

Installation, Operation and Maintenance Instructions



SAFEHOLD[®] LIFTING MAGNETS

ERIEZ HEADQUARTERS: 2200 ASBURY ROAD, ERIE, PA 16506-1402 U.S.A.
WORLD AUTHORITY IN SEPARATION TECHNOLOGIES

Introduction

This manual details the proper steps for installing, operating and maintaining the Eriez SafeHold® Lifting Magnets.

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

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



CAUTION - STRONG MAGNET

This equipment includes one or more extremely powerful magnetic circuits. The magnetic field may be much stronger than the Earth's background field at a distance several times the largest dimension of the equipment.

- **If you use a heart pacemaker or similar device you must never approach the equipment because your device may malfunction in the magnetic field, with consequences up to and including death.**
- **To avoid serious pinch-type injuries caused by objects attracted to the magnet, keep all steel and iron objects well away from the equipment. Do not allow hands, fingers, and other body parts to be caught between the equipment and nearby steel or iron objects.**
- **Keep credit cards, computer disks, and other magnetic storage devices away from the equipment because magnetically stored information may be corrupted by the magnetic field.**
- **Keep electronic devices, such as computers or monitors, away from the equipment because exposure to the magnetic field may result in malfunction or permanent damage to such devices.**

Contact Eriez if you have a question regarding these precautions.



CAUTION

Safety labels must be affixed to this product. Should the safety label(s) be damaged, dislodged or removed, contact Eriez for replacement.

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SAFEHOLD® LIFTING MAGNETS

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Description – RPL, XPL, EPL

The Eriez SafeHold RPL, XPL and EPL Series are permanent lifting magnets in which the magnetic field is mechanically turned off and on. Several sizes of manually actuated magnets are available.

Description – APL

The Eriez SafeHold APL Series are permanent lifting magnets that automatically turn ON and OFF by the lifting/lowering action of the hoist. There is no external power source or manual interaction required. This means the operator doesn't have to reach across a large sheet or plate to rotate a handle. Instead, the magnet is activated or deactivated simply by lifting or lowering the overhead crane. When it is necessary to move the magnet for storage, a slide latch locks the magnet in the OFF position.

Description – MPL

The Eriez SafeHold MPL Series are permanent magnets in which the magnetic field is mechanically turned off and on similar to an electromagnet. An electric gear motor installed in the unit actuates the permanent magnet at the push of a button. The electrical power the magnet uses is for the electric motor and the control system only. It is in no way used to generate the magnetic field.

Once power is supplied to the magnet, one of three indicator lights will be illuminated. Their meaning is defined below:

- Red light - The permanent magnet is in the off position. It is safe to remove the magnet from the work piece.
- Yellow light - The permanent magnet is transitioning from off to on or from on to off. It is not safe to move the magnet with the yellow light on.
- Green light - The permanent magnet is in the full on position and it is safe to lift the work piece.

Two push buttons with covers are provided for the operator's convenience. The two buttons work in parallel, so either one will operate the magnet.

Terminals are provided in the electrical box to attach an external pendant push button control. **It is the end user's responsibility to ensure that the external control complies with ASME B30.20.**

The magnets are designed and built to ASME B30.20 Standards For Below-The-Hook Lifting Devices. FIGURES 1-4 show the construction of the SafeHold Lifting Magnets.

CAUTION

This manual covers the factors to be considered by the user in most common lifting applications. However, not every application may be addressed.

If the instructions are not clear, or if some aspect of your lifting application is not covered in this manual, or if you have any questions about magnetic lifting, call Eriez at (814) 835-6000.

Model Number Comparison Chart

Current Model Number	Former Model Number
RPL-2	RPL-3
RPL-7	RPL-11
RPL-15	RPL-22
RPL-25	RPL-35
RPL-50	RPL-70
XPL-3/2	XPL-4/3
XPL-6/4	XPL-8/6
XPL-10/6	XPL-15/9
XPL-17/12	XPL-24/16
XPL-22/16	XPL-30/24
XPL-35/27	XPL-50/40
EPL-4	EPL-121
EPL-28	EPL-154
EPL-55	EPL-157
EPL-75	EPL-197
APL-6	APL-150
APL-11	APL-152
APL-24	APL-154
APL-38	APL-156
MPL-30/20	MPL-45/30



Construction - RPL

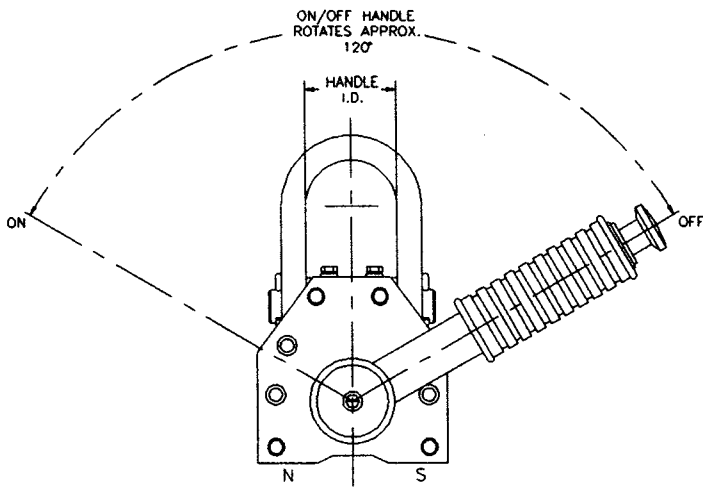
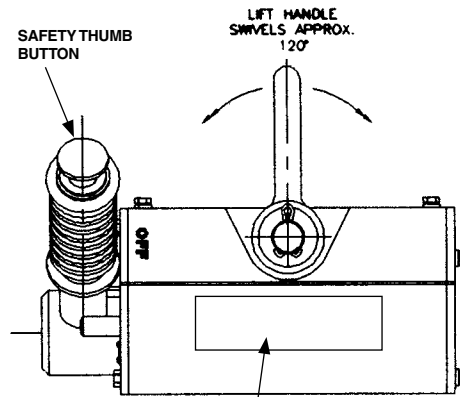


FIGURE 1



Construction - EPL, XPL

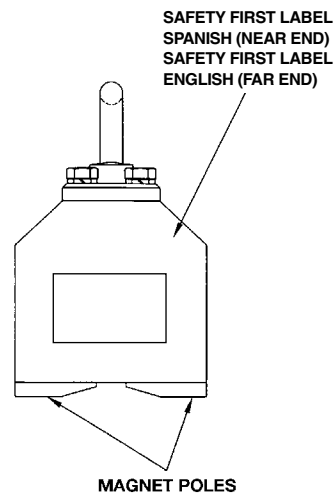
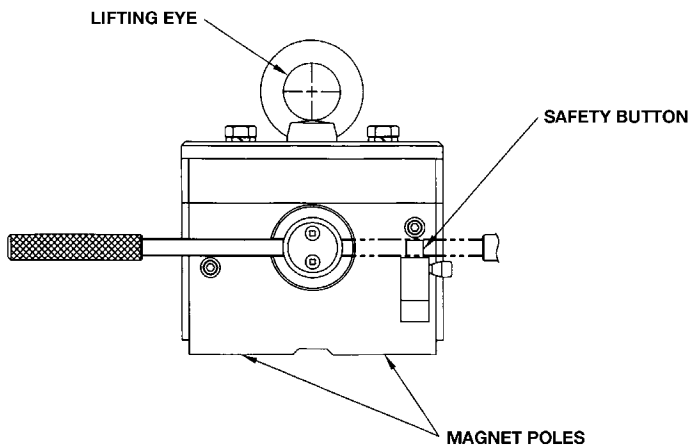


FIGURE 2

Construction - APL

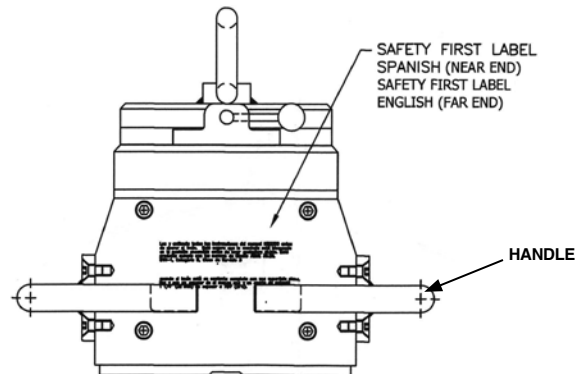
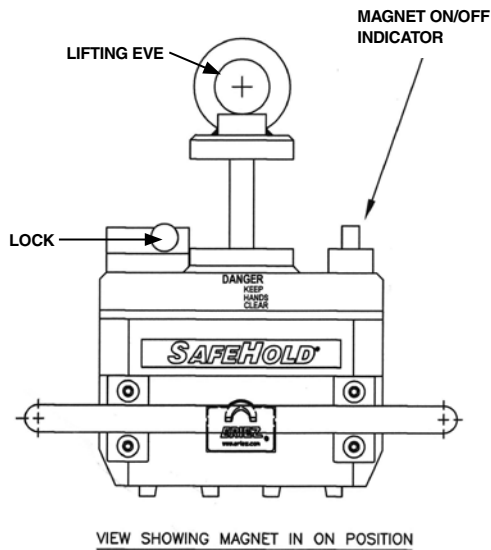


