User manual
12-2019

EUROBOOR
FOR PROFESSIONALS BY PROFESSIONALS

Permanent lifting magnet

ELM

Serial number:

Date of purchase: / /

This manual is for ELM types: ELM.125, ELM.250, ELM.500, ELM.1000 and ELM.2000

Congratulations on purchasing this premium permanent lifting magnet. At Euroboor we strive to exceed our customers' expectations by developing and providing premium and innovative portable drilling, cutting and lifting solutions. We believe that a professional like you must be able to rely on a professional supplier. Which has led us to become a major player in the industrial world, with our own factory and several offices worldwide. All because we have always listened to our customers and to the demands from the market.
Our vision is focused on developing innovative portable tools that add value for our customers and facilitate them in their daily work. We never lose sight of sustainability, time savings and cost savings.

Enjoy your new lifting magnet!

Before operating your new permanent lifting magnet, please first read all instructions. You find the instructions in this manual and on the warning label on your lifting magnet. With proper use, care and maintenance your lifting magnet will provide you with years of premium performance.

TO REDUCE THE RISK OF INJURY USER MUST READ AND UNDERSTAND ALL INSTRUCTIONS

To view all our offices and their contact information please visit: www.euroboor.com

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1. Safety

1.1 General safety instructions

Do not use this lifting magnet before you have thoroughly read and completely understood this manual, specifically the “General safety instructions” including the figures, specifications, safety regulations and the signs indicating DANGER, WARNING and CAUTION. Please also observe the relevant national industrial safety regulations. Non-observance of the safety instructions can lead to severe injuries.

This manual should be kept for later use and enclosed with the lifting magnet, should it be passed on or sold.

Work area

1. Keep your work area clean and well lit. Cluttered and dark work areas increase the chance of accidents.
2. Keep bystanders, children and visitors away while using a lifting magnet. Distractions can cause you to lose control.
3. Never stand or walk underneath the hoisting load.
4. Guide the load by holding the corners, make sure to keep the load away from your body.
5. Never transport your workpiece with the lifting magnet over or past people.
6. Never use the lifting magnet for transporting or lifting people.
7. Always warn people who are around your working area when you start your lifting job.
8. Never leave a hoisted lifting magnet unattended.

Personal safety

1. Stay alert, watch what you are doing and use common sense when using a lifting magnet. Do not use the lifting magnet while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating a lifting magnet may result in serious personal injury.
2. Dress properly. Do not wear magnetizable clothing or jewelry.
3. Use safety equipment. Always wear non-skid safety shoes and a hard hat for optimal safety.
4. Users of the lifting magnet who have a pacemaker or other medical equipment should never use the lifting magnet without first consulting a medical specialist.

1.2 Delivery

The complete delivery of your Euroboor lifting magnet consists of:

- Euroboor lifting magnet
- User manual
- Test certificate

Note: Always check your lifting magnet on delivery. If the lifting magnet is damaged or incomplete immediately contact your supplier or Euroboor.

1.3 Warranty and service

Warranty

Euroboor B.V. warrants this lifting magnet to be free of material defects and workmanship errors under normal use for a period of 12 months after date of purchase.
This 12 month period can be extended to 24 months in total by registering the product on our website: https://euroboor.com/support/register/.

This warranty expires when:

- The operating and maintenance instructions as stated in this manual have not been followed
- The use of the lifting magnet is considered as being other than normal
- Natural wear and tear cause by use in accordance with operating instructions
- Repairs or replacements are not in accordance to and done by specifications by Euroboor or any authorized Euroboor dealer.

Service

To maximize the lifetime of your Euroboor lifting magnet always use service and parts from an official Euroboor distribution channel. Whenever in need of such, always contact original point of sales or if no longer existent the distributor of Euroboor products in your country.

2. Construction and specifications

2.1 Construction

All Euroboor lifting magnets (ELM) have been produced with NdFeB magnetic materials. To switch the magnet on and off, you turn the handle which can be found on the side of the lifting magnet. On top of the lifting magnets you find shackles for lifting and the bottom of the lifting magnets are equipped with a V slot for lifting cylindrical workpieces.

