

Magnetic Lifting ^M & Handling Systems

Safe & efficient handling for manufacturing and assembly lines.







The safest, most efficient way to move ferrous loads





Eclipse Magnetics 100 years of manufacturing excellence





Serving some of the leading names in industry

JCB Caterpillar Corus TATA Steels NSK BMW Ford Perkins Fanuc ABB Robotics

Yaskawa

A world leader in magnetic technology

With 100 years of experience in the design and manufacture of high performance magnetic systems, we supply critical equipment to some of the leading names in the most demanding industries. Our magnetic technology is widely used in major development projects worldwide, all requiring a guarantee of premium performance.

Designing excellence

We have a track record of producing high quality products backed by a commitment to total customer service. Our technical application teams have a wealth of experience, ensuring that many of our products are market leading innovations. All manufacturing is carried out using ISO 9001 certified quality management systems and we are ISO 14001 accredited. We are also fully conversant with specific industry certifications.

Unrivalled product range

We serve worldwide markets with extensive magnetic product ranges including:- handling systems, magnetic filtration, foreign body removal systems, magnet assemblies and complex magnetic industrial equipment used in industries such as automotive, aerospace and nuclear. Many of our products are unique and covered by global patents.

Worldwide support

We offer worldwide support through our offices in the UK, Canada and China. We also have numerous employees in various territories and a network of technically trained partners to provide local product support.



Improve your process efficiency

Ultimate speed & efficiency combined with total safety

Eclipse Magnetics' lifting and handling systems are based on fail-safe magnetic technology which delivers world class results. Ideal for applications ranging from light pick and place equipment to heavy steel stock movement, magnetic lifting is the most efficient solution for handling ferrous loads.

In comparison to other methods such as slings, chains, hooks and grabs, magnetic systems present major benefits to manufacturing, assembly and storage sites:-



Simple, easy use ready to use in minutes, simple, safe operation.



Increased number of lifts per hour simple on-off operation,

engages the load in seconds.



Total safety.... incorporates numerous fail safe mechanisms.



Precision lifting magnetic lifting systems provide a greater lift control.



Single person or automated use complete safety, minimal training, labour efficient.



Zero running costs permanent magnetic technology does not require a sustained power source.



Optimises storage space floor space optimised as access only required to one lifting face.



No load damage protects the product finish, ideal for painted or coated surfaces.



Total Safety – the safest way to lift ferrous loads

Operation safety is the foremost consideration in the design of all our magnetic lifting and handling systems. Permanent magnetic technology with built in fail-safe mechanisms and a 3:1 lift safety factor (Battery lifter 3:1) ensures complete safety for all operations.

All our products comply with HSE regulations and guidelines such as the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) and the Provision and Use of Work Equipment Regulations 1998 (PUWER) (UK Regulations).

Our permanent lifters are also designed in accordance with ASME BS30.20-2010.





Magnetic lifting and handling

Optimising process efficiency in diverse applications

Raw materials



Our lifting and handling systems are widely used for handling raw materials in primary production stages, such as:-

- Steel stockholders
- Steel production
- Steel fabrication shops
- Forgings and castings
- Tin products
- Coil handling
- Slab and plate transfer
- Profile picking

Manufacturing



Maximum efficiency combined with total safety are key requirements for demanding manufacturing applications. Our products are widely used in:-

- Yellow goods manufacture
- Feed conveyors
- Digger blades
- Assembly lines
- Machine shops
- Mould making
- Bearing manufacture
- Canned food lines
- Paint cans
- Jar handling systems
- Tin can manufacture
- Turbo manufacture
- Springs
- Brake manufacture
- Engine block manufacture

Automation



Speed and precision accuracy, for single or multi-part loads, are key reasons why our systems are widely used in automation applications such as:-

- Transfer lines
- Conveyor lines
- Pick and place equipment
- General engineering
- Robotics
- Packaging machinery
- Palletising/depalletising systems

Give your business the edge.....

A few of our many satisfied customers...



Product: Lifting Magnet

The company manufacture shearing machine blades from raw black steel stock, the finished product is heat treated and has a ground finish.

Using traditional lifting systems, such as chains and slings, the size and profile of the parts were difficult to handle without marking the surface and edges of the load.

Eclipse Ultralift LM was specified to use at each stage of the process. This has resulted in faster more efficient lifting and now minimal damage occurs to the load during lifting.



JCB Construction Equipment

Products: Electronically Switched Permanent Magnet (ESPM)

This world renowned construction equipment OEM use ESPMs in many areas of production for clamping and transferring parts.

The ESPMs are used in process stages such as robotic pick and place of hydraulic cylinders and rams. They are used to feed and unload equipment during the manufacturing process. In addition they are used as a means of holding digger arms prior to tag welding.

Simple, fast loading and single surface contact have made a significant contribution to process efficiency.