FIGURE 3

SafeHold™ Lifting Magnets



Construction - MPL

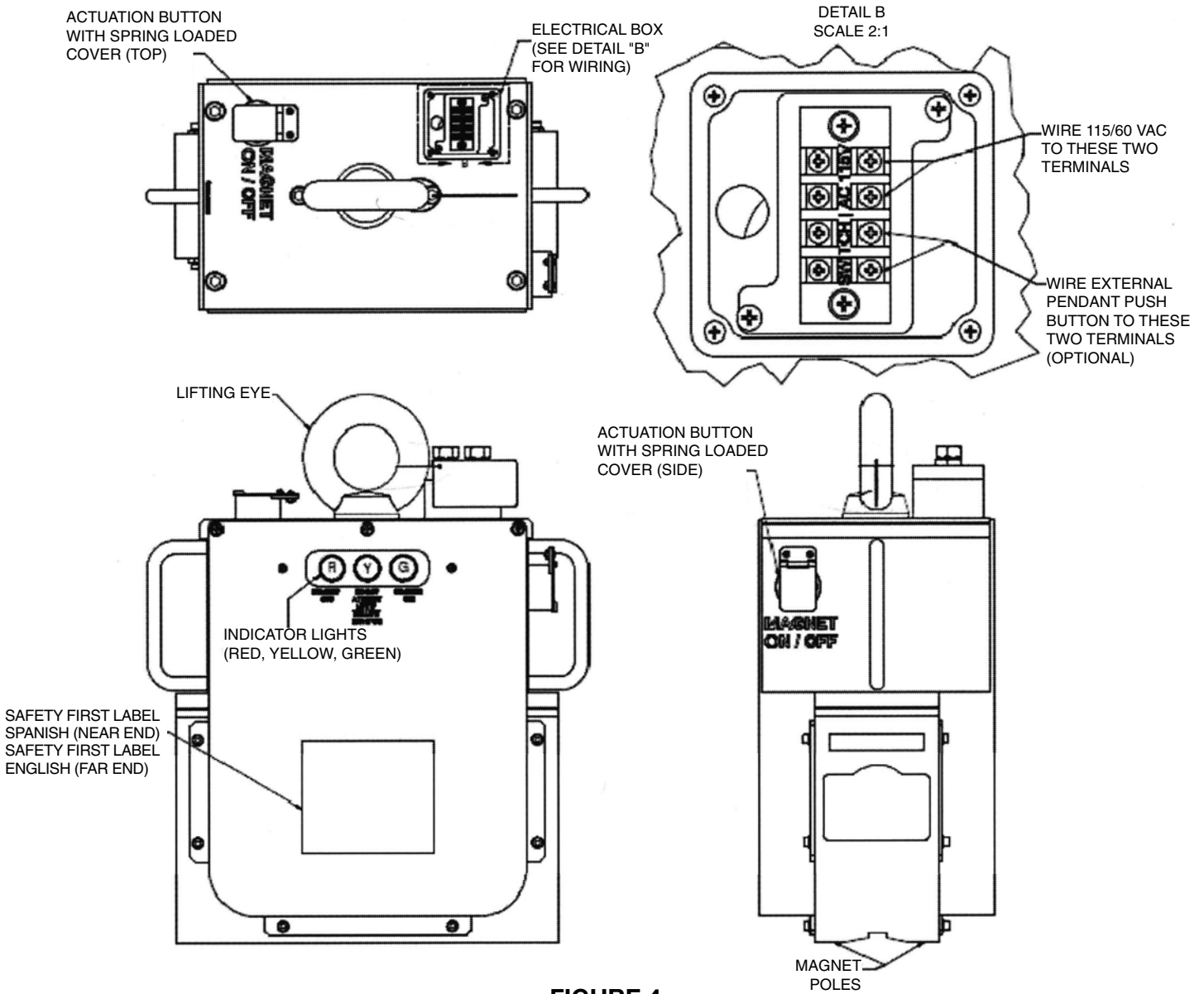


FIGURE 4

Installation

All lifting magnets are packed for shipping in a manner that provides adequate protection for the pole faces and other critical areas. SafeHolds do not present any potential hazards for magnetic attraction in the “as shipped” condition.

The magnet is typically attached to an overhead lifting device properly rated to handle the maximum magnet capacity and weight of the magnet. A properly designed or selected clevis, shackle, chain hook or strap is attached through the lifting eye.

The rated load capacity of the lifting magnet is clearly marked on the lifting magnet or on a tag attached to it where it is visible. This marking refers to this instruction manual for information relating to decreases in rating due to load thickness, load alloy, load surface conditions, load length or width, attitude of load, portion of lifting magnet face in contact with load and/or load temperature. For more information see *Operation - Factors Affecting Lifting Capacity*.



Inspection

Inspection Classification

Initial Inspection

- New and reinstalled lifting magnets shall be inspected by a designated person prior to initial use to verify compliance with applicable provisions of this manual.
- Altered, repaired, or modified lifting magnets shall be inspected by a designated person. The inspection may be limited to the provisions affected by the alteration, repair, or modification, as determined by a qualified person.

Inspection Intervals

Inspection procedures for lifting magnets in regular service are divided into three general classifications, based upon the intervals at which the inspections shall be performed. The intervals, in turn, are dependent upon the nature of the critical components of the lifting magnet and the degree of their exposure to wear, deterioration, or malfunction. The three general classifications are designated as every lift, frequent, and periodic, with respective intervals between inspections as defined below.

- Every Lift Inspection. Visual examination by the operator before and during each lift made by the lifting magnet.
- Frequent Inspection. Visual examination by the operator or other designated persons with records not required.
 - Normal service – monthly
 - Heavy service – weekly to monthly
 - Severe service – daily to weekly
 - Special or infrequent service – as recommended by a qualified person before and after each lift
- Periodic Inspection. Visual inspection by a qualified person making records of apparent external conditions to provide the basis for a continuing evaluation.
 - Normal service – yearly
 - Heavy service – quarterly
 - Severe service – monthly
 - Special or infrequent service – as recommended by a qualified person before the first lift and as directed by the qualified person for any subsequent lifts

Every Lift Inspection

Items such as the following shall be inspected by the operator before and/or during every lift for any indication of damage as specifically indicated, including observations during operation for any damage that might occur during the lift:

- Lifting magnet face and surface of the load for foreign materials and smoothness.
- Condition and operation of the control handle and safely locking mechanism of a manually controlled permanent magnet.
- Condition and operation of indicators and meters when installed.

Frequent Inspection

Items such as the following shall be inspected for damage at intervals as defined above, including observations during operation for any indications of damage that might appear between inspections. A qualified person shall determine whether any indications of damage constitute a hazard or will require more frequent inspection. For all lifting magnets, inspect:

- Structural and suspension members for deformation, cracks, or excessive wear on any part of the lifting magnet
- Lifting magnet face for foreign materials and smoothness
- Condition of lifting bail or sling suspension
- Condition and operation of control buttons/handle
- Condition and operation of indicators and meters, where applicable
- Cracked housings, welds, and loose bolts
- Labels and markings

Periodic Inspection

Complete inspections of lifting magnets shall be performed and recorded at intervals as defined above. Any deficiencies, such as those listed below, shall be examined by a qualified person and determination made as to whether they constitute a hazard. These inspections shall include the requirements of the above and, in addition, items such as the following:

- All members, fasteners, locks, switches, warning labels, and lifting parts shall be inspected for deformation, wear, and corrosion

Inspection (cont.)

Lifting Magnets Not In Regular Use

A lifting magnet that has been idle for a period of 1 month or more is to be given an inspection in accordance with above before being placed into service.

Inspection Records

Dated inspection reports shall be made on critical items, such as those listed in periodic inspections. Records should be available to appointed personnel for each periodic inspection and when the lifting magnet is either modified or repaired.

Repairs

Any indications of damage disclosed by the inspection requirements shall be corrected according to the procedures outlined below before operation of the lifting magnet is resumed.

Testing

Operational Tests

- New and reinstalled lifting magnets shall be tested by a qualified person, or a designated person under the direction of a qualified person, prior to initial use to verify compliance with applicable provisions of this manual, including, but not limited to, the following:
 - Moving Parts
 - Latches
 - Stops
 - Switches
 - Any control devices
 - Alarms
- Altered, repaired, or modified lifting magnets shall be tested by, or under the direction of, a qualified person. The test may be limited to the provisions affected by the alteration, repair, or modification, as determined by a qualified person with guidance from Eriez.
- All indicator lights, gages, horns, bells, alarms, pointers, and other warning devices shall be tested.
- Dated reports of all operational tests shall be filed.

