" or "GRIP".

 **WARNING**

- » Disassembly or repair of this magnet can result in reduced holding power and/or cause an unsafe condition. Anytime the magnet is disassembled beyond the parts list shown in this manual, the magnet must be re-tested for breakaway force in accordance with the test described in ANSI/ASME B30.20.
- » Modification of any operating mechanism or structure of this magnet can reduce the magnet's effectiveness and/or cause an unsafe condition.
- » Repair or modification of this magnet should only be performed by Walker Magnetics*

SAFETY PERSON

Industrial Magnetics recommends that a person be assigned to review all magnetic handling applications for these magnets to ensure that safe practices and procedures are being followed.

* Walker replacement parts may be installed by a **Designated Person.

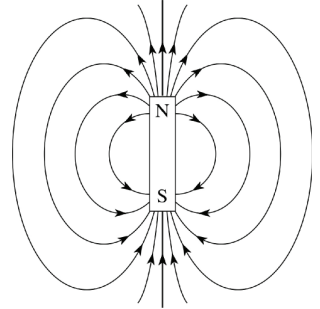
** Designated Person: A person selected or assigned by the employer as being competent to replace specific replacement parts listed in this manual and is able to verify proper functioning of the specific replacement parts and the entire product after the completion of the installation.



IMPORTANT FACTS FOR THE OPERATION OF LIFT MAGNETS

LOAD CHARACTERISTICS OTHER THAN JUST WEIGHT MUST BE CONSIDERED IN ORDER TO DETERMINE THE LOAD THAT ANY MAGNET CAN LIFT.

This statement is true for all lifting magnets because they all operate using the same fundamental laws of physics. 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 reduces the magnet's lifting capacity. There are many important factors which limit the flow of these lines of force.



1. LOAD THICKNESS

The greater the number of lines of magnetic force flowing from a magnet into the load, the greater the effectiveness of the magnet. The thicker the load, the more lines of magnetic force are able to flow. Beyond a certain thickness of load, no additional lines of force will flow because the magnet has reached its full capacity.

- » Thin material (load) means less iron available, and thus fewer lines of magnetic force flow from the magnet into the load. Therefore, the lifting capacity of the magnet is reduced.
- » In some cases the magnet will attract more than one thin plate of material when set on a stack of thin plates. DO NOT LIFT more than one plate at a time since the lower plate may not be held sufficiently.
- » The lifting guidelines provide the user with what minimum thickness of load is required to reach full lifting capacity. Below such thickness of load, the user must accept the reduced lifting capacity of the magnet as shown in the guidelines.

2. SURFACE CONDITIONS

Magnetic lines of force do not flow easily through air. They need iron in order to flow freely; therefore, anything that creates a space or an air gap between a magnet and the load limits the flow of magnetic lines of force, and thus reduces the lifting capacity of a magnet.

- » **MAGNET'S LIFTING SURFACE CONDITION** — The lifting surfaces of a magnet must be clean, smooth, flat and free of nicks and burrs to minimize the air gap between a magnet and the load. This magnet has been designed with soft, low carbon steel lifting surfaces in order to maximize the lifting capacity; therefore, special care must be taken to protect these surfaces. Follow the Inspection Instructions in this manual. Attaching or welding other materials to the lifting surfaces in order to reduce wear should not be done with this magnet because it will reduce the lifting capacity.
- » **LOAD SURFACE CONDITION** — Paper, dirt, rags, rust, paint, and scale act the same as an air gap. A rough surface finish on the load also creates an air gap between the magnet and load. Any of these conditions will reduce the magnet's lifting capacity.



IMPORTANT FACTS FOR THE OPERATION OF LIFT MAGNETS

3. LOAD ALLOY

Low carbon steels, such as SAE 1020 steel, are nearly as good conductors of magnetic force as pure iron. However, many other alloys contain non-magnetic materials which reduce the ability of magnetic force to flow into the load. An alloy such as SAE 300 series 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 a magnet can develop only one-half as much force on a type 416 stainless steel load as it can on a SAE 1020 steel load.

The force developed on cast iron, because of the carbon content, is less than one-half the force compared with SAE 1020 steel. Chilled cast iron further reduces the force to less than one-quarter.

4. LOAD LENGTH OR WIDTH

As the length or width of a load increases, it ceases to remain flat when lifted and the edges begin to droop. This drooping or sagging of the load can create an air gap between the load and the magnet. This is called peel; if peel occurs, the lifting capacity of the magnet is greatly reduced.

For plate lifting, where peel often occurs, rectangular shaped magnets must be positioned so that the length of the magnet is parallel to the width of the load.

5. POSITION OF MAGNET'S LIFTING SURFACE

As the position of the magnet's lifting surface changes from horizontal to vertical, the lifting capacity of the magnet decreases. When the magnet's lifting surfaces are vertical, the lifting capacity of the magnet is minimized and dependent upon the coefficient of friction between the magnet's lifting surface and the load.

6. PORTION OF MAGNET SURFACE IN CONTACT WITH LOAD

The full surface of the magnet must contact the load if the magnet is to achieve rated lift capacity.

7. LOAD TEMPERATURE

The temperature of the load can cause damage to the magnet and, if high enough, can even change the magnetic characteristics of the load. For Standard Lift Magnets, Walker should be consulted if the load or air temperature exceeds 110° F (43° C).

8. POWER SOURCE & CONNECTIONS

The electromagnet must be connected to a constant source of power, providing 115VAC/15 amps/1 phase/60Hz. A twist-lock style plug and mating connector are provided on the magnet retractile power cord. The service cable must be permanently wired directly to the source - no switches or extension cords. This plug/connector set must not be replaced with non-twist-lock connectors due to the danger of accidental disconnection.



