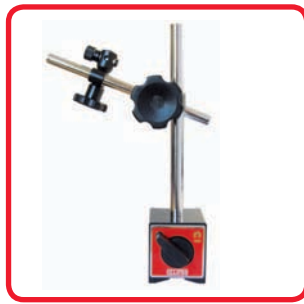


# Magnetic Products

For industrial, commercial and retail applications



# Eclipse Magnetics

100 years of manufacturing excellence



Eclipse Magnetics is at the forefront of developments in magnetic materials and design. With 100 years experience, we have a proven track record for supplying quality products and providing total customer support to some of the leading names in industry.

## You've used our products...

There's a very good chance that today you've used something that either contains or was manufactured with the aid of an Eclipse Magnetics product.

## Our range includes over 20,000

magnets and magnetic products which are used in most industries, including automotive, steel, food, environmental, communications, petrochemical, and engineering as well as in commercial, office and retail premises. Almost all our products are available direct from stock.

## Worldwide reach

Our sales and service network provides technical advice and support all over the world.

## Technical expertise

Our team of development engineers have years of experience working closely with customers, helping you select the best product for your application.

## Custom design

We can work with you to design and manufacture magnets and assemblies to suit your specific requirements.

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- Deep – zinc coated
- Deep – steel pot
- Deep – threaded



#### Neodymium

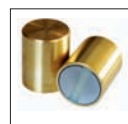
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\*All dimensions quoted are nominal, Eclipse Magnetics reserve the right to change any details without notice.

# Magnet materials

**Alnico** AlNiCo

- Alnico 5 magnet material (unless stated)
- 550°C max. operating temp.
- Magnetically stable at high temperatures

- Good corrosion resistance
- For more details see Materials Guide p25

## Alnico cylindrical bar magnets

Sold in pairs.



Product No.	Diameter	Length*	Weight / pair	Gauss	Pairs / pack
	mm	mm			
E808**	4	10	0.002	1200	5
E809**	5	10	0.003	1200	5
E810**	6	10	0.004	1200	5
E805	6	20	0.008	1200	10
E806	8	25	0.018	1200	5
E807	10	30	0.035	1200	5

\*magnetic axis

\*\*supplied natural

## Alnico rectangular bar magnets

Sold in pairs. North pole is indicated by a notch/dimple.



Product No.	Material	Length*	Width	Height	Weight / pair	Gauss	Pairs / pack
			mm		kg		
E842	Alnico 2	50	15	10	0.220	750	2
E843	"	75	15	10	0.330	750	2
E844	Alnico 5	20	10	5	0.030	1100	5
E845	"	40	12.5	5	0.040	1100	5
E846	"	60	15	5	0.130	1100	5

\*magnetic axis

## Alnico minor magnets



Product No.	Length	Width	Height	Pole gap	Weight	Pull force	Units / pack
		mm			kg		
E801	22.2	7.9	11.1	6.3	0.01	0.9	10

## Alnico button magnets



Product No.	Diameter	Height	Slot Size (Min–Max)	Hole size	Weight	Pull force	Units / pack
			mm		kg		
E821	12.7	9.5	4.0–7.2	4.4	0.006	0.7	10
E822	19.1	12.7	5.6–8.7	4.8	0.020	1.9	10
E825	22.2	19.1	6.3–6.3	4.8	0.050	3	10
E823	25.4	15.9	5.6–8.7	4.8	0.050	3.4	10
E824	31.8	25.4	8.0–12.7	7.1	0.113	4.8	2

## Alnico pocket magnets



Product No.	Length	Width	Height	Width of gap	Weight	Pull force	Units / pack
		mm			kg		
E802	28.5	7.6	25.4	6.3	0.030	2.4	10
E803	33.3	15.9	35	7.9	0.090	4	5

## Alnico power magnets



Product No.	Length	Width	Height	Width of gap	Hole size	Hole centres	Weight	Pull force	Units / pack
		mm					kg		
811	30	20	20	15	5	n/a	0.060	4.5	5
812	40	25	25	20	5	n/a	0.120	9	5
813	45	30	30	23	5	n/a	0.180	11.8	2
814	57	44.5	35	27.8	2 × 7.9	31.75	0.370	23.5	1
815	70	57.2	41.3	34.1	2 × 7.9	38.10	0.710	37	1
816	79.4	82.6	54	38.1	2 × 9.5	42.86	1.450	47	1
817	60.3	62	39.7	31.75	n/a	n/a	0.80	35	1
818	79.4	85.7	54	47.6	n/a	n/a	1.80	60	1

## Alnico major magnet



Product No.	Length	Width	Height	Pole gap	Weight	Flux density at gap centre*	Units / pack
		mm			kg	Wb/m Gauss	
862	103.5	50	111	27.3	2.9	0.210 2000	1

\*at room temperature and pressure

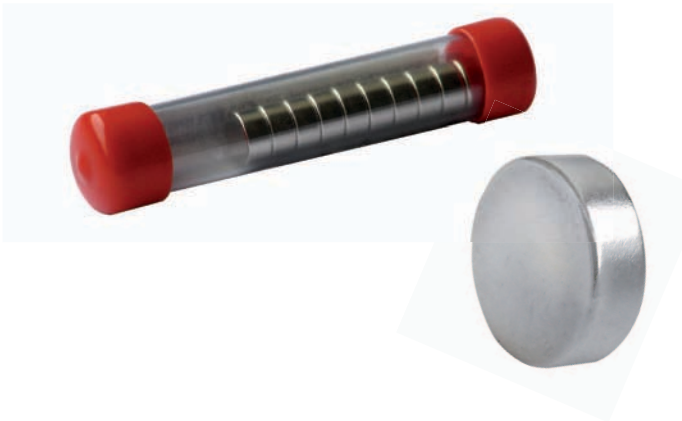


# Neodymium NdFeB

- Neodymium iron boron 'rare earth' material
- Strongest magnet material available
- 80°C max. operating temp.

- High resistance to de-magnetisation
- Anisotropic
- N35 grade. See the Materials Guide p25

## Neodymium disc magnets



Product No.	Diameter mm	Height*	Weight kg	Pull force	Units / pack
N800	3	2	0.0001	0.3	10
N801	4	2	0.0002	0.4	10
N802	4	3	0.0003	0.7	10
N803	4	4	0.0004	0.9	10
N804	5	2	0.0003	0.55	10
N805	5	3	0.0004	0.85	10
N806	5	5	0.0007	1.3	10
N807	6	3	0.0006	1.0	10
N808	6	4	0.0008	1.3	10
N809	8	4	0.0015	1.7	10
N810	8	5	0.0017	2.12	10
N811	9	3	0.0014	1.6	10
N812	10	3	0.0018	1.65	10
N813	10	5	0.0029	2.7	10
N814	15	3	0.0040	2.5	3
N815	20	3	0.0071	3.3	3
N816	20	10	0.0236	10.5	1

\*magnetic axis

## Adhesive backed disc magnets

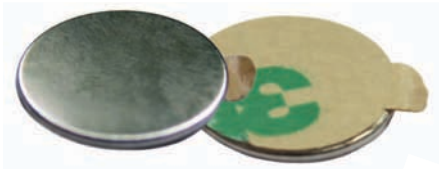
Material Grade N42

Coating Nickel plated

Adhesive type - 3M 468 Adhesive with quick release tab

Polarity - North, has adhesive on the South Pole

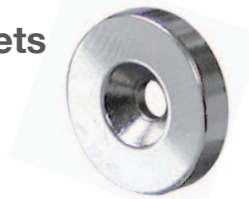
South, has adhesive on the North Pole



Product No.	Diameter mm	Height	Polarity	Holding force kg	Units/pack	Product weight per pack g
N850N	6	1	North	0.30	50	11.65
N850S	6	1	South	0.30	50	11.65
N851N	8	1	North	0.40	50	18.76
N851S	8	1	South	0.40	50	18.76
N852N	10	1	North	0.50	50	30
N852S	10	1	South	0.50	50	30
N853N	12	1	North	0.65	50	41.66
N853S	12	1	South	0.65	50	41.66
N854N	15	1	North	0.80	50	67.5
N854S	15	1	South	0.80	50	67.5

## Neodymium ring magnets

Countersunk hole.



Product No.	Diameter	Height* mm	Hole	Screw head	Weight kg	Pull force	Units / pack
N822	20	10	6 csk	M6	0.0214	4.7	1
N823	37	3.5	6 csk	M6	0.0275	4.9	1

\*magnetic axis

## Neodymium block magnets



Product No.	Length	Width mm	Height*	Weight kg	Pull force	Units / pack
N817	25	10	3	0.0056	4.7	4
N818	25	10	5	0.0094	4.9	4
N819	35	10	5	0.0131	5.8	1
N820	50	20	3	0.0225	5.8	1
N821	50	50	12.5	0.2438	40.1	1

\*magnetic axis

# Ferrite

- 250°C max. operating temp.
- Isotropic – multi-pole magnetised on one face

■ For more details see Materials Guide p25

## Ferrite disc magnets



Product No	Diameter mm	Height	Weight kg	Pull force	Units / pack
CM 700-R	14	5	0.0038	0.123	10
CM 701-R	20	5	0.0079	0.175	10
CM 702-R	30	5	0.0177	0.262	10

# Pot magnets

**Alnico** AlNiCo

- Alnico 5 magnet material (unless stated)
- Magnetically stable at high temperatures

- For more details see Materials Guide p25
- Custom designs available

## Alnico shallow pot magnets

Max. operating temperature 450°C.  
Mild steel pot.  
Painted red.



Product No.	Diameter	Height	Hole size (csk)	Screw head size	Weight	Pull force	Units / pack
	mm				kg		
826	19	7.5	4.5	M3 csk	0.010	3.0	10
827	28.5	8.5	5.2	M4 csk	0.030	5.0	10
828	38.1	10.35	5.2	M4 csk	0.080	13.0	5

## Alnico deep pot magnets

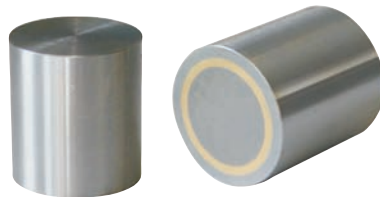
Max. operating temperature 220°C.  
Mild steel pot, aluminium spacer.  
Painted red.



Product No.	Diameter	Height	Thread size	Weight	Pull force	Units / pack
	mm			kg		
829	9.5	15	M3	0.005	1	10
830	12.7	15.9	M4	0.015	2	10
831	17.5	16	M6	0.023	2.65	10
832	20.5	19	M6	0.040	4	5
833	27	25	M6	0.085	6.1	5
834	35	30	M6	0.184	14.75	2

## Alnico deep pot magnets

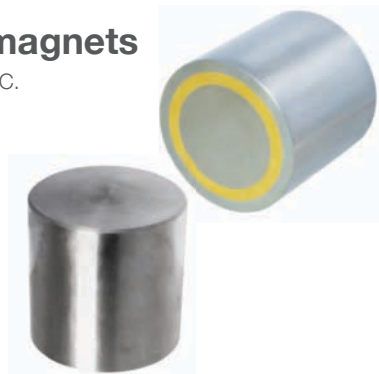
Max. operating temperature 220°C.  
Mild steel pot.  
Brass spacer.  
Zinc plated body.



