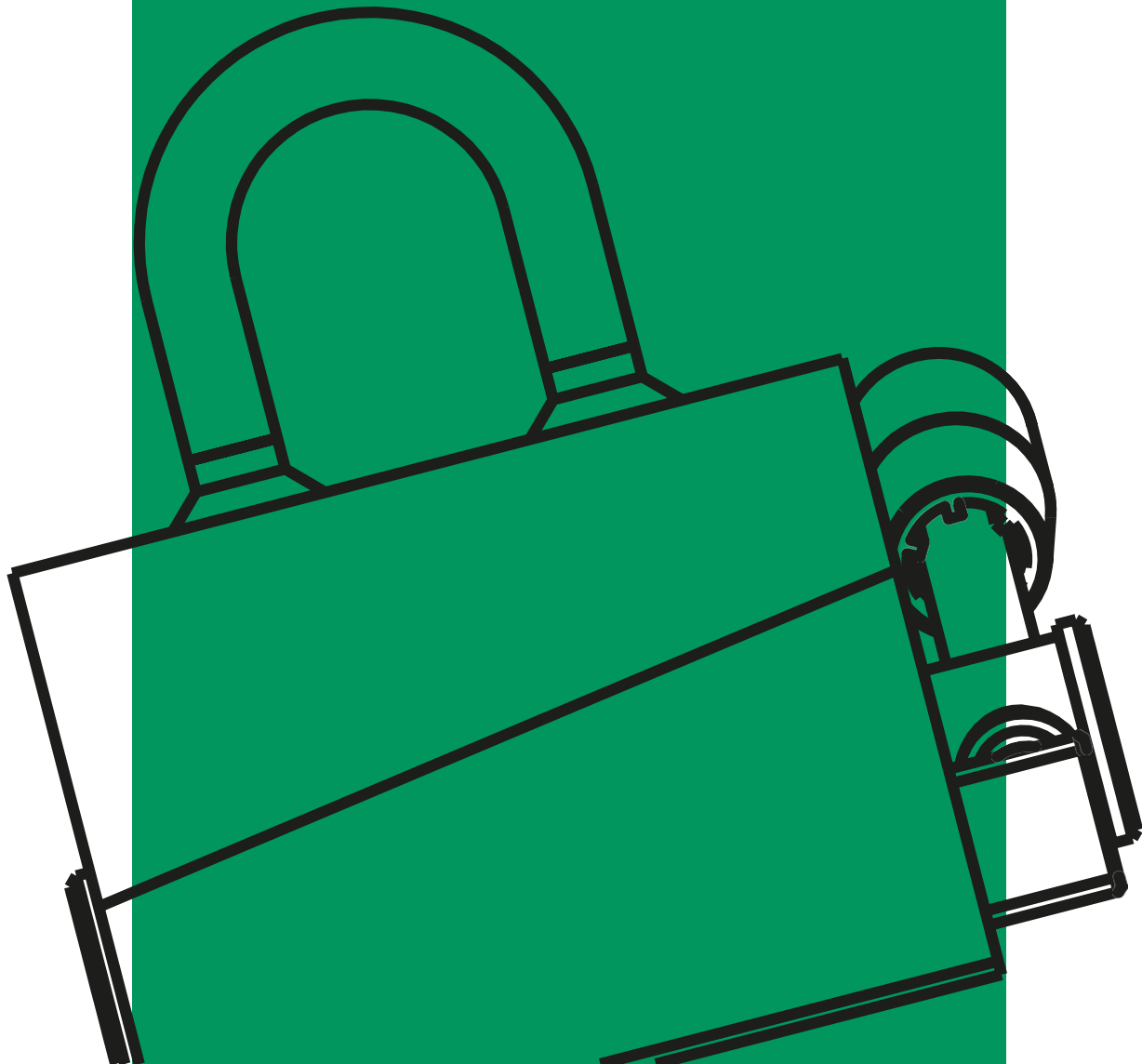




Magnetic Products, Inc.
Highland, Michigan | mpimagnet.com

OPERATION AND SAFETY INSTRUCTION MANUAL

MPI LIFTING MAGNET





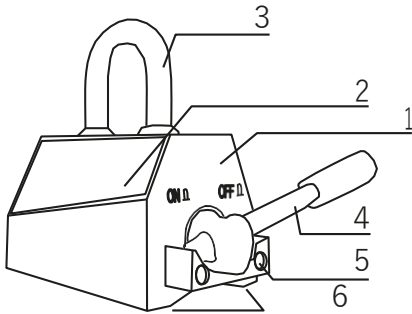
OPERATION AND SAFETY INSTRUCTION MANUAL FOR THE MPI LIFTING MAGNET

WELCOME

Thank you for purchasing an MPI Lifting Magnet and placing your trust in MPI. The Operation and Safety Instruction Manual contains all the information required for safe and optimum use of the lifting magnet. Please read the instructions carefully and follow the directions.

