Contents

1 General Information

Thank you for purchasing this Lifting Magnet.

This lifter is tested and rated to provide a 3:1 safety factor if used as instructed by this manual (See Section 3).

This lifter conforms to the requirements of the Machinery Directive 98/37/EU, LOLER regulations (1998) and ASME B30.20.

The equipment, if used within the EU must be stored, maintained and inspected in accordance with the requirements of PUWER (1998). For areas outside the EU the equipment must be used, stored, maintained and inspected in compliance with the applicable work standards and other standards for suspended load handling.

BEFORE USE PLEASE CAREFULLY READ THIS MANUAL

This **Safe Operation and Maintenance Manual** is an integral part of this equipment and should be stored in a safe place in order not to damage or deface it.

It should be retained throughout the lifetime of the lifter.

Should the lifter be resold please ensure the manual is supplied with the lifter.

The lifter should be periodically re-tested in accordance with local legislation and the inspection record updated accordingly (See Section 7).

2 Operation and Safety Instructions

2.1 Symbols and Terms Used

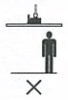
SYMBOLS

The Safe Working Load (flat plate)

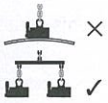
The Safe Working Load (round bar)

Correct orientation of load

Do not lift people



Do not lift load over people



Do not lift loads exceeding the recommended length

Air gap warning (See Load Characteristics in Section 4)

TERMS

Poles The two parallel mild steel surfaces on the base of the lifter.

Air-gap Any non-ferrous material that prevents the poles contacting the load. Paint, rust, scale or even an uneven surface can constitute an air-gap.

2.2 Important Safety Information

ALWAYS

- Instruct new operators to read the handbook before using the Lifting Magnet
- Follow the instructions
- Use the entire pole area
- Fully engage the lifter in the "ON" position before lifting the load
- Wear suitable protective work-wear when using this equipment
- Maintain the pole feet in a good condition
- Check the suitability of equipment used in conjunction with the lifter

⚠ **NEVER**

- Lift or transport people
- Lift loads while people are within the manoeuvring space
- Allow untrained personnel to operate the lifter
- Leave a load unattended
- Use the lifter outside the recommended operations
- Attempt to switch the lifter before setting down the load
- Position yourself beneath the lifted load
- Allow the load to sway
- Bring the load to a sharp and immediate stop
- Lift a load outside the capacity (SWL) of the lifter
- Lift a load with dimensions outside those recommended within this manual
- Alter the attitude of the load from horizontal to vertical
- Lift an unbalanced load
- Operate the lifter in temperatures higher than 80°C (176°F) and lower than -10°C (14°F)
- Operate the lifter in humidity higher than 80%
- Operate the lifter in explosive (EX) or static sensitive environment
- Submerse the lifter in water

2.3 Considerations for Use

The SWL data is generated by testing the magnetic lifters on a flat ground mild steel plate that has a thickness equal to or greater than that specified on the lifter data plate. This information is also shown in Section 4 of this manual.

The optimum performance of a magnetic lifter is achieved when the pole faces are in good condition and make intimate contact with a load of the recommended thickness.

Consideration should always be made to the size of the load (Section 4 Technical Data).

Whilst the load weight may be within the SWL of the lifter, as the unsupported area of the load increases, natural flexing will occur due to its own weight. This could have an adverse effect on the safety of the lift. If in doubt always use a spreader beam and multiple lifters.

There are four factors that will reduce the magnetic clamping force:

1 Air Gaps
The high magnetic forces generated by the Lifting Magnets allow the lifter to clamp components through air gaps. However this will ALWAYS have an adverse effect on the lifter performance. Air gaps are generated in a number of ways. For example paint, dust, scale or even a poor surface finish constitutes an air gap. The effect of air gaps are shown within Section 4 of this manual. These graphs demonstrate the reduction in clamping force generated by the lifter as the air gap increases.

2 Load Thickness
Should the Lifting Magnet be used to lift plates thinner than recommended for the lifter there **will be**, dependent on the material thickness, a significant drop in clamping force. A selection of performance curves on thinner than recommended material is in Section 4 (Technical Data) of this manual.