FG Wilson

Generator Manufacture

Products: Pneumatically Switched Permanent Magnet (PSPM)

This company manufacture large gas and diesel generators. Optimag P's were specified for lifting steel sheet which is used in the manufacture of enclosures for the generators.

The Optimags are mounted on a lifting frame. Optimag was the ideal solution for lifting single sheets of 3mm steel. With single face contact and instant clamping to the load, the Optimags improved lifting speeds and efficiency.



Leyland DAF Automotive

Products: Customised Magnetic Lifter

Leyland DAF move thousands of truck components each week around their production and assembly site. It is vital that they have the most efficient, trouble free lifting systems.

Moving leaf springs into position to mount onto axle sub-assemblies was previously a manual process which involved several operatives. Introducing an Optimag P increased speed of the lift and reduced the operation to a single person task.

The spring manufacturer subsequently adopted the same method on their manufacturing line.



Optimum Lifting & Handling Solutions

Important considerations when choosing your product

Permanent Lifters



Manually Switchable Permanent Magnet

Optimag E



Electronically Switchable Permanent Magnet (ESPM)

Optimag P



Pneumatically Switchable Permanent Magnet (PSPM)

ECLIPSE

MAGNETICS

Product Selector

A guide on how to use our standard products. Please speak to our sales

		Materia	l shape	F	Recomm		naterial	thickne	55	
Product Type	Page	Flat	Round	1-4	5 - 8	8 - 12	12 - 20	20 +	50 +	Bright
UL+ Lifters	9	×	 					~		~
LM Lifters	11	 ✓ 	 ✓ 					× .		×
TP Lifters	12	×			× .	×	×	× .		~
90 Degree Lifter	15	 ✓ 					×	v .		~
Battery Lifters	16	×	×					× .	× .	×
Optimag E	17	×	 ✓ 			~	× .	× .		~
Optimag P	18	 Image: A second s		×	× .	×	 ✓ 	v		~

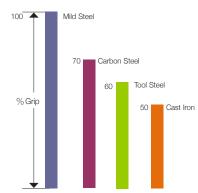
Note: Table is an approximate guide, for specific applications please contact us.

Important factors to consider

Material Type

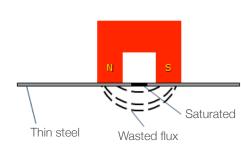
The scale opposite highlights the effect material type has on clamping forces.

Workpiece Material



Material Thickness

To achieve maximum clamping force minimum material thickness should be observed.



Minimum part thickness provides 100% performance

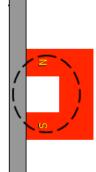
> Closed Circuit Maximum holding power

A world leader in magnetic technology



department for more information.

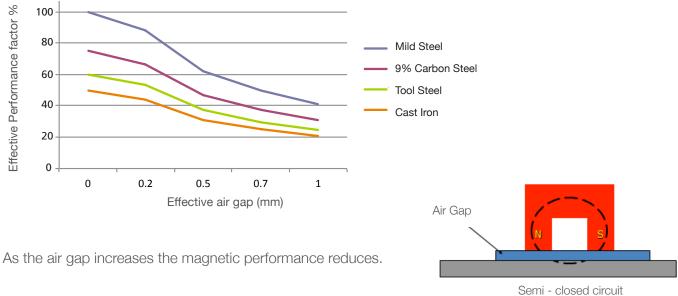
Sı	urface fini	sh	1	Actuation meth	od
:	Black	Scaled	Manual	Electronically	Pneumatically
	×	 Image: A second s	 		
	~	×	 Image: A set of the set of the		
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Please Note:- All specifications shown are based on a straight vertical lift. Should the load be rotated through 90° the safe working load will be reduced by 80% of the stated values.

Air Gaps

An air gap between the magnet and the load will also affect lifter performance. The chart below shows the general effect on different materials.



Reduced holding power

Please note information on these pages is an approximate guide, for specific applications please contact us.



Ultralift The safest lift in the world

Premier Range

Primary Safety

Lifting Eye – once the lifting eye

is under tension with the load a

patented mechanism locks the handle ensuring that the raised

load cannot be released either deliberately or accidentally.



- The premier manually switchable
 magnetic lifter
- Provides fast and efficient lifting
- A range of built in safety features
- Guaranteed 3:1 safety factor

Secondary Safety

Safety button - A safety catch locks the handle in the "on" position. This prevents any accidental release of the load once engaged.

Handle - After releasing the safety mechanisms, the magnet can be — released easily, by using one hand.

Space Saving - Access only required to the load's top face allowing more efficient use of storage and handling areas.

Primary Safety

Safety Shim – Ultralift Plus is the only permanent magnetic lifter to be supplied with a "safety shim" (internationally patented). This allows pre-testing of the load, irrespective of weight, material type, material thickness and surface condition. If it can be lifted with the safety shim in place, a 3:1 safety factor is guaranteed. This is ideal where the load, weight and size may vary.