Load Test

- Prior to initial use, all new, modified, or repaired lifting magnets shall be tested by a qualified person and a record furnished confirming the load rating of the lifting magnet.
 - General application lifting magnets shall be required to satisfy the rated breakaway force test. The rated load of the lifting magnet shall be less than 33% of the rated breakaway force measured in this test.
 - Special application lifting magnets shall be required to comply with the application breakaway force test. The specified application load shall be less than 33% of the application breakaway force measured in this test.
 - Close proximity operated lifting magnets should have an annual magnetic design factor test to verify the magnet meets the breakaway load requirement. This test should be performed to the actual breakaway point of the magnet or may be performed at the calculated minimum breakaway force. The rated load of all components associated with the (magnetic) design factor test shall exceed the maximum breakaway load of the magnet to avoid overload or the lifting hardware shall be removed. Caution should be exercised during the test. The test shall be performed under the direction of a qualified person.
- The breakaway force test shall establish the force required to vertically remove the lifting magnet from a low carbon, rolled steel plate of the minimum thickness stated by Eriez. The portion of this plate that is in contact with the lifting magnet shall have a surface finish of 125 μ in. (3.2×10^{-3} mm) and be flat within 0.002 in./ft. (0.05 mm/m), without exceeding 0.005 in. (0.127 mm) total. The full operating face of the lifting magnet shall be in contact with the steel plate, which shall be between 60°F (15°C) and 120°F (50°C).
- The special application breakaway force test shall establish the application breakaway forces of the lifting magnet under the variety of loading conditions for which the lifting magnet is specified. The details of this test should be supplied by Eriez.
- Altered, repaired, or modified lifting magnets shall be tested by, or under the direction of, a qualified person. This test may be limited to the provisions affected by the alteration, repair, or modification, as determined by a qualified person with guidance from Eriez.



Maintenance – All Magnets

Maintenance Procedure

- Before adjustment and repairs are started on a lifting magnet, the following precautions shall be taken.
 - Power source shall be locked out and tagged “Out of Service.”
 - A lifting magnet removed for repair shall be tagged “Out of Service.”
- Only qualified personnel shall work on lifting magnet when adjustments and tests are required.
- Replacement parts shall be at least equal to the original manufacturer’s specifications. For more information, see Spare Parts Lists.
- After adjustments and repairs have been made, the lifting magnet shall not be returned to service until it has been inspected according to the above procedure.
- Dated records of repairs and replacements should be made available.

Adjustments and Repairs

Any hazardous conditions disclosed by the inspection requirements shall be corrected before normal operation of the lifting magnet is resumed. Adjustments and repairs shall be done under the direction of, or by, a qualified person.

Maintenance – APL

The only required rigid maintenance is to lubricate the lifting section through the grease fitting. This is located under the lifting lug. This should be done every six months depending on use and environment. The general characteristics of the lubricant are a multi-purpose lithium, soap thickened grease formulated with paraffinic-mineral base additives that prevent oxidation and rust formation.

Manufacturer	Brand Name
Mobile	Mobilux
Shell	Avania G
Caltex	Marfax Multipurpose
BP	Energrease L
Esso	Beacon
Total	Multis

A periodic visual inspection of the pole plate contact area is recommended so it can be kept free of foreign material that might interfere with proper contact and thereby detract from holding.

No in-field repair of the equipment should be attempted. Eriez Service Department should be contacted if trouble is encountered.

Operation

⚠ WARNING
Because the operator inherently works very close to the magnet when using the SafeHolds, THE WORKPIECE SHOULD NEVER BE DROPPED FROM MID-AIR. Release of the workpiece from the magnet may be uneven for any of several reasons, causing rotation of the workpiece and an unpredictable fall path, resulting in serious personal injury or property damage.

The ability of the SafeHolds to operate without being dependent on an external power supply provides an inherent safety feature. Although the SafeHolds can be substituted for electromagnets in many instances it is not intended to replace them.

Operation – RPL, XPL, EPL

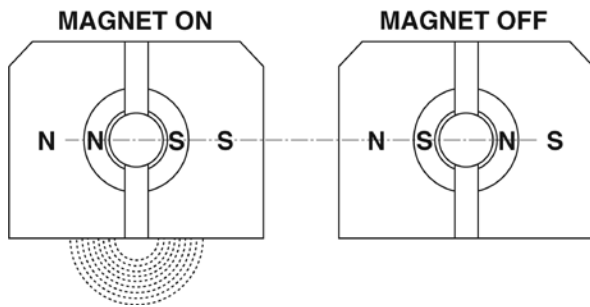
To activate the magnet turn the handle from OFF to ON. Lock the handle in position with the safety latch. **(NOTE: The magnet must be placed on the workpiece before the handle is rotated.)**

The workpiece can be released by moving the safety latch and rotating the switch handle to the OFF position after the workpiece has been set down or in a supported condition. (See Figure 4).

The handle extension **must be fastened in place** when operating the magnet. **Do not operate with the handle unfastened.**



Operation – RPL, XPL, EPL (cont.)



Rotatable element is turned 180° from OFF to ON, or vice versa, to energize or de-energize the magnet.

FIGURE 5
SafeHolds Magnetic Circuit

SafeHold magnets have a safety latch that locks when the magnet is turned on. This is for the operator's benefit and should never be removed. If damaged, it should be replaced.

CAUTION

The handle on manually operated SafeHold magnets will tend to override the operator's control through part of the stroke. Failure to grip the handle firmly could result in injury.

Operation – APL

Refer to Figure 6 for identification of parts. When the magnet is received or removed from storage, the slide latch (Item #1) is in the LOCK position. To activate the magnet, place it on the workpiece and move the slide latch to the UNLOCKED position. The sequence of operation is now set to begin. The magnet will only operate through the four stages. It must be fully cycled (completely "up" and completely "down") or damage to the magnet will occur.

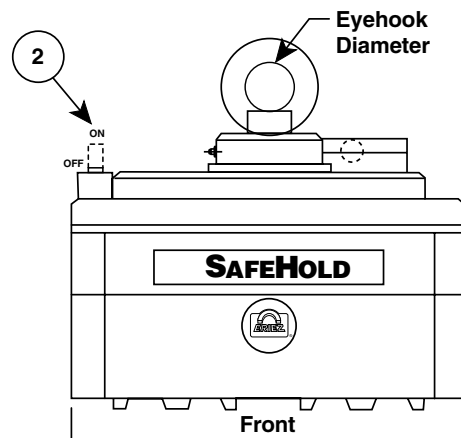
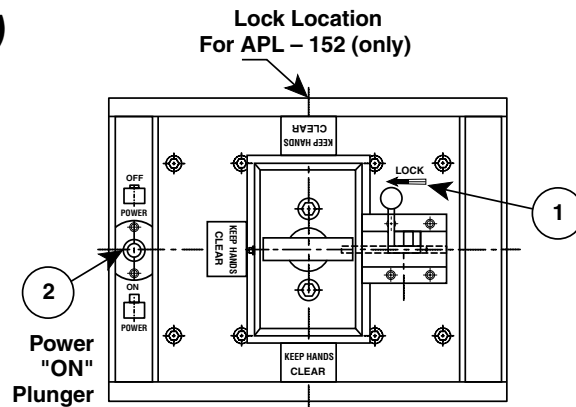


FIGURE 6

Four Stages of Operation – Refer to Figure 7

Stage 1: The APL is placed on a workpiece with the slide latch in the LOCK position. (This is only necessary for the first operation after being taken from storage or first use.)

Stage 2: Slide the latch to the UNLOCKED position while on the workpiece. Raise the magnet and thus the workpiece. As the crane lifts, the magnet is automatically activated, and the work is held and lifted. The magnet-indicating plunger (Item #2) moves UP, showing the magnet ON.

Stage 3: The workpiece is transported to its destination and lowered into position. Once the weight of the piece is taken off of the magnet, you can proceed to Stage 4.

Stage 4: The APL is now lifted up, automatically turning off the magnet and releasing the workpiece. The magnet-indicating plunger (Item #2) moves DOWN, showing the magnet OFF. The sequence can now be repeated (return to Stage 1) with the next piece to be lifted.



CAUTION

Never interrupt the sequence. Go through the entire fully-up and fully-down stages before proceeding, or damage to the magnet will occur.

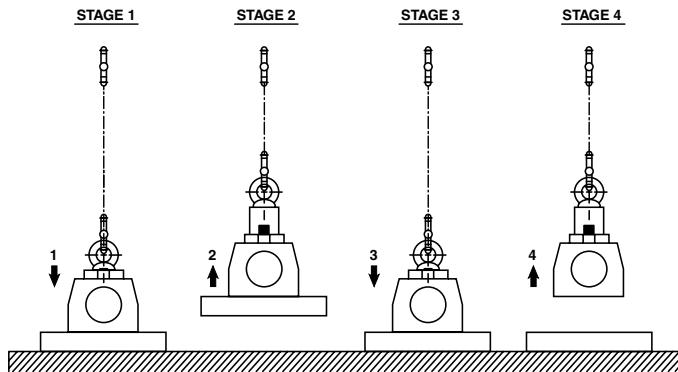
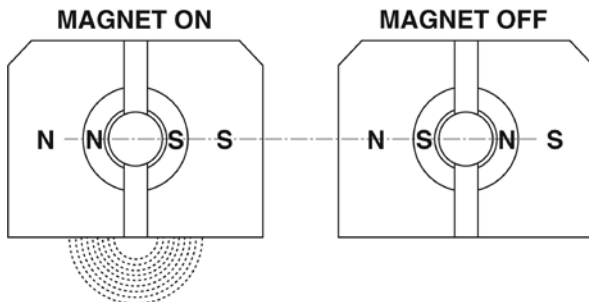


FIGURE 7

Operation – MPL

Activate the magnet, once power is applied, by lifting one of the spring loaded covers on a push button and press it. The push buttons are of momentary type and only require a push and release. The indicator lights will go from red to yellow then green. **(NOTE: The magnet must be placed on the work piece before the permanent magnet is turned on.)** Once the green light is illuminated it is safe to lift the work piece. To release the work piece, once it is set down or put in a supported condition, press the button again and the lights will go from green to yellow to red. The red light indicates that the permanent magnet is off and is safe to remove the magnet from the work piece. (See FIGURE 8).