Product No.	Diameter	Height	Weight	Pull force	Units / pack
	mm		kg		
E790	6	20	0.004	0.2	20
E791	8	20	0.007	0.4	20
E792	10	20	0.011	0.8	20
E793	13	20	0.019	1.0	20
E794	16	20	0.029	1.8	10
E795	20	25	0.057	4.2	5
E796	25	35	0.140	8.0	2

## Alnico deep pot magnets

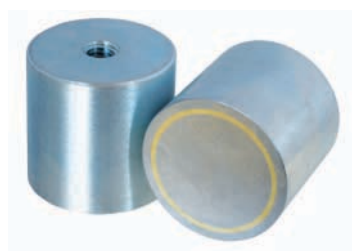
Max. operating temperature 220°C.  
Mild steel pot.  
Brass spacer.  
Zinc plated body.  
Diameter ground to H6 tolerance.



Product No.	Diameter	Height	Weight	Pull force	Units / pack
	mm		kg		
E730	6	10	0.002	0.2	20
E731	8	12	0.004	0.3	20
E732	10	16	0.009	0.5	20
E733	13	18	0.017	1.0	20
E734	16	20	0.029	1.5	10
E735	20	25	0.057	3.5	5
E736	25	30	0.110	8.0	5
E737	32	35	0.200	15.0	2
E738	40	45	0.420	20.0	2
E739	50	50	0.720	35.0	1

## Alnico deep pot magnets

Max. operating temperature 220°C.  
Mild steel pot.  
Brass spacer.  
Zinc plated body.



Product No.	Diameter	Height	Thread	Weight	Pull force	Units / pack
	mm			kg		
E740	6	20	M3	0.004	0.2	20
E741	8	20	M3	0.007	0.4	20
E742	10	20	M4	0.011	0.8	20
E743	13	20	M4	0.019	1.0	20
E744	16	20	M4	0.029	1.8	10
E745	20	25	M6	0.055	4.2	5
E746	25	35	M6	0.25	8.0	5
E747	32	40	M8	0.37	15.0	2
E748	45	44	M10	0.5	30.0	2

# Neodymium $NdFeB$

- Neodymium iron boron 'rare earth' material
- Strongest magnet material available
- 80°C max. operating temp. (unless stated)

- N35 grade (Nickel plated)
- For more details see Materials Guide p25
- Custom designs available

## Neodymium shallow pot magnets

Zinc plated body.



Product No.	Diameter mm	Height	Weight kg	Pull force kg	Units / pack
<b>E760NEO</b>	6	4.5	0.001	0.5	20
<b>E761NEO</b>	8	4.5	0.0018	1.3	20
<b>E762NEO</b>	10	4.5	0.0025	2.5	20
<b>E763NEO</b>	13	4.5	0.0045	6	20
<b>E764NEO</b>	16	4.5	0.0055	9.5	20
<b>E765NEO</b>	20	6	0.015	14	10
<b>E766NEO</b>	25	7	0.031	20	10
<b>E767NEO</b>	32	7	0.04	35	10

## Neodymium shallow pot magnets

Threaded hole

Zinc plated body.



Product No.	Diameter	Pot height mm	Total height	Thread size	Ferrule outer dia.	Weight kg	Pull force kg	Units / pack
<b>E770NEO</b>	6	4.5	11.5	M3	6	0.0027	0.5	20
<b>E771NEO</b>	8	4.5	11.5	M3	6	0.0035	1.3	20
<b>E772NEO</b>	10	4.5	11.5	M3	6	0.0045	2.5	20
<b>E773NEO</b>	13	4.5	11.5	M3	6	0.0075	6	20
<b>E774NEO</b>	16	4.5	11.5	M4	8	0.0132	9.5	20
<b>E775NEO</b>	20	6	13	M4	8	0.0165	14	10
<b>E776NEO</b>	25	7	14	M4	8	0.034	20	10
<b>E777NEO</b>	32	7	15.5	M5	10	0.048	35	5

## Neodymium shallow pot magnets

Countersunk

Zinc plated body.



Product No.	Diameter	Height mm	Hole size	Screw head	Weight kg	Pull force kg	Units/pack
<b>E1000/NEO</b>	16	4.5	3.5	M3	6	7.5	20
<b>E1001/NEO</b>	20	6	4.5	M4	13	10.5	10
<b>E1002/NEO</b>	25	7	4.5	M4	24	16	10
<b>E1003/NEO</b>	32	7	5.5	M5	39	31	10
<b>E1004/NEO</b>	40	8	5.5	M5	73	50	5

## Neodymium hook magnets

Mild steel pot. Painted white.

See also Ferrite Hook Magnets on p8 (pull up to 10kg, more cost effective).



Product No.	Diameter	Pot height mm	Total height	Weight kg	Pull force kg	Units / pack
<b>M19863XR</b>	32	7	38	0.051	35	1

# Pot magnets (contd)

## Neodymium NdFeB

- Neodymium iron boron 'rare earth' material
- Strongest magnet material available
- 80°C max. operating temp. (unless stated)

- N35 grade (Nickel plated)
- For more details see Materials Guide p25
- Custom designs available

### Neodymium deep pot bi-pole magnets

#### Threaded hole

Aluminium pot.

Mild steel pole pieces.

Painted blue.

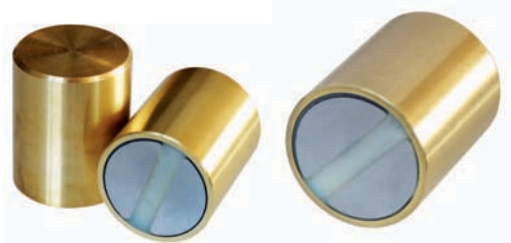


Product No.	Diameter mm	Height	Thread size	Weight kg	Pull force	Units / pack
NH025	12.7	12	M5	0.01	2.5	10
NH065	16	16	M6	0.018	8.0	10
NH130	22.2	20	M6	0.04	16.0	5
NH240	25.4	25	M6	0.07	25.0	5

### Neodymium deep pot bi-pole magnets

Brass pot.

Diameter ground to H6 tolerance.



Product No.	Diameter mm	Height	Weight kg	Pull force	Units / pack
E750NEO	6	20	0.004	1.0	20
E751NEO	8	20	0.007	2.5	20
E752NEO	10	20	0.011	4.5	20
E753NEO	13	20	0.019	7.0	20
E754NEO	16	20	0.029	15.0	10
E755NEO	20	25	0.057	28.0	5
E756NEO	25	35	0.128	45.0	2
E757NEO	32	40	0.228	70.0	2

### Rubber covered neodymium pot magnets

#### Threaded neck

Coating Santoprene Rubber

Colour black



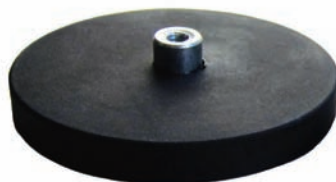
Product No.	Diameter mm	Height	Overall Height mm	Thread length mm	Thread size	Holding Force kg
E851	22	6	12.5	6.5	M4	5
E853	43	6	21	15	M6	8.5
E854	66	8.5	23.5	15	M8	18
E855	88	8.5	23.5	15	M8	42

### Rubber covered neodymium pot magnets

#### Screwed bush

Coating Santoprene Rubber

Colour black



Product No.	Diameter mm	Height	Overall height (including bush length) mm	Bush Diameter mm	Thread size	Holding Force kg
E851/1	22	6	11.5	8	M4	5
E853/1	43	6	10.5	8	M4	8.5
E854/1	66	8.5	15	10	M5	18
E855/1	88	8.5	17	12	M8	42



# Samarium Cobalt SmCo

■ For more details see Materials Guide p25

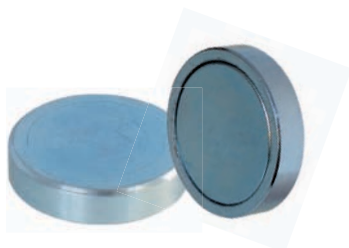
■ Custom designs available

## Samarium Cobalt shallow pot magnets

Max. operating temperature 200°C.

Mild steel pot.

Zinc plated body.



Product No.	Diameter mm	Height	Weight kg	Pull force	Units / pack
E760	6	4.5	0.001	0.5	20
E761	8	4.5	0.0015	1.1	20
E762	10	4.5	0.0025	2.0	20
E763	13	4.5	0.0045	4.0	20
E764	16	4.5	0.0065	6.0	20
E765	20	6	0.015	9.0	10
E766	25	7	0.022	15.0	10
E767	32	7	0.04	22.0	10

## Samarium Cobalt shallow pot magnets

### Threaded hole

Max. operating temperature 200°C.

Mild steel pot.

Zinc plated body.



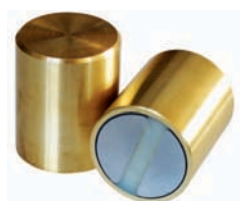
Product No.	Diameter	Height (body)	Height (inc. thread)	Thread	Ferrule outer dia.	Weight	Pull force	Units / pack
		mm			mm	kg		
E770	6	4.5	11.5	M3	6	0.0027	0.5	20
E771	8	4.5	11.5	M3	6	0.0036	1.1	20
E772	10	4.5	11.5	M3	6	0.0045	2.0	20
E773	13	4.5	11.5	M3	6	0.0075	4.0	20
E774	16	4.5	11.5	M4	8	0.009	6.0	20
E775	20	6	13	M4	8	0.0165	9.0	10
E776	25	7	14	M4	8	0.033	15.0	10
E777	32	7	15.5	M5	10	0.048	22.0	5

## Samarium Cobalt deep pot magnets

Max. operating temperature 200°C.

Brass pot.

Diameter ground to H6 tolerance.



Product No.	Diameter mm	Height	Weight kg	Pull force	Units / pack
E750	6	20	0.004	0.8	20
E751	8	20	0.007	2.2	20
E752	10	20	0.011	4.0	20
E753	13	20	0.019	6.0	20
E754	16	20	0.029	12.5	10
E755	20	25	0.057	23.0	5
E756	25	35	0.128	40.0	2
E757	32	40	0.228	60.0	2

# Pot magnets (contd)

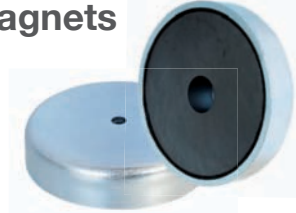
## Ferrite

- High resistance to demagnetisation
- For more details see Materials Guide p25

- Custom designs available

### Ferrite shallow pot magnets

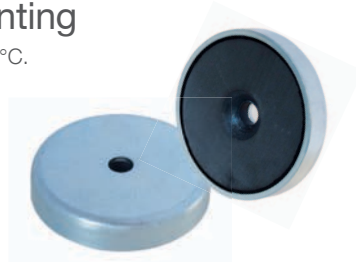
Max. operating temperature 120°C.  
Mild steel pot.  
Zinc plated body.