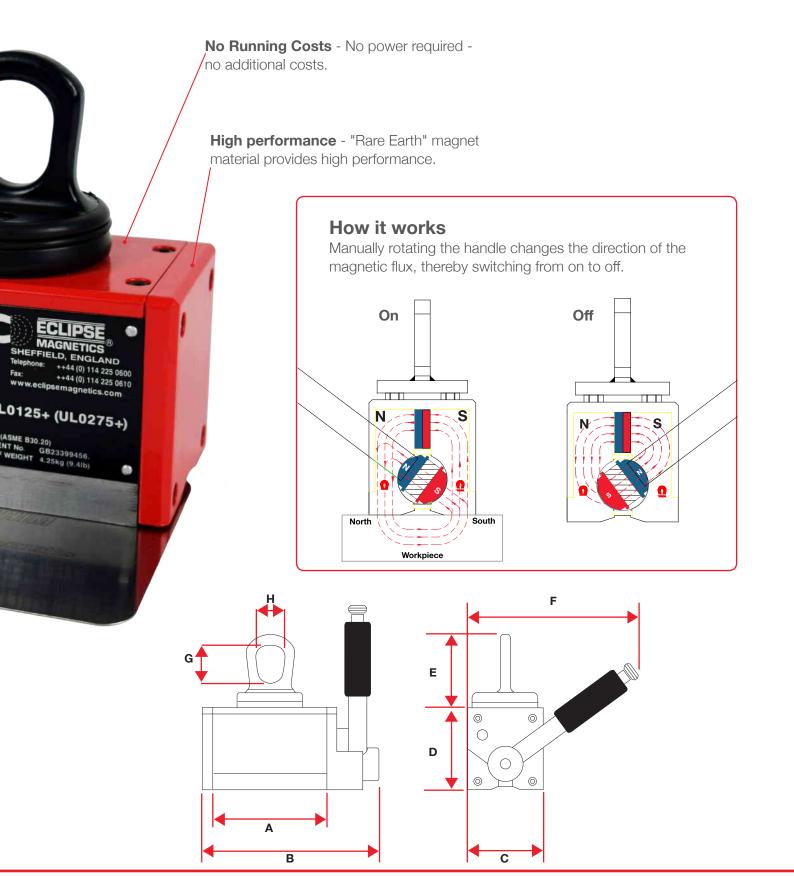
Technical Data

			Flat Section	n		Round Sect	ion								
Product	Self Weight	SWL *	Thickness Min.	Length Max.	SWL	Diameter Max.	Length** Max				Dimens mm				
	kg	kg	mm	mm	kg	mm	mm	Α	В	с	D	E	F	G	н
UL0125+	4	125	20	1500	50	200	1500	101	155	69	74	64	152	34	27
UL0250+	11	250	25	1500	100	300	1500	155	214	92	96	96	218	51	40
UL0500+	27	500	30	2000	200	400	2000	224	300	122	128	124	266	63	49
UL1000+	63	1000	45	3000	400	450	3000	260	359	176	174	140	382	71	55
UL2000+	157	2000	55	3000	800	600	3000	368	477	233	227	195	552	102	79

*Safe working load

 Δ^{**} Do not operate at maximum length and maximum diameter on the same item. ALWAYS work within SWL stated.