SAFETY RULES

1 OPERATOR INSTRUCTIONS

NEVER ATTEMPT TO OPERATE THIS LIFT MAGNET WITHOUT READING AND UNDERSTANDING THE OPERATOR'S MANUAL & SAFETY INSTRUCTIONS.

2



Check the condition of the magnet prior to every lift. WIPE clean the bottom of the magnet and the area on the load where the magnet will be located. File away burrs.

3



Position the magnet so the load remains level.

4



Energize the magnet by selecting the **"GRIP" & "PROOF" buttons**. The green indicator light will illuminate when electrical power is applied to the magnet. To obtain maximum lift, allow a few seconds for the magnet to reach full power before lifting the load.

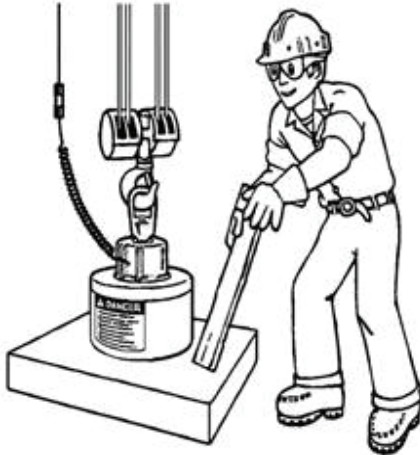
If there is any difficulty lifting a load, DON'T LIFT IT. Call Industrial Magnetics for advice at 1-800-WMAGNET

When working in an area using lifting magnets, wear safety glasses, work gloves, steel-toed shoes and a safety hat.



SAFETY RULES (continued)

5



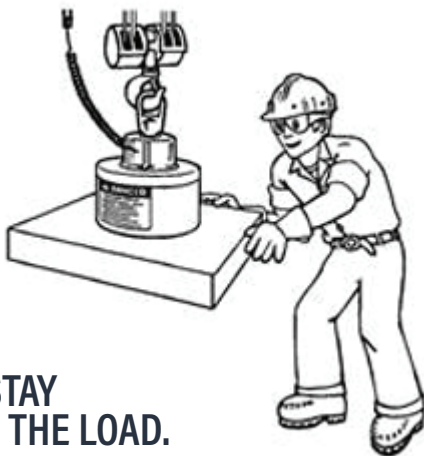
Check to be sure no one is near the load to be lifted. Inform others in the area that a lift is to be gin. Lift the load 2 to 3 inches (50 to 75 mm) and then jar the load to insure that adequate holding power is available. **ALWAYS STAY CLEAR OF THE LOAD.**

6



Lift and move the load **SMOOTHLY**. Avoid jarring and swinging the load while it is in transit. **KEEP THE LOAD LEVEL. NEVER** let the load come in contact with any obstruction.

7



ALWAYS STAY CLEAR OF THE LOAD.

Guide the load by pushing or pulling the edges. This keeps the entire body clear of the load at all times. **DO NOT** guide the load by pushing or pulling the Magnet. **NEVER** get in a position where a dropped load could cause injury.

8



Carefully set the load down. De-energize the magnet by selecting the **"PROOF" & "RELEASE."** The red indicator light will flash. Hold for two to three seconds; when released the magnet will return to the **"OFF"** position. Then lift the magnet slightly to be sure the load has been released.



CAUTION

NEVER re-energize the magnet until it has been placed in contact with the load to be lifted. Prematurely energizing the magnet could cause unwanted materials to be attracted to the magnet or the load to unexpectedly jump to the magnet face. **PERSONAL INJURY MAY RESULT.**



RECOMMENDED LIFTING PROCEDURES

Connect power cord to 115VAC, 15 amp circuit using only the twist-lock plug and connector furnished with the electromagnet.

» SAFETY HOOK LATCH

Always use a safety hook latch onto the crane hook to hold the magnets.

» STAY CLEAR OF THE LOAD

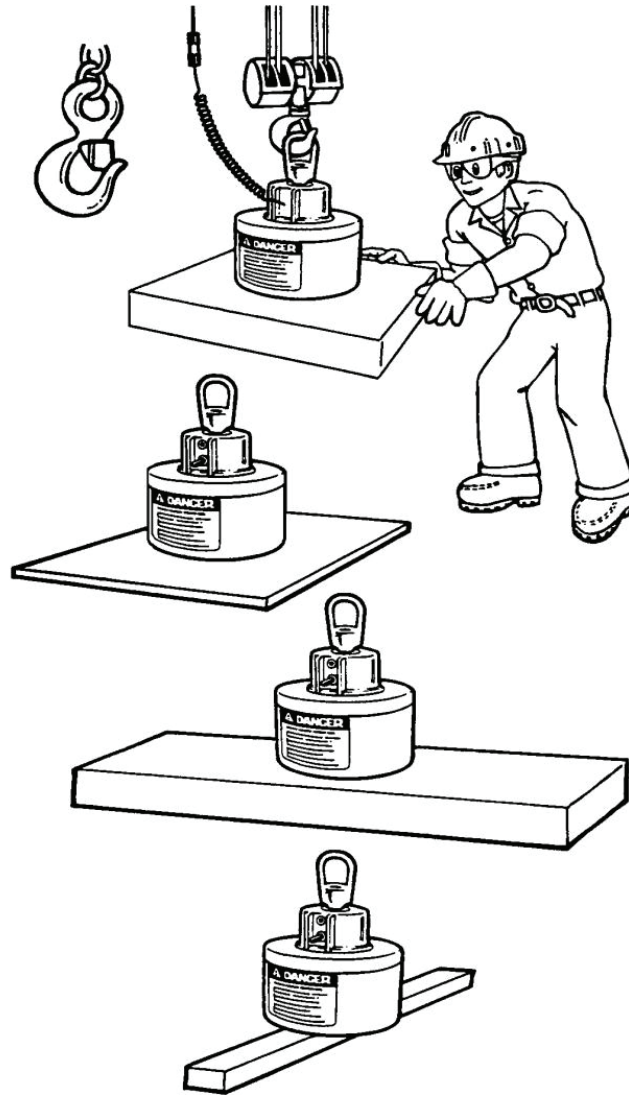
Guide the load by pushing or pulling the edges of the load.
Stay clear of the load at all times.