Rotatable element is turned 180° from OFF to ON, or vice versa, to energize or de-energize the magnet.

FIGURE 8
SafeHold MPL Series
Magnetic Circuit

If power is interrupted to the magnet, it will remain in the same state prior to the power interruption. There is no danger of dropping the work piece if the operator is performing a lift during the power outage, however, power needs to be restored in order to release the magnet. If the power interruption occurs during transition of turning the magnet on or off, the magnet will stop in transition. Upon restoring power the yellow light will be illuminated and the button needs to be pressed to reset the magnet.

Warning

Although magnetic field may be present with the yellow light illuminated, the field is at a reduced magnitude. It is unsafe to attempt to lift the work piece with the yellow light illuminated for danger of dropping the work piece. If the yellow light stays illuminated and is not reset by pushing the button, the magnet must be taken out of service.

Operators

The lifting magnet shall be operated only by a trained, designated person.

Qualifications

Qualifications for operators of lifting magnets are as follows:

- The operator shall be instructed in the use of the lifting magnet by a designated person. Instructions should include, but not be limited to, the following:
 - Application of the lifting magnet to the load and adjustments, if any, that adapt the lifting magnet to various sizes or kinds of loads.
 - Instructions in any special operations or precautions
 - Eriez' suggested operating procedures
 - Condition of the load required for operation of the lifting magnet, such as, but not limited to, balance, surface cleanliness, flatness, bending, and load thickness
 - Storage of the lifting magnet to protect it from damage
 - Not exceeding the rated load of the lifting magnet nor the capacity of the hoisting equipment by the combined weight of the load, lifting magnet, and rigging

Operation (cont.)

- The proper attachment of adapters to lifting magnet for special load handling
- The operator shall demonstrate the ability to operate the lifting magnet as instructed before assuming responsibility for using the lifting magnet

Conduct of Lifting Device Operators

- The operator shall give attention to the operation of the lifting magnet during a lifting sequence
- When physically or otherwise unfit, an operator shall not engage in the operation of the lifting magnet
- Operators shall be responsible for those operations under their direct control. Whenever there is any doubt as to safety, the operator shall consult with the designated person before handling the load.
- The operator shall respond only to instructions from designated persons. However, the operator shall obey a stop order at all times, no matter who gives it.
- The operation of the lifting magnet shall be observed before use and during a shift. Any deficiency observed shall be carefully examined by a designated person. If the deficiency constitutes a hazard, the lifting magnet shall be removed from service and tagged "Out of Service." Any indication of a hazardous condition shall be reported to a qualified person for evaluation.
- The operator shall be familiar with standard hand signals when applicable
- The operator shall land any attached load and store the lifting magnet before leaving the lifting magnet
- All controls shall be tested by the operator before use during a shift. If any controls do not operate properly, they should be adjusted or repaired before operations are begun.
- The operator shall not ride, or allow others to ride loads or the lifting magnet
- The operator and other personnel shall stay clear of the load. Loads shall be guided by pushing or pulling at the edge in such a manner as to avoid endangering hands or other body parts as the load is lowered, or if it drops.

Lifting Device Operating Practices

- Lifting magnets shall be operated only by the following qualified personnel:
 - Designated persons
 - Trainees under the direct supervision of a designated person
 - Maintenance and test personnel, when it is necessary in the performance of their duties
 - Inspectors (lifting magnet)
- Ensure the weight of the load and its approximate center of gravity have been obtained, provided or calculated
- The lifting magnet shall not be loaded in excess of its rated load or handle any load for which it is not designed
- Properly attach the lifting magnet to the hook, shackle, or other load handling device
- The lifting magnet shall be applied to the load in accordance with the instruction manual
- Before lifting, the operator shall make sure that lifting magnet ropes or chains are not kinked and that multiple part lines are not twisted around each other
- Verify that the load is well secured and properly balanced on the lifting magnet when it is initially lifted
- Care should be taken to make certain the load is correctly distributed for the lifting magnet being used
- The temperature of the load should not exceed the maximum allowable limits of the lifting magnet
- The lifting magnet shall be brought over the load in such a manner as to minimize swinging
- Care shall be taken that there is not sudden acceleration or deceleration of the load
- Do not allow load or lifting magnet to come into contact with any obstruction
- The operator shall avoid carrying the load over people
- The lifting magnet shall not be used for side pulls or sliding the load unless specifically authorized by a qualified person
- The lifting magnet face and the lifting magnet contact area on the load shall be clean
- The load to be lifted shall be within the lifting magnet's rated load (capacity) or application load (capacity) and lifting equipment rated load (capacity)



- The operator shall observe all meters and indicators on the lifting magnet to confirm proper operation prior to making a lift
- Before starting the lift, the operator shall lift the load a few inches to establish that the load is securely attached to the lifting magnet
- All Magnets. Before raising the load more than 2" (50 mm), any adjustable input control should be switched to the "full on" position and remain in this position until the load is removed from the lifting magnet
- Before lifting, the operator should confirm that the control handle is in the "lift" or "on" position and the control handle latch is operating
- Before lifting, the operator shall warn people near the lift
- The operator should not reenergize the lifting magnet until it has been placed in contact with the next load to be lifted. Prematurely energizing the lifting magnet could cause unwanted materials to be attracted to the lifting magnet.
- The operator shall not leave suspended loads unattended
- **Load Alloy.** Many alloys of iron do not accept magnetic flux as easily as do low carbon steels. Consequently, loads of such alloys will not accept all of the flux available in the lifting magnet, which reduces the lifting magnet's lift capacity.
- **Load Surface Conditions.** Anything that creates an air gap or nonmagnetic separation between a lifting magnet and the load reduces the flux flowing from the lifting magnet into the load, which reduces the lifting capacity of a lifting magnet. A rough surface finish, paper, dirt, rust, paint, and scale produce such gaps.
- **Load Length or Width.** As the length or width of the load increases, the load begins to deflect and to peel at the lifting magnet face. This may create an air gap between the load and the lifting magnet, which reduces the lifting capacity as described above. See maximum dimensions on page 20-21.
- **Attitude of Load.** As the attitude of the surface of the load to which a lifting magnet is attached (lifting surface) changes from horizontal to vertical, the lifting capacity of the lifting magnet is greatly reduced and becomes dependent upon the coefficient of friction of the lifting surface.

Miscellaneous Operating Practices

- An operator shall not use a lifting magnet that is tagged "Out of Service" or otherwise designated as nonfunctioning
- "Out of Service" tags on lifting magnet shall not be removed without the approval of the person placing them or an authorized person
- The lifting magnet, when not in use, should be stored at an assigned location
- Caution should be taken that operating markings or tags shall not be removed or defaced. Missing or illegible markings or tags shall be replaced.
- **Portion of Lifting Magnet Face in Contact with Load.** The full face of the lifting magnet must contact the load if the lifting magnet is to achieve maximum capabilities.
- **Load Temperature.** The temperature of the load can cause damage to the lifting magnet and, if high enough, even change the magnetic characteristics of the load. The standard magnet is designed to operate in a -14°F to 122°F (-25°C to 50°C) environment. The load temperature can be between -40°F and 175°F (-40°C and 80°C). Contact Eriez for operation in extreme conditions.

Factors Affecting Lifting Capacity

- **Load Thickness.** The magnetic flux flowing from a lifting magnet into a load increases as the thickness of the load increases. Consequently, as a lifting magnet's lifting capacity is a function of this flux, the lift capacity increases with load thickness. For every lifting magnet, there is a critical load thickness where all of the lifting magnet's available flux flows into the load and the lift capacity reaches maximum. See page 20 for load dimensions and corresponding lifting capacities.

Operation (cont.)



The lifting magnet face and the lifting magnet contact area on the load must be clean.



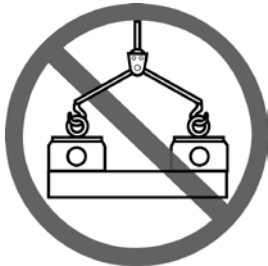
The operator should avoid carrying the load over people.



Nobody must be allowed to stand on top of lifted workpiece.



Do not allow load or magnet to come into contact with any obstruction.