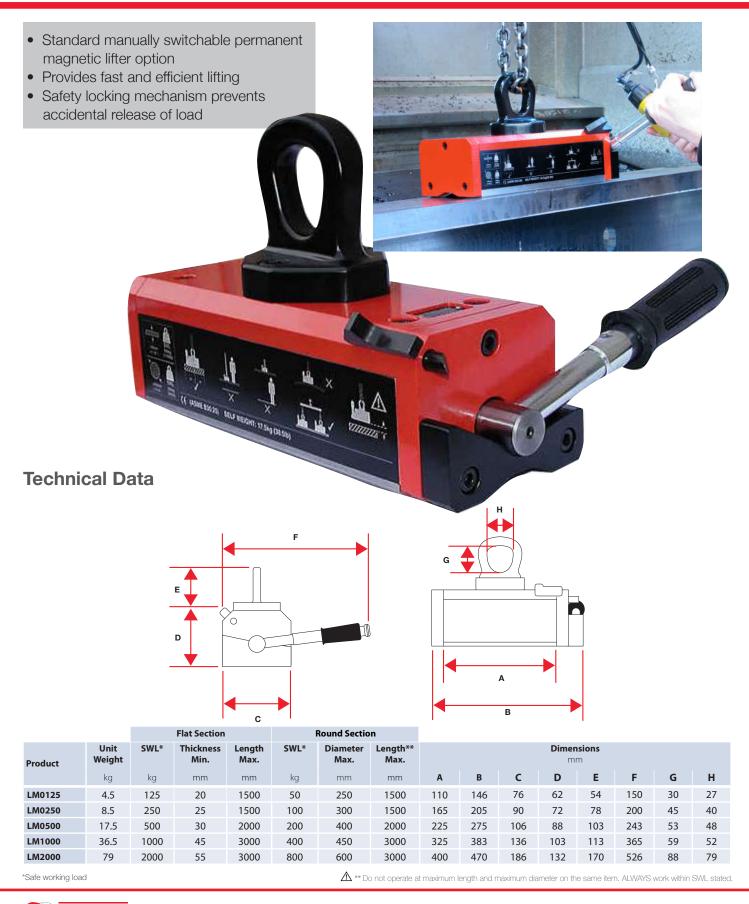






Ultralift LM Economy Range

Safe, efficient, general purpose permanent magnetic lifter

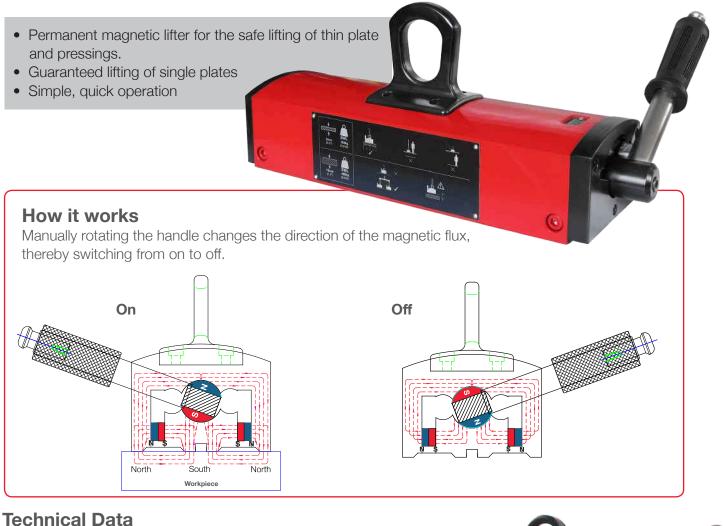


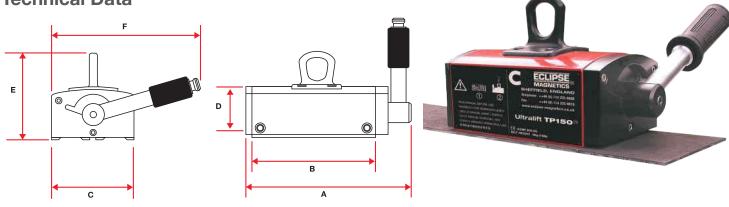
CLIPSE

MAGNETICS

Ultralift TP

The thin plate specialist





				N	laterial T	hicknes	s								
		5m	ım	6r	nm	81	nm	10	mm			Dimen			
												m	n		
Product	Self Weight	SWL*	Length Max.	SWL *	Length Max.	SWL*	Length Max.	SWL*	Length Max.						
													_	_	_
	kg	kg	mm	kg	mm	kg	mm	kg	mm	A	В	C	D	E	F
TP150	8	75	1500	100	1500	150	1500	200	1500	202	150	100	74	126	181
TP300	15	150	2000	200	2000	300	2000	400	2000	352	300	100	74	126	181

*Safe working load



Choosing a Manually Switchable Permanent Magnetic lifter

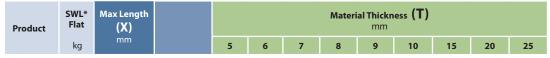
The tables below are a guide to determine a typical safe working load and load dimensions for each lifter option. Recommended use shown in WHITE.

****RED shows typical reduction in load due to thickness of material. X - Cannot be used for stated dimensions.****

* Based on mild steel and bright finish.

Flat parts

Product	SWL* Flat	Max Length (X)					м		nickness nm	(T)			
	kg	mm		10	15	20	25	30	45	60	70	80	100
Ultralift Pl	us												
UL0125+	125	1500		480	500	527	422	352	234	176	151	132	105
UL0250+	250	1500	Max width	Х	791	820	844	703	469	352	301	264	211
UL0500+	500	2000	(Y) _{(At} material	Х	Х	947	997	1055	703	527	955	794	600
UL1000+	1000	3000	thicknesses shown).	Х	Х	Х	910	1406	938	703	603	527	422
UL2000+	2000	3000		Х	Х	Х	Х	700	1290	1750	1206	1055	844
Ultralift Ll	N												
LM0125	125	1500		480	500	527	422	352	234	176	151	132	105
LM0250	250	1500	Max width	Х	791	820	844	703	469	352	301	264	211
LM0500	500	2000	(At material thicknesses shown).	Х	Х	947	997	1055	703	527	955	794	600
LM1000	1000	3000		Х	Х	Х	910	1406	938	703	603	527	422
LM2000	2000	3000		Х	Х	Х	Х	700	1290	1750	1206	1055	844