» PLATE LIFTING

Position the magnet so that it is centered on the plate. Never lift any plate less than 1/4" (6mm) thick.
(See Important Facts 2 & 4).

» BAR LIFTING

When the load width is greater than the magnet diameter, position the magnet length so the entire lifting surface of the magnet is in contact with the load.
When the load width is narrower than the magnet's diameter, position the magnet so that it is centered on the width of the load.



⚠ WARNING

Never lift loads with any dimension greater than:

- CER05: 5 feet (1.5 meters)
- CER07: 6 feet (1.8 meters)
- CER09: 8 feet (2.4 meters)
- CER12: 10 feet (3.1 meters)
- CER16: 12 feet (3.7 meters)
- CER20: 15 feet (4.6 meters)



OPERATING INSTRUCTIONS

Connect power cord to 115VAC, 15 amp circuit using only the twist-lock plug and connector furnished with the electromagnet.

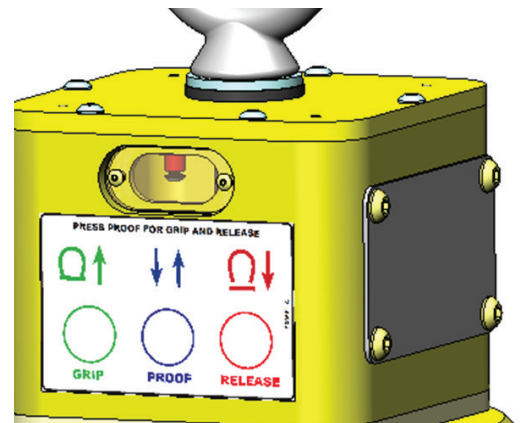
1. Local Push Button Operation

GRIP MODE

To energize the magnet, press and hold the GRIP and PROOF buttons*. Hold them both until the green ring of the GRIP button illuminates. The magnet is now in the full "ON" or energized condition. The magnet will remain energized until the release function is selected.

As a safety reminder, the green GRIP ring may begin to flash after 10 minutes in the GRIP condition. This indicates that the user is about to exceed the magnet duty cycle.

Safely lower the load to a safe support and turn off magnet so that it can cool. See page 15 for discussion of the magnet duty cycle.



RELEASE MODE

To turn off or De-Energize the magnet, press, and hold both the PROOF and RELEASE buttons. Hold them both until the red ring of the RELEASE button flashes. Each flash indicates that a release pulse is being sent to the magnet. The magnet should achieve a clean release of the load or work piece, while the buttons are held and the RELEASE ring is flashing, according to this schedule:

CER05 and CER07 - one to three release pulses

CER09 and CER12 - three to five release pulses

CER16 and CER20 - five to seven release pulses

While the buttons are held and the RELEASE ring is flashing, the magnet control will provide up to twelve pulses, to ensure a clean release of the load.

A clean release of the load or work piece is a function of a combination of factors, including thickness, size of the load vs. size of magnet, surface cleanliness, and surface finish.



Releasing the two buttons returns the magnet to the "OFF" condition.



* NOTES for previous versions of CER magnets:

Control functions for early models of the CER magnets are labeled with:
"LIFT" rather than "GRIP"

"ENABLE" or dual "RELEASE" rather than "PROOF"

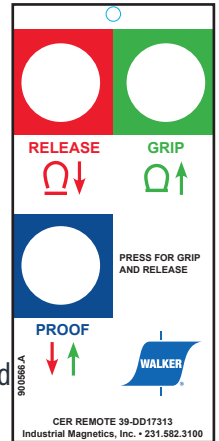
Functionality is common with the descriptions above.



OPERATING INSTRUCTIONS CONT.

2. Remote Control Operation

- A. The remote control duplicates the functions of the local push buttons on the magnet. The system utilizes Infrared (I/R) light to communicate with the magnet to minimize interference to/from radio frequency remote controls used elsewhere in the user's facility.
- B. Check the remote control to verify that battery (9 volt, alkaline) has been properly installed. Then press both the PROOF and GRIP buttons *while observing the red LED at the top center of the remote. If the battery is properly installed, the LED should flash.
- C. (Programming) With the CER magnet connected to 115 -120VAC power, point the remote control at the I/R lens above the local Grip/Release buttons. Press and hold all three buttons simultaneously-GRIP, RELEASE, PROOF. The local green GRIP LED ring and the red RELEASE LED ring will flash. Hold both buttons until the LED rings stop flashing. This should take about five seconds. The I/R remote control is now programmed and ready to use with the magnet.
- D. Perform a trial GRIP and RELEASE to verify that the remote is properly programmed: Aiming the remote toward the I/R lens on the magnet, press and hold the blue PROOF and green GRIP buttons on the remote. Hold them until the green GRIP LED ring illuminates. The magnet is now in the full "ON" or energized condition. To release the work piece, place load on an adequate support. Press and hold both the PROOF and RELEASE buttons on the remote. Hold them both until the red ring of the RELEASE button flashes, indicating that pulses are being sent to the magnet. See pulse schedule, above.
- E. The remote control should operate the magnet at a distance of one to fifteen feet from the magnet.