No hooking of two lifting magnets without the use of a properly designed spreader beam.



Care should be taken to make certain the load is correctly distributed for the lifting magnet being used.

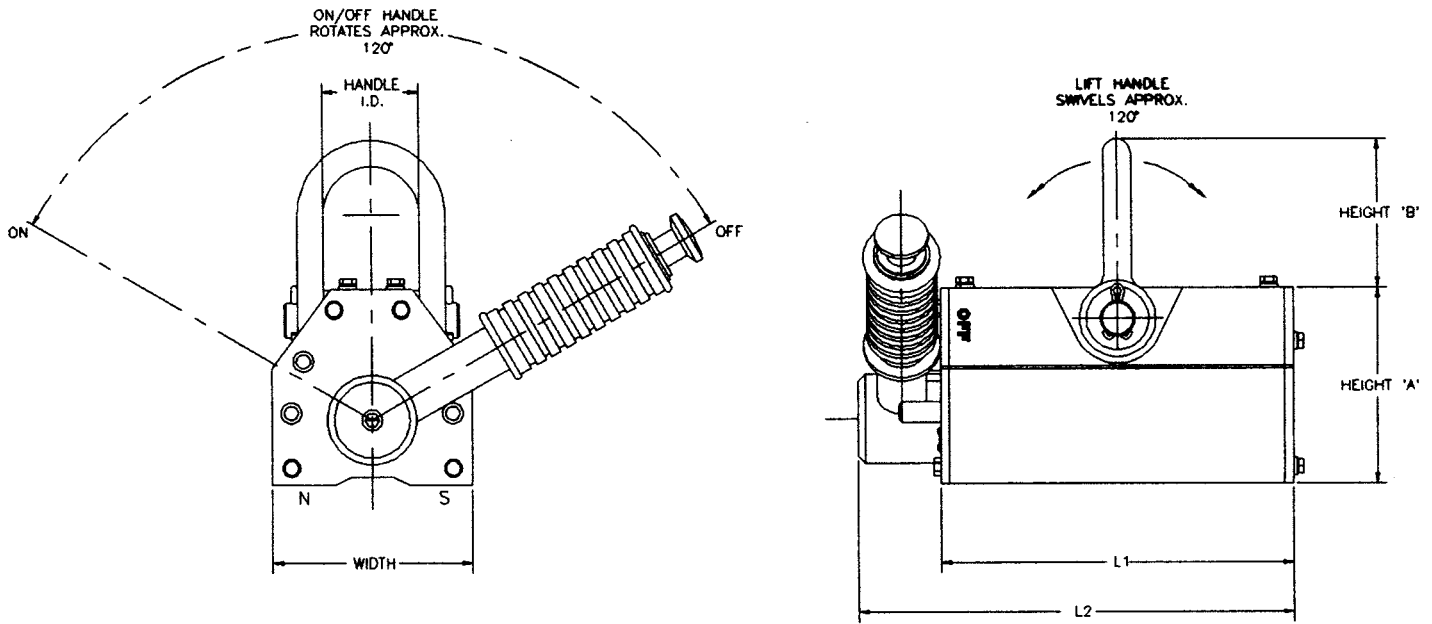


Avoid placing the magnet in shear.



Avoid uneven lifts.

Specifications – RPL



Model Number (Old)	Dimensions													
	L1		L2		Width		Height "A"		Weight		Handle ID		Height "B"	
	in	mm	in	mm	in	mm	in	mm	lbs	Kg	in	mm	in	mm
RPL-2 (RPL-3)	3-9/16	90	4-3/4	121	2-1/2	64	2-5/8	67	7	3	1-1/4	32	2-3/16	56
RPL-7 (RPL-11)	6-3/8	162	7-3/4	197	3-5/8	92	3-9/16	91	22	10	1-13/16	46	3-17/32	90
RPL-15 (RPL-22)	9-1/8	232	10-23/32	272	4-13/16	122	4-5/8	117	53	24	2-9/32	58	4-1/2	114
RPL-25 (RPL-35)	10-5/8	270	12-1/2	318	6-15/16	176	6-13/32	163	110	50	3-13/16	97	5-1/8	130.5
RPL-50 (RPL-70)	14-7/8	378	17-5/16	428	8-7/16	234	8-11/32	212	276	125	5-1/32	128	6-11/16	170

Model Number (Old)	Max Lifting Capacities				Max Breakaway Force				Maximum Dia. When Lifting Rounds w/o Pole Shoes		Minimum Thickness for Maximum Capacity	
	Flat Steel (3:1 SF)		Round Steel (3:1 SF)		Flat Steel		Round Steel*					
	lbs	kg	lbs	kg	lbs	kg	lbs	kg	in	mm	in	mm
RPL-2 (RPL-3)	250	113	125	56	750	340	375	170	3	76	1	25
RPL-7 (RPL-11)	750	340	375	170	2,250	1,022	1,125	511	5	127	1	25
RPL-15 (RPL-22)	1,500	680	750	340	4,500	2,045	2,250	1,022	6.5	165	1-3/4	45
RPL-25 (RPL-35)	2,500	1,134	1,250	568	7,500	3,409	3,750	1,704	10	254	1-3/4	45
RPL-50** (RPL-70)**	5,000	2,268	NR	NR	15,000	6,818	NR	NR	NR	NR	2-3/8	60

Note:

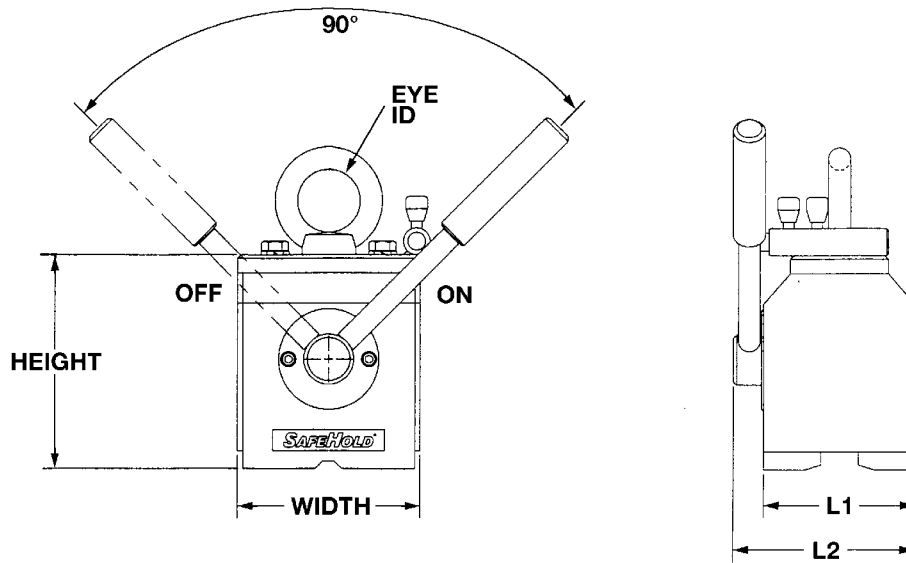
1. These are actual ratings on flat, clean, polished steel plate.
2. Maximum attractive force of each model is minimum three times the Lifting Capacity.
3. Thin sheets, rough and irregular surfaces, odd shapes and scale all affect holding power adversely and must be considered in establishing safety factor.

* Based on maximum recommended material diameter.

** Not for use on plates less than 1 1/2" [38mm] thick. They are too thin to operate the handle.



Specifications – XPL



Model Number (Old)	Dimensions											
	L1		L2		Width		Height		Eye ID		Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg
XPL-3/2 (XPL-4/3)	3-3/8	85	4	102	4	102	4-11/16	119	1-3/8	35	16	7
XPL-6/4 (XPL-8/6)	4-1/2	115	5-13/16	147	6-1/16	154	4-11/16	119	1-3/8	35	33	15
XPL-10/6 (XPL-15/19)	5-5/16	135	6-5/8	167	7-1/4	184	5-7/8	149	1-1/2	40	55	25
XPL-17/12 (XPL-24/16)	5-5/16	135	7	178	9-1/2	242	6-7/8	175	1-15/16	50	88	40
XPL-22/16 (XPL-30/24)	5-1/4	133	7-3/8	187	10-3/8	263	7-12/16	199	2-3/8	60	111	50
XPL-35/27 (XPL-50/40)	6	152	8-1/8	206	13-1/2	343	9-13/16	249	2-3/4	70	212	96

Model Number (Old)	Max Lifting Capacities				Max Breakaway Force				Minimum Dia. When Lifting Rounds w/o Pole Shoes		Maximum Dia. When Lifting Rounds w/o Pole Shoes		Minimum Thickness for Maximum Capacity	
	Flat Steel (3:1 SF)		Round Steel (3:1 SF)		Flat Steel		Round Steel*							
	lbs	kg	lbs	kg	lbs	kg	lbs	kg	in	mm	in	mm	in	mm
XPL-3/2 (XPL-4/3)	300	136	200	91	900	409	600	272	2-1/2	64	5	127	3/8	10
XPL-6/4 (XPL-8/6)	600	272	400	181	1,800	818	1,200	544	3	76	9	229	1/2	13
XPL-10/6 (XPL-15/19)	1,000	453	600	272	3,000	1,363	1,800	816	3	76	10	254	3/4	19
XPL-17/12 (XPL-24/16)	1,700	771	1,200	545	5,100	2,318	3,600	1,636	4	102	15	381	1-1/4	32
XPL-22/16 (XPL-30/24)	2,200	998	1,600	727	6,600	3,000	4,800	2,181	4	102	15	381	2	51
XPL-35/27 (XPL-50/40)	3,500	1,587	2,700	1,227	10,500	4,772	8,100	3,681	6	152	18	457	2	51