Ultralift TP

TP15	D	200	1500	Max width (Y)	1300	1440	1500	1500	1500	1500	1150	860	680
TP30	D	400	2000	(At material thicknesses shown).	2000	2000	2000	2000	2000	2000	1720	1290	1030

Round parts

Product	SWL Round*						eter (D) nm			
Trouter	kg		50	100	200	300	400	450	500	600
Ultralift Plus										
UL0125+	50		1600	820	200	Х	Х	Х	Х	Х
UL0250+	100	Max length	3500	1640	400	180	Х	Х	Х	Х
UL0500+	200	(X) (At material	3500	3280	800	360	210	х	Х	Х
UL1000+	400	thicknesses shown).	Х	4000	1600	720	420	308	Х	Х
UL2000+	800		Х	Х	3200	1480	840	616	370	Х
Ultralift LM										
LM0125	50		1600	820	200	Х	Х	Х	Х	Х
LM0250	100	Max length	3500	1640	400	180	Х	Х	Х	Х
LM0500	200	(X) (At material	3500	3280	800	360	210	Х	Х	Х
LM1000	400	thicknesses shown).	Х	4000	1600	720	420	308	Х	Х
LM2000	800		Х	Х	3200	1480	840	616	370	Х

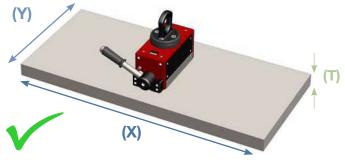
This chart is to assist but once material thickness is identified maximum length can be shorter and width can be greater providing total area remains the same per magnet. Once length / width (total area) exceeds the recommended dimensions for the thickness, additional magnets should be used. (See over page). Number of magnets will continue to increase pro rata to plate size. Always position magnets to suit thickest material. Contact our sales department for more information or for any specific requirements.



Do's and Don'ts

Positioning the lifter

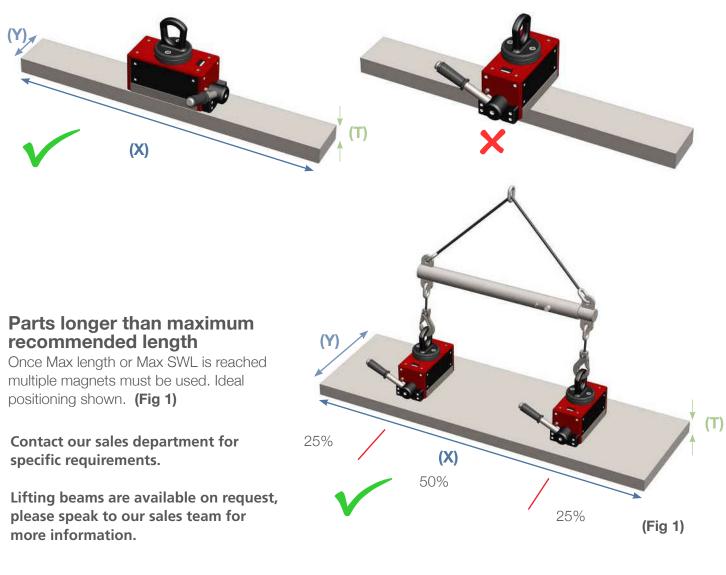
Component wider than the length of the magnet





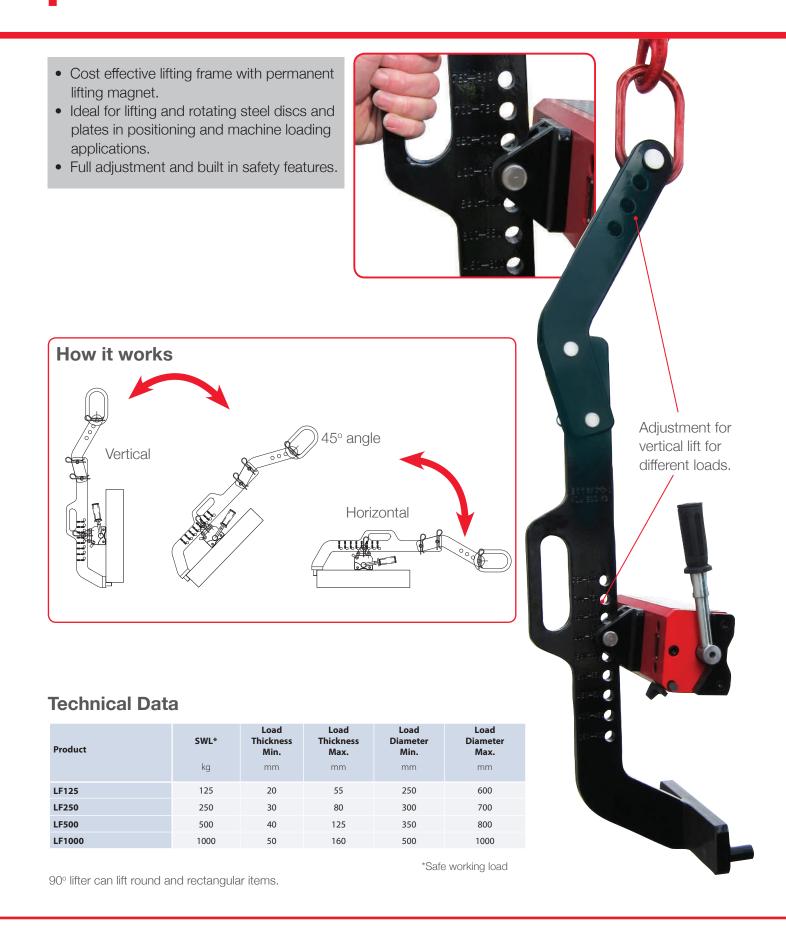
Magnet across increases clamping at possible point of peel.