Never use the handle to switch the magnet on without using an hoisting load.

On the top of the lifting magnet you also find a small slider, which pulls in and pushes out the safety bolt. This safety bolt ensures that the handle stays in to ''on'' position while you are working on your lifting job.

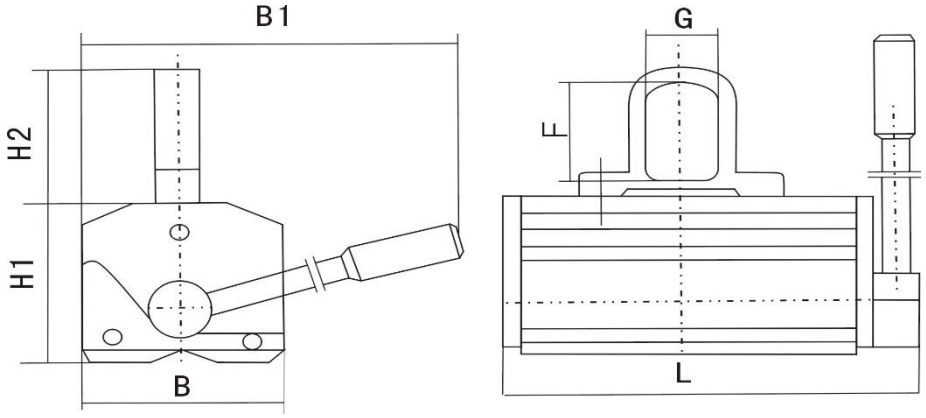
2.2 Specifications

Metric

ELM types	Rated lifting strength	L	B	H1	H2	B1	F	G	Dead weight
	kg	mm	mm	mm	mm	mm	mm	mm	Kg
ELM.125	125	175	76	77	57	170	35	30	6.5
ELM.250	250	213	82	83	77	215	56	40	9.4
ELM.500	500	288	112	108	87	340	57	42	21.2
ELM.1000	1000	336	148	138	96	388	59	52	43
ELM.2000	2000	559	154	195	100	471	63	52	95.2

Imperial

ELM types	Rated lifting strength	L	B	H1	H2	B1	F	G	Dead weight
	lbs	inch	inch	inch	inch	inch	inch	inch	Lbs
ELM.125	250	6 7/8	3	3	2 1/4	6 11/16	1 3/8	1 3/16	14.3
ELM.250	500	8 3/8	3 7/32	3 1/4	3 1/32	8 15/32	2 3/16	1 9/16	20.7
ELM.500	1000	11 13/32	4 13/32	4 1/4	3 7/16	13 3/8	2 1/4	1 21/32	48.5
ELM.1000	2000	13 7/32	5 27/32	5 13/32	3 25/32	15 9/32	2 5/16	2 1/16	94.8
ELM.2000	4000	22	6 3/8	6 1/16	3 15/16	18 17/32	2 15/32	2 1/16	209.9



⚠ **Warning:** Always ensure that the weight and dimensions of the workpiece do not exceed the maximum permitted values.

Metric

Model	Load Plate Max	Load round Max	Plate Min Thickness	Round Min-max thickness	Work max. length	Operation temperature
	kg	kg	mm	mm	mm	℃
ELM.125	125	60	15	Ø 40 - Ø 80	2000	<80
ELM.250	250	125	25	Ø 50 - Ø 100	2500	<80
ELM.500	500	250	30	Ø 100 - Ø 250	3000	<80
ELM.1000	1000	500	40	Ø 150 - Ø 380	3500	<80
ELM.2000	2000	1000	55	Ø 180 - Ø 450	4000	<80