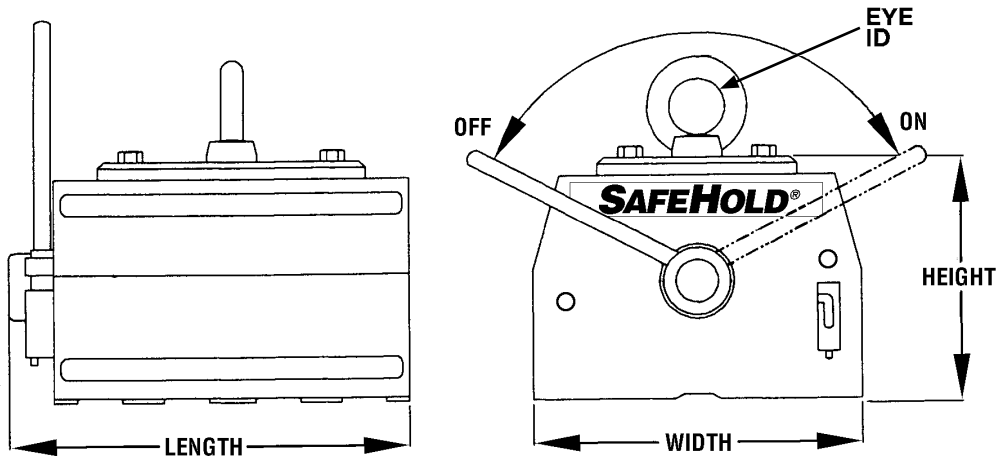
Note:

1. These are actual ratings on flat, clean, polished steel plate.
2. Maximum attractive force of each model is minimum three times the Lifting Capacity.
3. Thin sheets, rough and irregular surfaces, odd shapes and scale all affect holding power adversely and must be considered in establishing safety factor.

* Based on maximum recommended material diameter.



Specifications – EPL



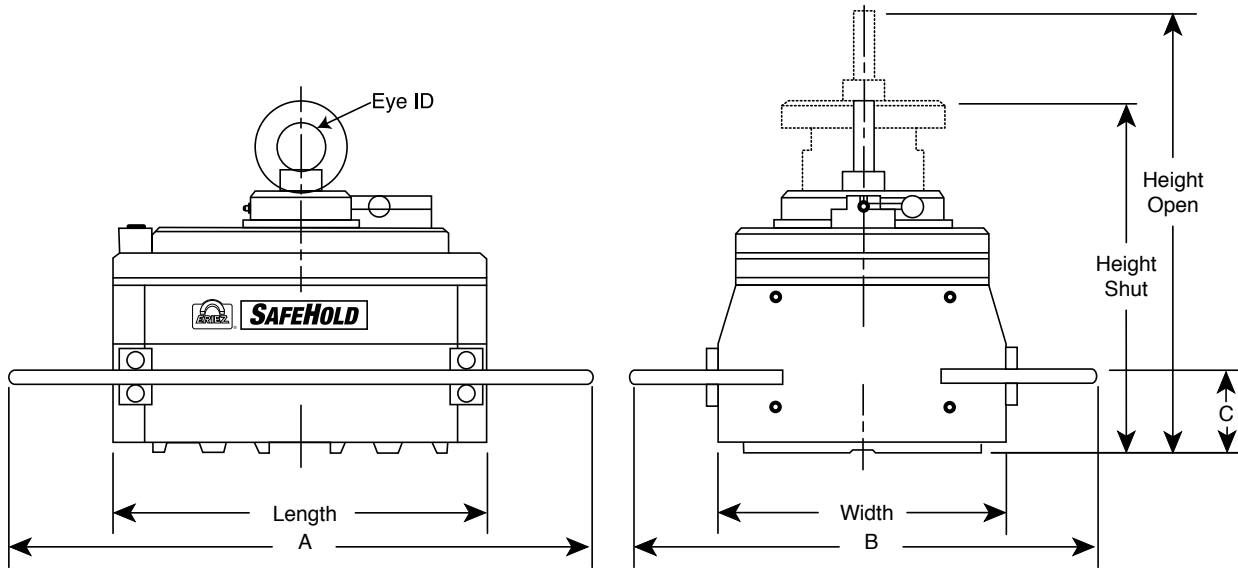
Model Number (Old)	Dimensions									
	Length		Width		Height		Eye ID		Weight	
	In	Mm	In	Mm	In	Mm	In	Mm	lbs	kg
EPL-4 (EPL-121)	4-11/16	119	9-1/2	241	7-1/8	181	1-3/8	35	37	17
EPL-28 (EPL-154)	14-3/8	365	12	305	9	229	2-1/4	57	225	102
EPL-55 (EPL-157)	14-1/2	368	12	305	9	229	2-1/2	64	348	158
EPL-75 (EPL-197)	15-7/8	404	13-7/8	353	10-5/8	270	2-1/2	64	534	242

Model Number (Old)	Maximum Capacity with 3:1 Safety Factor		Maximum Breakaway Capacity*		Minimum Thickness for Maximum Capacity	
	Lbs	Kg	Lbs	Kg	In	Mm
EPL-4 (EPL-121)	450	204	1,350	613	1-1/4	32
EPL-28 (EPL-154)	2,800	1,270	8,400	3,815	1-1/4	32
EPL-55 (EPL-157)	5,500	2,495	16,500	7,500	2	51
EPL-75 (EPL-197)	7,500	3,402	22,500	10,227	1-3/4	45

Note:

1. These are actual ratings on flat, clean, polished steel plate.
2. Maximum attractive force of each model is minimum three times the Lifting Capacity.
3. Thin sheets, rough and irregular surfaces, odd shapes and scale all affect holding power adversely and must be considered in establishing safety factor.

Specifications – APL



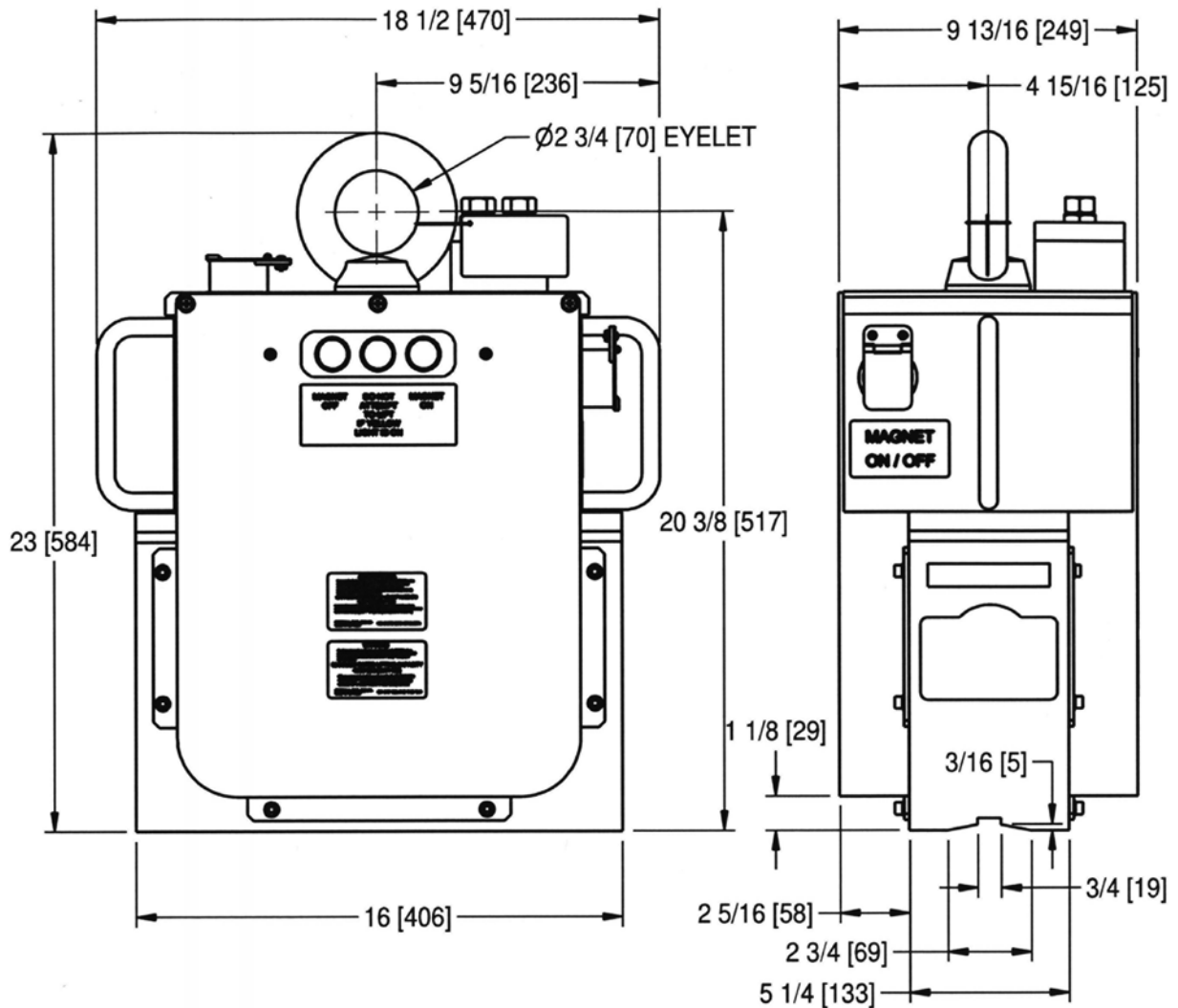
Model Number (Old)	A		B		C	
	in	mm	in	mm	in	mm
APL-6 (APL-150)	15-3/4	400	15-1/4	387	2-13/16	71
APL-11 (APL-152)	16-3/8	416	17-7/8	454	3-1/2	89
APL-24 (APL-154)	19-11/16	500	18-11/16	474	3-3/4	96
APL-38 (APL-156)	24-15/16	633	18-11/16	474	3-3/4	96