Component width less than the magnet length





90° Disc and Plate Lifter





Battery Activated Magnetic Lifter

- Battery only required to energise magnets
- Permanent magnets ensure failsafe operation
- 3:1 lift safety factor guaranteed
- Push button or automatic switch operation
- Optional remote control
- Built in safety mechanisms such as lifting eye sensor





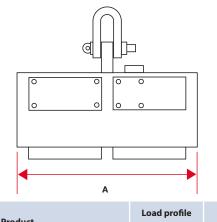
Re-chargeable batteries

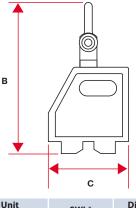
• Lifter has built in socket for charging the battery on site

EPML 3000 BATTERY

1 == 1







A			C C	I				
Product	Load profile	Unit Weight	SWL*	Diameter Min.	Diameter Max.		Dimensions mm	
		kg	kg	mm	mm	Α	В	с
EPML1250R	Round	175	750	200	400	690	530	280
EPML3000	Flat	164	2400	N/A	N/A	690	530	280

*Safe working load



Optimag E

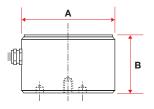
Electronically switchable permanent magnets (ESPM)

- Ideal for clamping or lifting loads with clean, even, flat surfaces
- Suitable for applications which require sensing or built-in PLC control
- Failsafe operation lose power it will retain the hold
- Ideal for materials from 10mm thick

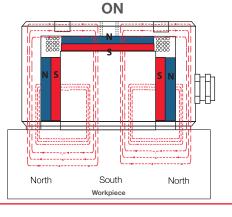
How it works

A single pulse of power switches the magnet by reversing the magnetic poles and in doing so changes the magnetic flux direction to hold or release the load. Magnetism is channelled to provide a deeper magnetic field making it ideal for thicker materials

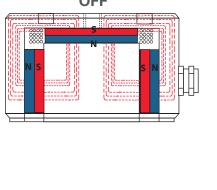


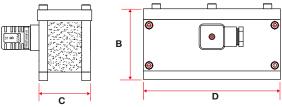


Circular Optimag E









Rectangular Optimag E

Product	Load Profile	SWL*		Dimer m	nsions m		Unit Weight	Rating
		kg	Α	в	с	D	kg	
Circular								
ESPM80C	Flat	85	80	55	N/A	N/A	1.5	1.30
ESPM100C	Flat	150	105	55	N/A	N/A	3	1.90
ESPM125C	Flat	250	130	80	N/A	N/A	5.7	4.1
ESPM150C	Flat	400	155	80	N/A	N/A	8	5
Rectangular**								
ESPM284	Flat	42	N/A	83	40	80	1.4	1
ESPM286	Flat	49	N/A	83	60	80	1.9	2
ESPM2166	Flat	97	N/A	83	60	160	3.8	4
ESPM2246	Flat	146	N/A	83	60	240	5.9	6
ESPM2177H	Flat	300	N/A	130	75	170	11	12
ESPM2257H	Flat	450	N/A	130	75	250	16.5	18
ESPM2347H	Flat	600	N/A	130	75	340	22	24