On delivery check that the magnet is not damaged or defective. If the equipment is damaged or defective contact your supplier immediately.

The model number is located on the lifting magnet identification plate. Document the model number for future correspondence. Keep the model number and instructions regarding your lifting magnet in a safe location close to the workplace.



THE MPI COMPLETE DELIVERY



MPI LIFTING MAGNET



OPERATION AND SAFETY INSTRUCTION MANUAL



TEST CERTIFICATION

MPI LIFTING MAGNET KEY FEATURES

1. Magnet
2. Identification plate
3. Lifting eye
4. Handle
5. Handle lock plate
6. Pole shoes

NEVER USE A DAMAGED OR DEFECTIVE MAGNET!

The MPI Lifting Magnet is guaranteed for a term of five (5) years on the magnetic system from date of delivery. Warranty covers any manufacture or material (magnetic system) defects. Warranty does not cover failures due directly or indirectly listed below. The guarantee is not applicable to shortcomings that can be wholly or partially attributed to:

- + failure to comply with the operating and maintenance instructions or use considered as being other than normal
- + normal wear
- + modification or repairs not performed by MPI or authorized agent

TYPE	150	300	600	1000	1500	2000
length (in)	3.7	6	9.7	12.1	14.7	18.8
width (in)	2.4	3.9	4.7	5.8	6.5	6.5
height incl. lifting eye (in)	4.7	7.1	7.1	9.3	10.8	10.8
weight (lbs)	6.6	22.1	46.3	88.2	152.1	198.4
tested lifting capacity (lbs)	1,036	2,188	4,188	7,054	10,361	13,668
workload limit for plates (lbs)	330	661	1,322	2,204	3,306	4,409
workload limit pipe and tube (lbs)	143	330	661	1,102	1,653	2,204
Diameter Ø min/max (in)	2/4	2.4/7.8	2.5/10.6	4/11.8	6/13.7	6/13.7



SAFETY INSTRUCTIONS

WARNING INCORRECT OPERATION OR ACTION COULD CAUSE PHYSICAL INJURY OR DAMAGE TO THE EQUIPMENT AS A RESULT.

- + Never use this magnet before the instructions have been read and understood.
- + Persons fitted with a pacemaker or other medical equipment should never use the magnet without first consulting medical specialist.
- + Never remove warning or instruction plates from the magnet.
- + Always wear safety glasses, gloves, protective footwear and a hard hat.
- + Never stand or move under the load.
- + Never transport over people.
- + Never use the magnet as an aid for lifting, supporting or transporting persons.
- + Warn bystanders when beginning to lift and load.
- + Always use a lifting hook equipped with a safety latch to prevent the hook from slipping out of the eye hook.
- + Ensure the weight and dimensions of the load to be lifted do not exceed the maximum permitted values.
- + Never use a damaged or poorly operating magnet.
- + Only switch the magnet on when it has been placed on the load.
- + Only switch the magnet off when the load has been placed on a stable surface.
- + Never lift more than one workpiece at a time with this magnet.
- + Never leave a hoisted load unattended.
- + The temperature of the load or the surroundings must never exceed 176°F.

UNSAFE APPLICATIONS

1. Never lift multiple workpieces simultaneously (i.e. thin sheets).
2. Never lift a load on the smallest side.
3. In case of long, flexible workpieces, place the magnet crosswise to the long side of workpiece (to avoid the peeling effect).

REASONS FOR WORKLOAD LIMIT REDUCTION

- + Air gaps between the load and the magnet caused by paper, dirt, paint, burrs, damage, surface roughness etc. either on the load or the magnet.
- + Thin loads – the thinner the load, the less the lifting capacity.
- + Length and width of load - the peeling effect is created when long, wide plates hang outside the magnet and bends down resulting in an air gap.