Model Number (Old)	Max Lifting Capacity w/3:1 Safety Factor		Maximum Breakaway Force		Minimum Thickness for Maximum Capacity		Length		Width		Height (Shut)		Height (Open)		Eye ID		Weight	
	lbs	kg	lbs	kg	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg
APL-6 (APL-150)	600	272	1,800	818	1/2	13	10-5/16	262	9-9/16	243	13-3/4	349	17-3/16	436	2	51	167	76
APL-11 (APL-152)	1,100	499	3,300	1,500	1-1/4	32	10-13/16	275	12	304	16-15/16	430	21-1/2	546	1-7/8	48	291	132
APL-24 (APL-154)	2,400	1,089	7,200	3,272	2	51	14	358	12	304	17-11/16	449	22-1/4	566	2-3/8	60	401	182
APL-38 (APL-156)	3,800	1,724	11,400	5,181	2	51	18-1/4	463	12	304	18-9/16	471	23-1/8	588	2-3/8	60	514	233

- Note:
1. These are actual ratings on flat, clean, polished steel plates.
 2. Maximum attractive force of each model is minimum three times the Lifting Capacity.
 3. Thin sheets, rough and irregular surfaces, odd shapes and scale all affect holding power adversely and must be considered in establishing a safety factor.



Specifications – MPL



Model (Old)	Max Lifting Capacity W/3:1 Safety Factor (Flat)	Max Lifting Capacity W/3:1 Safety Factor (Round)	Maximum Breakaway Force	Minimum Dia. When Lifting Round W/O Pole Shoes	Maximum Dia. When Lifting Round W/O Pole Shoes	Minimum Thickness for Maximum Capacity	Magnet Total Weight
MPL-30/20 (MPL-45/30)	3,000 LBS (1,361 KG)	2,000 LBS (909 KG)	9000 LBS (4082 KG)	6 IN (152 mm)	16 IN (406 mm)	1-1/4 IN (32 mm)	352 LBS (160 KG)

Capacity Charts

SafeHold Rated Lift Capacities (Pounds)

Per Material Thickness

Material	RPL Series					XPL Series			
	RPL-2	RPL-7	RPL-15	RPL-25	RPL-50	XPL-3/2	XPL-6/4	XPL-10/6	XPL-17/12
11 Gauge	50	100	100	90	0	90	100	120	150
1/4 inch	110	250	260	220	0	240	360	380	440
3/8 inch	180	500	670	600	0	300	550	700	830
1/2 inch	210	680	1050	900	0	300	600	900	1320
3/4 inch	240	710	1350	1500	0	300	600	1000	1550
1 inch	250	750	1430	1880	0	300	600	1000	1630
1-1/4 inch	250	750	1460	2260	0	300	600	1000	1700
1-1/2 inch	250	750	1460	2400	3660	300	600	1000	1700
1-3/4 inch	250	750	1500	2500	4000	300	600	1000	1700
2 inch	250	750	1500	2500	4660	300	600	1000	1700

Max Sheet/Plate Dimensions (Inches)

Maximum Width X Maximum Length (Column at Left of Chart)

Material	Max. Length	RPL Series					XPL Series			
		RPL-2	RPL-7	RPL-15	RPL-25	RPL-50	XPL-3/2	XPL-6/4	XPL-10/6	XPL-17/12
11 Gauge	60	24	47	49	44	0	43	47	60	60
1/4 inch	72	17	38	39	33	0	35	54	56	65
3/8 inch	96	18	49	66	59	0	32	54	69	82
1/2 inch	96	13	40	62	53	0	20	38	53	78
3/4 inch	120	9	28	53	59	0	14	26	39	61
1 inch	120	7	23	42	55	0	11	20	31	48
1-1/4 inch	120	6	18	35	53	0	9	16	27	42
1-1/2 inch	120	5	15	29	47	72	7	14	23	35
1-3/4 inch	120	4	13	26	45	67	6	12	20	30
2 inch	120	4	13	24	43	69	5	10	17	27

Note:

1. Max Sheet or plate dimensions not to exceed length stated for corresponding material thickness or Lift Magnet's rated lift capacity on that thickness.
2. As length of sheet decreases, max width may increase provided weight of sheet doesn't exceed rated capacity.
3. Contact Eriez Headquarters for application assistance.

*Thinner materials sag at longer lengths, which creates a peeling effect at the magnet interface. Eriez recommends staying below the lengths above for each corresponding thickness to prevent loss of magnet force due to peeling.



SafeHold Rated Lift Capacities (Pounds)

Per Material Thickness

Material	XPL Series		EPL Series				APL Series				MPL Series
	XPL-22/16	XPL-35/27	EPL-4	EPL28	EPL-55	EPL-75	APL-6	APL-11	APL24	APL38	MPL-30/20
11 Gauge	160	160	100	210	NR	NR	130	120	150	190	120
1/4 inch	500	530	280	750	1010	1180	450	400	610	920	450
3/8 inch	1000	1000	360	1320	1960	2080	530	620	1070	1440	900
1/2 inch	1360	1330	410	1800	2460	2910	600	760	1550	1880	1200
3/4 inch	1680	2080	420	2180	2680	3680	600	780	1780	2410	1200
1 inch	2000	2830	440	2280	3900	4700	600	880	1980	2610	2400
1-1/4 inch	2000	2830	450	2800	4690	6450	600	1100	2160	2460	3000
1-1/2 inch	2100	2960	450	2800	4750	6520	600	1100	2260	3660	3000
1-3/4 inch	2100	3260	450	2800	4840	7500	600	1100	2330	3780	3000
2 inch	2200	3500	450	2800	5500	7500	600	1100	2400	3800	3000

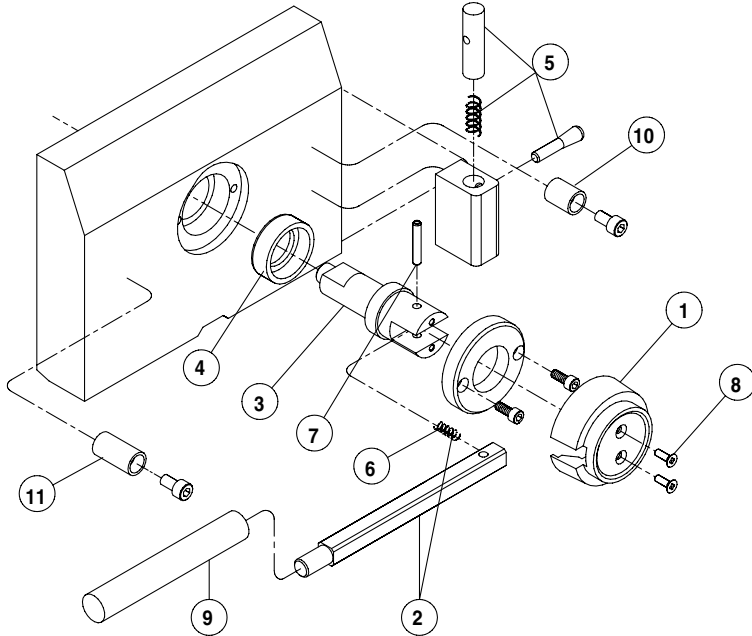
Max Sheet/Plate Dimensions (Inches)

Maximum Width X Maximum Length (Column at Left of Chart)