Product No.	Diameter	Height	Hole in body	Hole in magnet	Weight	Pull force	Units / pack
			<i>mm</i>		<i>kg</i>		
E888	50	10	8.5	22	0.009	18	5
E889	80	18	6.5	16	0.48	54	1

### Ferrite shallow pot magnets Countersunk mounting

Max. operating temperature 120°C.  
Mild steel pot.  
Zinc plated body.



Product No.	Diameter	Height	Hole Size	Screw Head	Weight	Pull force	Units / pack
		<i>mm</i>			<i>kg</i>		
E887	20	6	4.2	M4	0.09	2.7	10
E876	25	7	5.5	M5	0.016	3.6	10
E877	32	7	5.5	M5	0.027	7.2	10
E878	40	8	5.5	M5	0.053	9.0	5

### Ferrite shallow pot magnets Male thread

Max. operating temperature 120°C.  
Mild steel pot.



Product No.	Diameter	Pot height	Overall height	Thread	Weight	Pull force	Units / pack
		<i>mm</i>			<i>kg</i>		
E720	22	7	17	M5	0.020	3.5	5
E723	32	7	22	M5	0.032	8.0	5

### Ferrite shallow pot magnets

Max. operating temperature 120°C.  
Mild steel pot.  
Zinc plated.



Product No.	Diameter	Height	Weight	Pull force	Units / pack
	<i>mm</i>		<i>kg</i>		
E700	10	4.5	0.002	0.4	20
E701	13	4.5	0.003	1.0	20
E702	16	4.5	0.0045	1.8	20
E703	20	6	0.010	3.0	10
E704	25	7	0.019	4.0	10
E705	32	7	0.030	8.0	10
E706	40	8	0.055	12.5	5
E707	50	10	0.100	22.0	5
E708	63	14	0.230	35.0	1
E709	80	18	0.485	60.0	1

### Ferrite hook magnets

Max. operating temperature 120°C.  
Mild steel pot. Painted white.  
See also neodymium hook magnets on p6 (35kg pull).



Product No.	Diameter	Pot height	Total height	Thread size	Weight	Pull force	Units / pack
		<i>mm</i>			<i>kg</i>		
E879-RB	25	8	34	M4	0.027	4.0	1
E880-RB	32	8	34	M4	0.034	8.0	1
E881-RB	36	8	34	M4	0.038	10.0	1

## Ferrite shallow pot magnets Threaded hole

Max. operating temperature 120°C.

Mild steel pot.

Zinc plated.

Female thread.



Product No.	Diameter	Pot height mm	Total height	Thread size	Weight kg	Pull force	Units / pack
E860	10	4.5	11	M3	0.003	0.4	20
E861	13	4.5	11.5	M3	0.005	1.0	20
E862	16	4.5	11.5	M3	0.006	1.8	20
E863	20	6	13	M3	0.011	3.0	10
E864	25	7	15	M4	0.022	4.0	10
E865	32	7	15	M4	0.032	8.0	5
E866	36	8	16	M4	0.045	10.0	5
E867	40	8	18	M5	0.060	12.5	5
E868	47	9	17	M4	0.090	18.0	1
E869	50	10	22	M6	0.110	22.0	1
E870	57	10.5	18.5	M4	0.145	28.0	1
E871	63	14	30	M8	0.240	35.0	1
E872	80	18	34	M10	0.520	60.0	1
E873	90	20	40	M10	0.820	70.0	1
E874	100	22	42	M12	0.940	90.0	1
E875	125	26	50	M14	1.720	130.0	1

## Ferrite shallow pot magnets Threaded hole

Max. operating temperature 120°C.

Mild steel pot. Painted red.



Product No.	Diameter mm	Height	Thread	Weight kg	Pull force	Units / pack
E780	50	10	M8	0.16	15	1
E781	80	18	M10	0.56	55	1

## Ferrite shallow pot magnets

Max. operating temperature 120°C.

Mild steel pot with removable hook.

Painted red.



Product No.	Diameter mm	Height	Thread Size	Weight kg	Pull force	Units / pack
E890	46	10.7	M6	0.090	6	5
E891	56	10.7	M6	0.130	16	5
E892	66	10.7	M6	0.190	25	5

As above with three M6 tapped holes to aid mounting products.



Product No.	Diameter mm	Height	Fixing stud centres PCD M6	Central fixing point	Weight kg	Pull force	Units / pack
E895	66	10.7	46mm - 3 holes	M6	0.270	25	1
E896	76	12.5	46mm - 3 holes	M6	0.300	33	1
E897	100	15.5	70mm - 3 holes	M6	0.610	55	1

## Ferrite channel magnets

Max. operating temperature 120°C.

Mild steel body.

Painted red.



Product No.	Length	Width	Height mm	Plain fixing holes	Hole centres	Weight (each) kg	Pull force	Units / pack
E898/1	115	30	13	4.2	80	0.25	8	5
E898/2	130	30	13	4.2	90	0.3	14	5
E899	190	43	13	4.2	110	0.55	48	2

# Electro-magnets

## Energise to hold

**Electric current required to turn the magnet ON.**

**Power is removed to turn the magnet OFF.**

Sturdy bright nickel plated cylinder, passivated with body mounting.

High-quality permeable iron for low remanence.

Armature plates to suit.

**Operating voltage** 12VDC, 24VDC & 240VAC (with rectified plug connector)

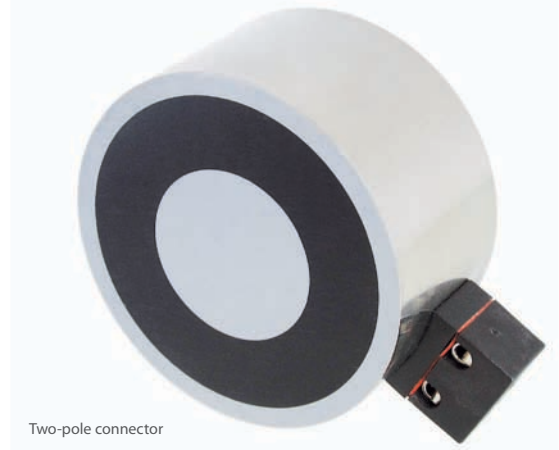
**Connector options** Flying leads, two-pole connector and Hirschman connector

**Mountings** Threaded holes in magnet rear face

**Finish** Bright nickel plated with machined face

**ED rating** 100%

**IP rating** 54 (20 for the two-pole connector)

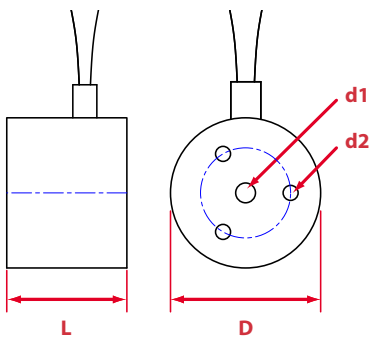


Two-pole connector

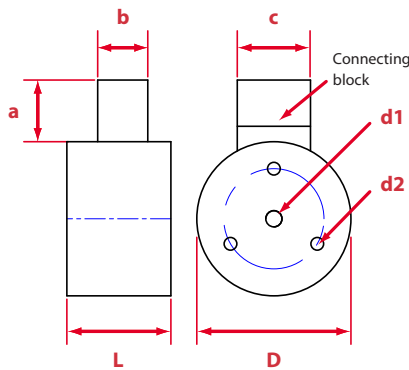
Diameter mm	Standard operating voltage						Air gap mm									
	240VAC		24VDC		12VDC		0	0.09	0.18	0.27	0.36	0.59	1.00	1.59	2.00	4.00
	Product no.	Current mA	Product no.	Current mA	Product no.	Current mA	Pull force (+/- 10%) N									
20			M52180/24VDC	100	M52180/12VDC	210	53	22	9	5	3	2	1	-	-	-
25			M52172/24VDC	90	M52172/12VDC	180	150	51	22	12	8	4	2	-	-	-
30			M52173/24VDC	140	M52173/12VDC	280	280	149	80	43	26	12	5	2	2	-
40			M52174/24VDC	230	M52174/12VDC	440	550	276	144	83	57	30	14	7	5	3
50	M52175/240VA	40	M52175/24VDC	240	M52175/12VDC	470	1000	655	442	282	187	87	37	24	19	6
65	M52176/240VA	50	M52176/24VDC	340	M52176/12VDC	690	1670	1137	792	533	347	180	78	39	23	11
80			M52183/24VDC	580	M52183/12VDC	1116	2000	1560	1117	715	567	283	130	6.7	3.7	2
100			M52184/24VDC	940	M52184/12VDC	1850	3600	2790	2230	1610	1360	1340	470	260	150	60

20, 25, 30mm diameter  
Free leads (500mm long)

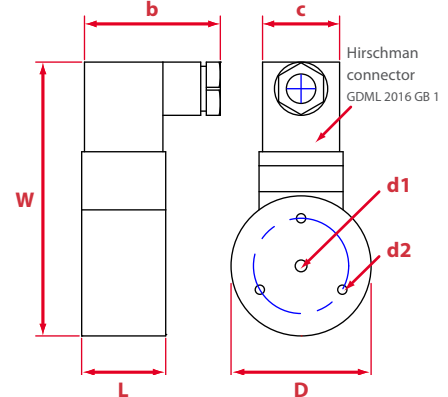
Leads: 1 red, 1 black  
0.3mm square x 500mm long



40, 50, 65, 80, 100mm diameter,  
12VDC & 24VDC  
Two-pole connector



50, 65mm diameter 240VAC  
Hirschman connector



Product no.	Dimension										PCD mm	Weight g		
	D	L	W	mm			a	b	c	d1			d2	
12V and 24V units														
M52180/----	20	18	-	-	-	-	-	-	-	-	M4	M3	14	36
M52172/----	25	20	-	-	-	-	-	-	-	-	M4	M3	15	66
M52173/----	30	24	-	-	-	-	-	-	-	-	M5	M3	18	108
M52174/----	40	27	-	16	13	19	-	-	-	-	M5	M4	26	210
M52175/----	50	30	-	16	13	19	-	-	-	-	M5	M4	34	364
M52176/----	65	35	-	16	13	19	-	-	-	-	M8	M5	40	710
M52183/----	80	38	-	16	13	19	-	-	-	-	M8	M6	50	1203
M52184/----	100	43	-	16	13	19	-	-	-	-	M10	M6	75	2200
240V units														
M52175/240VA	50	30	98	-	50	30	-	-	-	-	M5	M4	34	408
M52176/240VA	65	35	111	-	50	30	-	-	-	-	M8	M5	40	744



# Electro-magnets

## Energise to release

### Electric current required to turn the magnet OFF.

Power is removed to turn the magnet ON.