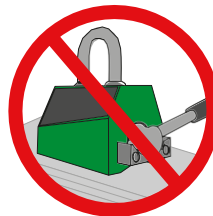
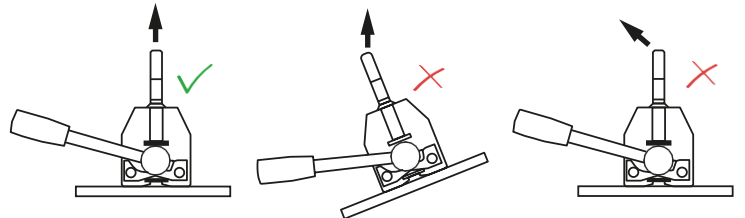
NEVER EXCEED THE MAXIMUM WEIGHT AND/OR DIMENSIONS FOR THE MATERIAL THICKNESS STATED IN THE TABLE ON PAGE 5 WORKLOAD LIMIT FOR PLATES AND ROUNDS.

NEVER PLACE THE MAGNET OVER A LARGE HOLE OR BORE.

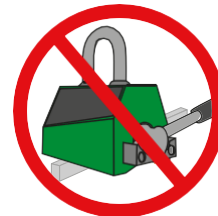
- + Material type indicates that high alloy percentage = low lifting capacity. Some alloys are even totally non-magnetic (i.e. 304 stainless steel).
- + A small contact surface between pole shoes and load. In case the load does not fully cover the pole shoes, the lifting capacity will be reduced by the same percentage.

A WORKPIECE SHOULD COVER BOTH POLE SHOES AS FAR AS POSSIBLE AND ALWAYS TO AN EQUAL AMOUNT.

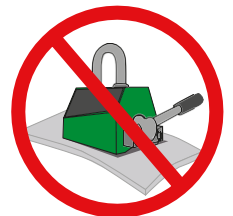
- + The magnet must remain fully horizontal during transport.



1. Single sheets only



2. Too small



3. Toolong



INSTRUCTIONS FOR USING THE WORKLOAD LIMIT TABLE FOR PLATES AND ROUNDS ON PAGE 5

1. Select your MPI Lifting Magnet model.
2. Select the surface finish and condition (clean and smooth, rusty or hot, irregular or rough) that corresponds to you plate or round bar. If your surface roughness exceeds the maximum, do not make the lift.

Plates:

- a. Select the plate thickness from the table. If your plate thickness is not listed, select the next lower value from the table. Never lift plates thinner than the minimum listed in the table.
- b. Check that the plate you are attempting to lift is shorter than the maximum length (L) and narrower than the maximum width (W) listed in the table under the heading "Max. dimensions" for the thickness of the selected plate.

Round bars:

- a. Be sure the diameter of the bar is between the minimum and maximum diameter as listed in the table. Never lift bars outside this range.
- b. Be sure that the bar is less than the maximum length (L) max listed in the table.

3. Determine the maximum safe lifting capacity of the magnet based on your material thickness.

Plates:

- a. Select the maximum safe lifting value from the table for the minimum length (L) and minimum width (W) from one of the two choices. Do not make the lift if your plate is less than these minimum values.

Round bars:

- a. The maximum safe lifting value is shown in the table.
4. If you are not lifting AISI 1020 steel, determine the reduction in safe lifting capacity by the percentage factor for your material from the *Material Reduction Factor Table* shown below. For example, if you are lifting cast iron, multiply the maximum safe lifting capacity determined in Step 3 above for steel by 45% to get the maximum safe lifting capacity for your lift of cast iron.
5. Finally, determine the weight of the plate or round bar you are attempting to lift to be sure it is less than the maximum safe lifting capacity determined in Step 4. The weight can be calculated using the density of 0.283 lbs per cubic inch for steel or by use of a commonly available on-line weight calculator.

MATERIAL REDUCTION FACTOR TABLE (STEP 4)

The Workload Limit Table for Conditions and Finishes on Page 5 is for AISI 1020 steel. Other materials are less magnetic. Any increase in alloy content will reduce the safe lifting capacity of the magnet. Use these percentage factors for materials other than AISI 1020 steel:

Material	Percentage Factor
Cast Steel	90%
3% Silicon Steel	80%
AISI 1095 Steel	70%
416 Stainless Steel	50%
Cast Iron (non-chilled)	45%
Pure Nickel	10%

Never attempt to lift non-magnetic metals like 304/316 stainless, aluminum, copper, lead, tin, titanium and zinc, and alloys such as brass and bronze.