Imperial

Model	Load Plate Max	Load round Max	Plate Min Thickness	Round Min-max thickness	Work max. length	Operation temperature
	lbs	lbs	inch	inch	inch	°F
ELM.125	250	120	19/32	Ø 1 37/64 - Ø 3 5/32	78 47/64	<176
ELM.250	500	250	63/64	Ø 1 31/32- Ø 3 15/16	98 27/64	<176
ELM.500	1000	500	1 3/16	Ø 3 15/16- Ø 9 27/32	118 7/16	<176
ELM.1000	2000	1000	1 37/64	Ø 5 29/32- Ø 14 61/64	137 51/64	<176
ELM.2000	4000	2000	2 11/64	Ø 7 3/32- Ø 17 23/32	157 31/64	<176

3. Operation

3.1 Prior to use

Check the lifting magnet for possible damage; Before using the lifting magnet, you must carefully check the protective components or slightly damaged components to ensure they are operating perfectly and as intended.
Damaged protective components must be repaired or replaced according to specifications by Euroboor or any authorized Euroboor dealer.

DO NOT let children come into contact with the lifting magnet. Supervision is required when inexperienced operators use this lifting magnet.

1. During operation always make sure the surface on which you are going to attach the lifting magnet is clear of any rust, burr and debris. This ensures that the lifting magnet has an optimized lifting capacity.
2. Pull the slider on top of the magnet to the middle of the magnet, so that the safety bolt is pulled in.
3. Then switch the handle in the ''on'' position.
4. Release the slider; this will push out the safety bold and it will lock the handle.
5. Start your lifting job.

Warning: Overloading is forbidden. Never let anybody walk underneath the workpiece you are lifting.

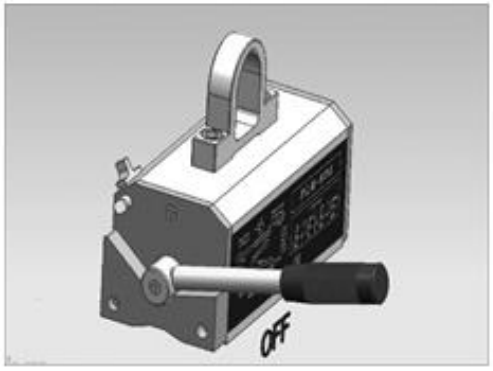
Warning: Never place the magnet over a large hole or bore.

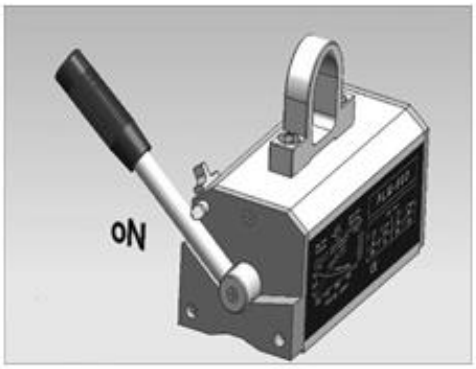
Warning: Never release the handle before the slider has locked it in position

Always make sure that the temperature of the components as well the ambient temperature is between 80℃ to -40℃. Minimalize vibrations and avoid impact and collisions.

Note: When you are lifting cylindrical workpieces always make sure the cylindrical workpiece contacts both V slots of the lifting magnet. The actual lifting capacity will generally be 30% of the rated lifting capacity (see chapter 4.2).

1. When you have finished your lifting job and want to turn off the magnet simply pull the slider on top of the magnet to the middle of the magnet, so that the safety bolt is pulled in and switch the handle to the off position.
2. Release the slider.
3. The lifting magnet is now in neutral condition and can be taken from the workpiece





- Only switch the magnet to the ''On'' position when you have placed it correctly on the workpiece.
- Only switch the magnet to the ''Off'' position when you have placed the workpiece on a stable surface.
- **Never** lift more than one workpiece at a time.
- **Never** lift more than the capacity of the lifting magnet you are using.
- The magnet must remain fully horizontal during transport of the workpiece.

Note: After having finished your lifting job, light workpieces and other small magnetizable material might stick to the magnet after is has been switched off.