ESPM Controller unit

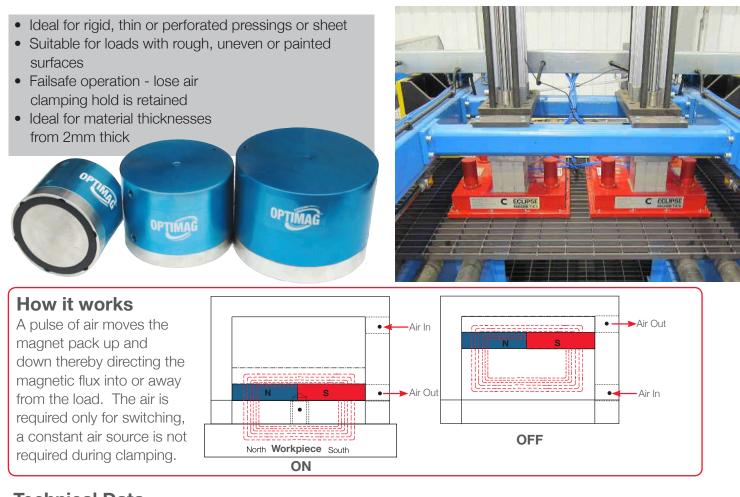
Control Unit	Operating Voltage	Rating	D	imension mm	S
	V		Width	Height	Depth
M24388/SC	240	50	300	300	155
M24388/DC	240	100	300	300	155
6001CONT	415	180	400	300	155
M24388/HAND	N/A	N/A	112	65	55
6001/MH	N/A	N/A	112	65	55

*Safe working load **Can be manufactured to lift flat or round

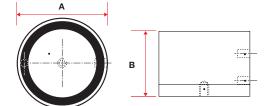


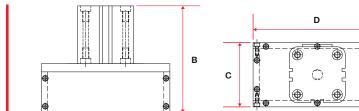
Optimag P

Pneumatically switchable permanent magnets (PSPM)



Technical Data





Circular Optimag P

Rectangular Optimag P

Product	Load Profile	SWL*		Dimens mm			Unit Weight
riouuci		kg	Diameter A	Height B	Width C	Length D	kg
Circular							
PSPM80C	Flat	8.5	80	80	N/A	N/A	1.00
PSPM100C	Flat	18.5	100	84	N/A	N/A	1.50
PSPM125C	Flat	29	125	93	N/A	N/A	3.00
PSPM150C	Flat	59	150	109	N/A	N/A	4.80
Rectangular							
PSPM1520	Flat	35	N/A	165	200	150	6.00
PSPM2030	Flat	100	N/A	201	300	200	14.70

*Safe working load



Choosing the correct product (ESPM and PSPM)

The tables below are a guide to determine a typical safe working load and load dimensions for each Optimag E and Optimag P.

Recommended use shown in WHITE.

****RED shows typical reduction in load due to thickness of material. X - Cannot be used for stated dimensions.****

Optimag E

Product	Load Profile	Max. SWL	Rating	Max. length	Max width (Y)					hickness (T) mm			
		kg		(X)	material thicknesses shown).	8	10	15	20	30	40	50	60
Circular													
ESPM80C	Flat	85	3.5	600	Max	Х	600	600	600	600	457	366	300
ESPM100C	Flat	150	5	800	width (Y)	Х	Х	800	800	800	604	484	403
ESPM125C	Flat	250	9	1000	(At material	Х	Х	Х	1000	1000	806	645	535
ESPM150C	Flat	400	12	1500	thicknesses shown).	Х	Х	Х	1500	1146	860	717	573
Rectangular													
ESPM284	Flat	42	6	400	Max width	400	400	400	400	400	338	253	211
ESPM286	Flat	49	11	500	(Y)	500	500	500	500	422	316	253	253
ESPM2166	Flat	97	10	800	material thicknesses shown).	800	800	800	782	521	391	312	260
ESPM2246	Flat	146	15	1000		1000	1000	1000	942	628	471	377	314
ESPM2177H	Flat	300	12	1200		1200	1200	1200	1200	1075	806	645	537
ESPM2257	Flat	450	18	1500		1500	1500	1500	1500	1290	968	774	645
ESPM2347H	Flat	600	24	1500		1500	1500	1500	1500	1500	1290	1032	860

Optimag P

Product	Load Profile	Max. SWL	Max. Length (X) mm	Max width	Material Thickness (T) mm					
		kg			3	5	8	10	15	20
Circular										
PSPM80C	Flat	8.5	400	(Y) (At material thicknesses shown).	400	400	340	274	183	137
PSPM100C	Flat	18.8	500		500	500	500	484	363	242
PSPM125C	Flat	29	600		600	600	600	600	519	312
PSPM150C	Flat	59	800		800	800	800	800	638	475
Rectangular										
PSPM1520	Flat	TBA	N/A	Special Applications only. Please contact Eclipse Magnetics for details						
PSPM2030	Flat	TBA	N/A	Special Applications only. A last contact collipse magnetics for details						

All details above are based upon the mild steel bright finish, if material is different please refer to material and air gap information page. The chart is to assist but once material thickness is identified maximum length can be shorter and width can be greater providing total area remains the same per magnet.