* NOTES for previous versions of CER magnets:



Control functions for early models of the CER magnets are labeled with:
 "LIFT" rather than "GRIP"
 "ENABLE" or dual "RELEASE" rather than "PROOF"

Functionality is common with the descriptions above.



GUIDELINES FOR REDUCTION OF RATED LIFT CAPACITY

⚠ CAUTION

Each magnet model is rated for a different weight limit. Load characteristics will affect the lifting capacity of the magnets. The lifting guidelines for the various models are shown on the following pages.

- » The Lifting Guidelines tables show the effect of air gap, load thickness, load length, and load width on lifting capacity. As the thickness of the load decreases, so does the rated lifting capacity of the magnet. The tables show the maximum weight or load size which can be lifted for each thickness under varying air gap conditions.
- » DO NOT EXCEED EITHER THE MAXIMUM WEIGHT OR SIZE FOR EACH THICKNESS. Each value shown on the Lifting Guidelines charts is for SAE 1020 steel, and any increase in alloy content will result in further reduction of the lifting capacity of the magnet.

THIS TABLE PROVIDES REDUCTION FACTORS FOR SLELCT MATERIAL OTHER THAN SAE 1020 STEEL	
REDUCTION FACTORS FOR MATERIALS OTHER THAN SAE 1020 STEEL	
MATERIALS	REDUCTION FACTOR
Cast Steel	0.90
3% Silicon Steel	0.80
SAE 1095 Steel	0.70
416 Stainless Steel	0.50
Cast Iron (non-chilled)	0.5
Pure Nickel	0.10
For Other Materials Consult Walker Magnetics	

Rated lift Capacity (For these materials) = **Reduction Factor** multiplied by **Maximum Load Value** (For 1020 Steel) from Lifting Guidelines (plate). See page 14 & 15.

Example: Lifting SAE 1095 STEEL, ½" thick, ROUGH machined flat surfaces (use .020" air gap) with a Model CER09 lifting magnet.

Rated Lift Capacity = 0.70 multiplied by 600 = 420 pounds.

ADDITIONAL OPERATING INFORMATION

Avoid dropping, banging, or slamming the magnet into other objects.

These lifting magnets are electromagnetic devices. Do not allow water to enter the magnet body.

DO NOT EXCEED THE RATED 50% DUTY CYCLE OF THESE MAGNETS.

Exceeding the duty cycle will result in reduced lifting capacity and a shorter magnet life. Refer to Page 16 for definition of Duty Cycle.

WARNING	If there is any difficulty lifting a load, DON'T LIFT IT! Call Walker Magnetics for advice at 1-800-962-4638
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LIFTING GUIDELINES (PLATE)

CER05, CER07, and CER09 (plate)

MAGNET MODELS	LOAD THICKNESS	TYPE OF SURFACE CONDITION					
		CLEAN & SMOOTH Similar to a Flat (32 micro-inch RMS) Ground Surface .000" Max. Air Gap †		RUST OR SCALE Similar to a Flat Hot Rolled Steel Surface .010" Max. Air Gap † (.254mm)		IRREGULAR OR ROUGH Similar to a Flat Smooth Cut File .020" Max. Air Gap † (.508mm)	
		Max. Load (lbs.)	Max. Size (ft.)	Max. Load (lbs.)	Max. Size (ft.)	Max. Load (lbs.)	Max. Size (ft.)
CER05	NEVER LIFT ANY LOAD WITH ANY DIMENSION GREATER THAN 5 FEET						
	Over 1"	600	-	400	-	370	-
	* 1"	600	3 x 4	400	3 x 3	370	3 x 3
	*3/4"	530	4 x 4	375	3 x 4	350	3 x 3
	*1/2"	480	4 x 5	350	4 x 4	330	4 x 4
	*3/8"	400	5 x 5	275	4 x 4	200	3 x 4
	*1/4"	180	4 x 4	150	3 x 4	125	3 x 4
CER07	NEVER LIFT ANY LOADS WITH ANY DIMENSION GREATER THAN 6 FEET						
	Over 1-1/2"	1200	-	1100	-	900	-
	*1-1/2"	1200	4 x 4	1100	4 x 4	900	3 x 4
	*1"	1000	4 x 5	950	4 x 5	900	4 x 5
	*3/4"	850	5 x 5	775	5 x 5	700	4 x 5
	*1/2"	700	5 x 6	650	5 x 6	550	5 x 5
	*3/8"	450	5 x 5	420	5 x 5	400	5 x 5
	*1/4"	200	4 x 4	190	4 x 4	180	4 x 4
CER09	NEVER LIFT ANY LOADS WITH ANY DIMENSION GREATER THAN 8 FEET						
	Over 2"	2400	-	2300	-	2000	-
	*2"	2400	5 x 5	2300	5 x 5	2000	4 x 5
	*1-1/2"	2200	6 x 6	2100	5 x 6	1800	5 x 5
	*1"	1700	6 x 6	1550	6 x 6	1400	5 x 6
	3/4"	1400	6 x 7	1300	6 x 7	1250	6 x 6
	*1/2"	700	5 x 6	650	5 x 6	600	5 x 5
	*3/8"	525	5 x 6	480	5 x 6	450	5 x 5
	*1/4"	250	4 x 5	220	4 x 5	200	4 x 4

* LIFTING CAPACITY IS AFFECTED BY PEEL AND THICKNESS. SEE NOTES 1 & 4 OF THE "IMPORTANT FACTS" (PAGE 6 & 7) IN THIS MANUAL.