3.2 Main factors which influence the lifting capacity

Before you start your lifting job always check the safety by looking at the thickness of the workpiece, the quality of the workpiece and the composition of the steel component.
In the below instructions and matrices you can calculate the save capacity of the lifting magnet.

- Thickness of the workpiece
  In general when the thickness of the workpiece (S) is increasing the lifting capacity is also increasing. The lifting capacity of the magnet will never exceed the maximum lifting capacity of the magnet
- Quality of the workpiece.
  You have to calculate the surface roughness (Ra) of your workpiece. If the surface roughness is less than 6.3 um, there will be no negative impact of the lifting capacity of the magnet based on the airgap (▲). If the surface roughness is above 6.3. um you need to calculate the airgap. The airgap will negatively influence the lifting capacity of the magnet. You can find a detailed overview in below matrices.
- The composition of the steel component.
  Various materials have influence on the maximum capacity of the magnet. The in the below mentioned matrices lifting capacity of the magnet based on the thickness of the workpiece (S), airgap (▲) and shape of the workpiece must be multiplied by the percentage related to the composition of the workpiece. You can find the material related percentage in matrix 3.2.1

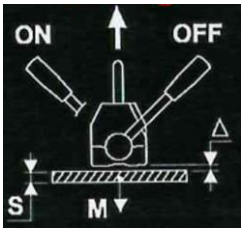
Workload limit for various materials (Matrix 3.2.1)	
Material	**Percentage (%)**
St 37 (S 235 JR)	100%
E 295 (St 52)	96%
Cast steel	90%
Stainless steel 430 F	50%
Cast iron	45%
Nickel	10%

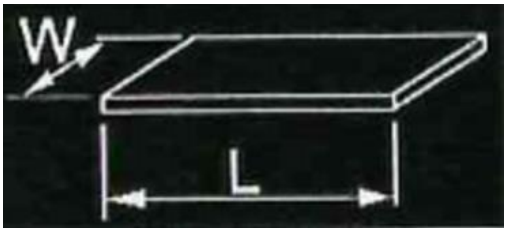
3.3 Calculation example

Below you find an example how to calculate the lifting capacity of your magnet. Calculations should always be done with the actual figures related to the workpiece.

Lifting Magnet	**ELM.125**
Maximum capacity	125 kg / 250 lbs
The thickness of the workpiece (S)	10 mm
Airgap (▲)	0.2 mm
Material	Cast steel

Max capacity	Thickness based capacity	Airgap based capacity	Material influence	Actual maximum capacity
125kg	85kg	65kg	90%	65kg x 90% = **58,5kg**





3.4 ELM.125 Lifting capacity overview

	▲ <0.1 mm			▲ = 0.1 - 0.3 mm			▲ = 0.3 - 0.5 mm		
	L max	W max	M max	L max	W max	M max	L max	W max	M max
S ≥ 15 mm	1500mm	1000 mm	125 kg	1500 mm	1000 mm	90kg	1200 mm	800 mm	65 kg
S = 10 mm	1200mm	800 mm	85 kg	1200 mm	800 mm	65 kg	1000 mm	500 mm	45 kg
S = 5 mm	1000mm	500 mm	50 kg	1000 mm	500 mm	40 kg	800 mm	500 mm	25 kg
Ø40 - Ø80 mm	2000 mm	-	60 kg	1850 mm	-	50 kg	1700 mm	-	30 kg

	▲ <0.0039 inch			▲ = 0.0039 - 0.012 inch			▲ = 0.012 -0.0197 inch		
	L max	W max	M max	L max	W max	M max	L max	W max	M max
S ≥ 19/32 inch	59-1/16 inch	39-3/8 inch	250 lbs	59-1/16 inch	39-3/8 inch	180 lbs	47-1/4 inch	31-1/2 inch	130 lbs
S = 25/64 inch	47-1/4 inch	31-1/2 inch	170 lbs	47-1/4 inch	31-1/2 inch	130 lbs	39-3/8 inch	19-11/16 inch	90 lbs
S = 13/64 inch	39-3/8 inch	19-11/16 inch	100 lbs	39-3/8 inch	19-11/16 inch	80 lbs	31-1/2 inch	19-11/16 inch	50 lbs
Ø 1-37/64 inch - 3-5/32 inch	78-47/64 inch	-	120 lbs	72-53/64 inch	-	100 lbs	66-59/64 inch	-	60 lbs