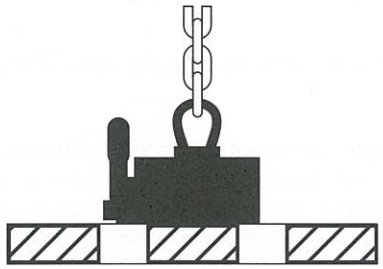
3 Material Types
Certain materials exhibit different characteristics in their ability to carry magnetism. For any material other than mild steel a **reduction factor** must be applied to calculate the clamping force.
Typically these are as follows: -

Ferrous alloy steels	**0.8**
High carbon steel	**0.7**
Cast iron	**0.55**

For example mild steel SWL 250kg = cast iron 250kg × **0.55** = SWL 137kg

4 Contact Area
Maximum hold will only be achieved when the lifter has full contact with the component to be lifted.

If the full face of the poles does not come into contact with the component to be lifted, for instance due to holes in the component, the performance will be reduced pro-rata.

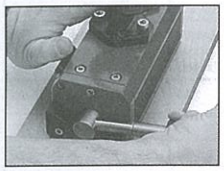


3 Getting Started

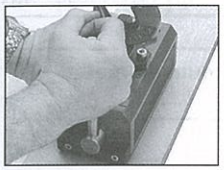
It is important to familiarise yourself with all the features of the Lifting Magnet prior to use in a production environment.

Remove the lifter from the packaging and position on a mild steel plate (load).
Secure the handle to the lifter using a spanner. Note: It is recommended to use a thread-locking compound. Care should be taken to ensure the load does not exceed the stated capacity of the lifter.

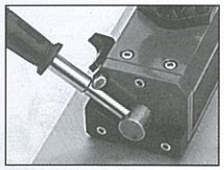
3.1 Understanding Your Lifter



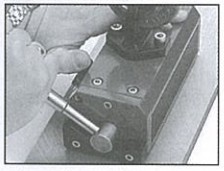
The lifter is in the OFF position



To Switch the lifter ON
Rotate the handle 120° anti-clockwise beyond the spring-loaded safety pin.
Ensure the lever is securely locked in place before commencing with the lift.



The lifter is in the ON position



To switch the lifter OFF
Hold the handle and slide the locking pin (as illustrated) to allow an unobstructed rotation of the handle.
Rotate the handle 120° clockwise to the OFF Position.

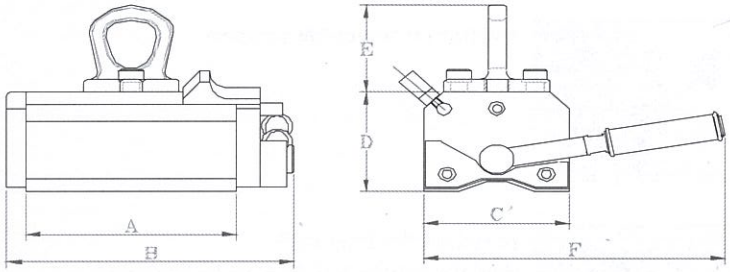
4 Technical Data

4.1 Model Types

Model No	Self Weight (kg)	Dimensions (mm)						Flat Section			Round Section		
		A	B	C	D	E	F	SWL (kg)	Thickness Min (mm)	Length Max (mm)	SWL (kg)	Diameter Max (mm)	Length* Max (mm)
125	4.5	110	150	76	62	54	150	125	20	1500	50	250	1500
250	8.5	165	210	90	72	76	200	250	25	1500	100	300	1500
500	17.5	225	281	106	88	103	243	500	30	2000	200	400	2000
1000	36.5	325	391	136	103	113	365	1000	45	3000	400	450	3000
2000	79	400	483	186	132	170	526	2000	70	3000	800	600	3000