† SEE NOTE 2 OF THE "IMPORTANT FACTS" (PAGE 6) IN THIS INSTRUCTION MANUAL. ALSO READ RECOMMENDED LIFTING PROCEDURES (PAGE 10).

Values shown are for maximum rated capacities when operating instructions and warnings are followed.

Values are based upon SAE 1020 steel. Higher alloy steels and other magnetic materials will require further reductions of these rated capacities. See Guidelines for the Reduction of Rated Lifting Capacity on previous page.



LIFTING GUIDELINES (PLATE)

CER12, CER16, and CER20 (plate)

MAGNET MODELS	LOAD THICKNESS	TYPE OF SURFACE CONDITION					
		CLEAN & SMOOTH Similar to a Flat (32 micro-inch RMS) Ground Surface .000" Max. Air Gap †		RUST OR SCALE Similar to a Flat Hot Rolled Steel Surface .010" Max. Air Gap † (.254mm)		IRREGULAR OR ROUGH Similar to a Flat Smooth Cut File .020" Max. Air Gap † (.508mm)	
		Max. Load (lbs.)	Max. Size (ft.)	Max. Load (lbs.)	Max. Size (ft.)	Max. Load (lbs.)	Max. Size (ft.)
CER12	NEVER LIFT ANY LOAD WITH ANY DIMENSION GREATER THAN 10 FEET						
	Over 2"	4000	-	3850	-	3475	-
	2"	4000	7 x 7	3850	6 x 7	3475	6 x 7
	*1-1/2"	3500	7 x 8	3250	7 x 7	3000	7 x 7
	*1"	2800	8 x 8	2600	7 x 8	2300	7 x 8
	*3/4"	2100	8 x 8	2000	8 x 8	1900	7 x 8
	*1/2"	1100	7 x 7	1050	7 x 7	1000	7 x 7
	*3/8"	600	6 x 6	550	6 x 6	500	5 x 6
*1/4"	300	5 x 5	250	4 x 5	200	4 x 4	
CER16	NEVER LIFT ANY LOADS WITH ANY DIMENSION GREATER THAN 12 FEET						
	Over 2-1/2"	7250	-	6750	-	6250	-
	*2-1/2"	7250	8 x 8	6750	8 x 8	6250	7 x 8
	*2"	6000	8 x 9	5500	8 x 8	5000	7 x 8
	*1-1/2"	5000	9 x 9	4600	8 x 9	4300	8 x 8
	*1"	4000	9 x 10	3750	9 x 10	3500	8 x 9
	*3/4"	2500	9 x 9	2300	8 x 9	2200	8 x 8
	*1/2"	1300	7 x 8	1200	7 x 8	1100	7 x 7
	*3/8"	750	7 x 7	700	6 x 7	600	6 x 6
*1/4"	350	5 x 6	300	5 x 5	250	4 x 5	
CER20	NEVER LIFT ANY LOADS WITH ANY DIMENSION GREATER THAN 15 FEET						
	Over 2-1/2"	10500	-	9800	-	9200	-
	*2-1/2"	10500	10 x 11	9800	10 x 10	9200	10 x 10
	*2"	10000	11 x 11	9500	10 x 11	9000	10 x 11
	*1-1/2"	8000	11 x 12	7600	11 x 11	7200	10 x 11
	*1"	5500	11 x 12	5200	11 x 11	5000	10 x 11
	*3/4"	3000	10 x 10	2800	9 x 10	2600	9 x 9
*1/2"	1500	8 x 9	1400	8 x 8	1300	7 x 8	

* LIFTING CAPACITY AFFECTED BY PEEL AND THICKNESS. SEE NOTES 1 & 4 OF THE "IMPORTANT FACTS" (PAGE 6 & 7) IN THIS MANUAL.

† SEE NOTE 2 OF THE "IMPORTANT FACTS" (PAGE 6) IN THIS MANUAL. ALSO READ RECOMMENDED LIFTING PROCEDURES (PAGE 10).

Values shown are for maximum rated capacities when operating instructions and warnings are followed. Values are based upon SAE 1020 steel. Higher alloy steels and other magnetic materials will require further reductions of these rated capacities. See Guidelines for the Reduction of Rated Lifting Capacity page 13.



DUTY CYCLE

DO NOT EXCEED THE RATED 50% DUTY CYCLE OF THESE MAGNETS.

Exceeding the duty cycle will result in reduced lifting capacity, and a shorter magnet life.

Duty cycle rating (D.C.%) is defined as:

$$(\text{Time On} \times 100) \div (\text{Time Off} + \text{Time On}) = \text{D.C. \%}$$

This is expressed as a percent



Maximum time on is specified as 10 minutes

To maximize the effectiveness of the magnet, keep the power off when the magnet is not in use.