3.5 ELM.250 Lifting capacity overview

	▲ <0.1 mm			▲ = 0.1 - 0.3 mm			▲ = 0.3 - 0.5 mm		
	L max	W max	M max	L max	W max	M max	L max	W max	M max
S ≥ 25 mm	2000 mm	1500 mm	250 kg	2000 mm	1500 mm	190 kg	1500 mm	1000 mm	120 kg
S = 15 mm	2000 mm	1200 mm	200 kg	2000 mm	1200 mm	150 kg	1500 mm	1000 mm	100 kg
S = 10 mm	1500 mm	1200 mm	180 kg	1500 mm	1000 mm	135 kg	1100 mm	1000 mm	85 kg
S = 8 mm	1500 mm	1000 mm	120 kg	1500 mm	1000 mm	95 kg	1100 mm	800 mm	65 kg
S = 6 mm	1200 mm	800 mm	70 kg	1000 mm	800 mm	55 kg	900 mm	800 mm	35 kg
Ø50 - Ø100 mm	2500 mm	-	125 kg	2500 mm	-	95 kg	2000 mm	-	60 kg

	▲ <0.0039 inch			▲ = 0.0039 - 0.012 inch			▲ = 0.012 -0.0197 inch		
	L max	W max	M max	L max	W max	M max	L max	W max	M max
S ≥ 63/64 inch	78-47/64 inch	59-1/16 inch	500 lbs	78-47/64 inch	59-1/16 inch	380 lbs	59-1/16 inch	39-3/8 inch	240 lbs
S = 19/32 inch	78-47/64 inch	47-1/4 inch	400 lbs	78-47/64 inch	47-1/4 inch	300 lbs	59-1/16 inch	39-3/8 inch	200 lbs
S = 25/64 inch	59-1/16 inch	47-1/4 inch	360 lbs	59-1/16 inch	39-3/8 inch	270 lbs	43-5/16 inch	39-3/8 inch	170 lbs
S = 5/16 inch	59-1/16 inch	39-3/8 inch	240 lbs	59-1/16 inch	39-3/8 inch	190 lbs	43-5/16 inch	31-1/2 inch	130 lbs
S = 15/64 inch	47-1/4 inch	31-1/2 inch	140 lbs	39-3/8 inch	31-1/2 inch	110 lbs	35-7/16 inch	31-1/2 inch	70 lbs
Ø 1-31/32 inch - 3-15/16 inch	98-27/64 inch	-	250 lbs	98-27/64 inch	-	190 lbs	78-47/64 inch	-	120 lbs

3.6 ELM.500 Lifting capacity overview

	▲ <0.1 mm			▲ = 0.1 - 0.3 mm			▲ = 0.3 - 0.5 mm		
	L max	W max	M max	L max	W max	M max	L max	W max	M max
S ≥ 30 mm	3000 mm	1500 mm	500 kg	3000 mm	1500 mm	380 kg	2500 mm	1500 mm	260 kg
S = 20 mm	2500 mm	1500 mm	380 kg	2500 mm	1500 mm	280 kg	2000 mm	1500 mm	190 kg
S = 15 mm	2000 mm	1500 mm	300 kg	2000 mm	1500 mm	220 kg	1800 mm	1500 mm	150 kg
S = 10 mm	1500 mm	1500 mm	220 kg	1500 mm	1500 mm	170 kg	1200 mm	1000 mm	110 kg
Ø100-Ø250 mm	3000 mm	-	250 kg	3000 mm	-	200 kg	2500 mm	-	150 kg