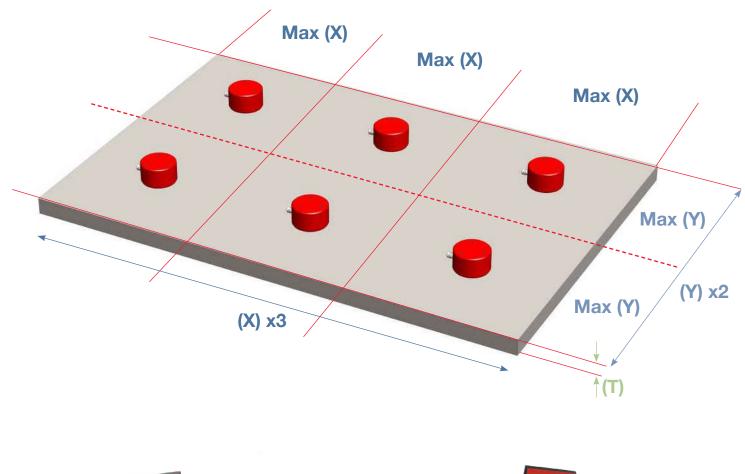
Once length / width (total area) exceeds the recommended dimensions for the thickness, additional magnets should be used. (See facing page). Number of magnets will continue to increase pro-rata to plate size. Always position magnets to suit thickest material. Contact our sales department for more information or for any specific requirements.



Using multiple lifters

Positioning the ESPM or PSPM lifter

Once the load dimensions exceed the maximum stated, mulitple lifters must be used. Ideal positioning is shown below.





Rectangular Optimag E is supplied for lifting flat and round material. These can be supplied with V pole extensions.



Handling Accessories

Sheet separators

- Safe, fast, efficient removal of single sheets of steel, or pressings from stacks.
- Prevents lifting of two sheets together.
- Range of options for most situations including switchable units designed for high speed / high volume production lines.
- Ideal for use with Eclipse Magnetics lifting magnets.



Easily separates the top item from a stack of sheet steel or pressed products from the rest of the stack ready for automated or manual removal.

Typically separates material from **0.2mm to 3mm thick** but almost any shape or size can be accommodated by products in our range. Separation ability can be reduced if oil or treated oil is present on the sheets. It's important to order the correct size of separator for the size of material to be separated. If the items are half the width of the separator the top items can flip onto the face of the separator instead of being separated.

Technical Data

Product	Width	Height	Depth	Mounting hole size	Weight per pair	
	mm	mm	mm	mm	kg	
E913	73	76	65	M8	1.40	
E914	92	102	76	M8	3.10	
E915	113	152	89	M10	6.75	

Product	Magnetic material	Mounting hole size	Height	
		mm	mm	
SF100/C	Ceramic	50	100	
SF200/C	Ceramic	50	200	
SF300/C	Ceramic	50	300	
SF400/C	Ceramic	50	400	
SF500/C	Ceramic	50	500	
SF100/R	Rare Earth	50	100	
SF200/R	Rare Earth	50	200	
SF300/R	Rare Earth	50	300	
SF400/R	Rare Earth	50	400	
SF500/R	Rare Earth	50	500	



Industrial (made to order) magnetic sheet separator

All above ranges are 100mm wide, 50mm thick



Service and maintenance

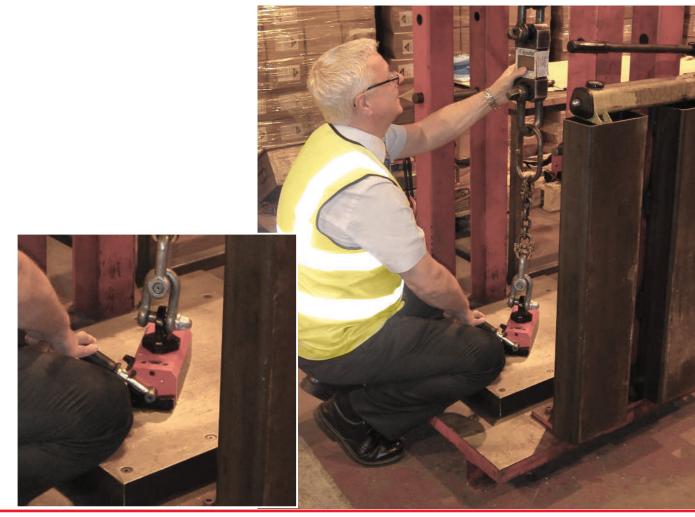
Full inspection and certification

All lifting systems should be serviced every 6 months by a competent person. Our fully trained engineers provide a full inspection and certification service. (Please refer to local territory guidelines for inspection requirements).

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) (UK Regulations).

For areas outside the EU the lifter must be inspected and maintained in compliance with the applicable standards for suspended load handling. Should the data plates become detached or damaged please contact your supplier immediately for replacement plates.





Other Products

In addition to our lifting and handling range, Eclipse Magnetics manufacture a wide range of high performance magnetic products for diverse applications.



Sub-micron filtration for industrial fluids



Magnetic materials & assemblies



Workholding systems



Foreign body removal - separation & detection systems



Magnetic aids for workshop & general engineering applications



Heating system filters

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