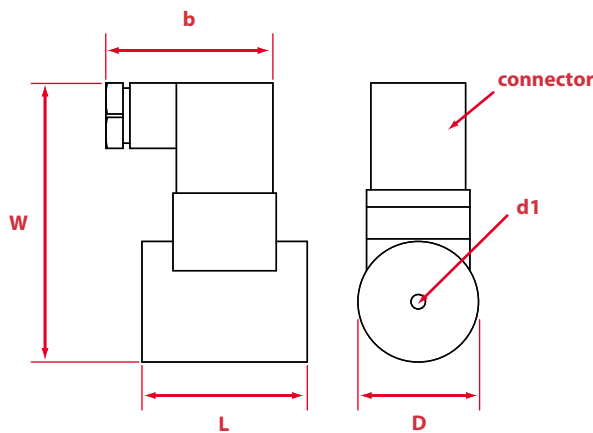
Sturdy bright nickel plated cylinder, passivated with body mounting.  
High-quality permeable iron for low remanence.  
Armature plates to suit.

- Operating voltage** 24VDC & 240VAC (with rectified plug connector)
- Connector options** Hirschman connector
- Mountings** Central machined hole in rear face of magnet
- Finish** Bright nickel plated with machined face
- IP rating** 54
- Duty Cycle** S2



Hirschman connector

	Voltage		Air gap mm										
	240VAC		24 VDC		0	0.09	0.18	0.27	0.36	0.59	1.00	1.59	
	Product no.	Current mA	Product no.	Current mA	Pull force (+/- 10%) N								
<b>Diameter</b>	<b>35</b>	<b>M52177/240VA</b>	50	<b>M52177/24VDC</b>	240	250	91	51	32	23	17	-	-
<i>mm</i>	<b>50</b>	<b>M52178/240VA</b>	40	<b>M52178/24VDC</b>	350	500	317	208	151	116	73	47	28



Product no.	Dimension						Weight g
	D	L	b	W	connector	d1	
M52177/24VDC	35	48	50	78	Hirschman style	M5	352
M52178/24VDC	50	63	50	94	Hirschman style	M5	874
M52177/240VA	35	48	50	81	Hirschman	M5	354
M52178/240VA	50	63	50	97	Hirschman	M5	880

## Armature plates

To fit both types.



Product no.	Diameter mm	Height mm	Screw	To suit unit diameter mm	Weight g
M52171/25ARM	25	3	M3	20, 25	15
M52171/30ARM	30	4	M4	30	30
M52171/40ARM	40	5	M4	35, 40	50
M52171/50ARM	50	6	M4	50	100
M52171/65ARM	65	8	M5	65	210
M52171/80ARM	80	10	M6	80	400
M52171/100ARM	100	12	M10	100	740

To achieve the optimum pull force 100% contact area must be achieved using the recommended armature plate. The force will be affected if other material specifications, thicknesses and surfaces are used, or if the armature fails to make positive contact over the full diameter of the face of the magnet. Where misalignment is likely to be an issue we recommend that an oversized armature plate is used to ensure 100% full contact, this however will reduce the stated pull force by approximately 10%.

# Flexible magnets

## Magnetic tape

Material: strontium ferrite in thermo-plastic binder.  
 Max. operating temperature 80°C.  
 Magnetic on 1 face only.  
 Can be cut with scissors.

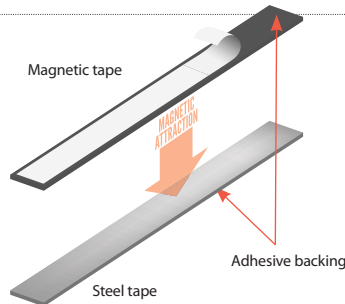


Product No.	Width mm	Thickness mm	Length m	Weight kg	Pull force g/cm <sup>2</sup>	Units / pack
EM884-R	13	0.5	1	0.027	28	1
FM660	7.5	0.75	10	0.240	44	1
FM661	12.5	0.75	10	0.390	44	1
FM662	20	0.75	10	0.630	44	1
FM652	10	1.5	30	1.7	55	1
FM663	12.7	1.5	30	2.1	55	1
FM664	20	1.5	30	3.3	55	1
FM665	25.4	1.5	30	4.2	55	1

All supplied with standard acrylic adhesive. FM652, FM663, FM664, FM665 are also available with premium acrylic or foam adhesive.

## Steel tape

Adhesive-backed steel tape can be used with the matching width adhesive-backed magnetic tape to provide temporary and semi-permanent fixings.

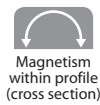


Supplied with standard acrylic adhesive.

Product No.	Matching magnetic tape	Width mm	Thickness mm	Roll length m	Weight kg	Units / pack
FM667	FM663	13	0.2	30	0.8	1
FM668	FM664	20	0.2	30	1.2	1
FM669	FM665	25	0.2	30	1.5	1

## Magnet extrusion

Material: strontium ferrite in thermo-plastic binder.  
 Max operating temperature 80°C.  
 Forms a strong bond when paired with itself.  
 Magnetic on 1 face.  
 Please contact us if you require custom extruded profiles.



Product No.	Width mm	Thickness mm	Length m	Weight kg	Pull force g/cm <sup>2</sup>	Units / pack
EM888-R (pairs)*	9.5	3.6	0.15	0.021	65	10 pairs
EM880-R	9.5	3.6	2	0.026	65	1
FM 670	9.5	3.6	10	1.44	65	1
FM 671	11	4.6	10	2.07	65	1
FM 672	15	6.4	10	3.64	65	1

\* with adhesive backing

## Magnetic sheet

Material: strontium ferrite in thermo-plastic binder.  
 Max. operating temperature 80°C.  
 Magnetic on 1 face.  
 UV coating for cleaner handling.  
 Flexible and impact resilient but can easily be cut using scissors.  
 Regular shapes can be cut using inexpensive dies.



Available with plain, white gloss or standard acrylic adhesive backing.  
 Coloured and dry-wipe finishes available (please contact us for details).

Product No.	Thickness mm	Width mm	Roll length m	Weight kg	Pull force g/cm <sup>2</sup>	Finish
060510A2	0.5	620	30	35	28	plain
060710A2	0.75	620	30	53	44	plain
060524A2	0.6	620	30	43	28	gloss vinyl white
060724A2	0.85	620	30	60	44	gloss vinyl white
060724D2	0.85	620	15	30	44	gloss vinyl white
060724X5	0.6	1000	10	23	28	gloss vinyl white
060724X4	0.85	1000	10	33	44	gloss vinyl white
060711A2	0.8	620	30	60	44	adhesive backed

Product No.	Thickness mm	Width mm	Tile length m	Weight kg	Pull force g/cm <sup>2</sup>	Finish	Units / pack
FM650	0.75	150	0.15	0.071	44	adhesive	5

## Secondary glazing / fly screen kit

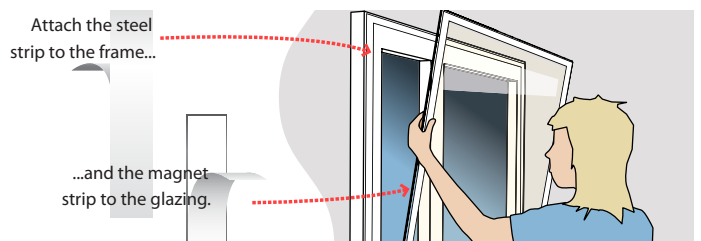
The quickest and easiest way to install permanent or temporary secondary glazing.

Kit contains 30 metres of adhesive backed magnetic tape and 30 metres of matching adhesive backed steel tape. Attach the steel to your window frame and the magnetic strip to your plastic glazing (not supplied).

Steel has a standard acrylic adhesive and is coated white. It can be painted to match your frame. Magnetic tape has white foam adhesive backing.

Both materials are easily cut with scissors.

Product No.	Materials	Width mm	Thickness mm	Roll length m	Adhesive
DIY2NDDG13	Magnetic tape Steel tape	12.7 13	1.5 0.2	30 30	foam std acrylic
DIY2NDDG25	Magnetic tape Steel tape	25.4 25	1.5 0.2	30 30	foam std acrylic



# Office / warehouse magnets

## Magnetic labelling

3 ways to make your own custom magnetic labels:

- Print with laser printer or inkjet on to matt or gloss magnetic paper
- Apply self-adhesive magnetic sheet to the back of existing labels, signs, notices and graphics
- Write on dry-wipe flexible magnetic sheet



All materials are easily cut with scissors.

Product No.	Description	Application	Size	Thickness mm	Finish	Units / pack
FM651	Magnetic paper	Laser or inkjet printing	A4	0.25	White matt	10
060511D1	Self adhesive magnetic sheet	Application to existing card/label	business card (85 x 55)	0.6	Adhesive backed	25
060711Y6	Self adhesive magnetic sheet	Application to existing card/label	A4	0.8	Adhesive backed	10
060510U14	Dry wipe magnetic sheet	Dry wipe marker	A4	0.6	White dry-wipe	10

## Magnetic label holders

Temporary / permanent signage, labelling, identification.

Can be used on steel racking, cabinets, shelving or any magnetically receptive surface.

Complete with magnetic rubber, white card, acrylic cover.



	Product No.	Width mm	Height mm	Units / pack	Weight kg
Label packs	FM676/B	100	25	50	1.01
	FM677/B	100	30	50	1
	FM683	150	35	5	0.125
	Product No.	Roll length m	Height mm	Units / pack	Weight kg
Roll	FM674C	50	15	1	7
	FM676C	50	25	1	7
	FM677C	50	30	1	7

## Magnetic racking strip / bay markers

Sticks to all steel racking.

Dry wipe surface – write on, wipe off.

Supplied in 10 metre rolls. Thickness 0.5mm.



Width mm	Colour				
	yellow	blue	red	white	green
20	060510U8/Y	060510U8/B	060510U8/R	060510U8/W	060510U8/G
30	060510U9/Y	060510U9/B	060510U9/R	060510U9/W	060510U9/G
50	060510U10/Y	060510U10/B	060510U10/R	060510U10/W	060510U10/G
70	060510U11/Y	060510U11/B	060510U11/R	060510U11/W	060510U11/G
90	060510U12/Y	060510U12/B	060510U12/R	060510U12/W	060510U12/G

## Whiteboards

Dry-wipe magnetic white boards with anodised aluminium frame and dropdown shelf for pens and eraser. Supplied with fixings, pack of 4 pens and eraser.



Product No.	Width mm	Height mm
MDWB300450	450	300
MDWB600450	600	450
MDWB900600	900	600
MDWB1200900	1200	900

## Pens and erasers

Dry wipe pens and erasers for use with whiteboards.