	▲ <0.0039 inch			▲ = 0.0039 - 0.012 inch			▲ = 0.012 -0.0197 inch		
	L max	W max	M max	L max	W max	M max	L max	W max	M max
S ≥ 1 3/16 inch	118-7/16 inch	59-1/16 inch	1000 lbs	118-7/16 inch	59-1/16 inch	760 lbs	98-27/64 inch	59-1/16 inch	520 lbs
S = 25/32 inch	98-27/64 inch	59-1/16 inch	760 lbs	98-27/64 inch	59-1/16 inch	560 lbs	78-47/64 inch	59-1/16 inch	380 lbs
S = 19/32 inch	78-47/64 inch	59-1/16 inch	600 lbs	78-47/64 inch	59-1/16 inch	440 lbs	70-55/64 inch	59-1/16 inch	300 lbs
S = 25/64 inch	59-1/16 inch	59-1/16 inch	440 lbs	59-1/16 inch	59-1/16 inch	340 lbs	47-1/4 inch	39-3/8 inch	220 lbs
Ø 3-15/16 inch - 9-27/32 inch	118-7/16 inch	-	500 lbs	118-7/16 inch	-	400 lbs	98-27/64 inch	-	300 lbs

3.7 ELM.1000 Lifting capacity overview

	▲ <0.1 mm			▲ = 0.1 - 0.3 mm			▲ = 0.3 - 0.5 mm		
	L max	W max	M max	L max	W max	M max	L max	W max	M max
S ≥ 40 mm	3000 mm	2000 mm	1000 kg	3000 mm	2000 mm	750 kg	2500 mm	1500 mm	650 kg
S = 30 mm	3000 mm	2000 mm	800 kg	3000 mm	2000 mm	600 kg	2500 mm	1500 mm	400 kg
S = 20 mm	2500 mm	1500 mm	600 kg	2500 mm	1500 mm	450 kg	2000 mm	1000 mm	300 kg
S = 15 mm	2500 mm	1500 mm	500 kg	2500 mm	1500 mm	380 kg	2000 mm	1000 mm	230 kg
S = 10 mm	2000 mm	1000 mm	350 kg	2000 mm	1000 mm	260 kg	1500 mm	1000 mm	180 kg
Ø150-Ø380 mm	3500 mm	-	500 kg	3000 mm	-	380 kg	2500 mm	-	320 kg

	▲ <0.0039 inch			▲ = 0.0039 - 0.012 inch			▲ = 0.012 -0.0197 inch		
	L max	W max	M max	L max	W max	M max	L max	W max	M max
S ≥ 1 37/64 inch	118-7/16 inch	78-47/64 inch	2000 lbs	118-7/16 inch	78-47/64 inch	1500 lbs	98-27/64 inch	59-1/16 inch	1300 lbs
S = 1 3/16 inch	118-7/16 inch	78-47/64 inch	1600 lbs	118-7/16 inch	78-47/64 inch	1200 lbs	98-27/64 inch	59-1/16 inch	800 lbs
S = 25/32 inch	98-27/64 inch	59-1/16 inch	1200 lbs	98-27/64 inch	59-1/16 inch	900 lbs	78-47/64 inch	39-3/8 inch	600 lbs
S = 19/32 inch	98-27/64 inch	59-1/16 inch	1000 lbs	98-27/64 inch	59-1/16 inch	760 lbs	78-47/64 inch	39-3/8 inch	460 lbs
S = 25/64 inch	78-47/64 inch	39-3/8 inch	700 lbs	78-47/64 inch	39-3/8 inch	520 lbs	59-1/16 inch	39-3/8 inch	360 lbs
Ø 5-29/32 Inch - 14-61/64 inch	137-1/64 inch	-	1000 lbs	118-7/16 inch	-	760 lbs	98-27/64 inch	-	640 lbs