WORKLOAD LIMIT FOR PLATES AND ROUNDS (AISI 1020 STEEL)

SURFACE CONDITIONS AND FINISHES														
			Clean and smooth ground surface. Air gap < 0.004 in				Rusty and hot rolled surface Air gap 0.004 - 0.12 in				Irregular and rough surface. Air gap 0.012 - 0.02 in			
			Max. dimensions L x W (in)		WLL (lbs) for plate sizes as below		Max. dimensions L x W (in)		WLL (lbs) for plate sizes as below		Max. dimensions L x W (in)		WLL (lbs) for plate sizes as below	
		Thickness (in)	L > 8	L = 2 - 2.9	L > 8	L = 2 - 2.9	L > 8	L = 2 - 2.9	L > 8	L = 2 - 2.9				
			W > 8	W = 4 - 7.9	W > 8	W = 4 - 7.9	W > 8	W = 4 - 7.9	W > 8	W = 4 - 7.9				
MPI LIFTING MAGNET LM-0150-REN		0.98	-	330	265	-	187	165	-	132	121			
		0.59	79 x 20	287	243	43 x 20	154	132	35 x 20	121	99			
		0.39	98 x 20	265	165	59 x 20	143	110	47 x 20	110	88			
		0.16	98 x 20	110	55	91 x 20	88	37	67 x 20	66	33			
		0.08	59 x 20	44	13	51 x 20	31	9	47 x 20	29	9			
	Diameter	Ø2 - Ø4	Lmax. 98	143		Lmax. 79		110		Lmax. 59		77		
MPI LIFTING MAGNET LM-0300-REN		>=1.18	-	661	551	-	419	397	-	254	220			
		0.59	78 x 39	540	353	55 x 39	353	265	39 x 39	232	187			
		0.39	98 x 39	441	209	59 x 39	287	143	47 x 39	209	121			
		0.24	86 x 39	220	77	70 x 39	198	66	59 x 39	154	55			
		0.16	70 x 39	121	44	70 x 39	110	33	51 x 39	88	31			
	Diameter	Ø2.4 - Ø7.8	Lmax. 138	331		Lmax. 118		265		Lmax. 98		165		
MPI LIFTING MAGNET LM-0600-REN		>=1.18	-	1322	1146	-	948	883	-	595	573			
		0.79	78 x 59	1025	838	78 x 49	860	683	49 x 39	551	463			
		0.59	88 x 59	948	529	90 x 49	750	441	70 x 39	485	352			
		0.39	98 x 59	628	247	94 x 49	529	220	86 x 39	408	187			
		0.31	94 x 59	496	198	90 x 49	397	154	78 x 39	287	121			
		0.24	86 x 59	342	132	78 x 49	265	99	78 x 39	220	77			
Diameter	Ø2.5 - Ø10.6	Lmax. 157	661		Lmax. 138		529		Lmax. 118		352			
MPI LIFTING MAGNET LM-1000-REN		>=2.39	-	2204	2172	-	1863	1841	-	1433	1422			
		1.18	96 x 59	1896	1565	78 x 59	1609	1367	75 x 49	1246	1135			
		0.98	112 x 59	1830	1179	94 x 59	1554	1047	88 x 49	1212	903			
		0.79	126 x 59	1642	805	108 x 59	1411	705	102 x 49	1124	639			
		0.59	130 x 59	1102	474	114 x 59	981	430	110 x 49	838	386			
		0.39	108 x 59	584	231	100 x 59	529	209	104 x 49	441	187			
Diameter	Ø4 - Ø11.8	Lmax. 177	1102		Lmax. 157		882		Lmax. 137		661			
MPI LIFTING MAGNET LM-1500-REN		>=3.15	-	3306	3219	-	3131	2646	-	2249	2160			
		1.97	118 x 47	3219	2756	98 x 47	2646	2315	78 x 47	2116	1984			
		1.18	137 x 47	2161	948	128 x 47	1984	860	98 x 51	1720	772			
		0.79	138 x 55	1676	683	118 x 63	1653	639	98 x 69	1532	595			
		0.59	118 x 59	1191	430	118 x 59	1168	397	98 x 55	926	353			
	Diameter	Ø6 - Ø13.7	Lmax. 197	1653		Lmax. 177		1543		Lmax. 138		1323		
MPI LIFTING MAGNET LM-2000-REN		>=3.15	-	4409	4299	-	3638	3527	-	2866	2756			
		1.97	128 x 59	4299	3527	98 x 59	3527	2976	78 x 59	2756	2535			
		1.18	138 x 59	2976	1212	128 x 59	2535	1102	98 x 59	2205	992			
		0.79	138 x 79	2425	881	118 x 79	2205	827	98 x 79	1984	772			
		0.59	118 x 59	1433	551	118 x 59	1323	507	78 x 59	1212	441			
	Diameter	Ø6 - Ø13.7	Lmax. 197	2204		Lmax. 177		1984		Lmax. 157		1764		