Pens come in a pack of four in red, green, blue and black.



Product No.
MDWB/PENS
MDWB/ERASER

## Marker magnets

Magnet material in a coloured plastic shell.

Ideal for filing cabinets, fridge doors, noticeboards and our magnetic whiteboards.



Diameter mm	Colour						
	yellow	blue	red	white	green	black	orange
20	RM765/Y	RM765/BLU	RM765/R	RM765/W	RM765/G	RM765/BLK	RM765/O
30	RM768/Y	RM768/BLU	RM768/R	RM768/W	RM768/G	RM768/BLK	RM768/O

## Ferrite hook magnets

Max. operating temperature 120°C.

Mild steel pot. Painted white.

See page 9 for more information



# Lifting magnets



Magnetic lifters are quicker, easier and safer to use than slings, chains, hooks and grabs, and do not mark the load.

Onboard switching and permanent magnet technology mean installation and operation could not be easier and running costs are non-existent.

Access is only required to the load's top face, allowing for more efficient storage and handling.

## Ultralift<sup>plus</sup>+

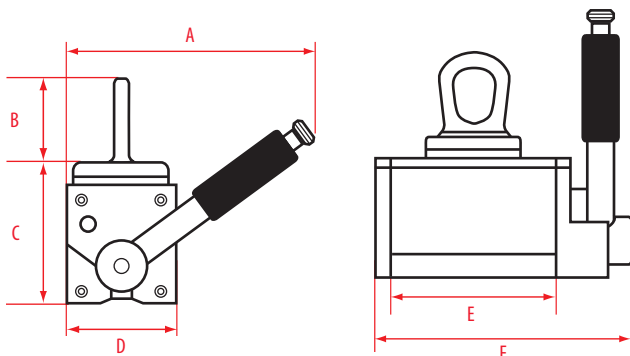
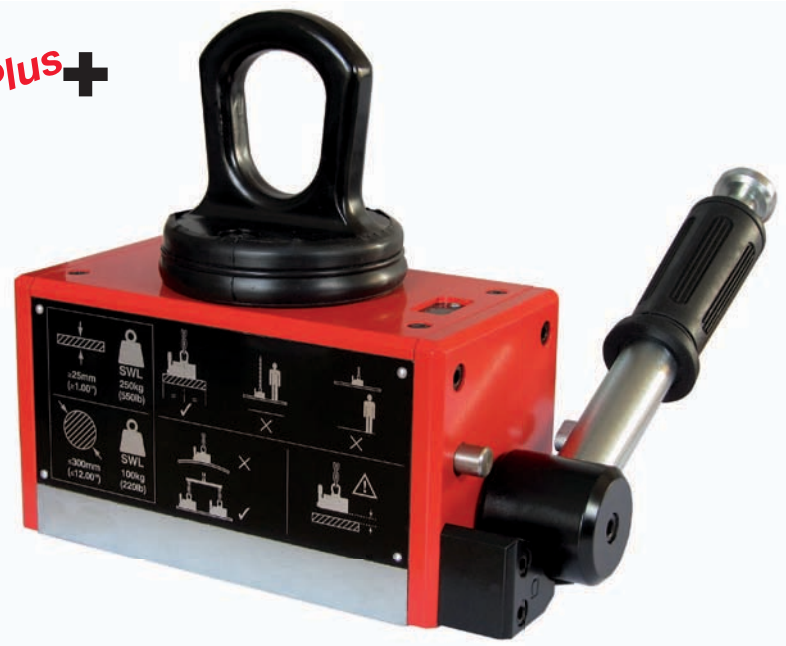
### Ultralift Plus

The world's safest lifter

Lifts up to 2000kg (flat) 800kg (round)

#### 3 safety features:

- Locking switch handle mechanism
- Unique 'Safety Shim': pre-test any load to ensure a 3:1 safety factor
- Locking eye mechanism: magnet cannot be switched off while holding a load



### 3:1 SAFETY FACTOR



The patented 'safety shim' allows pre-testing of the load to be lifted, irrespective of weight, material type, material thickness and surface condition. If the load passes a 3:1 safety factor is guaranteed.

Product No.	Self Weight kg	Dimensions						Material Length Max. mm	Flat Section		Round Section	
		A	B	C	D	E	F		SWL kg	Thickness Min. mm	SWL kg	Diameter Max. mm
UL0125+	4	152	64	74	69	101	155	1500	125	20	50	200
UL0250+	11	218	94	96	92	155	214	1500	250	25	100	300
UL0500+	27	266	123	128	122	224	300	1500	500	30	200	400
UL1000+	63	391	140	174	176	260	359	1500	1000	45	400	450
UL2000+	157	493	195	227	233	368	477	2000	2000	70	800	600

90° lifter can lift round and rectangular items.

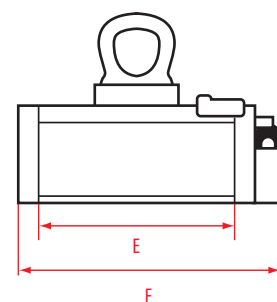
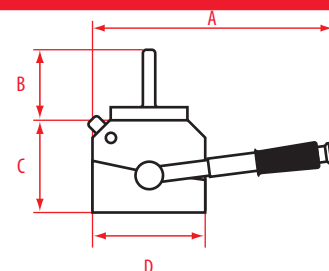


## Ultralift LM

### Safe, general-purpose lifting

Lifts up to 2000kg (flat) 800kg (round)

Locking switch handle mechanism.



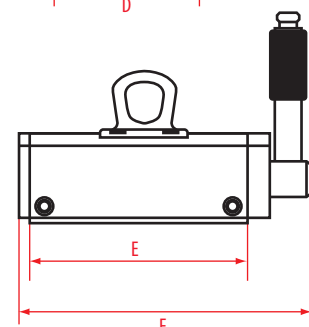
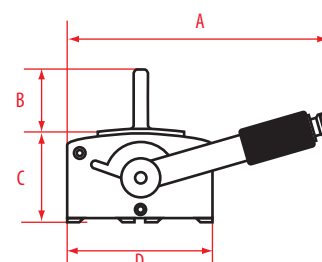
Product No.	Self Weight kg	Dimensions mm						Material Length Max. mm	Flat Section		Round Section	
		A	B	C	D	E	F		SWL kg	Thickness Min. mm	SWL kg	Diameter Max. mm
LM0125	4.5	150	54	62	76	110	150	125	20	50	250	
LM0250	8.5	210	76	72	90	165	200	250	25	100	300	
LM0500	17.5	281	103	88	106	225	243	500	30	200	400	
LM1000	36.5	391	113	103	136	325	365	1000	45	400	450	
LM2000	79	483	170	132	186	400	526	2000	70	800	600	

## Ultralift TP

### Thin plate lifter

Lifts up to 400kg (flat)

Specifically designed for the safe lifting of thin plate and pressings, it can lift single sheets from the tops of stacks. Locking switch handle mechanism.



Product No.	Self Weight kg	Dimensions mm						Material thickness							
		A	B	C	D	E	F	5 mm		6 mm		8 mm		10 mm	
								SWL kg	Length Max. mm	SWL kg	Length Max. mm	SWL kg	Length Max. mm	SWL kg	Length Max. mm
TP150	8	181	52	74	100	150	202	75	1500	100	1500	150	1500	200	1500
TP300	15	181	52	74	100	300	352	150	2000	200	2000	300	2000	400	2000

# TESTING SERVICE AND SPARES

We test and repair all models of permanent magnetic chucks, lifters and magnetic tools.

- Free inspection and quotation
- Certificate of performance for magnetic lifters to satisfy H & S audits
- Spare parts available

For details call +44 (0)114 225 0613



# Magnetic tools (general)

## Recovery magnet

Constructed from a ferrite magnet sandwiched between two steel plates.

Designed for recovery or retrieval, such as recovering objects from coolant tanks and vats.

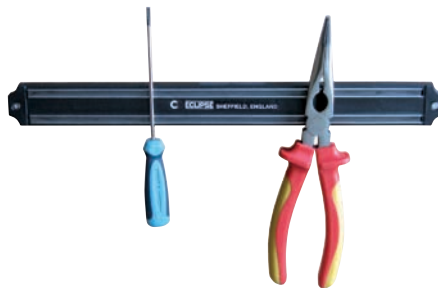


Product No.	Width	Height mm	Thickness	Weight kg	Pull force
E936	80	101.5	36	1.4	50

## Magnetic tool rack

Contains 2 powerful magnet bars with extruded magnetic rubber lengths, housed between two pole pieces.

Neatly secures and holds tools in the garage or workshop and knives in the kitchen.



Product No.	Length	Height mm	Width	Weight kg
EM985-R	350	33	13	0.31

## Magnetic trays

Magnet in base attaches the tray firmly to ferrous surfaces and holds ferrous items in the tray.

Magnet base is rubber coated to safeguard surfaces.



Product No.	Diameter mm	Weight kg
E633	150	0.11
E634	102	0.10

## Magnetic tool mat

3 strong ceramic magnets encapsulated in a tough PVC casing.

Widely used in production areas for keeping tools and parts within easy reach.

Magnetic both sides.



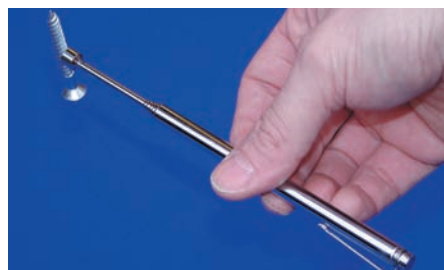
Product No.	Thickness	Height mm	Width	Weight kg	Pull force
EM981-R	15	150	210	0.36	5

## Telescopic pick-up tool

Powerful neodymium iron boron magnets are used to ensure maximum pull from a small magnetic area.

Ideal for retrieving ferrous objects that are out of reach.

Pen-sized with clip.



Product No.	Length mm	Weight kg	Pull force
EM967-R	147-660	0.04	1

## Flexible pick-up tool

Semi-rigid, bendable pick-up tool, ideal for retrieving difficult to reach objects.



Product No.	Length mm	Magnet dia.	Weight kg	Pull force
E600	450	6	0.11	0.5
E601	450	10	0.12	1.0
E602	520	13	0.13	1.8

## Magnetic sweeper

Adjustable telescopic handle  
Quickly and easily clear workshop and factory floors, sports pitches and car parks of spilt items or potentially damaging and dangerous metal debris such as nails, pins, staples and metal fragments.

Handle mounted quick release mechanism.



Product No.	Head Width mm	Height (inc. handle) mm	Weight kg
MSW385	385	1050	2



## Magnetic swarf wand

Separate small parts after rumbling.  
Quick release handle.  
Lightweight, non-rusting shaft.

Quickly and safely pick-up iron and steel offcuts, filings, chips, swarf and small components.