3.8 ELM.2000 Lifting capacity overview

	▲ <0.1 mm			▲ = 0.1 - 0.3 mm			▲ = 0.3 - 0.5 mm		
	L max	W max	M max	L max	W max	M max	L max	W max	M max
S ≥ 55 mm	3500 mm	2000 mm	2000 kg	3500 mm	1850 mm	1500 kg	3000 mm	2000 mm	1000 kg
S = 45 mm	3500 mm	2000 mm	1800 kg	3500 mm	1850 mm	1350 kg	3000 mm	2000 mm	900 kg
S = 35 mm	3000 mm	2000 mm	1500 kg	3000 mm	1800 mm	1150 kg	2500 mm	1500 mm	750 kg
S = 20 mm	2500 mm	1500 mm	900 kg	2500 mm	1200 mm	680 kg	2000 mm	1000 mm	450 kg
S = 15 mm	2500 mm	1500 mm	500 kg	2500 mm	1100 mm	380 kg	2000 mm	1000 mm	250 kg
Ø180-Ø450 mm	4000 mm	-	1000 kg	3500 mm	-	750 kg	3000 mm	-	600 kg

	▲ <0.0039 inch			▲ = 0.0039 - 0.012 inch			▲ = 0.012 -0.0197 inch		
	L max	W max	M max	L max	W max	M max	L max	W max	M max
S ≥ 2 11/64 inch	137-51/64 inch	78-47/64 inch	4000 lbs	137-51/64 Inch	72-53/64 inch	3000 lbs	118-7/16 inch	78-47/64 inch	2000 lbs
S = 1 49/64 inch	137-51/64 inch	78-47/64 inch	3600 lbs	137-51/64 inch	72-53/64 inch	2700 lbs	118-7/16 inch	78-47/64 inch	1800 lbs
S = 1 3/8 inch	118-7/16 inch	78-47/64 inch	3000 lbs	118-7/16 inch	70-55/64 inch	2300 lbs	98-27/64 inch	59-1/16 inch	1500 lbs
S = 25/32 inch	98-27/64 inch	59-1/16 inch	1800 lbs	98-27/64 inch	47-1/4 inch	1360 lbs	78-47/64 inch	39-3/8 inch	900 lbs
S = 19/32 inch	98-27/64 inch	59-1/16 inch	1000 lbs	98-27/64 inch	43-5/16 inch	760 lbs	78-47/64 inch	39-3/8 inch	500 lbs
Ø 7-3/32 inch - 17-23/32 inch	157-31/64 inch	-	2000 lbs	137-51/64 inch	-	1500 lbs	118-7/16 inch	-	1200 lbs

4. Maintenance and safety

While carrying and using the lifting magnet beware of bumping into objects in your work area and the roughness of the surfaces you are working on, as not to damage your lifting magnet and your surroundings.

After having used the lifting magnet and before storing it, you can use oil to protect the lifting magnet.

⚠ **Warning :** Please read this user manual carefully and thoroughly before using the lifting magnet.

- Always use a hook equipped with a safety latch to attach to your lifting magnet.
- Check the slider on top of your magnet and the safety bolt regularly. Make sure that slider can move flexibly and that the safety bolt locks firmly.
- When your lifting magnet is not in contact with ferromagnetic material then don't try to turn the handle (you will notice that this is also almost impossible to do).
- Maintenance of your lifting magnet but be done by strictly following the instructions and only by professionals.
- It is prohibited to modify the lifting magnet in any way as this may affect the safety.
- The lifting magnet has to undergo a capability test every year to check the safety of all the component to ensure safe use.
- Whenever the main body and/or turning parts are damaged beyond repair, the lifting magnet has to discarded of.
- Never remove warning or instruction plates from the lifting magnet

5. Environmental

Separate collection. This product must not be disposed of with normal household waste.

Separate collection of used products and packaging allows materials to be recycled and used again. Re-use of recycled materials helps prevent environmental pollution and reduces the demand for raw materials.

Local regulations may provide for separate collection of electrical products from the household, at municipal waste sites or by the retailer when you purchase a new product.