EXAMPLES:

3 MINUTES ON, 1 MINUTE OFF: $(3 \times 100) \div (3 + 1) = 75\%$

5 MINUTES ON, 5 MINUTES OFF: $(5 \times 100) \div (5 + 5) = 50\%$



INSPECTION AND MAINTENANCE INSTRUCTIONS

EVERY LIFT

- » Keep the lifting surfaces of the magnet CLEAN, SMOOTH, FLAT, FREE OF RUST and any FOREIGN MATERIALS. Nicks and burrs on the lifting surfaces will reduce the lifting capacity. If burrs occur, they can be removed by filing them away. However, care must be taken to protect the neighboring lifting surfaces.
- » Deep nicks may require regrinding of the entire lifting surfaces. (See Weekly Inspection Instructions)
- » Check to assure the green indicator light has illuminated after selecting "GRIP & PROOF"

DAILY

- » Check the entire magnet's case, lifting surfaces, bail or eyebolts, and welds for cracks or other defects. If present, DO NOT USE THE MAGNET - Contact a Qualified Person or Walker Magnetics.
- » Check the eyebolt or lift bail for wear. If the eyebolt or lift bail is worn to 80% of its original dimension, it should be replaced. Retighten the eyebolt if loose.
- » Check physical condition of power cord, lamp, and switch. Repair or replace any suspicious components. Also, check that the twist lock type electric connector is securely attached to the electrical receptacle.
- » Check the condition of the Operating Instruction label and Product Safety signs. The magnet was supplied with one (1) Lifting Guidelines/Operating Instruction label and one (1) Product Safety sign. If these labels and signs are missing or damaged, they should be replaced.

WEEKLY

- » The lifting surfaces of the magnet should be checked for flatness and wear. Uneven wear and out of flatness can greatly reduce the lifting capacity because it will cause a non-magnetic separation (air gap) between the magnet and the flat surface of the load. Some nicks and burrs will occur on the lifting surfaces due to normal usage. However, when the flat contact area of the entire magnet's lifting surfaces becomes less than 90% of the original total lifting surface, it should be taken out of service until the lifting surfaces are reground.*
- » Check the rigid epoxy of the encapsulated coil. Contact Industrial Magnetics or a Qualified Person for repair instructions.

*Regrinding the lifting surfaces.

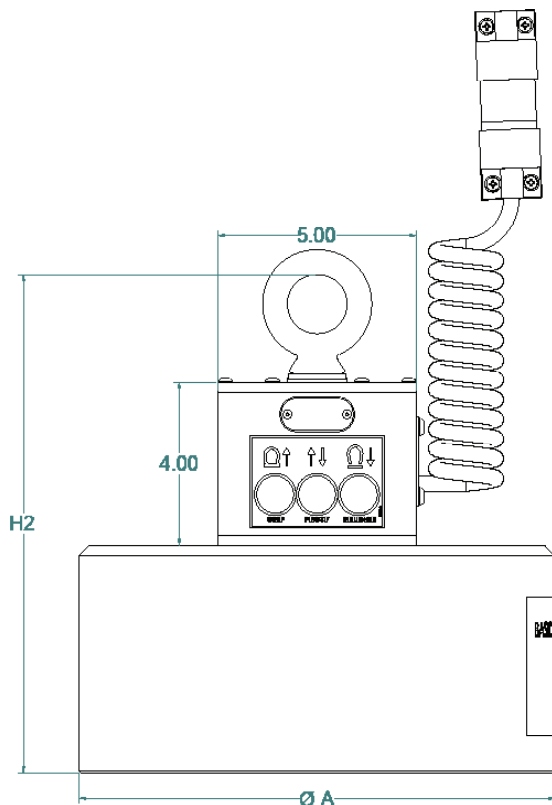
If regrinding is necessary, all the lifting surfaces must remain flat and in the same plane.
After regrinding, the magnet must be re-tested for breakaway force in accordance with the test described in ANSI/ASME B30.20

Industrial Magnetics recommends that your lifting magnet be re-tested for breakaway force each year.

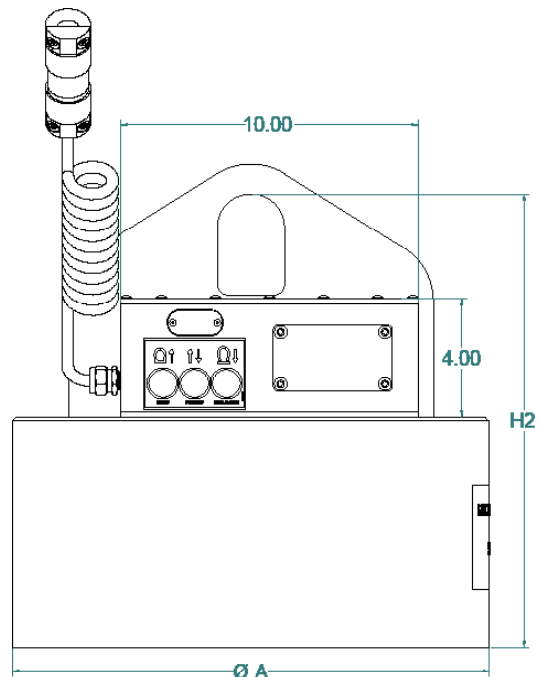


SPECIFICATION AND PARTS LIST

SPECIFICATIONS						
Model No.	CER05	CER07	CER09	CER12	CER16	CER20
Working Load Limit (LBS)	0-600	0-1,200	0-2,400	0-4,000	0-7,250	0-10,500
Power (Watts)	92	135	165	420	495	1000
Net Wt. (LBS)	25	44	89	151	343	578
H2	10.95"	11.75"	12.50"	12.50"	15.25"	16.88"
Diameter "A"	5.25"	6.75"	9"	12"	16"	20"



CER 05-12 Diagram



CER 16-20 Diagram

REPLACEMENT PARTS DIAGRAMS & LISTS	
CER05 THRU 12	See Page 19
CER16 & 20	See Page 20



REPAIRS

For repair of a CER lift magnet, contact Walker Magnetics for the nearest Authorized Service Center TOLL FREE at 1-800-W-MAGNET. A return material authorization number will be issued along with the address of the nearest Service Center. The magnet, after receipt by the Service Center will be inspected and a free estimate of repair charges will be provided. Authorization for repairs from magnet owners must be given to the Walker Magnet Service Center before repairs are made. Transportation charges, both to and from the factory, are to be paid by the magnet owner.