Product No.	Length mm	Weight	Collection capacity kg
MW400	400	0.476	6.35

## Magnetic sheet floaters

Sheet separators use mutual magnetic repulsion to separate sheets in a stack so they can be removed more easily.

Sold in pairs.



Product No.	Width mm	Height mm	Depth mm	Mounting hole size	Weight per pair kg
E913	73	76	65	M8	1.40
E914	92	102	76	M8	3.10
E915	113	152	89	M10	6.75

## Table-top demagnetiser

Lightweight unit for the removal of residual magnetism from components after workholding.

CE approved.

(Max usage: 2 minutes in any 4 minute period.)



Product No.	Voltage	Width mm	Height mm	Depth mm	Weight kg
DA955/UK	240	150	117	87	3.83
DA955/EUR	220	150	117	87	3.83
DB956/EUR	110	150	117	87	3.83

## Hand magnet

Powerful ferrite magnet attracts ferrous items to base.

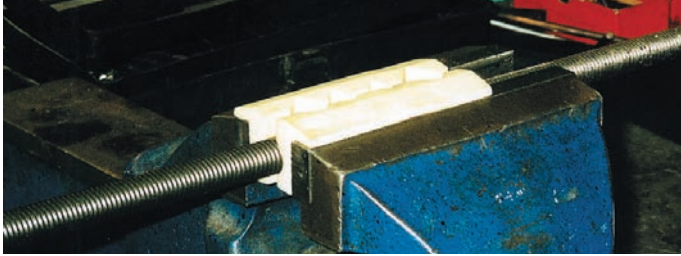
Quick release handle frees attracted items.  
Ideal for picking up small components, nails, bolts, spilt materials.



Product No.	Length mm	Width mm	Height mm	Weight kg	Pull force kg
E961	121	41	235	2.75	1.15

# Magnetic tools (contd)

## Magnetic vice jaws



Product No.	Length	Height mm	Width	Weight per pair kg
EM983-R	103	32	31	0.13

Powerful neodymium magnet material encased in polyurethane. Secure round and irregular workpieces without damage or distortion.

## Magnetic holdfasts



Product No.	Diameter	Height mm	Fixing holes PCD	Holes	Weight kg	Pull force
E939	44.5	44.5	31.75	2 × M8	0.6	20
E940	54.0	49.2	38.1	2 × M8	1.0	40
E941	70.0	64.5	50.8	2 × M8	2.0	88
E942	101.6	74.6	69.05	3 n/a	4.7	183

Supplied with screw release handle. Can be built into workholding, handling and assembly fixtures to provide a high clamping force and positive grip.

## Magnetic holder



Product No.	Length	Height mm	Width	Weight kg	Pull force
E925	108	140	108	5.67	100

Provides the welder with a powerful, rigid support on flat and round components at various angles during welding and welding preparation applications. Switchable and can be partially energised to aid positioning.

## Magnetic plate drag



Product No.	Length	Height mm	Width	Weight kg	Pull force
E964	118	98	38	2.8	170*

\*Drag pull force - If used to carry sheets vertically, the pull force is reduced to 34kg

Use to remove steel sheets from a stack and transport sheets to and from machines etc. Contains powerful permanent ferrite magnets in an aluminium housing.

## Magnet pole indicator



Product No.	Length	Width mm	Thickness	Weight kg
MPI/100	132	22	19	0.11

Shows the true north or true south pole of magnets. Pocket sized. Battery powered (includes 4 × 1.5v batteries).

## Gauss meter

Product No.	Weight kg
GMET/1	0.5
GMET/2	0.5

Digital hand held Gauss meter for checking magnetic flux. Supplied with 2 probes (Transverse (TX) and Axial (AX)), case, battery (PP3). Measurement units: Gauss, Tesla, Oersted, Ampere meters.



### Measuring range settings:

1: 1 to 3000 Gauss (0.0001 to 0.3 Tesla) 2: 10 to 30,000 Gauss (0.001 to 3 Tesla)  
Resolution - 1 Gauss Resolution - 10 Gauss  
Auto: Automatically measures between settings 1 and 2  
+/- 15mT on/off hysteresis



# Magnetic bases

## Complete magnetic bases

Solid holding of precision measuring equipment.



Dial not included

E901                      E903CP                      E908M                      E905                      E906                      E907M                      E910                      E909                      E901/1

Product No.	Base Part No.	Switching type	Fitment Part No.	Fitment type	Hold kg
E901	E901WF	Push button	RP991BL	Heavy duty with fine adjustment	80
E901/1	E901WF	Push button	RP901/1	Extra large heavy duty	80
E903CP	E900WF	Push button	RP72CP	Light duty	30
E908M	E900WF	Push button	RP995BL	Heavy duty	30
E905	E905WF	Lever	RP995BL	Heavy duty	80
E906	E905WF	Lever	RP991BL	Heavy duty with fine adjustment	80
E907M	E905WF	Lever	RP907S	Flexible snake arm F/A	80
E910	E905WF	Lever	RP999	Mechanical one piece	80
E909	834	Non-switchable	RP909FIT	One pillar	14

For use in the measurement, inspection and positioning of workpieces with dial indicators.

All stands will clamp onto curved and flat surfaces, with the exception of E909 (flat only).

## Magnetic bases – push button

4 magnetic faces. Eclipse Magnetics bases can be attached to any ferrous surface to provide a rigid support.



E900WF

E901WF

Product No.	Length	Width	Height	Hole	Weight	Hold
		mm			kg	
E900WF	48	40	52	M8	0.5	30
E901WF	64	64	76	M8	1.70	80

## Magnetic base – toggle switch

3 magnetic faces: top, bottom, back.



E905WF

Product No.	Length	Height	Width	Hole	Weight	Hold
		mm			kg	
E905WF	65	55	50	M8	1.05	80
E905WF/100	75	55	50	M8	1.20	100

## Fitment set for magnetic bases



RP907S

RP999

RP72CP

RP991BL

RP995BL

RP901/1

RP909FIT

Product No.	Max extension height mm	Screw fixing
RP907S	355	M8
RP999	295	M8

Product No.	Pillar height	Pillar diameter	Crossbar length	Crossbar diameter	Screw fixing
			mm		
RP72CP	185	12.5	150	6.3	M8
RP991BL	175	12	165	10	M8
RP995BL	175	12	165	10	M8
RP901/1	300	20	200	14	M8
RP909FIT	120	6	n/a	n/a	M6

# Magnetic tools (welding)

## Magnetic variable clamp



Product No.	Length	Height mm	Width	Weight kg	Pull force
E952	195	200	11	0.49	20

NB Dimensions with arms set at 90°

Fast accurate holding of ferrous sheets and tubes for welding and assembly work.

## Heavy duty variable magnetic clamp



Product No.	Length	Height mm	Width	Weight kg	Pull force
E974	140	140	35	1.40	40

Clamp components during welding, fabrication and assembly. Powerful 40kg clamping force, enables larger components to be clamped with ease.

## 90° fixed magnetic clamps



E971



E972



E973

Two magnetic faces in a rigid 90° angle for jiggling on sheets, pipes and tubes. A fast and cost effective means of clamping components rigid at 90° angles during fabrication, assembly and weld preparation applications.

Product No.	Length	Height mm	Width	Weight kg	Pull force
E971	140	140	35	1.40	40
E972	225	225	22	2.20	75
E973	300	300	35	4.70	200

## Heavy duty magnetic clamp

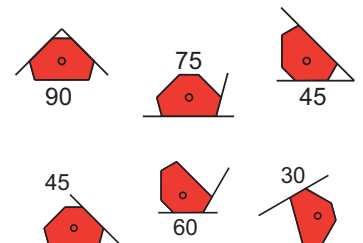


Product No.	Depth	Height mm	Width	Weight kg	Pull force
E954	14	82	120	0.3	10
E955	18	102	160	0.7	15

All above ranges are 100mm wide, 50mm thick

Hold workpieces at an exact 45 or 90° angle to each other. 10kg and 15kg of magnetic pull make these ideal for a range of workshop welding and holding applications.

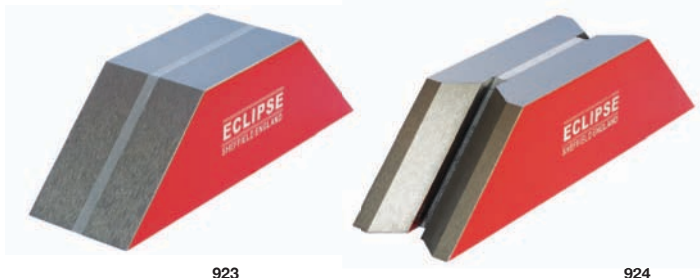
## 'Quick' magnetic clamps



Product No.	Length	Height mm	Width	Weight kg	Pull force
E951	100.5	65.5	12	0.3	10
E953	100.5	65.5	20	0.4	15

Fast and accurate holding of ferrous metals at different fixed angles. Also suitable for retrieval applications.

## Magnetic mitre clamps



Product No.	Length base face	Length top face mm	Height	Width	Weight kg	Pull force
923	156	66	45	43	1.36	100
924	184	94	45	43	1.64	68

Effective and inexpensive method of clamping flat (923) or round (924) ferrous components.

## Magnetic positioners



Product No.	Length	Height mm	Width	Weight	Pull on flat face kg	Pull force on v face
922 (pair)	206	63.5	76	3.17	80	80
922SU (single)	63.5	63.5	51	1.48	80	80

2 magnetic blocks connected by 2 non-magnetic steel straps. The blocks contain ferrite magnetic material. Magnetic on two faces. On / off switch located at each end.

## Adjustable magnetic links



Product No.	Length	Height mm	Width	Weight	Pull force / magnet kg
920 SU single unit	60	25	29	0.35	12
920 pair	127	25	51	0.70	12

Ferrite magnet material. Clamp components at any angle for welding and assembly applications.

## Adjustable magnetic links



Product No.	Length	Height mm	Width	Weight	Pull force / magnet kg
920SU0T - original type single	60	25	25	0.32	12
920TPR - original type pair	127	25	48	0.70	12

Alnico magnet material. Clamp components at any angle for welding and assembly applications.

## Magnetic earth welding clamp



Product No.	Width	Height mm	Length	Pull force kg	Weight	Maximum Current amps
E946	90	64	193	25	1.6	800

Quick and easy earthing for most steel welding operations. Provides earthing / ground on large welding operations where croc-clip or G-clamps cannot be easily used.

# Magnetic workholding

## Premier range magnetic chucks

Eclipse Magnetics invented the first permanent magnet chuck in 1934 and we continue to set the benchmark for quality workholding with today's Premier Range.

Premier range chucks are fully serviceable and can provide many years of service.