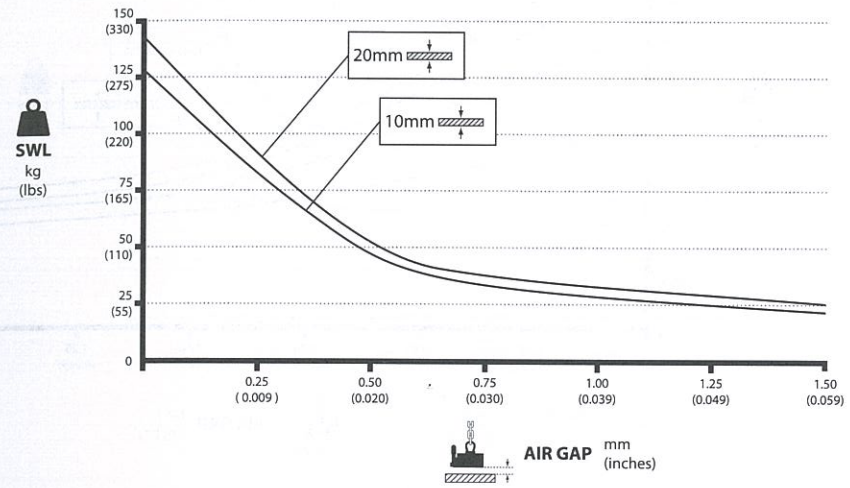
Model No	Self Weight (lbs)	Dimensions (inches)						Flat Section			Round Section		
		A	B	C	D	E	F	SWL (lbs)	Thickness Min (inches)	Length Max (inches)	SWL (lbs)	Diameter Max (inches)	Length* Max (inches)
275	9.9	4.3	5.9	3.0	2.4	2.1	5.9	275	0.8	60	110	10	60
550	18.7	6.5	8.3	3.5	2.8	3.0	7.9	550	1.0	60	220	12	60
1100	38.5	8.9	11.1	4.2	3.5	4.1	9.6	1100	1.2	80	440	16	80
2200	80.3	12.8	15.4	5.4	4.1	4.4	14.4	2200	1.8	120	880	18	120
4400	173.8	15.7	19.0	7.3	5.2	6.7	20.7	4400	2.8	120	1760	24	120

⚠ ***The maximum stated length is not at the maximum diameter (Always work within stated SWL)**

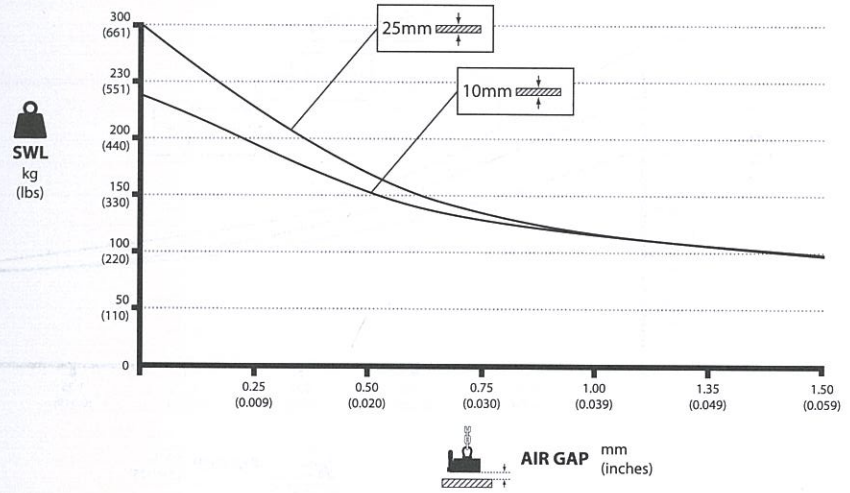


4.2 Performance Curves

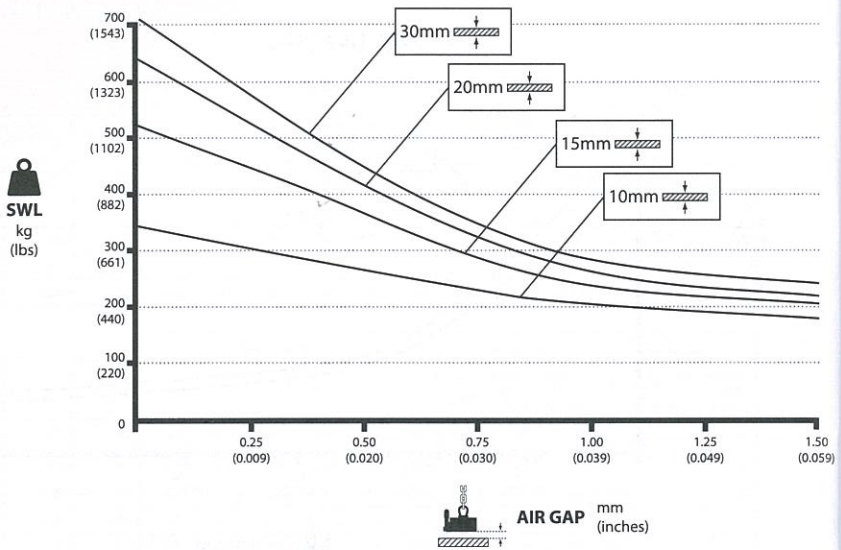
125kg (275lb)