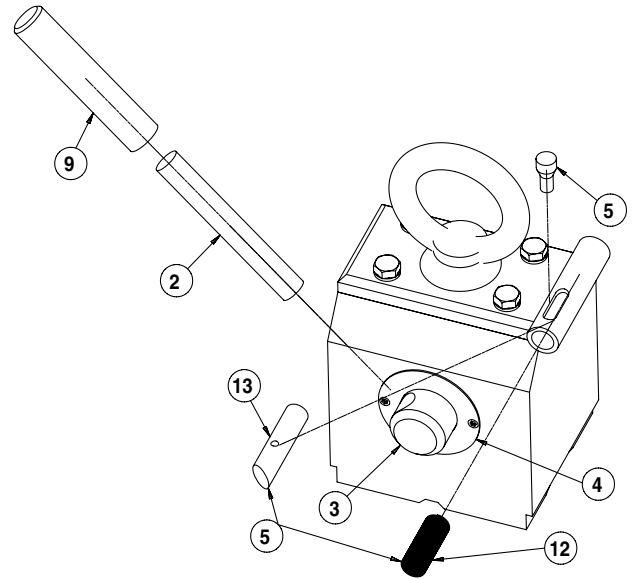
Material	Max. Length	XPL Series		EPL Series				APL Series				MPL Series
		XPL-22/16	XPL-35/27	EPL-4	EPL28	EPL-55	EPL-75	APL-6	APL-11	APL24	APL38	MPL-30/20
11 Gauge	60	60	60	47	60	0	0	60	57	60	60	57
1/4 inch	72	72	72	41	72	72	72	66	59	72	72	66
3/8 inch	96	98	96	35	96	96	96	52	61	96	96	88
1/2 inch	96	80	79	24	96	96	96	35	45	91	96	71
3/4 inch	120	66	82	16	86	105	120	24	31	70	95	47
1 inch	120	59	83	12	67	115	120	18	26	58	77	71
1-1/4 inch	120	47	67	9	59	111	120	14	26	51	82	71
1-1/2 inch	120	41	58	8	54	93	120	12	22	44	72	59
1-3/4 inch	120	35	55	7	47	81	120	10	19	39	64	50
2 inch	120	32	49	6	0	76	120	9	16	35	56	4

All SafeHold Lifting Magnets share Part Number 449202 for warning label.
The following spare parts list are unique to the listed model numbers.

Spare Parts List – XPL



All Other XPL Models

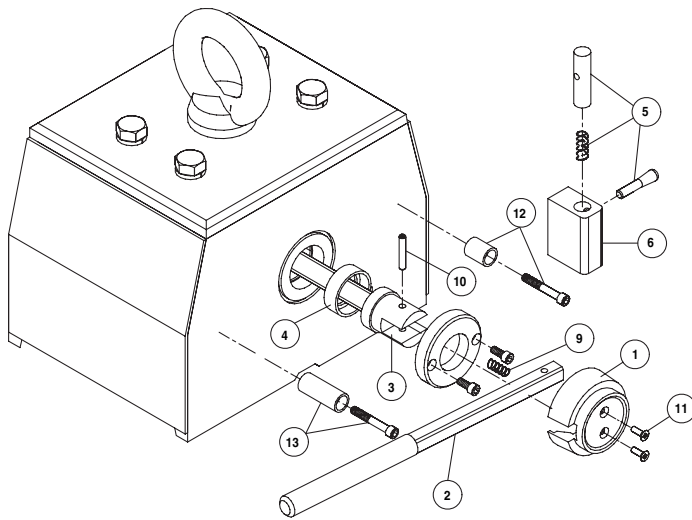


XPL-3/2 Only

ITEM	DESCRIPTION	QUANTITY	XPL-3/2	XPL-6/4	XPL-10/6	XPL-17/12	XPL-22/16	XPL-35/27
			PART NO.					
1	SWITCH COVER	1	---	448776	448776	448771	448771	451729
2	SWITCH LEVER HANDLE WITH SPRING AND PIN	1	448767	451730	448772	448778	451733	451734
3	SHAFT	1	453159*	43167*	453168*	453169*	453170*	453172*
4	CASE BUSHING	1	453160*	453160*	453160*	453160*	453160*	453160*
5	SAFETY LATCH W/ SPRING & PIN	1	451735	451736	451736	451737	451737	451738
6	SWITCH LEVER SPRING	1	---	43958	453162	453162	453162	453162
7	SPRING PIN	1	---	453163	453163	453163	453163	453163
8	HANDLE COVER SCREW	2	---	453164	453164	453164	453164	453164
9	SWITCH LEVER GRIP	1	474067	453158	474068	448777	448777	454939
10	ON-STOPPER W/ BOLT	1	---	451731	451731	451732	451732	451739
11	OFF-STOPPER W/ BOLT	1	---	451740	451740	451741	451741	41742
12	SAFETY LATCH SPRING	1	448770	---	---	---	---	---
13	SAFETY LATCH PIN	1	453163	---	---	---	---	---

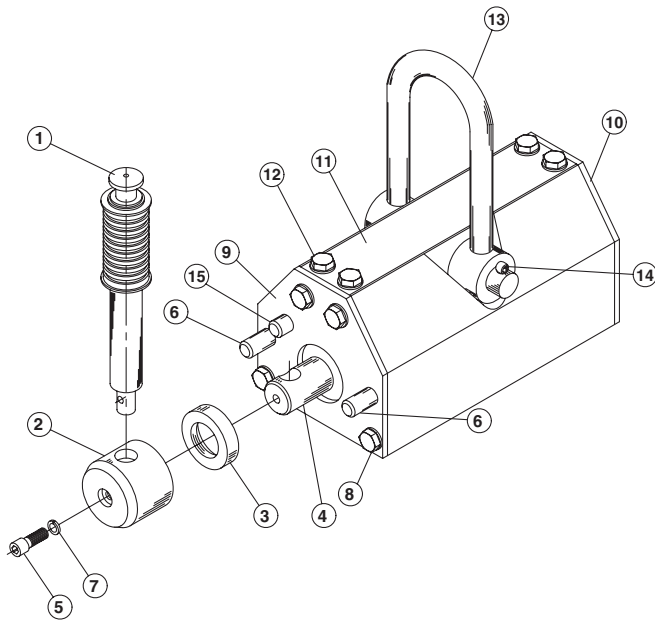


Spare Parts List - EPL



ITEM	DESCRIPTION	QUANTITY	EPL-4	EPL-28	EPL-55	EPL-75
			PART NO.			
1	SWITCH COVER	1	437166	437166	437166	437166
2	SWITCH LEVER	1	435910	437170	437245	437175/ 459107**
3	SHAFT	1	437234	437171	437237	437176
4	CASE BUSHING	1	437165	437165	437165	437165
5	SAFETY LATCH SHAFT W/ SPRING & PIN	1	437162	437162	437162	437162
6	SAFETY LATCH BOX	1	437163	437163	437163	437163
7	HALF ROUND MAGNET PAIR	1	437168*	437172	437172	437177
8	PROTECTIVE CASE	1	437167	437173	437173	437178
9	SWITCH LEVER SPRING	1	453150	453150	453150	453150
10	SPRING PIN	1	453151	453151	453151	453151
11	SWITCH COVER SCREW	2	453152	453152	453152	453152
12	ON STOPPER W/ BOLT	1	453367	453367	453367	472708
13	OFF STOPPER W/ BOLT	1	453369	453368	453368	453368

Spare Parts List – RPL



ITEM	DESCRIPTION	RPL-2		RPL-7		RPL-15		RPL-25		RPL-50	
		PART NO.	QTY	PART NO.	QTY	PART NO.	QTY	PART NO.	QTY	PART NO.	QTY
1	HANDLE ASSEMBLY	443399	1	443395	1	441552	1	441556	1	443403	1
2	HUB	443400	1	441547	1	441553	1	441557	1	443404	1
3	BUSHING	443401*	2	441548*	2	441554*	2	441558*	2	443405*	2
4	MAGNETIC SHAFT/ROTOR	443402*	1	441509*	1	441555*	1	441559*	1	443406*	1
5	HUB BOLT	225205	1	435022	1	225680	1	225681	1	453429	1
6	STOP PIN	225687	3	225682	3	225683	3	225684	3	225688	3
7	LOCKWASHER	433131	1	431553	1	431550	1	437526	1	431615	1
8	FRONT/REAR COVER PLATE BOLT	453401	8	225291	8	424122	8	435789	8	410917	8
9	FRONT COVER PLATE	453403	1	453377	1	453375	1	453379	1	453432	1
10	REAR COVER PLATE	453404	1	453378	1	453376	1	453380	1	453431	1
11	TOP COVER PLATE	453428	1	453392	1	453381	1	453393	1	453430	1
12	TOP PLATE BOLT	453402	4	225672	4	453374	4	421016	6	435789	6
13	SHACKLE	451713	1	454867	1	450844	1	451079	1	472825	1
14	COTTER PIN	230072	2	230072	2	230072	2	230074	2	472827	2
15	HANDLE STOP PIN	225687	1	461410	1	225683	1	225684	1	225688	1

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Headquarters: 2200 Asbury Road, Erie, PA 16506-1402 U.S.A.

Telephone: 814-835-6000 • Fax: 814-838-4960

Web Site: <http://www.eriez.com> e-mail: eriez@eriez.com

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