WARNING

- » Disassembly or repair of this magnet can result in reduced holding power and/or cause an unsafe condition. Therefore, anytime the magnet is disassembled beyond the parts list shown in this manual, the magnet must be re-tested for breakaway force in accordance with the test described in ANSI/ASME B30.20.
- » Modification of any operating mechanism or structure of this magnet can reduce the magnet's effectiveness and/or cause unsafe conditions.
- » Repair or modification of this magnet should only be performed by Walker Magnetics.*

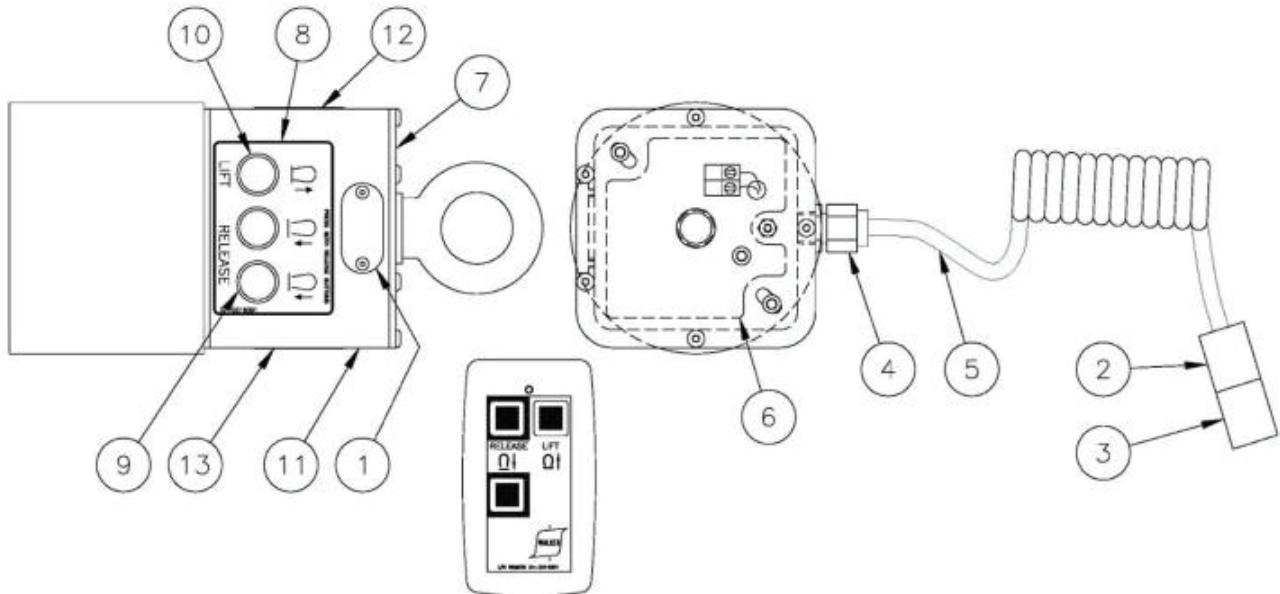
* Walker replacement parts may be installed by a **Designated Person.

** Designated Person: A person selected or assigned by the employer as being competent to replace specific replacement parts listed in this manual and is able to verify the proper functioning of the specific replacement parts and the entire product after the completion of the installation.

This product is manufactured in accordance with ANSI/ASME B30.20
For further information, refer to Chapter 20-3 Close Proximity Operated Lifting Magnets