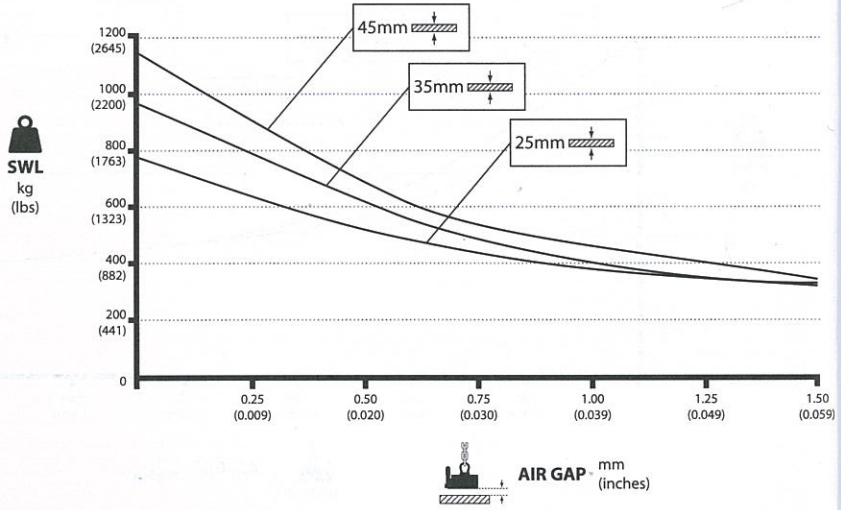
250kg (550lb)



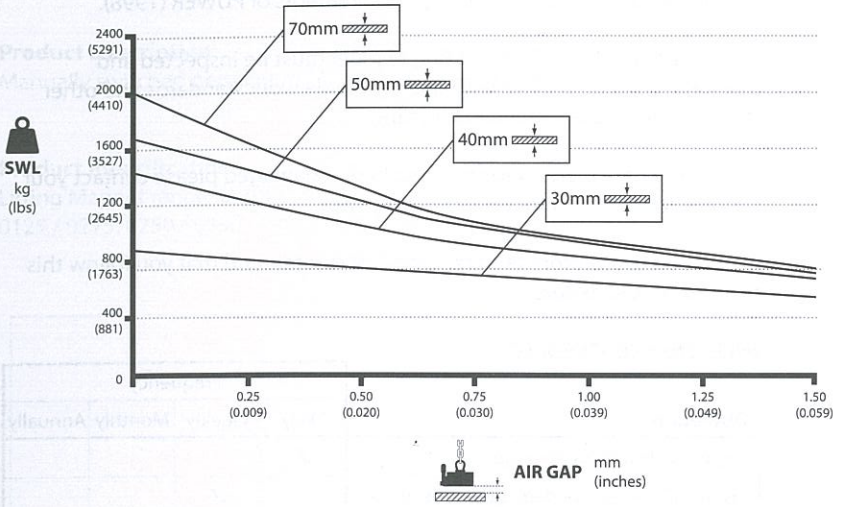
500kg (1100lb)



1000kg (2200lb)



2000kg (4400lb)



5 Periodic Inspection

If the Lifting Magnet is being used in the EU then it must be inspected and maintained in accordance with the requirements of PUWER (1998).

For areas outside the EU the Lifting Magnet must be inspected and maintained in compliance with the applicable work standards and other standards for suspended load handling.

Should the data plates become detached or damaged please contact your supplier immediately for replacement plates.

In addition to statutory requirements it is recommend that you follow this maintenance schedule:

MAINTENANCE SCHEDULE

	Frequency			
Operation	Daily	Weekly	Monthly	Annually
Inspect pole feet for damage	✓			
Inspect lifting eye for damage and security		✓		
Inspect data plates for damage			✓	
Proof test SWL				✓

6 Warranty

This Lifting Magnet is covered by a 1-year warranty from the date of invoice.

7 Inspection Record

This Lifting Magnet should be re-certified in accordance with the requirements of PUWER (1998) and LOLER (1998).

For areas outside the EU this Lifting Magnet must be inspected in compliance with the applicable work standards and other standards for suspended load handling.

EU Declaration of Conformity

Product Description
Manually switched permanent lifting magnet with safety interlock mechanism

Product Identification
Lifting Magnet range identified as :
0125 / 0275, 0250 / 0550, 0500 / 1100, 1000 / 2200, 2000 / 4400

We hereby declare that the product below has been declared in conformity with provisions of the following directives:

- **Machinery Directive 98/37/EU**
- **BS EN ISO 12100-1 Basic engineering principles**
- **BS EN 13155:2003 Cranes safety: non-fixed load lifting attachments**
- **SS7665601 Swedish standards for magnetic lifting devices**
- **ASME B30.20**