DONOT LIFT PLATES THINNER THAN INDICATED IN THE CHART. WHEN LIFTING TUBES WITH A THIN WALL, THE LENGTH MAY BE THE LIMITING FACTOR.



OPERATION

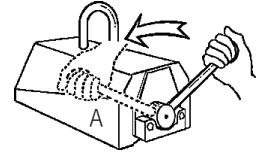
Read the safety instructions first before operating the magnet.



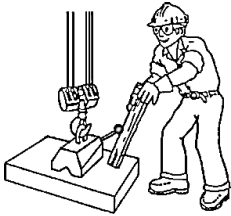
1. Check the condition of the magnet each time before use. Wipe the pole shoes on the magnet and the contact surface of the workpiece of oils, dirt, burrs or irregularities.



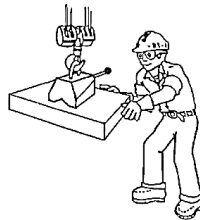
2. Place the magnet on the workpiece and position the magnet in such a manner that it remains horizontal during lifting (determine the center of gravity of the workpiece as accurately as possible).



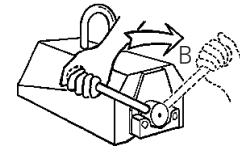
3. Grab the handle and switch the magnet on by placing the handle in position A. Allow the spring pressure to pull the handle back into the locked position.



4. Lift the load an inch and be sure the load is well gripped. Never stand under the load!



5. Guide the load by holding the corners. Avoid collisions, swinging and shocks. Never stand under the load and keep the load horizontal!



6. Grab the handle ball and pull the handle out of its locked position. Switch the magnet off by placing the handle in position B. Allow the spring pressure to pull the handle back into the locked position.

NEVER TRY TO SWITCH THE MAGNET ON OR OFF WHILE IT IS SITTING ON VERY THIN OR ON NON-MAGNETIC MATERIAL OR IN THE AIR.

CAUTION: LIGHTWORKPIECES MAY STICK TO THE MAGNET AFTER IT HAS BEEN SWITCHED OFF! NEVER RELEASE THE HANDLE UNTIL WORKPIECE IS FULLY SEPARATED FROM THE MAGNET.

INSPECTION AND MAINTENANCE OF THE LIFTING MAGNET

Before use:

Check the entire magnet visually. Brush the pole shoes of the magnet and the contact surface of the workpiece clean. If necessary file off any burrs or irregularities. Do not use the magnet if you have discovered any defects. Check the operation of the handle and locking plate.

Weekly:

Check the entire magnet including the hook eye for deformities, cracks or other defects. If the lifting eye is deformed or more than 10% worn off, it should be replaced. Check the presence and legibility of the type plate and instruction plate. Check the pole shoes. If they are more than 10% damaged (pits, burrs etc.) the magnet should be returned to your supplier or an authorized agent for regrinding. Lifting capacity should be tested following this operation.

Annually:

Have the lifting capacity of your magnet checked by your supplier or an authorized agent at least once a year. This is a full load and breakaway test to certify that the lifting magnet performs like the original test certification.

MPI reserves the right to change any components, details, and accessories considered necessary for the improvement of this magnetic device, or for production or commercial purposes, without updating the Operation and Safety Instruction Manual.

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