SPECIFICATION AND PARTS LIST



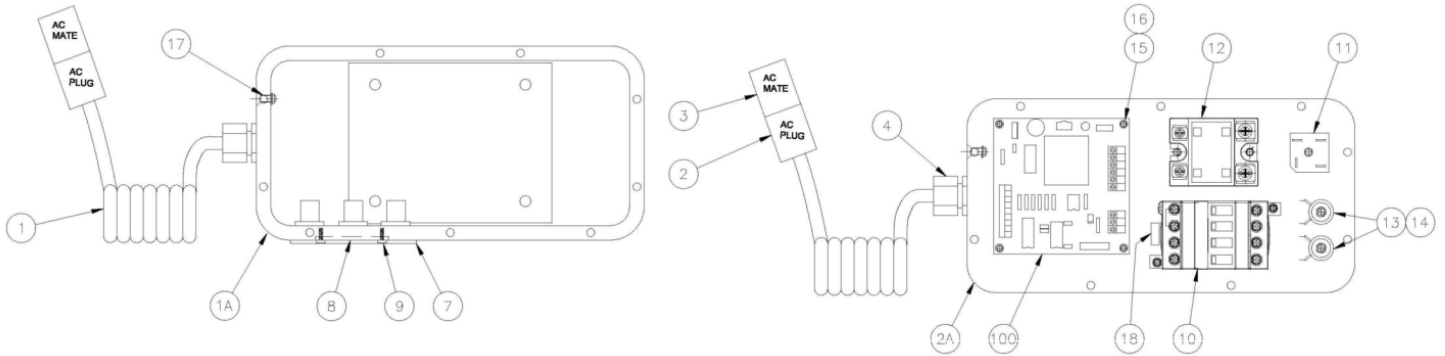
CER05 THRU 12 Replacement Parts List

ITEM NO.	PART DESCRIPTION	PART NO.			
		CER05	CER09	CER09	CER12
1	I/R LENS	39-DD16797	39-DD16797	39-DD16797	39-DD16797
2	PLUG, TWIST LOCK	603950	603950	603950	603950
3	RECEPTACLE, TWIST LOCK	603949	603949	603949	603949
4	CORD GRIP	17-0014	17-0014	17-0014	17-0014
5	COIL CORD	10-5052	10-5052	10-5052	10-5052
6	PCB ASSEMBLY	39-BXM4940A	39-BXM4940A	39-BXM4940A	39-BXM4940A
7	TOP COVER	39-CC16255	39-CC16255	39-CC16255	39-CC16255
8	OVERLAY	900561	900561	900561	900561
9	PUSH BUTTON (RED)	15-0127	15-0127	15-0127	15-0127
10	PUSH BUTTON (GREEN)	15-0128	15-0128	15-0128	15-0128
11	RECTIFIER ASSEMBLY COMPLETE	54-AA13988A	54-AA13988A	54-AA13988A	54-AA13988A
12	OPERATING INSTRUCTIONS	900572	900572	900572	900572
13	ID TAG	900518	900518	900518	900518
14	OPERATING INSTRUCTION TAG	900560	900560	900560	900560
15	REMOTE CONTROL	39-DD17313	39-DD17313	39-DD17313	39-DD17313
16	RIGID EPOXY PATCH KIT	06-DD14974	06-DD14974	06-DD14974	06-DD14974
17	PUSH BUTTON (BLUE)	15-0191	15-0191	15-0191	15-0191

WARNING: IMPROPER WIRING CAN RESULT IN REDUCED HOLDING POWER.



SPECIFICATION AND PARTS LIST



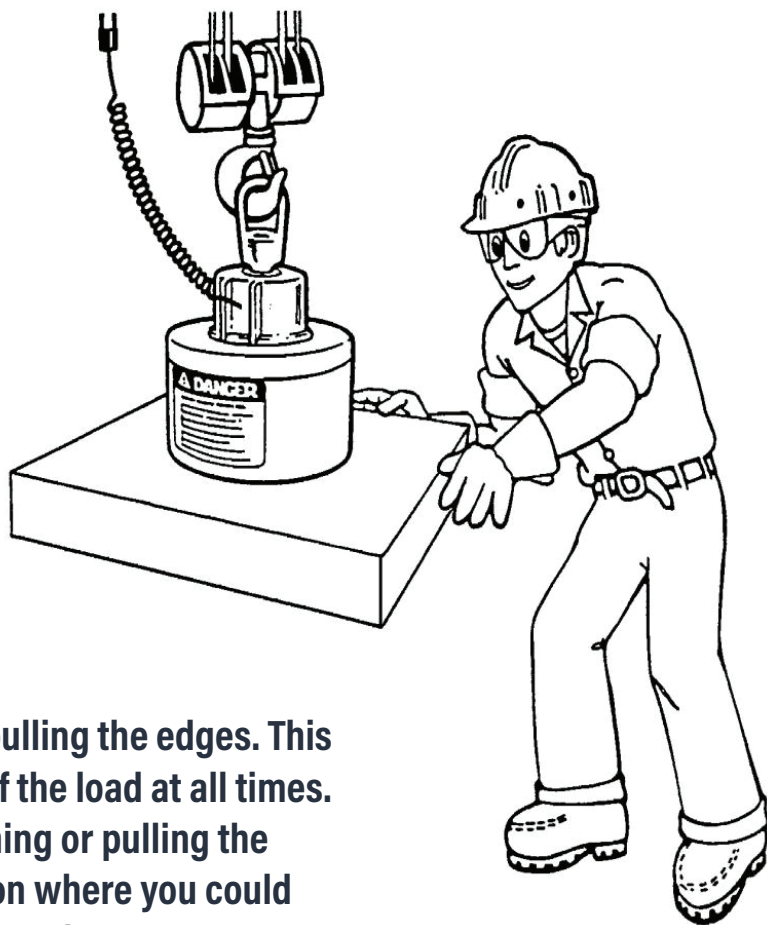
CER16 & CER20 Replacement Parts List

ITEM NO.	PART DESCRIPTION	PART NO.
1	COILED CORD	10-5052
2	PLUG, TWIST LOCK	603950
3	CONNECTOR BODY, TWIST LOCK	603949
4	CORD GRIP	17-0014
5	PUSH BUTTON (GREEN)	15-0128
6	PUSH BUTTON (RED)	15-0127
7	OVERLAY (REVISION A)	900561
8	LENS	39-DD16797
9	SCREW	30-6064
10	CONTACTOR	13-1429
11	RECTIFIER BRIDGE	23-1148
12	RELAY, SOLID STATE	13-0453
13	RESISTOR	22-4360
14	RESISTOR BRACKET	14-3041
17	SCREW	31-1178
18	CAPACITOR	21-3132
19	HEX NUT	31-0506
1A	RECTIFIER ENCLOSURE	44-AA14417
2A	TOP COVER	39-CC16873
100	PC BOARD ASSEMBLY	56-BXM5054A
101	I/R REMOTE CONTROL	39-DD17313
102	PUSH BUTTON (BLUE)	15-0191

WARNING: IMPROPER WIRING CAN RESULT IN REDUCED HOLDING POWER.



ALWAYS STAY CLEAR OF THE LOAD



Guide the load by pushing or pulling the edges. This keeps your entire body clear of the load at all times. DO NOT guide the load by pushing or pulling the magnet. NEVER get in a position where you could get hit with the load if it is dropped.

FOR FAST RESPONSE, CALL 1-800-W-MAGNET

Comments or concerns?

We believe Industrial Magnetics, Inc. offers the finest CER 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 Customer Service Department at 1-888-582-0822.

We appreciate the opportunity to serve you!