### Rectangular



- The all-metal top plate is extra thick to ensure maximum accuracy after frequent re-grinding
- Chrome plated side and end stops for packing and positioning
- The chucks can be partially magnetised to allow part positioning in set up
- Removable, ergonomically designed handles allow easy switching
- Supplied with clamps
- Custom sizes are available. Please call for details

Product No.	Length	Height	Width	Pole pitch	Weight
		mm			kg
AX47/P	203	42	127	17.6	8.2
AX510/P	276	53	129	35	16
AXS612/P	322	63	151	32	22
AXS614/P	360	63	151	32	22
AXS618/P	451	63	151	32	36
AXM824/P	601	63	201	35	56

dimensions are reference only

See page 14 for service and repair details

### Circular

The unique top plate configuration concentrates the magnetic energy on to the face of the chuck.

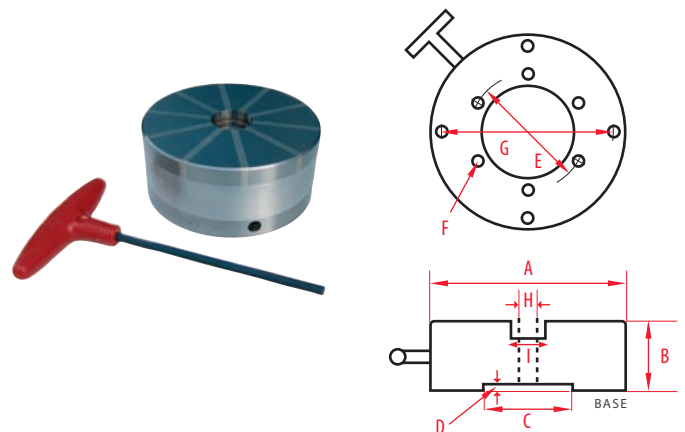
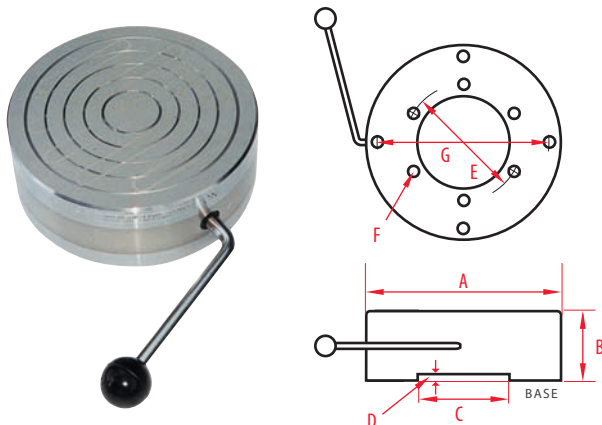
The chucks can be partially magnetised to aid the correct positioning of the workpiece. Grooved rings in the top plate assist in visual positioning to aid quick changeover in set up. Excellent for holding thin ring-shaped components that can be subject to radial distortion. Removable handles allow easy switching.

### Radial pole

Radial pole configuration concentrates the entire magnetism of the chuck into the workpiece – ideal for a wide range of operations from precision grinding to heavy turning.

Dynamically balanced to enable use at high rpm. All metal top plate and a rugged, industrial build ensures accuracy and longevity. Through-bore (except the NR100C) allows through-flushing of coolant during machining.

### Optional centre plug available



Product No.	A*	B	C	D	E	F	G	Weight
	mm							kg
AX475C/P	121	45	50.8	6.5	76.2	M6	101.6	4.23
AX651C/P	167	60	76.22	6.5	101.6	M10	139.7	9.66
AX91C/P	229	60	85.8	6.5	114.3	M10	190.5	20
AX12C/P	305	72	152.4	4.75	184.15	M12	254	45.5

\*reference diameter only

Product No.	A*	B	C	D	E	F	G	H	I	No. of Poles	Weight
	mm										kg
NR100C	100	48	50.8	6.5	n/a	M6	76	n/a	n/a	6	3.08
NR150C	150	69	76.2	4	n/a	M10	102	32	36	10	8.79
NR225C	225	71	85.8	5	114.3	M10	190.5	50	54	14	18.5
NR300C	300	71	152.4	54.75	184.15	M12	254	62	66	18	40

\*reference diameter only



# Magnetic workholding

## Standard range magnetic chucks

Standard Range chucks provide high performance at a competitive price.

- Clamping force: 80N/cm<sup>2</sup> on test piece (steel ring 52mmØ outer, 38mmØ inner, 10mm thick)
- Brass and steel top plates
- Removable hexagon key handles ensure ease of operation through a 180 degree arc
- All chucks are supplied with side and end stops
- All chucks are supplied with clamps

Standard chucks are available with a choice of 2 pole spacings:

### Standard Pole



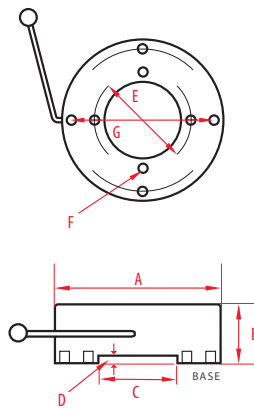
Pole spacing:  
4.0mm steel – 2.0mm brass  
Effectively clamps all workpiece thicknesses down to 3mm.

### Fine Pole



Pole spacing:  
1.5mm steel – 0.5mm brass  
Ideal for small or workpieces less than 3mm in height.

### Circular



Product No.	STD POLE	FINE POLE	A*	B	C	D	E	F	G	Weight kg
ECSP100	ECFP100		100	50	50.8	6.35	76.2	M6	n/a	6
ECSP125	ECFP125		125	50	50.8	6.35	76.2	M6	101.6	9.38
ECSP160	ECFP160		160	50	76.2	6.35	101.6	M10	139.7	13.50
ECSP195	ECFP195		195	50	76.2	6.35	101.6	M10	139.7	18
ECSP255	ECFP255		255	50	85.73	6.35	114.3	M10	190.5	22.50
ECSP310	ECFP310		310	50	152.4	6.35	184.15	M12	254	32
ECSP350	ECFP350		350	50	196.85	6.35	234.95	M12	n/a	40

\*reference diameter only

### Rectangular

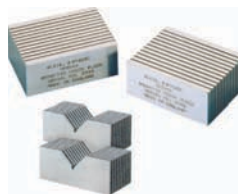


Product No.	STD POLE	FINE POLE	Length mm	Width mm	Height mm	Weight kg
ERSP1018	ERFP1018		180	100	50	9.5
ERSP1325	ERFP1325		255	130	50	15
ERSP1530	ERFP1530		300	150	50	20.5
ERSP1535	ERFP1535		350	150	50	23.5
ERSP1545	ERFP1545		450	150	50	30
ERSP2060	ERFP2060		600	200	50	52

### Chuck blocks

Use to extend the flux paths of a magnetic chuck with parallel poles.

May be used horizontally or vertically. Can be machined to accommodate awkward workpieces.



Product No.	Length mm	Width mm	Height mm	Pole direction	Weight kg
950	60	75	30	longitudinal*	2.41
950v	50	100	40	longitudinal*	2.41

\*along width

Supplied in matched and numbered pairs.

### Simple magnetic sine tables short lift

- Accuracy of sine table within (+/- 5 secs of arc)
- Pole spacing 2mm (1.5mm Steel 0.5mm Brass)
- Sine table calculations included
- Clamping force 80N/cm<sup>2</sup>



Product No.	Chuck	Top Plate		Base		Height at Zero	Weight kg
		Length	Width	Length mm	Width		
SSTFP1018	ERFP1018	180	100	215	115	73	12
SSTFP1325	ERFP1325	255	130	295	195	78	24
SSTFP1535	ERFP1535	350	150	390	165	89	39

### 'V' blocks

'V' blocks are ideal for holding cylindrical and complex workpieces for marking, spark erosion, grinding and measurement operations.

Can be used on its base, side or end.



MP and MPA= Matched Pair

Product No.	Width	Length	Height	Max. dia. of workpiece		Weight kg
				Top 'V'	Bottom 'V'	
<b>25 micron accuracy</b>						
E934	70	101.6	95.5	65	22	1.98
E934MP	70	101.6	95.5	65	22	3.96
E935	70	80	95.5	65	22	3.12
E935MP	70	80	95.5	65	22	6.24
<b>10 micron accuracy</b>						
E933A	70	120	95	65	22	4.4
E933MPA	70	120	95	65	22	8.8
E935A	70	80	95	65	22	2.95
E935MPA	70	80	95	65	22	5.9

# Guide to magnet materials

**When choosing a magnet material for an application you should take the following factors in to consideration:**

- Flux requirement of the application
- Maximum operating temperature
- Likely exposure to corrosive conditions
- Magnetic stability
- Size / weight limitations

## What strength/flux of magnet do you need?

This table (right) shows the comparative magnetic strengths of the same volume of the four main magnet materials in terms of their maximum energy products (BH<sub>max</sub>) in CGS or SI units and their typical pole face flux densities.

Neodymium is the most powerful magnet material available. It is ideal for applications where high flux density is required or where space is at a premium.

	Max energy product: CGS units	Max energy product: SI units	Flux density
<b>Ferrite</b>	3.3 MGOe	26 KJ/m <sup>3</sup>	1000 gauss
<b>Alnico</b>	5.2 MGOe	42 KJ/m <sup>3</sup>	1300 gauss
<b>Samarium Cobalt</b>	26 MGOe	208 KJ/m <sup>3</sup>	3500 gauss
<b>Neodymium</b>	35 MGOe	279 KJ/m <sup>3</sup>	4500 gauss

## What temperature will the magnet be operating in?

In most applications operating temperature is not a consideration but extreme temperatures will have an effect on the magnetic performance.

Each material has different temperature characteristics and these must be reviewed to ensure that the correct material is used for the application. Using the wrong material could lead to loss in magnetic performance.

	Max working temp. °C	Effects of sub zero temp.	Reversible effect of temp. 20°C – 150°C
<b>Ferrite</b>	250	Large irreversible losses below –60°C	–0.19% per degree C
<b>Alnico</b>	550	Permanent losses no more than 10% expected down to –269°C	–0.02% per degree C
<b>Samarium Cobalt</b>	300	Minimal losses down to –269°C	–0.003% per degree C
<b>Neodymium</b>	80*	No irreversible losses down to –196°C	–0.12% per degree C

\*N35 grade only. Other grades are available up to 230°C.

## Other factors to consider

### Corrosion

Another potential cause of performance loss is a breakdown of the magnet's composition due to corrosive environmental effects.

The table shows relative corrosive resistance for each material when uncoated. As neodymium's corrosive resistance is poor it is usually sold with a protective coating, normally either nickel or zinc.

### External Demagnetising Fields/Magnet Stability

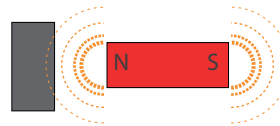
Temperature has the greatest effect on magnet stability but high external magnetic fields can influence them.

	Corrosion resistance uncoated	Resistance to demagnetisation
<b>Ferrite</b>	Excellent	High
<b>Alnico</b>	Fair	Low
<b>Samarium Cobalt</b>	Excellent	Very high
<b>Neodymium</b>	Poor	Very high

The table shows the relative demagnetising effect on each material.

## Magnetic field flowing across an air gap? Single pole operation (bar, block, disc and ring magnet)

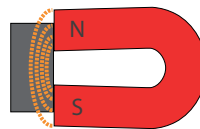
When a depth of field is required for attracting, switching or actuating across an air gap use a single pole of a magnet.



Single pole operation  
Magnet flux crosses a gap but has a diminishing strength field.

## Clamping, holding or lifting? Two pole operation (horseshoe, button or pot magnet)

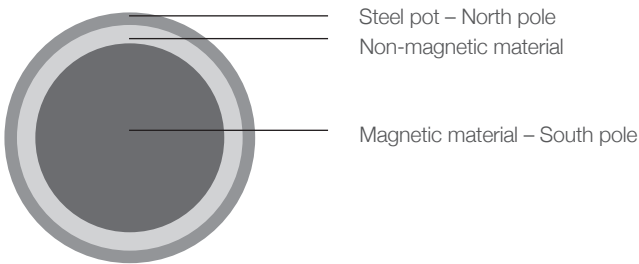
Two pole or multi-pole magnets are designed for holding, clamping or lifting when in direct contact with a ferro-magnetic surface.



Two pole operation  
Magnet flux does not travel as far but is stronger.

## Pot magnets

Both north and south pole are on one face of the magnet, similar to button and horseshoe magnets.



The magnet material is encased inside a steel pot. The pot is part of the magnetic circuit. The poles are concentric.

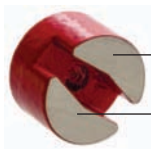
The depth of the magnetic field is shallower than that of magnets with poles further apart, e.g. horseshoe magnets, but grip in intimate contact is generally superior.

Maximum operating temperature of pots is lower than the magnet material used because of the different thermal expansion rates of the material and the pot. Exposure to temperatures higher than the recommended max. can cause units to come apart.

### Other features

- No stray flux as magnetism is retained in a closed circuit
- Pot screens magnet material from demagnetising effects
- Pot is machinable
- Can be inserted into steel without adverse effects (not the case with unscreened magnets)

### Button magnet



North pole  
South pole

### Horseshoe magnet



**Please note this guide provides general information only, for specific information on bespoke products or applications please contact us on +44 (0)114 225 0600.**

# Glossary of magnetic terms

## **Air Gap**

A non-magnetic discontinuity in a magnetic circuit (i.e. the distance between two magnetic poles), this gap often includes other materials such as brass, aluminium or paint

## **Anisotropic Magnet**

A magnet which has a preferred direction of orientation so that the magnetic characteristics are optimum in one preferred direction

## **Closed Circuit**

This exists when the flux path external to the permanent magnet is confined within high permeability materials which contain the magnet circuit.

## **Coercive Force, Hc**

The demagnetising force necessary to reduce observed induction B to zero after the magnet has been brought to saturation. Coercive force is measured in Oersteds or more recently A/m and kA/m.

## **Curie Temperature, Tc**

The temperature at which a material loses its permanent magnetic properties completely and is no longer able to hold magnetism

## **Demagnetisation Curve**

The second/left quadrant of the hysteresis loop, generally describing the behaviour of magnetic characteristics in actual use. Also known as the B-H curve.

## **Ferromagnetic Material**

A material whose permeability is very much larger than one, and which exhibits hysteresis magnetising and demagnetising characteristics. The greater the flux carrying potential, the bigger the value i.e. one to several thousands.

## **Flux**

Magnetic flux is the condition existing in a medium subjected to a magnetising force. This value is quantified by E.M.F. (electromotive force). This measurement of force in cgs units is a Maxwell.

## **Fringing Fields**

Leakage flux particularly associated with edge effects and leakage patterns in a magnetic circuit.

## **Gauss**

Lines of magnetic flux per square centimetre. Gauss is measured in cgs units, Maxwell lines and Webers per square metre or Tesla in the Si system.

## **Hysteresis Loop**

A closed curve calculated by plotting corresponding values of magnetic induction: B on the abscissa against magnetising force H.

## **Induction, B**

This is the magnetic flux per unit area of section in the applied magnetic direction of flux. This is measured in Gauss.

## **Intrinsic Coercive Force**

This is a measure of the resistance of the magnet material to a demagnetising force. Permanent magnets with high intrinsic coercivity values are usually classified as 'hard' permanent magnets. Intrinsic coercive force indicates magnetic stability at high temperatures. Also see stabilisation.

## **Irreversible Loss**

This is the partial demagnetisation of a magnet material when introduced to external factors such as high/low temperatures and demagnetising fields. Losses can only be rectified by remagnetisation. However, magnets can be stabilised to prevent the variation of performance caused by irreversible losses.

## **Isotropic Magnet**

A magnetic material which does not have a preferred direction of magnetic orientation and therefore can be magnetised in any direction without the loss of magnetic characteristics.

## **Knee of the Demagnetisation Curve**

The point at which the B-H curve ceases to be linear. If the operating point of the magnet falls below the knee, the magnet will not be able to recover full magnetic potential without the application of a magnetising force.

## **Leakage Flux**

This is the loss of magnetic flux which occurs through leakage caused by saturation or air gaps introduced into the magnetic circuit. This induces a loss of efficiency in the circuit which cannot be recovered.

## **Length of Air Gap, Lg**

Indicates the length of the central flux path across an air gap.

## **Load Line**

A line drawn from the origin of the Demagnetisation Curve with a slope. The intersection of the -B/H curve and slope represents the operating point of the magnet. Also see Permeance Coefficient, Pc

## **Magnetic Circuit**

An assembly consisting of some or all of the following: permanent magnets, ferromagnetic conduction elements, air gaps, electrical currents.

## **Magnetic Flux**

The total magnetic induction over a given area.

## **Magnetising Force, H**

The magnetomotive force per unit length at any point in a magnetic circuit. This is measured in Oersteds.

## **Magnetomotive Force, F**

This is the potential magnetic difference between any two points.

## **Maximum Energy Product, BH max.**

There is a point at the Hysteresis Loop at which the product of magnetising force H and induction B reaches a maximum. This maximum value is called the Maximum Energy Product and is measured in Mega Gauss Oersted, MGOe.



**Oersted, Oe**

A unit measure of magnetising force (cgs). This is equivalent to Ampere Turns per Inch (S.I.).

**Permeance Coefficient, Pc**

Ratio of the magnetic induction to self demagnetising force. This is also known as the 'load line' or operating point of the magnet.

**Pull Gap**

Usually illustrated in graph format, these curves are a representation of the relationship between the attractive force exerted by a magnet on a soft magnetic workpiece and the distance between them. Pull Gap curve diagrams are useful when selecting a magnet for a particular tractive or holding application.

**Reluctance, R**

Reluctance is the resistance in a magnetic circuit and is related to the magnetomotive force, F and magnetic flux ( $R = F / \text{magnetic flux}$ ) where F is the magnetomotive force.

**Remenance**

Remenance is the magnetic induction which remains in a magnetic circuit after the removal of an applied magnetising force. If there is an air gap in the circuit, the remenance will be less than the residual induction Br.

**Residual Induction Br**

This represents the maximum flux output from a given magnet material measured at the point where the Hysteresis Loop crosses the B axis at zero magnetising force.

**Return Path**

A magnetic circuit which provides a low reluctance path for the magnetic flux. Reversible Temperature Coefficient A measure of the reversible changes in flux caused by temperature variations.

**Saturation**

This is the condition whereby a magnet or ferromagnetic material has reached a maximum value and an increase in the appliance of magnetising force produces no increase in induction i.e. saturation flux densities for steels range from 16,000 to 20,000 Gauss.

**Stabilisation**

The process where a magnet is exposed to demagnetising influences expected to be encountered in operation. The exposure to these demagnetising influences such as high or low temperatures or external magnetic fields prevents irreversible losses during actual operation.

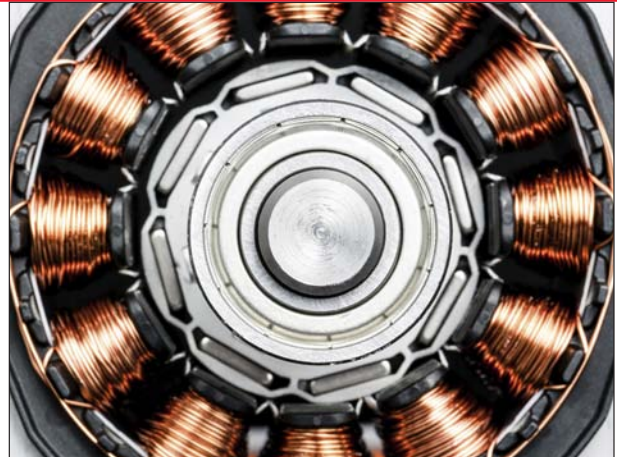


# Customised magnetic solutions

If you cannot find a product in this catalogue suitable for your application we can work with you to provide a customised solution.

## From stage 1 to project completion

Many businesses are looking to add competitive edge to their product or manufacturing processes. With our facilities and expertise we can tackle the most challenging of bespoke applications. We work closely with customers to understand their application then to design, develop and produce a customised magnetic assembly.



## Our in-house services include:

### Application consultation

Our team can visit your site to understand the application and give on-site advice.

### Design and prototyping

Using the latest software our design team provide 3D designs, 3D FEA and trial prototypes.

### Magnet fabrication

Customised manufacture in a range of materials to customer specifications of shape, size, housings and magnetic intensity.

### Magnet stabilisation

For applications where consistent performance is critical we can ensure that magnet flux values are stabilised.

### Rotor balancing

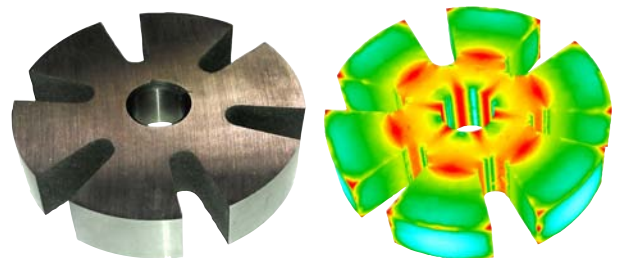
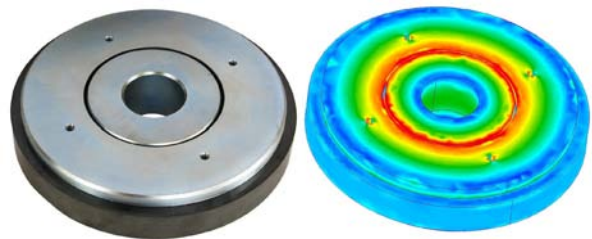
Ensures total concentricity for rotating magnet applications.

### Machining facilities

Micron accurate internal and external grinding facilities ensure that customised magnets are produced to high precision specifications.

### Choice of materials

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